Abstract Book

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Abstract ID: 0001  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 5.01

Does molecular testing improve the accuracy of thyroid fine needle aspiration biopsy? A prospective clinical trial

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Introduction: Thyroid fine-needle aspiration (FNA) biopsy is indeterminate or suspicious in up to 30% of cases and these patients are commonly subjected to at least a diagnostic hemithyroidectomy. If malignant on histology, a completion thyroidectomy is usually performed, which may be associated with higher morbidity. Some investigators, in small retrospective studies, have suggested that molecular testing for common somatic genetic alterations may improve the accuracy of thyroid FNA biopsy. To determine the clinical utility of genetic testing in thyroid FNA biopsy, we conducted a large prospective trial.

Material and Methods: 417 patients with thyroid nodule(s) were enrolled. Genetic testing for common somatic mutations (BRAF, NRAS, KRAS) and gene rearrangements (RET/PTC1, RET/PTC3, RAS, TRK1) were performed by PCR and direct sequencing and nested PCR, respectively. The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of genetic testing in thyroid FNA biopsy were determined based on the histologic diagnosis.

Results: 125 of 455 thyroid nodule FNA biopsy were indeterminate or suspicious. The histologic diagnosis was benign in 331 and malignant in 124. Overall, 50 mutations were identified (23 BRAF, 4 RET/PTC1, 2 RET/PTC3, 21 NRAS) in the thyroid nodule FNA biopsy. Malignant thyroid nodules had significantly more mutations detected than benign \( p = 0.0001 \). For thyroid FNA biopsy that were indeterminate or suspicious, genetic testing had a sensitivity of 12%, specificity of 90%, PPV of 38%, and NPV of 65%.

Conclusions: Genetic testing in thyroid FNA biopsy sample identifies a subset of malignant thyroid neoplasm that is indeterminate or suspicious on FNA biopsy. Genetic testing for a comprehensive panel of common somatic genetic alterations thus could allow for more definitive initial thyroidectomy in those with positive results and avoid the need for completion thyroidectomy in some patients. However, the NPV of genetic testing is too low to reduce the need for a diagnostic thyroidectomy in patients with indeterminate or suspicious thyroid FNA biopsies.

Abstract ID: 0002  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 5.02

Detection of papillary thyroid carcinoma by analysis of BRAF and RET/PTC1 mutations in fine-needle aspiration biopsies of thyroid nodules

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Introduction: Activating mutations of the oncogene BRAF as well as rearrangements of the tyrosine-kinase receptors RET and NTRK1 are observed in up to 80% of PTC. Especially the predominant BRAF V600E mutation has not been detected in benign thyroid tissue so far. Consequently, the pathognomonic alteration is qualified to improve the preoperative diagnosis of PTC.

Material and Methods: 120 preoperatively harvested fine-needle aspiration biopsies underwent routine cytological assessment. Analysis of the BRAF V600E mutation was carried out from the same cell material by mutation-specific PCR. Detected mutations were verified by sequencing. A hybrid-specific RT-PCR was used to detect the RET/PTC1 rearrangement.

Results: A point mutation of the BRAF gene was demonstrated in 5/120 biopsies and 2/120 biopsies expressed the RET/PTC1 hybrid correlating with the histological diagnosis of PTC while the cytological results were not able to confirm malignant growth. Cor relating to histological benign lesions 154 FNAs showed no BRAF mutation. Analysis of 3 PTC was negative for both, BRAF and RET/PTC1. The cytology also failed to detect the PTC preoperatively. Only 2 patients without detectable mutation were diagnosed with PTC by cytology.

Conclusions: The analysis of RET and BRAF in fine-needle aspiration biopsies improves the cytological assessment of thyroid nodules. The consequences of the detection of these PTC-specific mutations should undergo careful evaluation.

Abstract ID: 0003  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 5.03

Impairment of cognitive function: an additional symptom in carcinoid syndrome

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Introduction: Carcinoid syndrome (CS) is characterized by the well-documented symptoms of diarrhea, flushing and bronchospasm secondary to the release of serotonin and other peptides. It has been our impression that patients with CS also exhibit features of cognitive impairment. The purpose of this study was to assess the cognitive function of patients with biochemically proven CS. Cog nitive skills and CS patients’ perception of their cognitive function were compared to healthy norms.

Material and Methods: Patients with CS completed a 38-question standardized multiple ability self-reporting questionnaire (MASQ) to assess reported difficulties in 5 cognitive domains: language skills; attention/concentration (A/C); visual-perceptual function; visual and verbal memory. MASQ scores for each domain range between 1 (asymptomatic) to 5 (maximal impairment). Patients then underwent formal cognitive testing using a battery of standardized tests of A/C; executive skills and function; verbal and visual memory. Results of MASQ and cognitive testing were compared to previously published results for healthy controls.

Results: To date 21 patients with known CS (mean urinary 5-HIAA 471 mmol/d, mean Chromogranin-A 605 nmol/L) were enrolled. MASQ scores for symptoms of cognitive impairment were higher than published norms in all 5 cognitive domains. Patients reported greatest difficulty with verbal memory \( (2.74 + 0.5) \), followed by A/C \( (2.41 + 0.65) \), language skills \( (2.30 + 0.65) \) and visual-perceptual function \( (2.17 + 0.59) \). In contrast to their perceived difficulties, cognitive functioning for immediate verbal memory, working memory and executive skills were within the expected range of healthy norms. CS patients how ever scored significantly lower in tests of visual memory, delayed verbal memory, and verbal initiation compared to the norms.

Conclusions: To our knowledge this is the first study to document cognitive impairment in patients with CS. Patients with CS reported difficulties in all domains of cognitive function, especially verbal
memory; however, it is likely some of their perceived difficulties are secondary to the cognitive dysfunction of visual memory, delayed verbal memory and decreased initiation found on formal cognitive assessment. Further studies are needed to confirm and elucidate the cause of this cognitive impairment.

Abstract ID: 0004  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 5.04

Impact of initial operative approach on reoperative surgery for persistent hyperparathyroidism
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Introduction: Parathyroidectomy is the only effective cure for primary hyperparathyroidism (PHPT). Over the last decade a minimally invasive approach to parathyroidectomy (MIP) has been developed and accepted as standard of care for localized disease, but a percentage of patients will still undergo traditional open exploration (OE). The aim of this study was to examine whether, in the setting of a failed exploration, the initial operative approach impacted the outcomes of redo parathyroidectomy.

Material and Methods: This is a retrospective cohort study. The University of Sydney and UCLA Endocrine Surgical Units databases were queried for MIP, OE, as well as reoperations done for PHPT over a 10 year time period at the Sydney unit and 3 year time period at the UCLA unit. Data were then collected from individual case review. End points analyzed were final pathology, sestamibi scan, and major complication (nerve injury, permanent hypoparathyroidism, or hemorrhage).

Results: For the combined cohort, there were 1241 MIPs and 1220 OEs performed as initial procedures. There were 22 reoperative cases after MIP and 39 after OE. All patients who underwent re-operation except for 2 were cured. For failed OEs the major final pathology was hyperplasia (n = 25), with only 5 double adenomas, 7 ectopic locations, and 2 missed adenomas. For failed MIP, the majority had a double (n = 13) or missed (n = 4) adenoma with only 5 cases of hyperplasia. Inaccurate imaging was prevalent in failed initial MIP. In 65% of reoperative cases sestamibi scan correctly identified remaining disease. Permanent hypoparathyroidism occurred in 3 patients having undergone previous OE. No major complication occurred in the MIP group.

Conclusions: For localized disease, MIP should be the initial operation of choice in surgery for PHPT. Repeat localization studies allow for safe and successful reoperation for a failed initial MIP. Imaging correctly predicts remaining disease in 65% of cases making select patients eligible for redo MIP approach. Fundamental differences in disease pathology of double adenoma and hyperplasia are principal factors which influence successful outcome.

Abstract ID: 0005  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 5.05

Is thymectomy worthwhile in central lymph node dissection for differentiated thyroid cancer?
B. Carnaille, Z. El Khatib, J. Lamblin, S. Aubert, L. Arnalsteen, E. Leteurtre, R. Caiazzo, F. Pattou

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Introduction: Clinical guidelines edited in 2006 by the American Thyroid Association (ATA) and stated in the European Thyroid Association Consensus (ETA) recommend routine central lymph node dissection (Level VI neck dissection) in addition to thyroidectomy for the surgical treatment of differentiated thyroid cancer. This central dissection increases the incidence of postoperative hypocalcemia related to the bilateral thymectomy with resection or revascularization of the inferior parathyroids. Some authors perform unilateral thymectomy, in order to minimize this complication. Our aim was to study the benefit/risk (incidence of thymic lymph node metastases and the postoperative hypocalcemia) of both procedures.

Material and Methods: We retrospectively reviewed the records of 138 patients who underwent total thyroidectomy with central neck lymph node dissection for differentiated thyroid cancer between 2004 and 2007. Bilateral thymectomy was performed in 45 patients (group I) of whom 15 were males and 30 were females, and unilateral in 93 patients (group II), (27 males and 66 females). Among these groups, 42 papillary and 3 medullary cancers were found in group I versus 75 papillary, 2 follicular and 17 medullary cancers in group II. The presence of thymic metastases was reviewed, as well as the postoperative hypocalcemia with a follow-up of 12 months.

Results: Two cases of papillary thymic metastases were found in group I. These were lymph nodes micrometastases localized in the ipsilateral side of the primary tumor in both cases. Transient hypocalcemia was significantly more frequent (p < 0.001) in group I than in group II: 16 patients (35.5%) versus 10 (10.7%) in group I and II respectively. There was no permanent hypocalcemia in either group after the follow-up period.

Conclusions: Bilateral thymectomy risk outweighs any likely carcinologic benefit. We do not recommend routine bilateral thymectomy during central neck dissection for differentiated thyroid cancer.

Abstract ID: 0006  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 5.06

Surgical strategy and HRPT2 gene mutation for patients with parathyroid cancer
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Introduction: Parathyroid cancer is a rare endocrine cancer and its prognostic factor remains unclear. Clinical significance of prophylactic neck dissection for central compartment (PND) in the management of parathyroid cancer has not been cleared yet. We investigated clinical significance of PND in patients with parathyroid cancer and association of HRPT2 gene mutation.

Material and Methods: Twelve patients with parathyroid cancer were treated and followed at Noguchi Thyroid Clinic and Hospital Foundation since 1977. The medical records and pathological specimens were reviewed and verified in all cases. Clinico-pathological factors were analyzed by x²-test or Fisher’s exact test. Survival curves were drawn by Kaplan–Meier estimate. Furthermore, we analyzed somatic and germ-line mutations of the HRPT2 by PCR and automated dNA sequencing.

Results: Pleoperatively, no metastasic lesions were found in 11 patients underwent initial surgery. En bloc resection with thyroid tissue were performed in 10 patients and 1 patient underwent only parathyroidectomy (one patient underwent lung wedge resection for metastatic lesion). The PND was performed in 8 patients. No lymph node
The outcome of chest pain in 157 patients had no evidence of the disease and 2 patients recurred (neck lymph node and lung in one, and local, lung and brain in one). The PND was not performed in 3 patients. Two of the 3 patients had no evidence of the disease and 1 patient recurred at neck lymph node. There were no significant difference in disease-free survival and cause-specific survival at 15 years between the group of patients underwent PND and the group of patients without PND (p=0.98 and p=0.48, respectively). In 12 patients with parathyroid cancer, HRPT2 gene analyses showed one germ-line mutation at exon 7 (codon 234, CGA to TGA) and one tumor specific mutation at exon 1 (nucleotide 34–37 delAACAA). Two of 4 patients with recurrent disease had HRPT2 gene mutation, in contrast to none of 8 patients without recurrent disease (p=0.09).

Conclusions: PND for parathyroid cancer revealed no evidence of lymph node metastasis and dose not improve prognosis. HRPT2 gene mutation may be associated with recurrent disease.

Abstract ID: 0007  Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)  
ISW 2009 Session 8.01

Laparoscopic surgery for achalasia: Heller-Toupet versus Heller-Dor procedures

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Introduction: Our aim of this study is to compare the short-term outcome of laparoscopic Heller-Toupet and Heller-Dor procedures for patients with achalasia from the symptomatic and functional points of view.

Material and Methods: Fifty-two patients with achalasia who complained dysphagia were enrolled and all patients had laparoscopic Heller myotomy. The patients were divided into the following two groups according to the fundoplication type added to myotomy: Heller-Toupet group (HT, n=30) and Heller-Dor group (HD, n=22). The age was 42±12 years (mean±SD) in HT and 43±16 years in HD. M/F ratio was 12/18 in HT and 11/11 in HD. The symptom and esophageal function were prospectively assessed on the basis of dysphagia score and grades of reflux, esophagography, manometry, and endoscopy before and a year after surgery. The symptoms of gastroesophageal reflux after surgery were evaluated by the following three grades of reflux: grade 0: no reflux symptom, grade 1: mild reflux symptom without requiring proton pump inhibitor (PPI), grade 2: reflux symptom with requiring PPI.

Results: The dysphagia score after surgery decreased to 1.7±1.2 points in HD, and 2.2±1.3 in HD from a preoperative value of 10. The grades of reflux (grade 0:1.2 after surgery were 19.3±8 in HT and 20.1±1 in HD. The changes of the maximum diameter of the esophagus on esophagography (before→after) were 5.5±1.0→3.8±1.1 cm (p<0.01) in HT, and 4.3±1.0→2.7±0.7 cm (p<0.01) in HD. The changes of LES pressure were 35.2±12.6→15.0±6.7 mmHg (p<0.01) in HT, and 38.4±13.7→20.9±6.2 mmHg (p<0.01) in HD. The LES pressure after surgery in HT was lower than that in HD (p<0.01). As postoperative sequelae, 2 patients(7%) in HT had esophageal diverticula, and 2 patients (9%) in HD had severe residual dysphagia. The grades of reflux esophagitis (LA classification grade O:A:B:C) on endoscopy after surgery were 16±2.2 in HT and 21±1.00 in HD.

Conclusions: Both laparoscopic HT and HD are useful procedures for reducing LES pressure, and relieving dysphagia in patients with achalasia. It is noted that HT rarely causes esophageal diverticula, and HD can cause severe residual dysphagia after surgery. Gas troesophageal reflux after surgery tends to occur more frequently in HT than HD.

Abstract ID: 0008  Specific Field: Esophagus

Mode of pres.: Free Paper (oral)  
ISW 2009 Session 8.02

The laparoscopic treatment of achalasia: long term follow up

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Introduction: The cause of achalasia is unknown. The ories on causation invoke infection, heredity or an abnormality of the immune system that causes the body itself to damage the esophagus (autoimmune disease). Treatments for achalasia include oral medications, dilation or stretching of the lower esophageal sphincter (dilation), and the injection of botulinum toxin (Botox) into the sphincter. All this forms of treatment have high recurrence rates. The most effective treatment for achalasia is surgery. We describe our experience with the esophagomyotomy by laparoscopic means, with a follow up of 11 years. This prospective study analyze the long term result of laparoscopic esophagomyotomy in the Texas Endosurgery Institute.

Material and Methods: Eighty nine patients were found to have achalasia, they were prospectively follow, 45 females and 44 males. The surgery indications were, failure to medical treatment (38%), failure to pneumatic dilatation (31%), failure to botulinum toxin (31%/n=13).

Results: In 100% of the patients esophagomyotomy of Heller modified was completed. Dor funduplication was performed in 88 and Nissen funduplication in 1 patient. There were no conversions to open surgery. With a mean follow up of 6 years (6 months–12 years), five patients developed dysphagia, two of them required pneumatic dilations but there has been no recurrences to date.

Conclusions: The treatment of achalasia continues to be a surgical challenge. Laparoscopic esophagomyotomy is safe and effective, and should be considered the treatment of choice.

Abstract ID: 0009  Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)  
ISW 2009 Session 8.03

Chest pain before and after laparoscopic cardiomyotomy for achalasia

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Introduction: Laparoscopic cardiomyotomy with anterior partial fundoplication usually achieves good outcomes for patients with achalasia. How ever, some patients continue to experience chest pain after surgery, even when symptoms such as dysphagia have resolved. Previous studies have not investigated this. Hence, in this study we sought to identify the outcome of chest pain following laparoscopic myotomy.

Material and Methods: The outcome of chest pain in 157 patients who underwent laparoscopic cardiomyotomy and anterior partial fundoplication was determined. Patients underwent symptom assessment before and after surgery using a standardised questionnaire. This determines evaluated chest pain, and other symptoms including odynophagia, dysphagia and regurgitation, and overall satisfaction with the outcome.

Results: Chest pain levels were similar across all age groups and sexes before and after surgery. Following surgery, there was a significant reduction in the frequency of chest pain (daily chest pain declined from...
27% to 6%), 60% still experienced some degree of chest pain after surgery. Of these, 72% also reported dysphagia, 14% odynophagia, and 35% acid regurgitation (66%, 12% and 23% before surgery).

Conclusions: Chest pain is common before and after cardiomyotomy for achalasia, and it is frequently associated with dysphagia. Whilst it occurs less frequently after surgery, it will persist in many patients, and this information should be provided to individuals with achalasia who are being considered for surgical treatment.

Abstract ID: 0010 Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 8.04

Prospective randomized trial Nissen versus Dor fundoplication for treatment of GERD

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Introduction: Laparoscopic fundoplication techniques are discussed controversially concerning their results in treatment of gastroesophageal reflux disease. This randomized trial was conducted to compare the total Nissen’s wrap and the anterior partial technique (Dor) concerning patients’ Quality of Life and verifiable functional data after a mid-term follow-up.

Material and Methods: In a 24 month period 64 were equally randomized into group A (Nissen’s fundoplication) and group B (180° anterior fundoplication). After a mean follow-up of 12 months all patients were examined and interviewed using standardized Quality of Life questionnaires (GIQLI), modified Visick score, 24 h-pH-metry and manometry. Data of 57 patients (group A: 27, group B: 30) were available.

Results: After Nissen’s fundoplication 25 patients (93%) stated the operative results as satisfying. Only 21 patients (70%) evaluated the outcome after anterior partial fundoplication as successful (p = 0.04). However the postoperative GIQLI-index showed no differences between both groups (p = 0.5). Additionally functional data were not different (DeMeester score 12 vs. 16, p = 0.1 and lower esophageal sphincter pressure 13 vs. 12, p = 0.5).

Conclusions: The anterior partial fundoplication technique leads to similar postoperative function and reflux control when compared to total Nissen’s approach in a mid-term follow-up. However the patient’s satisfaction is remarkably lower.

Abstract ID: 0011 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 8.05

Repair gastroesophageal junction, relieve asthma

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Introduction: A strong association between gastroesophageal reflux (GER) and asthma has yet been few topics as are controversial as the nature of causal relationship between GER and asthma. This work evaluates the importance of reflux.

Material and Methods: From Since April 2006, we treated 716 patients with revised Stretta Radiofrequency (RF) and 66 with fundoplication. Two series of 370 patients and then 268 with more than one year follow-up was analyzed.

Results: Among 370 patients with GER, 281 had respiratory symptoms while 81 had gastroesophageal ones. The group of 289 patients with respiratory presentations turned out to fare better. Of 268 patients with more than one year follow-up, 148 (88.1%) had asthma, 118 (70.2%) cough, 72 (42.9%) pharyngolaryngitis. Eight patients lost follow-up, 51 patients (31.9%) were graded Excellent; 69 (41.1%), good; 33 (20.6%), fair; 7 (4.4%), poor; with zero mortality.

Conclusions: The reflux-derived respiratory distress is a pseudo asthma, one of the most serious life-threatening conditions. The patulous gastroesophageal junction is the basis for such condition. The better the reflux from the gastroesophageal junction is resolved, the better the respiratory distress is controlled.

Correlation between BMI and outcome

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Abstract ID: 0012 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 8.06

The effect of obesity on the outcome of laparoscopic antireflux surgery

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Introduction: Obesity has long been considered to be a predisposing factor for gastroesophageal reflux. It is also thought to predispose patients to a poorer clinical outcome following antireflux surgery. This study examined the effect of body mass index (BMI) on clinical outcomes following laparoscopic antireflux surgery.

Material and Methods: Patients were included if they had undergone a laparoscopic fundoplication, their pre-surgical BMI was known, and they had been followed for at least 12 months after surgery. The clinical outcome was determined using a structured questionnaire, and this was applied yearly after surgery. Patients were divided into 4 groups according to BMI: normal weight (BMI < 25), overweight (BMI 25–29.9), obese (BMI 30–34.9) and morbidly obese (BMI 35). The most recent clinical outcome data was analysed for each BMI group.

Results: 481 patients were studied. 103 (21%) had a normal BMI, 208 (43%) were overweight, 115 (24%) were obese, and 55 (12%) were morbidly obese. Mean follow up was 7.5 years. Conversion to an open operation and requirement for revision surgery were not influenced by preoperative weight. Operating time was longer in obese patients (mean 86 vs 75 mins). Clinical outcomes improved following surgery regardless of BMI.

Conclusions: Preoperative BMI does not influence the clinical outcome following laparoscopic antireflux surgery. Obesity is not a contraindication for laparoscopic fundoplication.
Abstract ID: 0013  Specific Field: Thoracic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 8.07

Treatment of benign stenosis of esophagus

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Introduction: Management of benign stenosis of the esophagus is a complex problem of contemporary surgery. Esophagoplasty is technically difficult and needs continuous modernization of the stages of procedure.

Material and Methods: We analyze our experience in management of 457 patients with benign esophageal stenosis (95 (20.8%) children from 1.1 year old, 362 (79.2%) adults up to 72 years old). Complete obliteration developed in 30% patients, extensive stenosis in 70%. In 41% of cases esophageal burns were complicated: esophago-respiratory fistulae took place in 9%, esophageal and gastric stenosis in 18% and mediastinitis in 14%. Uncomplicated stenoses needed bougienage, which was effective in 71.6% (197 patients). Ineffective bouginage, obliteration and complicated stenoses were indications for surgery. During esophagoplasty we preserved maximum of unchanged esophagus, in cases of total lesion of lesions in upper third of the esophagus we made retrosternal bypassing intestinal esophagoplasty. If the lesion localized in the lower third, up to the middle of the thoracic esophagus, we made intrathoracic esophagoplasty. Local ized stenoses 2.5–3 cm in length need resection with esphaganoanastomosis. 260 operations were performed in 260 patients: bypassing esophagoplasty with colon of jejunum (163 (62.7%)), resection of the esophagus with plasty with colon or jejunum (50 (19.2%)) or gastric (24 (9.2%)) plasty, segmental resection with anastomosis (23 (8.9%)), extirpation of the esophagus (6 patients).

Results: Complex treatment with prophylaxis of transplant ischemia postoperatively made postoperative course uneventful in the majority of patients. Thus, in 97.6% (253 of 260) operated the outcomes of esophagoplasty were good with return to oral feeding. To summarize results of all 457 cases treated, we achieved good results in 447 (97.8%) patients. Ten patients died (2.2%), 7 (2.7%) after esophagoplasty. Follow-up (up to 40 years) showed alterations in artificial esophagus in 43 patients; all were reoperated with good results.

Conclusions: Bouginage is one of the modes of treatment of uncomplicated cicatricial esophageal stenoses. Methods of esophagoplasty need individualization according to the type and localization of stenosis. All the complications of stenosis need be dealt with concurrently with stenosis.Suc cefull esophagoplasty enables good quality of life for these patients.

Abstract ID: 0014  Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Free Paper (oral)
ISW 2009 Session 9.01

Expression of IGF 1 and EGFR in the sequential steps of intestinal adaptation in a rat short bowel syndrome model

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Introduction: Several peptide growth factors are known to stimulate intestinal adaptation after massive small bowel resection. In a rat model of short bowel syndrome (SBS) we examined the long-term morphological changes and the expression of growth factors IGF 1 and EGFR during the sequential steps of intestinal adaptation.

Material and Methods: Four groups of male Wistar rats underwent the following operations: a. Sham rats (n = 10) underwent bowel transection and reanastomosis, b. SBS rats underwent a 75% small bowel resection; group A rats (n = 10) were sacrificed 15 days after surgery, group B rats were sacrificed 30 days after surgery, and group C (n = 10) rats were sacrificed 60 days after surgery. Image analysis of histological specimens followed. Morphological parameters (crypt and villus height, total diameter, and lumen diameter) of adaptation were examined at the above time points. Epithelial and inflammatory cells from jejunal and ileal tissue samples were studied immunohistochemically for the detection of IGF 1 and EGFR. ANOVA test was used for statistical analysis.

Results: There was a statistically significant increase in all morphological parameters at day 15 (p < 0.05), both in jejunal and ileal samples; a further increase followed at day 30 and day 60, but measurements did not reach an overall statistical significance. Accordingly, an increase in the expression of IGF 1 and EGFR was noted at day 15 (p < 0.0001). A further increase in the expression of these growth factors was noted at day 30 and day 60, but results did not reach an overall statistical significance.

Conclusions: Intestinal adaptation is an ongoing process lasting up to 2 months or more after massive small bowel resection. Peptide growth factors IGF 1 and EGFR seem to be expressed in the intestine with growing intensity during this period, but the first two weeks are the most critical for the mucosal growth.

Abstract ID: 0015  Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Free Paper (oral)
ISW 2009 Session 9.02

Prevention of postoperative complications with immunonutrition and management with enteral nutrition in critically-ill patients with severe postoperative complications

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Introduction: Because perioperative management with enteral nutrition has now been shown to prevent postoperative complications, enteral nutrition may be useful to enhance recovery not only for preventing complications but for the therapeutic measures after complications occurs. Immune-enhancing formula (IEF) has been a disease-specific formula that may further decrease the rate of postoperative complications after surgery associated with high surgical invasiveness. However, it remains unknown whether enteral nutrition starting after postoperative complications occur is useful to facilitate recovery.

Material and Methods: A total of 30 patients undergoing radical esophagectomy were randomly assigned to two groups, receiving 3 days of preemptive and postoperative enteral nutrition either with IEF (Group IEF) or regular polymeric enteral formula (Group C). Preoperative and postoperative nutritional and immunological parameters and clinical outcome were examined. To evaluate usefulness of enteral nutrition for patients with complications, nutritional and immunological status and clinical outcome were retrospectively analyzed in 65 patients who underwent open thoracic and cardiovascular surgery. All patients were in critically-ill condition due to postoperative pulmonary complications.

Results: Peripheral percent lymphocyte fraction and total lymphocyte count in Group IEF after surgery were both significantly higher than those in Group C. The B cell fraction in Group IEF after surgery was significantly higher than those in Group C, suggesting that
perioperative IEEF caused a shift towards humoral immunity. Among the patients with pulmonary complication, 50 patients survived and the nutritional parameters significantly improved after the recovery.

**Conclusions:** IEEF enhanced postoperative immune function, which may be beneficial to decrease incidence of postoperative complications after esophagectomy. The enteral nutrition starting immediately after complications occur may be beneficial to improve nutritional, immunological status and to facilitate early recovery.

**Abstract ID: 0016**  
Specific Field: Metabolism / Nutrition / Critical Care

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 9.03

**Perioperative metabolic changes and their managements in bariatric surgery**

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**Introduction:** Bariatric surgery is adopted only for morbidly obese patients who have severe co-morbidities, like type2 diabetes, hypertension, hyperlipidemia, arteriosclerosis, sleep apnea syndrome, etc. There are some characteristics to prepare to perform the surgery safely and effectively. We proposed the administration of very low calories diet (VLCD) for 2 weeks before operation as the most important preoperative management in order not only to reduce body weight but also to relieve comorbidity of obesity. Post operative metabolic change is the most important aspect of the bariatric surgery, which is called metabolic surgery from this point of view, recently. We have found significant effect on type2 diabetes after bariatric surgery. Metabolic effect seemed different between by gastric restriction and malabsorptive operation. This fact has been interested in that those are dependent or independent from body weight reduction after the operation.

**Material and Methods:** One hundred and ten patients who underwent bariatric operation by single surgeon, were discussed on the preoperative management using VLCD (2 weeks, daily total energy 400-500 kcal) and on the postoperative metabolic change as well as the change of other co-morbidities.

**Results:** Significant body weight loss (8 kg, 7% of body weight), lightening of co-morbidities and decreasing of liver volume were observed without changing serum albumin and total protein and nitrogen balance was maintained. Asso ciated co-morbidities were treated satisfactory, especially the effect was significant for the type2 diabetes. Regard ing to the difference in the remedy between by gastric bypass and by gastric restriction, it was not easy to find the conclusion in our series, because body weight reduction is not always associated the degree of metabolic change.

**Conclusions:** Obesity consist of nutritional and metabolic derangements, therefore, specialized nutritional management before operation is essential, and the post operative recovery from the metabolic changes are considerably expecting.

**Abstract ID: 0017**  
Specific Field: Metabolism / Nutrition / Critical Care

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 9.04

**Iatrogenic surgical trauma induces dramatic fluid shifts**

W.A. Jones, T. Steljes, A.E. Barber

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**Introduction:** Management of patients in the perioperative period involves accurate maintenance of fluid and electrolyte balance. We hypothesized that prolonged manipulation of tissues during surgery also contributes to direct cellular injury and large fluid shifts.

**Material and Methods:** Sprague-Dawley rats were injected with sodium pentobarbital. Retracted studies were performed in the musculature of the thigh to prevent interference of respiratory movements. Grac ilis muscle was exposed through a 2 cm skin incision, and sustained retraction was provided for two hours. Skeletal muscle cell transmembrane potential difference was determined at the retraction site using a modified Ling-Gerard microelectrode. Blood samples and muscle biopsy specimens for electrolyte and fluid analysis were collected. Opposite extremities were selected as the controls. Distribution of water and electrolytes between the ECF and intracellular fluid (ICF) compartments was calculated on the basis of chloride distribution and measured potential difference (PD) using the Nernst equation.

**Results:** After two hours of retraction, analysis of muscle cells taken 1–3 mm and 1–6 mm from the incision revealed a statistically significant increase in total water content of 32% and 27%, respectively. Biop sies obtained 1–3 mm from incision also revealed a 66% decrease in ECF when compared to controls (p < 0.05). Retracted muscle showed a 192% increase in intracellular sodium concentration. Similar changes were observed in the intracellular chloride concentration with an increase of 403%. Intracellular potassium levels were significantly decreased from controls.

**Conclusions:** The present data indicates that direct injury to skeletal muscle cells during prolonged retraction is associated with significant fluid redistribution. Perioperative and operative management may be improved when these findings are taken into consideration.

**Abstract ID: 0018**  
Specific Field: Metabolism / Nutrition / Critical Care

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 9.05

**Preoperative administration of immunonutrients in patients with hepatobiliary malignancies: rationale and minimum dose of clinical effects**

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**Introduction:** Rationale and minimum dose of preoperative immune-enhancing diet would be discussed in view of tissue uptake of immunonutrients and clinical responses in patients of hepatobiliary malignancy.

**Material and Methods:** Ninety-eight patients undergoing major hepatic resection were enrolled and divided into two groups. In I group Impact® was supplemented at 750 to 1000 ml/day for 4 to 7 days prior to the operation. In C group only regular diet was used before operation. Amino acids and fatty acids profile were examined in plasma and liver tissue which were sampled at the time of operation. Blood was sampled chronologically after the operation. Total lymphocyte count, HLA-DR expression on blood monocytes and Natural killer cell activity, Inter leukin 6 and 10, neutrophil elastase and C-reactive protein were measured as laboratory parameters. Clinical outcome was discussed in postoperative infection and length of postoperative hospital stay.

**Results:** Fatty acids composition in plasma and liver tissue also showed significant increase in EPA and DHA in I group. Omega 3 fatty acids concentration in liver remains in low range below 325...
Preoperative oral supplementation of immune enhanc-
ing leading to major complications including immu-
nodeficiency and sepsis. To evaluate the impact of oral
supplementation on immune parameters, we studied
patients undergoing gastrointestinal surgery.

**Patients and Methods:**
We performed a prospective, randomized trial in
47 patients undergoing upper gastrointestinal
surgery. Patients were randomized to receive either
n-3 polyunsaturated fatty acids (PUFAs) or n-6 PUFAs.

**Results:**
We observed a significant decrease in the inflammatory
markers IL-6 and PCT during the first days postopera-
tive in the n-3 group compared to the n-6 group. This was
accompanied by a decrease in the occurrence of post-
operative complications such as sepsis and multi organ
dysfunction syndrome (MODS).

**Conclusions:**
Oral supplementation with n-3 PUFAs can improve
immunological parameters and reduce the incidence
of postoperative complications in gastrointestinal
surgery.

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**Abstract ID: 0020**
**Specific Field: Metabolism / Nutrition / Critical Care**

**Mode of pres.: Poster Discussion**
ISW 2009 Session 9.07

**Regulation of immune cell function and metabolism with immune
nutrients and enteral nutrition during systemic inflammation**

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**Introduction:**
Although the use of immune-modulating nutrients and
the enteral nutrition (EN) may improve outcomes during
systemic inflammation (SI), the mechanisms have not been
well understood. The aim of this study was to elucidate the
effect of i.v. administration of n-3 polyunsaturated fatty
acids (PUFAs)-enriched lipids on restoration of inhibition
of neutrophil (PMN) apoptosis (Ap), which causes tissue
injury (Exp1) and the influence of early EN on inflammato-
ry response and protein metabolism (Exp2) during SI.

**Material and Methods:**
- **Exp1:** Rats received n-3 PUFAs-rich TPN (n-3 group) or
  n-6 PUFAs-rich TPN (n-6 group) (20% fat, 0.4:1 n-6/n-3
  ratio = 1 and 10, respectively) for 3 days, then were i.p.
  injected with saline or LPS (5 mg/kg) followed by sacrifice
  after 24 hrs. Fatty acids (FA) composition, LT B4/B5
  production and Ap of PMNs were measured.
- **Exp2:** The patients with gastric cancer received TPN (TPN
  group) or EN (EN group) after total gastrectomy. TPN +
  EN group received 25% of nutrition support enterally via
  the jejunostomy from POD 1. Various metabolic parameters
  were measured until POD 5.

**Results:**
- In Exp1, the production ratio was well-correlated with
  EPA/AA ratio in the cells. LT B5/B4 production was signifi-
  cantly lower in the n-3 group than in the n-6 group.
- In Exp2, the patients in the EN group showed a higher
  sensitivity for predicting the development of MODS.

**Conclusions:**
Oral supplementation with n-3 PUFAs can improve
immunological parameters and reduce the incidence
of postoperative complications in gastrointestinal
surgery.
Abstract ID: 0021  Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Poster Discussion
ISW 2009 Session 9.08

The effect of volume loading with 1 litre intravenous infusions of 0.9% saline, 4% succinylated gelatine (Gelofusine®) and 6% hydroxyethyl starch (Voluven®) on blood volume and endocrine responses: a randomised, three-way crossover study in healthy volunteers

D.N. Lobo [1], Z. Stanga [2], M.M. Aloysius [1], C. Wicks [1], Q.M. Nunes [3], K.L. Ingram [3], L. Risch [4], S.P. Allison [1]


Introduction: We aimed to study the changes in blood volume and hormones controlling sodium and water homeostasis after infusions of 0.9% saline, Gelofusine® (4% succinylated gelatine in 0.7% saline, average molecular weight 30 kD) and Voluven® (6% hydroxyethyl starch in 0.9% saline, average molecular weight 130 kD) in healthy volunteers.

Material and Methods: This unblinded randomised three-way crossover study was performed on 10 healthy adult male volunteers who received 1 L infusions of 0.9% saline, Gelofusine® (4% succinylated gelatine in 0.7% saline, average molecular weight 30 kD) and Voluven® (6% hydroxyethyl starch in 0.9% saline, average molecular weight 130 kD) in healthy volunteers.

Results: Although changes in body weight (total body water) after the infusions were similar, blood volume expansion by the two colloids was significantly greater than that produced by 0.9% saline (p < 0.01). At the end of infusions, 68%, 21% and 16% of the infused volumes of 0.9% saline, Gelofusine® and Voluven® respectively had escaped from the intravascular space to the interstitial space. Over the 6 hours, the magnitude and duration of blood volume expansion by the two colloids were similar (p = 0.70). There were no significant differences in urinary volume, osmolality and sodium content after the three infusions. Hormonal changes were similar after the three infusions, with the increase in natriuretic peptide being transient. The reduction in aldosterone and total renin concentrations was more sustained.

Conclusions: The effects of Gelofusine® and Voluven® were similar despite the 100 kD difference in molecular weight. Excretion of an acute fluid load containing sodium and chloride may be dependent on a sustained suppression of the renin aldosterone angiotensin system rather than on natriuretic peptides.

Abstract ID: 0022  Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Poster Discussion
ISW 2009 Session 9.09

Difficulties in the implementation of a multimodal protocol in a university hospital in Brazil


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Introduction: The implantation of multimodal protocol based on evidence enhances the recovery after surgery. However, major difficulties arise when introducing evidence-based guidelines into routine practice. The aim of this study was to evaluate the results of the implementation of the ACERTO protocol after 3 years.

Material and Methods: We prospectively studied all patients submitted to abdominal operations in the Department of Surgery of the Julio Muller University Hospital, from Jul-2005 to Dec-2007. During this period a new protocol of perioperative care named ACERTO was implemented. The adherence of the staff to the various new routines (preoperative fasting [PF] of 2 h; early PO re-feeding, restriction of intravenous (IV) fluids, and perioperative nutritional therapy) was the main endpoint. The new protocol includes the abbreviation of PF to 2 h, early PO feeding; and postoperative IV hydration no greater than 30 mL/Kg/day. The adherence to the first two years was compared to the figures of the third year after the implementation of the protocol.

Results: A total of 326 patients (48 [18–84] y; 153 M [46.9%] and 173 F [53.1%]) entered the study. Two hundred and fourteen (65.8%) underwent minor (cholecystectomy and hernia repair) and 112 (34.2%) major operations (colorectal and gastric operations most frequently). Morbidity rate was 17.5% (n = 57), infection of surgical site was 4.6% (n = 15), and mortality was 2.5% (n = 8). In the first two years PF time diminished to 2–5 h in 76.2% of the operations, and feeding until the 1st PO day was prescribed to 84.7% of the patients. Overtime however, adherence to these two routines dropped to 63.2% and 75.4% respectively. Restricted IV fluids were prescribed for 88.6% in the first two years decreasing to 68.3% in the last year. However the use of nasogastric tube decreased from 40.2% to 5% overtime. Perioperative nutritional management in the subset of malnourished patients was correctly performed in 52.5% of patients in the first two years increasing to 62.9% in the last year.

Conclusions: The implantation of the multidisciplinary protocol was followed by an adherence rate ranging from 60–90% depending on the particular routine examined. Adhere ence either increased or decreased overtime according to the specific routine.

Abstract ID: 0023  Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Poster Discussion
ISW 2009 Session 9.10

Improvement of type 2 diabetes mellitus in morbid obesity with laparoscopic sleeve gastrectomy

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Introduction: Type 2 diabetes mellitus (T2DM) affects more than 10% of morbid obese patients and is directly responsible for an
Material and Methods: Sixty-three patients (mean age: 44.6 ± 112.2 years), including 40 women, underwent LSG for morbid obesity in our center and were followed prospectively between 2006 and 2009. T2DM was present in 17 patients. Improvement of T2DM was evaluated by comparing medical treatments and glycated haemoglobin levels (normal HbA1c < 6.5%) before and after LSG. The mean follow-up was 15.9 ± 5.8 months. Statistic study applied Mann-Whitney U tests.

Results: No conversion and no death were noted in this study. The mean Body Mass Index before and at the end of follow-up after LSG were respectively 51.1 ±10.2 kg/m² and 40.8 ± 9.5 kg/m² (p < 0.001), with a mean excess weight loss of 40.68%. T2DM was improved in 8 patients and cured in 7 patients, with respectively decrease and ending of medical treatment and decrease (6.2% after LSG versus 9% before LSG) and normalisation (6.3% after LSG versus 7.9% before LSG) of HbA1c levels (p < 0.01). T2DM was not improved in 2 patients with no change in medical treatment and no amelioration of HbA1c levels (8.7% after LSG versus 9.3% before LSG). Mean excess weight loss was 36.4% in cured patients, 28.1% in improved patients and 8.8% in patients without improvement of T2DM.

Conclusions: T2DM was improved or cured in 15 of the 17 patients who underwent LSG for morbid obesity with a mean follow-up of 15.9 months.

Abstract ID: 0024 Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Poster Discussion ISW 2009 Session 9.11

Evolution of type 2 diabetes in patients with body mass index below 35 after Gastroctomy and Roux-en-Y reconstruction

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Introduction: The evolution of type 2 diabetes after bariatric surgery has been widely studied. Beside the weight control it has been systematically demonstrated a normalization or improvement of blood glucose, insulin and glycosylated hemoglobin levels. These procedures exclude the proximal segment of the duodenum and stimulate the distal segment of the jejunum, stimulating the production of incretins. As a consequence of this the increase of insulin secretion produces a remission or improvement of diabetes. We perform a retrospective study to evaluate the evolution of type 2 diabetic patients with a BMI <35 after non bariatric total or subtotal gastrectomy and Roux-en-Y reconstruction.

Material and Methods: Retrospective study of clinical files of type 2 diabetic patients with a BMI below 35 who underwent non bariatric gastrectomy (total or subtotal) with Roux-en-Y reconstruction between January 2002 and December 2008.

Results: Of 304 patients, 54 were type 2 diabetics and 19 accomplished the inclusion criteria. Eleven male and 8 female patients, with an average age of 64 years and BMI of 28.7. In every procedure performed the biliary limb was 50 to 70 cm in length. The average evolution time of type 2 diabetes was 6.9 years, and the average post operatory following was 22 months. Before surgery 5 patients were treated with diet, 13 with oral hypoglycemians and 1 with insulin. After the postoperatory following period, 16 patients have normal glicemic controls without using drugs, 2 treated with oral hypoglycemians and 1 treated with insulin (the same patient).

Conclusions: The exclusion of duodenum and part of the proximal jejunum seems to have an important role in the resolution or improvement of type 2 diabetes in non obese patients who underwent total or subtotal gastrectomy and Roux-en-Y reconstruction.

Abstract ID: 0025 Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Poster Discussion ISW 2009 Session 9.12

Could cannabinoids restore lost gut barrier function in shock?

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Introduction: Splanchnic inflow is an early casualty of shock, with loss of energy dependent gut barrier integrity characterised by increased permeability and loss of tight intercellular junctions. This leads to systemic absorption of gut derived toxins and bacteria, amplifying pre-existing inflammatory responses. Endo cannabinoids and cannabinoid receptors have been located within the gastrointestinal tract, and cannabinoids benefit a number of gastrointestinal conditions. No previous studies have examined the effect of cannabinoids on intestinal permeability, nor specifically their ability to modulate tight junctions. The aim of the study was to investigate the effects of cannabinoids on intestinal permeability using a Caco-2 monolayer model.

Material and Methods: Caco-2 cells were cultured on 0.4 urn porous membranes for 21 days. Integ rity of the tight junction paracellular barrier was assessed by measuring transepithelial electrical resistance (TEER), whereby a fall in TEER indicates loss of gut barrier integrity. 50 µM ethylenediaminetetraacetic acid (EDTA) was applied as a permeability enhancer with phytocannabinoids (derived from cannabis plants) or endocannabinoids applied to the apical insert. To establish the receptors involved, appropriate antagonists were used: AM251 (CB1), AM630 (CB2), O-1918 (proposed cannabinoid receptor), capsazepine (TRPV1), GW9662 (PPARγ), and GW6471 (PPARδ).

Results: 50 µM EDTA caused a 20% reduction in TEER. Phytocannabinoids limited this in a concentration-dependent manner. By contrast, endocannabinoids caused a fall in TEER, alone or in combination with EDTA, in a concentration-dependent manner. Phytocannabinoids inhibited the fall in TEER from endocannabinoids. The effects of both phytocanna-binoids and endocannabinoids were inhibited by CB1 antagonism.

Conclusions: These data show for the first time that cannabinoids are capable of modulating intestinal permeability. In particular, phytocannabinoids appear capable of restoring abnormally increased permeability induced by either EDTA or endocannabinoids. This suggests that cannabis-based medicines may possess therapeutic benefit in shocked patients with lost gut barrier function.
LSG is a relatively safe surgical option for weight loss = 0.007). Both groups did not significantly differ in Liver cirrhosis represents a risk factor for perioperative Metabolism / During the time of our studies we have observed different Hepatobiliary and th World J Surg (2009) 33:S1–S268 of 40:15) underwent liver resection 55 patients that underwent curative (R0) The aim of this study is to analyze the Survival after resection of HCC in normal and cirrhotic liver = 0.007). Both groups did not significantly differ in liver function parameters or the incidence of multifocal lesions. Nevertheless, median tumor diameter in the LC group was 49 mm [6–160 mm] compared to 77 mm [15–190 mm] in the WOLC group (p < 0.05). There were no significant differences in the median resected volume [LC: 15% (5%–75%) vs. WOLC: 25% (5%–70%) (n.s.) or in the rate of major complications [LC: 7 (28%) vs. WOLC: 10 (33%)]. 6 (24%) patients in the LC and 2 (6.7%) patients in the WOLC group died within 30 days. The overall in hospital mortality rate was 14.5%. When perioperative deaths were excluded, the median survival was 38 month (95%CI: 20–55 month) and did not differ significantly between the two groups (LC: 35 [95%CI: 17–54] month vs. WOLC:38 [96%CI: 19–57 month]). Conclusions: Liver cirrhosis represents a risk factor for perioperative death after liver resection for HCC. As the risk for major complications is not elevated for patients with liver cirrhosis, these patients seem to have a higher risk for a lethal case complications. Nevertheless resection for HCC with accompanying liver cirrhosis is justified as the oncologic outcome of patients with HCC in liver cirrhosis is equivalent to those patients with normal liver.

Introduction: The surgical treatment of obesity reaches the 50th of last century. The first operations were based on significant shortening of digestive tract and were associated with many metabolic disturbances. The growing epidemic of obesity was the most decisive factor for the development of bariatric surgery. Every surgical procedure invariably combines with the risk of complications. The new bariatric operation, laparoscopic sleeve gastrectomy (LSG) has emerged from the duodenal switch in the end of nineties. It was first stage operation to decrease perioperative risk in patients with superobesity. Its long term outcome are often very good. That’s why it is now often one stage restrictive procedure and excellent alternative for Adjustable Gastric Banding or Vertical Banded Gastroplasty. With regard to the sort of patients, often accompanied by systemic diseases, bariatric surgery brings more severe and dangerous complications.

Material and Methods: The aim of this study is to analyze the complications after sleeve gastrectomy. In our Clinic, from January 1993 to January 2009, we operated 626 persons due to the obesity. We analyzed the period from April 2006 to January 2009, the group consisted of 83 patients after LSG. The gastric tube with volume 60 ml were performed by using Endo-GIA staplers over a 34-Fr bougie. The short term morbidity and mortality were examined.

Results: During the time of our studies we have observed different type of the complications. The major complication rate was 7.2% (6 of 83), including 2 leaks (2.4%), both treated with early suturing, one with success, second needed further conservative treatment, two cases of hemorrhage treated conservatively (2.4%), two subphrenic abscess, one associated with pancreatic fistula requiring reoperation and sleeve stricture managed by endoscopic dilatation. Up to now we have no mortality.

Conclusions: LSG is a relatively safe surgical option for weight loss as a primary procedure and as a primary step before a secondary nonbariatric procedure in high-risk patients. The most common complications after LSG are leakage and bleeding from the staple line of stomach.

Introduction: Liver cirrhosis is the most important risk factor for hepatocellular carcinoma (HCC). Beside liver transplantation,
Abstract ID: 0028  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 10.02

Prognostic impact of anatomic versus non-anatomic liver resection
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Introduction: Anatomical liver resection is thought to be a reasonable treatment option for hepatocellular carcinoma (HCC); however, its clinical significance remains to be confirmed. The aim of this study was to evaluate the prognostic impact of anatomic versus non-anatomic liver resection on HCC patients through randomized control trial in a single center.

Material and Methods: Curative hepatic resection was performed in 133 patients with HCC. The patients were randomly classified into the anatomic resection (n = 67) and non-anatomic resection (n = 66) groups. The mean follow-up time was 19 months (8–27 months).

Results: The intraoperative blood loss in the anatomic resection group was significantly less than that in the non-anatomic group (744.8 ± 539.0 ml versus 952.3 ± 634.1 ml, p = 0.044). Number of micrometastatic foci removed in anatomic resection group was significantly more than that in non-anatomic resection group (78 versus 58, P = 0.043). By Kaplan-Meier survival analysis, the 1-year disease-free survival rate in the anatomic resection group was significantly better than that in the non-anatomic resection group (75.5% vs 48.2%, p = 0.003). Anatomic resection was confirmed to be an independent favorable factor of disease-free survival by multivariate analysis.

Conclusions: Anatomic resection for HCC yields more favorable results rather than non-anatomic resection, which might because anatomic resection has the potential to remove undetected metastatic foci. The further long term follow-up is needed to confirm the conclusion.

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Abstract ID: 0029  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 10.03

Increasing incidence of focal nodular hyperplasia detection: should indications for surgery be reconsidered?
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Introduction: Focal nodular hyperplasia (FNH) is characterised by a non-malignant behaviour and low potential for local complications. In the presence of increasing detection rates due to diagnostic improvements the indications for surgery needs critical reconsideration. The aim of our study was to identify the role of surgical treatment for FNH.

Material and Methods: Between 1998 and 2007, 81 patients with FNH were managed at our unit. The mean age, the male/female ratio and the mean tumor size were 39.3 years, 1.85 and 6.3 cm, respectively. An indication for surgery was a) abdominal symptoms, b) suspicious lesion on radiological examination and c) lesion in the presence of malignant history. Thirty-day morbidity and mortality were assessed and all patients were followed-up.

Results: Seventy-six patients underwent complete tumor resection and 5 were observed. The indication for surgery was a) in 33 patients (43.3%), b) in 39 patients (51.3%), and c) in 3 patients (3.9%). There were significant difference in tumor size among group a, b and c (p = 0.051). In 14 patients (18.4%) multifocal tumor manifestation was evident. In addition to FNH, histological examination revealed adenoma in 2 patients and a hepatocellular carcinoma and a breast cancer metastasis in one patient each. The overall morbidity was 3.9% (pancreatitis, bile leak, wound infection). There was no mortality. At the mean follow-up of 49.6 ± 39.8 months, 3 patients presented with minor abdominal complain and 2 patients with scar related local symptoms. There was no FNH recurrence. None of the observed patients necessitated hepatic surgery during the study period.

Conclusions: Although the diagnosis of FNH is made more frequently, standard criteria for surgery should remain valid. Surgical resection is justified in symptomatic patients and in case of uncertain diagnosis. Nevertheless, the rate of “diagnostic” resections is still too high.

Abstract ID: 0030  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 10.04

Prognosis and outcome of combined treatment of surgical resection and radiofrequency ablation for hepatocellular carcinoma
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Introduction: Management of hepatocellular carcinoma (HCC) in cirrhotic patients is a great challenge. To reduce recurrence chances, adequate tumor margin is sought in resection. How ever, most cirrhotic patients have liver function so poor that radical resection becomes unachievable because of likely liver failure. Lately, there were studies about radiofrequency ablation (RFA) treating small HCC and reports on combined treatment of resection and RFA for treating liver metastasis. This study evaluated the outcome of this combined treatment on HCC patients.

Material and Methods: From April 2001 to December 2006, 19 HCC patients having hepectomy combined with RFA were included for the study (combined treatment group), and 54 patients having hepectomy alone were selected as case control (control group). The two groups matched in tumor number and size, and were compared in terms of prognosis and surgical outcome.

Results: The combined treatment group had less major resection (32% versus 65%, p = 0.015), less blood loss (400 versus 657 ml, p = 0.007), shorter operation time (270 versus 400 mins, p = 0.01),
shorter hospital stay (7 versus 8.5 days, p = 0.042), and 1 operative death. Three operative deaths occurred in the control group (p = 1). There were no major differences in surgical complications (15.8% versus 31.5%, p = 0.24), recurrence (63.2% versus 50%, p = 0.673), hospital mortality (5.3% versus 5.6%, p = 1) and overall survival (31.7 versus 31.9 months, p=0.496).

Conclusions: This combined treatment was safe and effective on selected patients with multifocal HCC. It is a good option for HCC patients having poor liver function rendering tumor clearance approach risky in major hepatectomy.

Abstract ID: 0031 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 10.05

Role of repeat hepatectomy for recurrent hepatocellular carcinoma in the remnant liver
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Introduction: Liver resection remains the main option for hepatocellular carcinoma (HCC), but high recurrent rate is the drawback. Most recurrent site is the remnant liver. The role of repeat hepatectomy for recurrent HCC in remnant liver is controversial.

Material and Methods: A retrospective review was conducted on 1177 patients with newly diagnosed HCC who underwent curative hepatectomy between 1990 and 2007. Among them, 642 patients had liver recurrence in the same period and 149 patients of them underwent a second hepatectomy. Among the 149 patients underwent second hepatectomy, 96 patients had another liver recurrence and 35 patients underwent third hepatectomy. Of patients who underwent 3rd hepatectomy, 30 patients had another liver recurrence and 8 patients underwent a fourth hepatectomy. The clinicopathological background characteristics, early and long-term results of 1177, 149, 35 and 8 patients who underwent 1st, 2nd, 3rd and 4th hepatectomy were compared.

Results: Significant more female patients underwent 3rd and 4th hepatectomy. The tumor size in repeat hepatectomy group (2nd, 3rd, and 4th) was significantly smaller than 1st hepatectomy. Operative mortality in 1st, 2nd, 3rd and 4th hepatectomy were 0.1%, 0.3%, 0% and 0% respectively (p = NS). No significant difference could be found in disease-free and actuarial survival rates among 1st, 2nd, 3rd and 4th hepatectomy. Survival benefit could be observed in 2nd and 3rd hepatectomy compared with non-hepatectomy patients, but not so in 4th hepatectomy.

Conclusions: Repeat hepatectomy is advocated for recurrent HCC in remnant liver in selected patients live in 3rd hepatectomy, but the value of 4th hepatectomy requires further investigation.

Abstract ID: 0032 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 10.06

Short term data from a pilot study on a new bipolar radiofrequency ablation/aspirator device in the management of liver cancer
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Introduction: In the United States, the thermal ablation workload for cancer involving the liver is predicted to more than double in the next 5 years, emphasising the need to develop and improve the current technology.

Material and Methods: A multicentre non randomised prospective clinical trial was undertaken, to assess the efficacy and safety of a new bipolar radiofrequency ablation/aspirator device (Hexablate), in the treatment of primary and secondary cancers of the liver.

Results: A total of 34 lesions in 16 patients were ablated at laparotomy and followed up at 4 weeks. The median diameter of the lesion before ablation was 2.75 (range 1–10) cm, median volume aspirated during ablation 10 (range 0–25) ml and median operative time was 150 (range 100–215) minutes. There was one major complication of a pleural effusion which required drainage. Median length of stay was 7.5 (range 3–14) days. In 11 patients the ablated tumor was resected. On histological assessment, there was no evidence of viable cancer at the tumor edge. On follow up CT, the ablation zone fully encompassed the targeted tumor and there were no local complications relating to ablation.

Conclusions: Initial analysis of the short term follow up data from this small cohort, show this device to be safe and effective.

Abstract ID: 0033 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 10.07

Impact of 3D virtual hepatectomy on operative strategy for laparoscopic liver resection
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Introduction: Complexity and variability of the hepatic vascular anatomy increases the cognitive difficulty of laparoscopic liver resection. To date, laparoscopic hepatectomy has not gained wide acceptance compared with other laparoscopic procedures. In cases of hepatocellular carcinoma (HCC), impaired hepatic function due to accompanying chronic liver disease further enhances technical demand. We have reported that vascular anatomy, liver resection volume, and resection margin can be calculated using three-dimensional (3D) virtual hepatectomy program based on hepatic circulation (World J Surg, 2007). In this study, we evaluated the impact of multidetector CT (MDCT) scan based simulation on operation planning in laparoscopic hepatectomy.

Material and Methods: Hepatectomy simulation software was programmed to reconstruct functional 3D anatomy and to calculate liver volume based on portal vein perfusion. Out of 45 patients, laparoscopic liver resection was completed in 26 patients (57%) and laparoscopy-assisted hepatectomy was performed in 19 patients (43%). Liver resection volume and resection margin were estimated preoperatively by the simulation and validated via comparison with the actual values of the resected specimen.

Results: The 3D virtual-reality reconstruction allowed stereoscopic identification of tumor-bearing portal vein and drainage vein. Preoperative planning based on simulated resection facilitated laparoscopic mobilization of the liver and mini-laparotomy resection of a
large tumor located in the upper right lobe for laparoscopy-assisted hepatectomy. Sim ulation revealed significant correlation (r = 0.998) between the predicted and actual liver resection volume, with discrepancy of 14.4 mL. Simulation also showed correlation (r = 0.823) between the estimated and actual margin, with a difference of 2.3 mm. 

**Conclusions:** Hepatectomy simulation in 3D facilitated intraoperative identification of the vascular anatomy, and accurately predicted the resected liver volume and resection margin. This virtual method should contribute to the preoperative planning of the safe and curative laparoscopic liver resection.

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**Abstract ID: 0034**  
Specific Field: Miscellaneous

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 11.01

**Patient’s perception of infection control and clinician ability related to surgeons dress and bare below the elbows policies**  
Royal Victoria Hospital, Belfast, United Kingdom

**Introduction:** Bare below the elbows’ policies (BBTE) introduced to improve infection control in UK hospitals, supported by the RCSEng, are perceived by medical and nursing staff to negatively impact on the patient’s experience of their outpatient consultation. We aim to determine patient’s perception of doctor’s dress in relation to their outpatient experience.

**Material and Methods:** Over a 3-week period patients attending outpatient clinics completed questionnaires before and after consultation assessing perceptions of doctor’s dress on professionalism, clinical ability, trustworthiness, and infection control. Doctors complied with BBTE policy in week 1, wore suits and neckties in week 2, and scrub suits in week 3. Questionnaires used a visual analogue score. Analysis was by ANOVAs advised by our statistician. Results are presented as Mean ± SEM.

**Results:** 253 pre-consultation, and 236 post-consultation questionnaires were received. No difference was seen in the demographic profile of the 3 groups. All doctors during the study period were male. Wearing a suit and necktie was associated with a positive perception of professionalism (85.55 ± 1.04, p < 0.01) and trustworthiness (61.94 ± 1.19, p = 0.44), compared with dressing according to BBTE policy (51.57 ± 1.08 & 51.09 ± 0.89 respectively), but no difference in perception of clinical ability or potential to transmit infections was related to dress type in pre-consultation questionnaires. Seeing the surgeon cleanse their hands was positively related to BBTE. Perception of doctors wearing suits and neckties was positively related to BBTE policy (75.18 vs 61.94, p < 0.01). Male. Wearing a suit and necktie was associated with a positive perception of professionalism, clinical ability, trustworthiness, and infection control. Doctors complying with BBTE policy in week 1, wore suits and neckties in week 2, and scrub suits in week 3. Questionnaires used a visual analogue score. Analysis was by ANOVAs advised by our statistician. Results are presented as Mean ± SEM.

**Conclusions:** Thus far, the effect of subcutaneous PD insertion on the patient’s experience of their outpatient consultation.

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**Abstract ID: 0035**  
Specific Field: Infection / Antibiotics / Wound Healing

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 11.02

**The efficacy of Penrose drains for the prevention of superficial surgical site infections**  
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**Introduction:** Our department has been employing subcutaneous drain implantation for the prevention of superficial surgical site infection (hereafter s-SSI). In April 2008, we conducted a retrospective study of 34 cases treated with subcutaneous drain implantation, and confirmed the effectiveness of subcutaneous Penrose drain (hereafter PD). Therefore, from April to August 2008, we implanted PD subcutaneously in all cases at high risk for s-SSI to examine the incidence of s-SSI and then compared it with previous incidence.

**Material and Methods:** From April to August 2008, all cases at high risk for s-SSI in our department, specifically those classified into wound class III or IV, or accompanied by at least 2-cm-thick subcutaneous fat, were subjected to subcutaneous PD implantation and then checked for the occurrence of s-SSI for all surgical cases, including both patients with PD and without it. The s-SSI incidence was determined for each wound class and their totality, followed by comparison with the incidence from November 2007 to March 2008.

**Results:** From April to August 2008, our department had 254 surgical cases, 50 of which were subjected to PD implantation (class III - 29 cases, class IV - 10 cases, at least 2-cm-thick subcutaneous fat -18 cases, partly overlapped). The incidence of s-SSI was 0% (0/108 cases) in class I, 1.9% (2/107 cases) in class II, 6.9% (2/29 cases) in class III, 10% (1/10 cases) in class IV, and 1.97% (5/254 cases) in their totality. The previous incidence of s-SSI from November 2007 to March 2008 was 9.62% (23/239 cases). Thus, our prophylactic subcutaneous drainage resulted in a significant decrease in total incidence in our department (9.62% vs 1.97%, p < 0.01 ; chi square test).

**Conclusions:** Thus far, the effect of subcutaneous PD insertion on s-SSI has not been reported in a comprehensive way. Our study showed a decrease in s-SSI incidence when PD were implanted subcutaneously for prophylactic purposes in cases at high risk for s-SSI, suggesting the effectiveness of the drains. The positive results are probably attributable to drainage of the whole subcutaneous space, enabled by implanting the slit PD. In addition, only one of the 50 cases showed a retrograde infection, which is referred to as a drawback of open drains. Penrose drain, costing just a few dollars, has definite potential as an effective means of preventing s-SSI.

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**Abstract ID: 0036**  
Specific Field: Stomach / Duodenum

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 11.03

**Management of open abdominal wounds with vacuum assisted closure therapy**  
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**Introduction:** Open abdominal wounds are some of the most challenging wounds to manage. They can result from the inability to close
the anterior abdominal wall due to, for example, repeated laparotomies, trauma, abdominal compartment syndrome, necrotising fasciitis and abdominal dehiscence. In the presence of an enterocutaneous fistula, it is difficult to place a dressing that adheres well to keep the abdominal contents in place. Intestinal juices have a macerating effect on skin which makes it increasingly difficult to apply adhesive dressings. This leads to poor hygiene of the patient, need for repeating dressings leading to pain, constant risk of infection and fluid imbalance. In this study we have used Vacuum Assisted Closure (VAC) system (KCI Medical, Witney, Oxfordshire) in 11 patients with open abdominal wounds, to achieve abdominal closure without resorting to complex reconstructive procedures, thus facilitating early discharge.

**Material and Methods:** 11 patients were admitted to District General Hospital, between 2004 and 2008, and had a VAC dressing applied after abdominal surgery. Initial management was to cover the exposed bowel with a Bogota bag. VAC dressing with open pore foam dressing interface was used and a continuous negative pressure of 125 mmHg was applied. Wound healing was monitored with serial photographs.

**Results:** The average duration of VAC dressing application was 27 days (range 14 to 52 days). Two patients died due to sepsis of unknown origin and both wounds were healthy. In the remaining cases wound improvement and closure was achieved effectively without need for further complex procedures. The 3 patients with high enterocutaneous fistulae were controlled well as low output fistulae. The patient with fistula due to anastomotic leak closed spontaneously. One patient needed a simple skin grafting and three patients developed an incisional hernia.

**Conclusions:** VAC dressing has revolutionised the management of difficult abdominal wound closure and control of sepsis, avoiding the need for re-look laparotomies and repetitive change of open dressings. The presence of an enterocutaneous fistula was not an absolute contraindication for its use.

**Abstract ID: 0037**  
Specific Field: Vascular Surgery

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 11.04**

**Surgical wound infections after lower limb vascular surgery**

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**Introduction:** The purpose of this trial was to evaluate the incidence and risk factors of surgical wound infections after infraaortic and lower limb vascular surgery, and to evaluate the consequences of wound infections to patients and the additional cost of services to treat wound infections.

**Material and Methods:** This multicenter prospective trial took place in four secondary referral hospitals in Finland. The study cohort comprised 184 consecutive patients who were operated on between June 2007 and January 2008. Antibiotic prophylaxis was standardized (Three g of cefuroxime was administered intravenously before incision). The development of postoperative complications was recorded. The additional costs of the treatment caused by wound infection were calculated. Univariate analyses for comparing various characteristics of infected and non-infected patients were performed using Fisher's exact test and independent samples t-test. Secondly, a backward directed stepwise analysis was performed to determine the independent predictors for wound infection.

**Results:** A majority of the patients were male, and mean age was 71 years. Indi cation for surgery was critical ischemia in 67% of cases. 45% of patients underwent either femoropopliteal or femorodistal bypass surgery. Prostheses or prosthetic patches were used in 35% of cases. The incidence of surgical wound infections was 27%. A majority of wound infections were superficial infections. Three patients had graft infection. The most commonly identified causative agent was Staphylococcus aureus. Of the 49 patients who developed wound infection, 47 patients healed with treatment and two patients underwent major amputation. Surigical wound infection was the cause for one amputation. 30-day mortality was 6% and none of deaths was caused by wound infection. In multivariate analysis independent predictors for surgical wound infections were infrarenalul surgery (OR 7.2, p < 0.001), body mass index over 25 (OR 6.1, p < 0.001) and arteriography injection site within the operative area (OR 2.5, p = 0.02). The average cost of surgical wound infection was 4295 USD.

**Conclusions:** The incidence of wound infections after vascular surgery is high. Infrarenalul surgery, obesity and arteriography injection site within the operative area increases the risk for wound infection. Surigical wound infections increases morbidity and costs of operative treatment.

**Abstract ID: 0038**  
Specific Field: Infection / Antibiotics/ Wound Healing

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 11.05**

**Prediction of wound healing in diabetic foot ulcers by determining the percent change in wound area**


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**Introduction:** Foot ulcers are a major problem in Diabetic patients which require a prolonged course of treatment and often lead to major or minor amputations. The costs of treating foot infections in Diabetes is enormous. Prediction of wound healing will help in better planning of limited resources. The aim of our study was twofold, firstly to assess the ability of a 4 week healing rate to predict complete healing and secondly whether the use of topical growth factors leads to accelerated healing.

**Material and Methods:** 60 Type 2 Diabetic patients with foot ulcer of area 2 cm², of more than 4 weeks duration without any clinical evidence of systemic or local wound infection were studied. Wound swabs as well as tissue biopsies were obtained to confirm the absence of local wound infection. The patients were then divided into 2 groups; Group A (30 patients) in whom growth factors were used as a topical dressing and Group B (30 patients) in whom growth factors were not used. All patients had standard foot care comprising of serial debridement, moist dressings and offloading. The patients were followed weekly till complete healing. On each visit, the wound was measured by tracing its outline on double layered plastic sheets. The wound area was calculated on each visit and plotted on a graph against time to obtain a wound healing trajectory for each patient.

**Results:** There was no significant difference between the two groups in terms of initial wound size and Wagner’s grade (p < 0.05). Though the patients in Group A had faster wound healing rates than in Group B, the difference was not statistically significant (p > 0.05). On regression analysis we found that the time required for complete wound healing (in days) can be calculated by the formula 6.4 + 0.008X where X is the initial wound area (in cm²).

**Conclusions:** Percentage wound healing over a 4 week period is a simple clinical tool for predicting eventual wound healing and can
thereby help in guiding and planning treatment in diabetic foot ulcer patients. It can also be used to identify those patients who may not respond to standard care and may need additional treatment. The use of growth factors does not significantly accelerate wound healing and hence their routine usage is of doubtful value.

Abstract ID: 0039  Specific Field: Esophagus

Mode of pres.: Video/CD-Rom
ISW 2009 Session 12.01

Total mechanical cervical anastomosis: is it a solution for anastomotic complications in oesophageal replacement

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Introduction: Successful cervical anastomosis is essential in getting success in patients who need oesophageal replacement procedures. It is desirable to obtain a secure conduit and safe anastomosis to avoid complications like neck leak, sepsis and anastomotic stenosis. Improvements are happening across the world to obtain a nil leak rate in cervical esophagogastric anastomosis.

Material and Methods: The study is a prospective one. Patients who undergo coloplasty for stricture were included in the study. A well vascularised Colonic conduit is mobilised up to the neck. The circular stapler is passed through the terminal ileal opening of the pulled up colon. The anvil of the circular stapler is passed orally and brought through the native cervical oesophagus. The anvil is approximated to the circular stapler brought out through cecal wall. Side to side cervical anastomosis is completed. The ileal segment is closed close to the ileocecal junction. Oral feeds are started as early as third day. A detailed comparison of various factors and the outcome are analysed.

Results: None of the study group patients had anastomotic leak. One person had stenosis of the anastomosis as the corrosive injury was progressing. The time operating was approximately 30% lesser than the open handsewn technique. Followup is by UGI Scopy and Barium Contrast imaging. The excision of the disc of tissue across the anastomosis 25 mm approximately. This ensures a safety of the swallowing function in these group of patients.

Conclusions: Complete mechanical neck anastomosis is a possible entity. The results of the study is encouraging. With practically no major complication, usage of cervical anastomosis should be advocated to all upper GI Surgeons. The early reports of the Complete Mechanical anastomosis are to be substantiated with a larger number of study group.

Abstract ID: 0040  Specific Field: Endoscopic Surgery

Mode of pres.: Video/CD-Rom
ISW 2009 Session 12.02

Mediastinal lymph node dissection for esophageal cancer through a thoracoscopic approach in our institution

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Introduction: We have attempted thoracoscopic esophagectomy without mini-thoracotomy since September 2005, and in total, 70 cases have been performed till December 2008. Here, we show our procedures of mediastinal lymph node dissection.

Material and Methods: Lymph node dissection around right recurrent laryngeal nerves: First, the mediastinal pleura are divided along the right vagus nerve and the right subclavian artery is detected. Then, the right recurrent laryngeal nerve is detected, and sharp dissection of lymph node around this nerve is performed. Lymph node dissection around thoracic aorta: The backside of pleura is cut along the azygos vein, and the thoracic duct is detected. The thoracic duct is divided with clips and is dissected with lymph node around thoracic aorta. Lymph node dissection around left recurrent laryngeal nerve: The upper part of thoracic esophagus is circumferentially mobilized, which results in exposure of the left recurrent laryngeal nerve. Then, sharp dissection of lymph nodes around this nerve is performed. Lymph node dissection around the main bronchus: The right vagus nerve is cut after its pulmonary branches are bifurcated. At first, lymph nodes below the right main bronchus are dissected, and then, those below bifurcation of the trachea and left main bronchi are dissected.

Results: In a total of 70 cases, paralysis of recurrent laryngeal nerve (including temporary paralysis) was 12 cases 17%, anastomosis leakage was 12 cases 17%, pneumonia was 7 cases 10%, and hospital death were not observed.

Conclusions: We consider that thoracoscopic esophagectomy without mini-thoracotomy is not only useful but also safe for mediastinal lymph node dissection for esophageal cancer.

Abstract ID: 0041  Specific Field: Stomach / Duodenum

Mode of pres.: Video/CD-Rom
ISW 2009 Session 12.03

Laparoscopic repair of large atypical diaphragmatic hiatus hernia for intermittent gastric volvulus in the presence of severe kyphosis

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Introduction: Acute gastric volvulus is recognised to be a life-threatening condition, thus prompt diagnosis and treatment is recommended. Laparoscopic repair is always preferable.

Material and Methods: A four port approach used. Dissection commenced along the right side of the diaphragm. The key operative findings included a large diaphragmatic hiatal hernia, with the sac containing omentum, part of the transverse colon and the stomach in an organo-axial volvulus configuration. The shortening of the oesophagus was also noted. Adhesiolysis done between stomach, spleen and the crurae. Peritoneal sac divided around the oesophagus.

Results: The posterior oesophageal window created. The left and right crura were exposed and interrupted Gortex® sutures placed posteriorly and anteriorly to the oesophagus to reduce the size of the large defect. Gastroesophageal junction pulled down into the abdomen. Oesophagus splayed with the nylon tape. Hiatal closure achieved with gortex suturing between the crura behind the oesophagus. A 50 French gauge (16 mm) Maloney bougie was employed to ensure against stenosis. The repair was reinforced with porcine meshes. The stomach was fixed to the abdominal wall and the jejunum to prevent recurrent volvulus.
Laparoscopic repair of gastric volvulus is advisable once a diagnosis is reached.

Abstract ID: 0042 Specific Field: Miscellaneous

Mode of pres.: Video/CD-Rom
ISW 2009 Session 12.04

Laparoscopic splenectomy: are staplers or sutures mandatory?
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Introduction: Laparoscopic splenectomy is widely adopted worldwide since the first laparoscopic splenectomy (LS) was reported in 1992, especially for haematological disorder. The introduction of vessel sealing system facilitate many of laparoscopic procedures, we applied it to seal splenic vessels in the presented study.

Material and Methods: 14 patients undergo laparoscopic splenectomy from the period November 2006 to Dec 2008. Lateral approach through a four trocars in the upper abdomen in a steep Fowler position with left sided elevation was used. The major part of the dissection was conducted from behind, thus allowing a safer vascular control with the aid of 30degree scope. The short gastric vessels, lower pole vessels and the main vascular pedicle successfully secured using ligasure (high radiofrequency current) without the need for vascular stapler or ligatures.

Results: 14 consecutive patients, 13 females and one male, with age range from 4 years to 26 years. 10 patients with immune thrombocytopenic purpura (ITP), 2 haemolytic anaemia, one with spherocytosis and one with abnormal position left iliac fossa, wandering spleen. Average blood loss was about 200 ml, the mean operative time was 130 minutes, and mean hospital stay is 4 days there was no mortality and minimal morbidity.

Conclusions: Laparoscopic splenectomy successfully accomplished without the need for stapler or sutures and it is safe with a rapid recovery using the high radio-frequency current (vessel sealing system), eliminating frequent instrument interchange, thus saving time there is reduction in the risk of injury to the pancreas, by dividing the splenic attachments as close as possible to the splenic parenchyma.

Abstract ID: 0043 Specific Field: Colon and Rectum

Mode of pres.: Video/CD-Rom
ISW 2009 Session 12.05

Single incision laparoscopic (SIL) assisted right colectomy using standard laparoscopic instrumentation
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Introduction: A single incision laparoscopic right colectomy using conventional laparoscopic trocars and instruments is described.

Material and Methods: An 83 year old woman with a caecal carcinoma had a laparoscopic assisted right colectomy with 3 trocars via a 3.5 cm umbilical incision. There had been no prior abdominal surgery. Her ASA grade was 3, height 152 cm, weight 52 kg and BMI 23. The bowel was mobilised and the vessels ligated intracorporeally with an extracorporeal anastomosis.

Results: The total operating time was 100 minutes. There was no significant blood loss or complications. She was discharged on day 4 postoperatively. His topathology showed a T1, N0 (10 lymph nodes sampled), 8 mm moderately differentiated adenocarcinoma of the caecum in a villous adenoma.

Conclusions: Single incision laparoscopic surgery for right colectomy is feasible. It can be performed without specialised instrumentation and at no extra cost. Fur ther evaluation is required.

Abstract ID: 0044 Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.01

Early prediction of late onset sepsis in multi trauma patients by analysis of neutrophil activation
K.M. Groeneveld [1], B.L. Warren [2], A. Serafin [2], L. Koenderman [1], L.P.H. Leenen [1]

Introduction: Introduction Cells of the innate immune system are essential in the development of inflammatory complications. The activation status of this system can be determined by analyzing expression activation markers on neutrophils in peripheral blood. Our research group previously showed that a combination of these receptors, the 'priming score', reflected the inflammatory status of individual patients.

Hypothesis: Systemic activation of the innate immune system attracts functional neutrophils in damaged tissues. Dysfunctional neutrophils stay behind in the circulation, causing a paralyzed innate immune system and increased susceptibility to late onset sepsis (>5 days).

Material and Methods: Blood of adult patients with multiple injuries (ISS > 16) was sampled within twelve hours after trauma, unless known with immunodeficiency or immunosuppressive drug use. Neutrophil activation was determined by expression of activation markers with flowcytometry. Follow-up continued until discharge.

Results: Of the 73 included patients, 24 developed a sepsis and eleven died. The median Injury Severity Score of septic patients was 30, compared to ISS 25 in other patients. In patients who developed aspesis, neutrophils showed a lower active FcγRII (745,0 vs 133,5, p0,012) and fMLP induced active FcγRII (3546,7 vs 1249,6, p0,003) activity. Considering we measured circulating cells, this reflects paralysis of the innate immune system. In addition, neutrophils showed decreased FcγRIIIB expression (381,7 vs 119,2, p0,000), indicative for recruitment of immature cells.
Conclusions: Multiple injuries lead to a dysfunctional innate immune system within twelve hours. Determination of active FcyRII and fMLP induced active FcyRII can predict the development of late onset sepsis.

Abstract ID: 0045 Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.02

Intramedullary nailing increases systemic inflammation, but not PMN activation
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Introduction: It is hypothesized that after trauma, cells of the innate immune system undergo additional activation during IMN, which subsequently leads to ARDS. Damage control orthopedics has been developed to limit the exacerbation of the inflammatory response and thereby preventing ARDS. Although clinical reports show promising results, the underlying mechanisms have not been revealed.

Material and Methods: Sixty-eight trauma patients who required primary or secondary lower extremity IMN were included. The choice for treatment strategy was made by the attending surgeon. The development of ARDS was recorded. Blood samples were taken prior, 15 minutes after and 18 hours after IMN. Inflammation was analyzed by plasma IL-6 levels and changes in neutrophil phenotype (MAC-1 and active FcyRII).

Results: Thirteen patients underwent damage control orthopedics and 55 patients early total care. Nine patients developed pulmonary failure. Plasma IL-6 levels increased 18 hours after IMN in patients with isolated femur fractures or patients suffering multitrauma, but not in patients undergoing IMN for isolated tibia fractures. FMLP induced FcyRII* was most decreased and MAC-1 expression most increased in severely injured patients, but did not alter during IMN. The pre-operative changes in PMN phenotype were most prominent in patients who developed pulmonary failure, regardless of treatment strategy.

Conclusions: Thus, although IL-6 levels increased during IMN, in patients who developed ALI/ARDS the cellular inflammatory state was determined by the initial trauma: IMN did not further change the PMN phenotype. The pre-operative changes in PMN phenotype were related to the development of ALI/ARDS, regardless of treatment strategy.

Abstract ID: 0046 Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.03

Thorax injury leads to systemic activation of the immune system: an important risk factor for inflammatory complications
K.M. Groeneveld [1], F. Hietbrink [1], T. Hardcastle [2], J. Michie [2], L. Koenderman [1], L.P.H. Leenen [1]

Introduction: Severe thoracic injury can be followed by acute respiratory distress syndrome (ARDS), which is associated with systemic inflammation and mediated by neutrophils. The activation status of these leukocytes can provide a useful tool for risk stratification. Hypothesis. There is a dose relation between systemic inflammation and trauma related inflammatory complications in patients with an isolated chest injury.

Material and Methods: In Tygerberg Hospital, Stellenbosch, South Africa, blood of adults was drawn within six hours after isolated thoracic injury (AIS > 2), unless known with immunodeficiency or immunosuppressive drug use. Neutrophil activation was determined by expression of activation markers with flowcytometry at admission, six and 24 hours after trauma.

Results: We included 68 patients (one blunt and 67 penetrating injuries). Their median Injury Severity Score was 9, with an average hospital stay of three days. One patient developed ARDS, leading to death. None of the other patients died. Shortly after trauma, FcyRII and active FcyRII are slightly increased. The increase in FcyRII continues, while expression of active FcyRII decreases. Activation makers MAC-1 (CD11b) and L-selectin (CD62L) show activation of circulating neutrophils by a decrease of L-selectin and increase of MAC-1. At admission, neutrophils show a decreased CD16 (FcRIIB) expression, which reflects recruitment of young neutrophils. This CD16 low population gradually disappears.

Conclusions: Isolated penetrating thoracic injury leads to a slightly elevated activation status of circulating neutrophils. This elevated activation status is not severe enough to lead to inflammatory complications like ARDS.
Abstract ID: 0048  Specific Field: Trauma

Mode of pres.: Poster Discussion  
ISW 2009 Session 16.05

Neutrophil induced immune suppression in human acute systemic inflammation  
J. Pillay [1], V. Kamp [1], B. Ramakers [2], E. Hoffen [1], L. Leenen [1], P. Pickkers [2], L. Koenderman [1]
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[2] University Medical Center Nijmegen, Nijmegen, Netherlands

Introduction: Immune suppression is a compensatory mechanism in acute inflammation e.g. following trauma. Multiple mechanisms underlying this phenomenon include decreased cytokine production, shifts in cytokine balance and unresponsive adaptive immunity. We show in a model of acute inflammation that neutrophils, apart from their established pro-inflammatory characteristics, possess multiple mechanisms mediating immune suppression.

Material and Methods: Healthy male volunteers were given 2 ng/kg E. coli lipopolysaccharides intravenously. Blood was taken at various time points. Neutrophils were stained with antibodies and isolated by FACS. Neutrophil receptor-expression, phagocytosis and oxidase were measured. Lym phocytes were cultured in the presence of neutrophil subsets and CD3/CD28 or PHA. Proliferation was measured by incorporation of "H.

Results: Distinct neutrophil subsets were identified. 3–6 hours after administration of LPS 40% of neutrophils displayed a 2–3 fold decreased expression in innate immune receptors, decreased phagocytosis and oxidase production. Another neutrophil subset (25%) inhibited lymphocyte proliferation by 50% (in the presence of CD3/CD28 or PHA) in a 1:1 ratio independent of IL-10, TGFb, arginase or indoleamine 2–3. Instead direct delivery of H2O2 appeared to be the mechanism of immune suppression.

Conclusions: In acute inflammation neutrophils utilize multiple mechanisms mediating immune suppression. Firstly refractory neutrophils appear in the circulation. Secondly another population of circulating neutrophils effectively suppresses adaptive immunity. These observations dictate an important role for neutrophil-mediated immune suppression following conditions such as trauma, contributing to the susceptibility to infections seen in these patients.

Abstract ID: 0049  Specific Field: Trauma

Mode of pres.: Poster Discussion  
ISW 2009 Session 16.06

Role for soluble fibrinogen to inhibit neutrophil adhesion and sequestration after trauma  
J. Pillay, V. Kamp, L. Leenen, L. Koenderman, L. Ulfman  
University Medical Center Utrecht, Utrecht, Netherlands

Introduction: Soluble fibrinogen (sFg) is an acute phase protein. In inflammation e.g. following trauma it increases up to 10 mg/ml. Complications after trauma such as ARDS and MOF are mediated by neutrophils through adhesion to endothelial cells (EC) or sequestration in the vasculature. Adhesion-molecule dependent processes occur in post-capillary venules whereas adhesion-molecule-independent retention occurs in micro-capillaries. The latter requires process F-actin polymerization of the neutrophil cytoskeleton. We show that sFg can reduce both types of neutrophil-EC interactions.

Material and Methods: Neutrophils from healthy donors and trauma patients were isolated. Neu trophil adhesion to EC was studied in an in vitro flow-chamber. Cells, pre-incubated with various concentrations sFg or albumin, were perfused over TNF activated or chemokine presenting human umbilical vein endothelial cells (HUVEC) (1.5 dyn/cm²) and percentages of adhered cells were analyzed. F-actin polymerization was assessed by flow-cytometry.

Results: Acute phase concentrations of sFg resulted in 20–30% adhered neutrophils on activated EC compared to albumin (60–70%). sFg did not decrease adhesion in the presence of chemokines (IL-8/C5A). Neutrophils incubated with sFg appeared round, a feature of unactivated cells. sFg decreased the length of chemo-attractant-induced actin polymerization. sFg did not activate neutrophils, measured by intracellular [Ca²⁺], p-Erk or Nfkb phosphorylation.

Conclusions: Acute phase concentrations of sFg reduce neutrophil adherence and sequestration. Achievement of high plasma concentration of sFg directly aftershock has the potential to reduce neutrophil adherence. Resuscitation using sFg or Fg-derived peptides might prevent ARDS and MOF.

Abstract ID: 0050  Specific Field: Trauma

Mode of pres.: Poster Discussion  
ISW 2009 Session 16.07

Effect of landmines and unexploded ordnance contamination on children of Cambodia  
C. Bendinelli [1], A. Hyden [1], W. Holmes [1], P. Santoni Rugiu [2], B. Kuppers [2]

Introduction: Explosive remnants of war pose long-term threat to civilians. Aim of these study is emphasize the impact of these “forgotten” weapons on paediatric population.

Material and Methods: Consecutive series of children (<16 years-old) wounded by antipersonnel landmines, unexploded ordnances (UXO), or antitank landmines, treated at the “EMERGENCY” NGO Surgical Centre of Cambodia, and identified from a prospective registry. Demo graphics, evacuation time, type of ordinance, pattern of injury, operations, transfused patients, hospital stay, mortality and residual disability were collected prospectively and partially retrieved from charts. Patients were stratified in acetly (24 hours) and non acutely injured.

Results: From October 2003 to January 2006, 126 war wounded children were treated (age: 12.3(±2.9); females: 35 (28%)). Anti personnel landmines, UXO and antitank mines were responsible in 63(50%), 61 (49%) and 2 (2%) of cases, respectively. Ninety-four (75%) patients were acutely injured: 47(50%) to upper limbs, face, torso (while handling UXO), 31 (33%) had random wounds (typical of explosion in vicinity), and 14 (15%) had mainly lower limb injuries (from stepping on landmine). Evacuation time: 5.21(± 2.7) hours. There were 27 laparotomies (3 non-therapeutic), 1 thoracotomy, 2 popliteal artery repairs, 34 amputation, 6 external fixations, 24 skin graft, 2 muscular flaps, and 56 others procedures. Mean number of operation per patient was 2.6. Twentytwo (23%) were transfused, 5 (5.3%) died. Fifty-four children (57%) had permanent disabilities. There were 31(25%) non acutely injured patients (time from injury: 15(± 9) months). There were 27 stump revisions (19 above knee), 1 arterial venous fistula repair, 3 scar revisions.

Conclusions: Following armed conflicts, antitank mines, antipersonnel landmines and UXO pose long term risks to civilians. Children are commonly injured and sustain very severe injuries. War surgical centres need to be equipped to treat seriously injured children. Inter national efforts to prevent explosive contamination are mandatory.
Abstract ID: 0051  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.08

Packing for damage control of non-traumatic intra-abdominal massive hemorrhage

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[2] Trauma ICU (head Dr. G. Gordini) - Department of Emergency - Maggiore Hospital Trauma Center, Bologna, Italy

Introduction: Damage Control Surgery is a safe and effective procedure leading to a significant reduction of morbidity and mortality in severe polytrauma patients developing Lethal Triade (Acidosis Hypothermia Coagulopathy). This philosophy can be applied in General Surgery in “non-Trauma” situations when uncontrollable and massive bleeding occur associated with hypovolemic hemorrhagic producing a “bloody vicious circle”.

Material and Methods: From 2002 to 2008 we practiced abdominal packing for DC in 8 patients. 4 of them had a previous Ob-Gy operation, 2 extensive urologic surgery, 1 patient after colorectal surgery for toxic megacolon, the last had necrotizing pancreatitis. Hemodynamic status, clinical and laboratory parameters, APACHE II score were analyzed, as well as damage control surgery procedure, operative times, angioembolization, fluids and transfusion requirements, morbidity, mortality and need for repacking. The parameters from 31 trauma patients underwent perihepatic packing were analyzed in comparison for statistically significant differences

Results: Mean age of non traumatic DC patients was significantly higher (55 vs 42 years p < 0.05), they were more often female. NTDC patients had higher incidence of comorbidities and significantly more unstable (systolic BP 62 vs 81 mmHg, p < 0.05) whereas TDC were more likely hypothermic. Average APACHE II score of NTDC patients was 25.5 with a predicted mortality rate of 54%. NTDC group required more transfusion with FFP and more aggressive resuscitation. Overall and early mortality in NTDC were 0% (vs 58 and 39% respectively for TDC p < 0.001). Re-bleeding and need for re-packing at the second look laparotomy was 12.5% (vs 32% p < 0.01). Morbidity in NTDC was 62% (vs 61% p = ns) and intra-abdominal septic (packing-related) complications rate was 12.5% (vs 19% p = ns).

Conclusions: Packing showed to be a safe and effective for patients with intra-abdominal non-traumatic massive hemorrhage. Early decision making and rapid Damage Control performance can allow an even more marked and significant reduction of mortality in non traumatic abdominal hemorrhages than observed in trauma setting.

<table>
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<th>TDC (31 pts)</th>
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<tr>
<td>Overall Mortality %</td>
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<tr>
<td>Early Mortality % (24 hrs)</td>
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Abstract ID: 0052  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.09

12 year experience in damage control surgery: statistical analysis of predictive factors of outcome in 31 patients

S. Di Saverio [1], G. Tugnoli [1], M. Casali [1], A. Biscardi [1], F. Filicori [1], S. Villani [1], G. Gordini [2], F. Baldoni [1]

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[2] Trauma CU (head Dr. G. Gordini) - Department of Emergency - Maggiore Hospital Trauma Center, Bologna, Italy

Introduction: Major liver injury has significant morbidity and mortality. Perihepatic packing allows early and effective control of hemorrhage. The analysis of prognostic factors can improve treatment and outcome.

Material and Methods: Out of 2675 polytrauma admitted to TICU (1996-2008), 245 patients sustained liver trauma, 31% of them had grade IV–V AAST liver injury. 31 patients (gr. IV–V) treated with perihepatic packing were retrospectively reviewed; morbidity, mortality and prognostic factors with univariate and multivariate analysis were evaluated.

Results: Mean systolic BP was 81 mm Hg, mean value of BE was –9.8. Mean RTS was 5.9. The average time to ICU was 262 min. Mean number of blood transfusions was 17.8 units. Overall mortality rate was 58%, the liver injury-related cause specific mortality was 26%. Overall and liver-related mortality rate were respectively 61% and 23%. After multivariate analysis by logistic regression only RTS were significantly associated with mortality. A shorter time to ICU admission is the only factor significantly associated with lower morbidity. GCS, RTS and pH remained significantly associated with early mortality. Systolic BP and BE remained the only significant predictors of liver hemorrhage-related mortality. After multivariate analysis the amount of PRBC transfused (first 24 hrs),an high BE value, age and hypothermia were independent predictors of re-bleeding. Repacking was not associated with increased risk of intra-abdominal sepsis.

Conclusions: RTS, hemodynamic status and tissue perfusion indicators, confirmed their prognostic predictive value. A fast and effective surgical damage control and packing followed by early ICU admission, is associated with lower complication rate and shorter ICU stay.
Prognostic Factors Predictive of Morbidity and Mortality

<table>
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<tr>
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<th>Mortality - Univariate Analysis</th>
<th>Mortality - Multivariate Analysis</th>
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Abstract ID: 0053  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.10

Profiling trauma centres: hierarchical modelling should be used

L. Moore [1], A. Lavoie [2], A.F. Turgeon [2], M. Émond [2], E. Bergeron [3], J.A. Hanley [1]


Introduction: Comparing trauma centers in terms of mortality is a key element of performance evaluation. The current standard in trauma center profiling is based on Trauma Injury Severity Score (TRISS) methodology using Ordinary Logistic Regression (OLR). However, OLR does not take account of the hierarchical structure of trauma systems. Hierarchical Logistic Regression (HLR) accounts for inter and intra-hospital variation and is therefore more theoretically appropriate. The objective of this study was to evaluate whether HLR generates different profiling results than OLR.

Material and Methods: The study was based on the Quebec Trauma Registry with mandatory participation of all 59 trauma centres of the province of Quebec, uniform inclusion criteria, and standardized data collection methods. Trauma profiling was based on estimates of mortality adjusted using the Trauma Risk Adjustment Model (TRAM) and transfer status. Hospitals were ranked according to risk-adjusted mortality and outliers were identified by comparing each hospital to all remaining hospitals. Hospital ranks and statistical outliers generated by OLR and HLR were compared.

Results: The study population comprised 83,504 patients including 4731 in-hospital deaths (5.4%). OLS identified 13 hospitals as statistical outliers while HLR identified 3 hospitals as statistical outliers. In addition, 57 out of 59 hospitals changed ranks and 30 hospitals changed by more than 5 ranks when HLR replaced OLR.

Conclusions: This study has shown that replacing OLR with HLR has an important impact on the results of hospital profiling. These results along with the many theoretical advantages of HLR support the adoption of hierarchical modelling as the standard method for trauma centre profiling.

Abstract ID: 0054  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.11

Benchmarking U.S. trauma care

A. Nathens [1], M. Neal [2], S. Goble [2], J. Fildes [3], W. Meredith [4], H. Cryer [5], S. Shah [6], M. Hemmila [7]


Introduction: This project reviews the history and evolution of trauma center benchmark reports based on National Trauma Data Bank® (NTDB) experience. The (NTDB) is the largest aggregation of U.S. trauma registry data ever assembled. It contains 3 million cases from over 900 trauma centers. A major goal of the NTDB is to provide valid inter-hospital comparisons of outcome measures for trauma patients.

Material and Methods: NTDB has improved data quality by focusing on data standardization, completeness and validity to provide a sound basis for risk-adjusted outcomes reporting. The National Trauma Data Standard, the national minimum trauma dataset for the US, was introduced by NTDB in 2007. In addition, NTDB has instituted an automated validation process that checks data as they are submitted to NTDB. Strict standards have been put in place for data acceptance, with a detailed feedback to hospitals on their data quality. Recently, the American College of Surgeons (ACS) Committee on Trauma began piloting the Trauma Quality Improvement Program (TQIP). This involves providing risk-adjusted mortality reports based on NTDB data to a select number of trauma centers. The program will be expanded to additional trauma centers in 2010, based on pilot program results.

Results: Crude mortality reports can be misleading due to case mix, missing data, and incorrectly coded data. These issues can affect the interpretation of hospital performance relative to peer centers. Standardized data extraction and risk-adjusted benchmarking provide more accurate and meaningful inter-hospital comparisons. The NTDB pilot of risk adjusted benchmark reports showing observed to expected deaths ratios have provided more meaningful data to trauma centers. These reports have prompted trauma centers to carefully review their data quality, as well as process of care.

Conclusions: The NTDB has introduced a new trauma data standard and is piloting risk-adjusted benchmarking. To improve the quality of the data, the NTDB will continue to work on implementing data quality checks. The impact of missing data or incorrect data can drastically change the ranking of hospitals when doing risk-adjusted
benchmark reports of hospitals. There is a great need for trauma registry training and regular quality assurance methods at individual hospitals in order to collect consistent and standardized data.

Abstract ID: 0055
Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.12

Urban trauma vs. rural trauma: should prevention efforts be similar - results of a regional trauma registry


[1] Virginia Commonwealth University Health System, Richmond, USA, [2] International Trauma System Development Program, Virginia Commonwealth University Health System, Richmond, Va, USA

Introduction: Increases in global trauma are attributed to rapid urbanization, increasing rural growth rate (RGR) and the lack of appropriate planning and organization. We hypothesize that urbanization of rural areas in developing countries would create an injury pattern that mimics urban settings and would require similar injury prevention efforts.

Material and Methods: Prospective data from a comprehensive electronic trauma registry (ETR) established in southeastern Ecuador was analyzed to compare the injury patterns in the 3 main rural facilities (serving a pop. 68,789) and their receiving urban center (serving 207,857 pop). Data from the Ecuadorian National Institute of Statistics (INEC), the Ministries of Transports & Public Health were examined to assess the level of urbanization in the region for the same time period. ETR data was audited bimonthly for accuracy.

Results: RGR was calculated at 0.75 during the study period (2005–06) with 412 new road km built in the region. 1,933 patients sustained traumatic injuries accounting for an injury rate of 488 and 768 per 100,000 inhabitants/year in rural (RS) & urban (US) settings respectively. Different injury rates but similar injury patterns were seen in US vs. RS (Table). Traffic injuries (TI), violence and falls accounted for the highest rates. ER mortality was low for both rural (0.3%) and urban (0.6%). In RS, no injury prevention efforts (e.g. signs or road modification strategies), or adequate trauma care capabilities (human & physical resources) were noted.

Conclusions: Rural trauma now carries similar patterns of injury as urban trauma in rapidly developing rural regions and warrant adequate surveillance (Trauma registry), prevention strategies, and essential trauma care. The alarming global rise in rural development and concordant rise in injury burden advocates loudly for such measures.

<table>
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<th>Urban (1597)</th>
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<td>33</td>
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<tr>
<td>Sex (M/F)</td>
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<tr>
<td>TI*</td>
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Abstract ID: 0056
Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.13

Blunt cerebrovascular injuries in the child


Denver Health Medical Center, Denver, United States

Introduction: Although blunt cerebrovascular injuries (BCVI) are a well-recognized sequela of trauma in the adult population, there have been few reports in children. The majority of reported pediatric cases are diagnosed following stroke. The purpose of this study was to describe the incidence, injury patterns, presentation, and stroke rates of pediatric patients sustaining BCVI.

Material and Methods: Patients undergoing evaluation for BCVI at our regional level I trauma center and pediatric level I trauma center since 1996 were reviewed.

Results: From 1/96 to 1/08 there were 11,721 blunt pediatric trauma admissions; 37 (0.3%) patients were diagnosed with BCVI. The majority (59%) was male with a mean age of 13 ± 0.8 years, and mean ISS of 24 ± 2. Nine patients presented with signs or symptoms of neurologic ischemia prior to diagnosis, with neurologic changes occurring at a mean of 13 ± 3.7 hours after injury (range 1–37); 89% of patients suffered stroke due to a carotid injury. Screening indications in this group were present in 3 out of the 9 patients (marked soft-tissue swelling, C-1 fracture, C-2 fracture). 25 asymptomatic patients were diagnosed using imaging according to institutional BCVI screening protocols. All but 1 asymptomatic patient was treated with antithrombotics and none suffered a cerebrovascular accident (CVA). Comparing asymptomatic patients to those with CVA, there was a significant difference in age (asymptomatic 15 ± 0.6 years vs. CVA 10 ± 2.2 years). Ten (27%) patients were 12 years old, and only 3 of these were asymptomatic at diagnosis.

Conclusions: Blunt cerebrovascular injuries occur in the pediatric population; the majority of injuries are diagnosed in adolescents. Of those presenting with neurologic findings, two-thirds did not have screening indications according to adult protocols. With the availability of non-invasive diagnostic imaging (i.e. CTA), broader screening guidelines for children should be instituted.

Abstract ID: 0057
Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.14

Worksite fall injuries

L.L. Kwek [1], W.C. Lee [2], M.T. Chu [1]


Introduction: Singapore is a city that constantly reshapes its urban landscape through construction activities. Worksite injuries thus represent a major proportion of fall injuries. This paper aims to analyse the data on worksite fall injuries to draw meaningful conclusions to enhance medical care for these patients.

Material and Methods: A retrospective analysis of consecutive patients admitted for worksite injuries following high impact free fall (2 m) from Jan 01 to Dec 07 was undertaken. The profile of the patients, injuries, and treatment were analysed.
Results: Out of a total of 499 high-impact falls during this period, 173 (35%) were worksite injury cases. The mean age was 39 (median 37, SD 11). There was only 1 female. 65% were foreigners. There is a rising trend of worksite fall patients, with a total of 43 cases in 2007 compared to 8 in 2001. Worksites falls as a percentage of total fall injuries rose from 21% in 2001 to 44% in 2007. There were 12 deaths during this period. 55% of worksite fall patients had bone fractures, 38% had head injuries, 31% had spinal injuries. The other injuries were: thoracic (26%), external (16%), pelvic (16%), and abdominal (9%). The 3 most common injuries of worksite fall patients were significantly higher compared to general fall patients: 31% of the latter had bone fractures, 22% had head injuries, and 19% had spinal injuries. Average injuries per worksite fall patient were 1.9 vs 2.8 for the general fall group. 46% of the patients had only 1 injury vs 31% of the general fall group; while 7% had 4 injuries vs 33% for the overall fall group. The survival rate for those with 1 injury was 98%, while this was 58% for those with 4 injuries. Head injury was the most common injury present in dead patients (92%) followed by thoracic injuries (66%). 38 (22%) of the worksite fall patients required SICU stay, with a mean stay of 7 days. The longest stay in ICU was 26 days. The average length of hospital stay was 11 days.

Conclusions: Worksite fall injuries are increasing as a proportion of total fall injuries. This results in substantial medical expenses. Hence it is important to emphasise safety awareness at worksites. Essential safety equipment such as helmet are vital towards improving the survival rate of worksite fall patients, since over 90% of the patients who died had head injuries.

Abstract ID: 0058  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.15

High impact falls

L.L. Kwek [1], W.C. Lee [2], Vijayan [2]


Introduction: Free fall from height forms a major proportion of trauma patients in Singapore due to its built-up nature. This paper aims to enhance patient care by analysing data from a single medical institution in Singapore.

Material and Methods: A retrospective analysis of consecutive patients admitted for injuries following high impact free fall (2 m), from Jan 01 to Dec 07 was undertaken. The profile of the patients, injuries, and treatment were analysed.

Results: 499 cases were presented to the emergency department (ED) during this period with a mean age of 37, 73% being males. Domestic, recreational activities and suicide attempts made up 52% of the cases while industrial accidents made up 35%. 90% of the impact site was concrete, 6% was grass/soil. Initial blood pressure (BP) did not conclusively indicate the mortality rate of patients admitted to the ED: 24% of patients who survived had initial BP < 90 mmHg; this proportion was 26% amongst those who died. 31% of all fall patients had bone fractures, 22% had head injuries, 19% had spinal injuries. The other injuries were: thoracic (15%), external (15%), pelvic (13%), and abdominal (12%). Average injuries per patient were 2.8 – 31% of the patients had only 1 injury; while 33% had 4 injuries. 61 (12%) patients died in the ED (mean ISS49). 71% of the patients who survived in the ED underwent surgery, of whom 12% died during or within 6 hrs of surgery (mean ISS 44 vs mean ISS 17 for those who survived). The other 29% of the patients who survived in the ED were given conservative treatment, of whom 14% died (mean ISS 37 vs mean ISS 14 for those who survived). Overall, average number of injuries for those who died was 4.7. The survival rate for those with singular injury was 97%, while this was 42% for those with 4 injuries. There were no survivors amongst those with > 6 injuries. Tho racic injury was the most common injury present in the deceased patients (89%) and head injuries (80%) followed closely.

Conclusions: High-impact falls result in multi-systemic injuries. Patients with multiple injuries have a lower survival rate. Multidi- sciplinary trauma teams will improve the survival rate of fall patients as they will be able to deal with multiple injuries rapidly. Consistent monitoring of patients’ vital signs is crucial since initial BP does not indicate the stability of their condition.

Abstract ID: 0059  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.16

Does body mass index in Asians influence trauma management: a preliminary report

Y.X. Teo, L.T. Teo, K.T.S. Go, Y.T. Yeo, A. Vijayan, M.T. Chiu
Tan Tock Seng Hospital, Singapore, Singapore

Introduction: There is controversy surrounding the impact of body mass index(BMI) on the severity and outcome of trauma patients. Multiple studies have been done in Western institutions, using Western BMI ranges, with emphasis on critically injured trauma patients, specifically studying its relation with morbidity and mortality. We aim to investigate the relationship between BMI and trauma patients in Singapore.

Material and Methods: All trauma patients admitted(starting March 2008) to Tan Tock Seng Hospital General Surgery Department were included in this on-going double blind prospective study. BMI classification was modified based on ethnic differences according to Ministry of Health (Singapore) guidelines. Data was also collected on patient demographics, comorbidities, Injury Severity Score(ISS), length of stay, morbidity and mortality.

Results: 101 patients were currently in the study group. 82.2% were male and 60.4% of injuries sustained were due to road traffic accidents. Anal ysis showed that Asian BMI and ISS were independent of each other. There was no significant correlation between Asian BMI and complications, morbidity of patients; after stratification according to ISS. The patterns of injuries in 3 groups of patients (underweight, normal, overweight) were found to be similar. BMI was not a significant factor affecting mortality.

Conclusions: Being overweight does not appear to increase severity of injury in trauma patients or worsen outcome. Our study shows that BMI does not predispose trauma patients to or confer protection from any pattern of injury. Without applying ethnic modifications specific to Asians, BMI was not a factor affecting morbidity and mortality based on the more widely studied Western BMI ranges. We conclude from our preliminary results that BMI is not a significant factor influencing trauma outcomes in Asians. This study may serve to create awareness to an aspect of care in trauma patients that has not been widely explored in our region of the world; but its full impact
can only be evaluated with more extensive studies, like our current on-going study.

Abstract ID: 0060  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.17

Angio-embolisation in the operating theatre in trauma patients using the C-arm: a feasibility study

C.Y. Chai [1], L.T. Teo [1], T.S. Go [1], Y.T. Yeo [1], D. Wong [2], U. Pua [2], M.T. Chiu [2]

Introduction: Traumatic injury is the leading cause of death worldwide among persons aged 5–44 years old, and accounts for 10% of all deaths. Despite improvements in trauma care, uncontrolled bleeding still contributes to 30% to 40% of all deaths and is the leading cause of potentially preventable early in-hospital deaths. Angioembolisation in trauma is an upcoming technique that is gaining more popularity and recognition in identifying and arresting bleeding. In the current practice, we see more trauma patients receiving angioembolisation. We propose that trauma angioembolisation in the operating theatre can yield equally good results when compared with that done in the angiosuite. A feasibility study of trauma patients admitted to Tan Tock Seng Hospital from March 2005 to July 2008 was done. We aim to look at the site and type of angioembolisation these trauma patients received in the operating theatre, as well as the complications that occurred after angioembolisation, necessitating a repeat procedure or surgery. Out of 39 patients who received angiography in the operating theatre, 29 were angioembolised. All the angioembolisations done in the operating theatre were successful, with no evidence of rebleeding. In terms of morbidity, mortality and re-bleeding rates, this was comparable to that in the angiography suite. Furthermore, the cost effectiveness was superior to that done in the angiography suite. The findings of the study demonstrate that angioembolisation in the operating theatre is highly feasible and yields results that are as promising as angioembolisation done in the angiography suite.

Abstract ID: 0061  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.18

Laparoscopic intracorporeal repair of intraperitoneal rupture of urinary bladder

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Introduction: Conventionally urinary bladder injuries are managed by laparotomy and drainage. We have used diagnostic and therapeutic laparoscopy in hemodynamically stable trauma patients for several years successfully. We present our experience with laparoscopic repair of intraperitoneal rupture of urinary bladder in a series of four consecutive patients

Material and Methods: Four consecutive patients of suspected intraperitoneal rupture of urinary bladder were managed laparoscopically. Cause of injury was road traffic accident, history of fall and direct blunt trauma to abdomen. All patients were male with a mean age of 32 years (range of 24–37). One patient had fracture pelvis. All patients were hemodynamically stable. Diagnosis was confirmed by catheterization, ultrasound, and contrast CT scan. Ultra sound revealed free peritoneal fluid and CT scan showed contrast leaking in peritoneal cavity from ruptured urinary bladder. All patients had laparoscopy in supine position with surgeon standing on left side of patient. Using a three port technique a 10 mm 0 degree laparoscope was introduced through umbilical port and two 5 mm ports on eitherside of it in midclavicular line. The diagnosis was confirmed, a through laparoscopy was done to rule out other associated injuries. The bladder wall was repaired with an intracorporeal single layer of continuous 2 zero vicryl suture. In one patient with a large rupture, a suprapubic catheter was used. The peritoneal cavity was thoroughly irrigated leaving behind a retropubic suction drain

Results: Site of bladder rupture was always dome of urinary bladder and size of rupture varied from 5–8cms horizontally. Mean operation time was 50 minutes (range 33–68). No patient required blood transfusion. The contrast studies were done 10 days after surgery to confirm no leak and catheters were removed. Follow up was satisfactory

Conclusions: Laparoscopic repair of intraperitoneal rupture of urinary bladder in a hemodynamically stable patient with no other associated intraabdominal injury is feasible and safe

Abstract ID: 0062  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.19

A medical and technical analysis of knee injuries focusing vulnerable road users and belted car drivers in road traffic

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Introduction: Description of road traffic related knee injuries in published investigations is very heterogeneous. The purpose of this study was to estimate the risk of knee injuries in real world car impacts in Germany focusing on vulnerable road users (pedestrians, bicyclists and motorcyclists) and belted car drivers.
Material and Methods: The accident research unit analyses technical and medical data collected shortly after the accident at scene. Two different periods (years 1985–1993 and 1995–2003) were compared focusing on knee injuries (Abbreviated Injury Scale (AIS\textsubscript{Knee}) 2/3). In order to determine the influences type of collision, direction and speed as well as the injury pattern and different injury scores (AIS, MAIS, ISS) were examined.

Results: 1,794 pedestrians, 742 motorcyclists, 2,728 bicyclists and 1,116 car drivers were extracted. 2% had serious ligamentous or bony injuries in relation to all injured. The risk of injury is higher for two-wheelers than for pedestrians, but knee injury severity is higher for the latter group. Overall the current knee injury risk is low and significantly reduced comparing both time periods (27%, \( p < 0.0001 \)). Severe injuries (AIS\textsubscript{Knee}=2/3) were below 1%. Improved aerodynamic design of car fronts reduced the risk for severe knee injuries significantly (\( p = 0.0015 \)). Highest risk of injury is for motorcycle followed by pedestrians, respectively. Knee protectors could prevent injuries by reducing local forces. The classically described dashboard injury was rarely identified.

Conclusions: The overall injury risk for knee injuries in road traffic is lower than estimated and reduced comparing both periods. The aerodynamic shape of current cars compared to older types reduced the incidence and severity of knee injuries. Further modification and optimization of the interior and exterior design could be a proper measurement. Classic described injury mechanisms were rarely identified. It seems that the AIS is still underestimating extremity injuries and their long term results.

Abstract ID: 0063
Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.20

Avoiding cavity surgery in penetrating torso trauma: the role of the CT scan

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Introduction: Surgical decision-making in torso trauma is complex. This paper looks at the role of the CT scan in this decision-making process.

Material and Methods: Patients with significant torso trauma (gunshot wound (GSW), blast, stab) admitted to a military role 2 (enhanced) hospital facility during a seven week period of Operation HERRICK 9 (Afghanistan, October to November 2008) are reported. Patients with haemodynamic instability, anatomical and mechanistic injuries obviously requiring surgery, or those in whom surgery was not considered for other reasons, were excluded from the analysis. The management of patients, who underwent a CT scan as part of the decision-making process at the time of admission, is discussed.

Results: Twenty eight patients with significant torso trauma were admitted to the facility during the study period; GSW (n = 15), blast (n = 9), stab (n = 4). Fifteen patients were excluded from the analysis according to the above criteria; GSW (n = 10), blast (n = 1), stab (n = 4). There were two deaths in this group. Thirteen patients underwent a CT scan as part of the surgical decision-making process; GSW (n = 5), blast (n = 8). Imaging confirmed torso integrity in twelve patients, one patient had a confirmed penetrating thoraco-abdominal injury which was treated conservatively with tube thoracostomy and ‘active observation’. One patient with torso integrity subsequently had a laparotomy for vascular control for on-table haemorrhage during lower limb surgery. There were no deaths in this group.

Conclusions: A CT scan formed part of the surgical decision-making process in about half of the patients admitted with significant torso trauma and helped prevent unnecessary surgery in this forward military environment. Those patients with a blast injury were more likely to undergo CT scanning than those where the mechanism of injury was a GSW.
Abstract ID: 0065  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.22

Massive transfusion in major trauma surgery: prognostic features and outcomes
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Introduction: Civilian patients requiring massive transfusion (MT) are a relatively uncommon but important sub-group of trauma victims. We evaluate current MT practice at a major UK trauma centre, identifying prognostic features in relation to transfusion volume and survival.

Material and Methods: Retrospective cohort analysis of trauma patients 2001–2006. Data extracted from clinical records and hospital computer systems (NotIS and TARN). Inclusion criteria: 15 years old, MT 10 units within 24 hrs, and total Injury Severity Score (ISS) 16.

Results: Of 881 patients identified as receiving 10 units of red cells in the study period; 59 matched inclusion criteria: 73% male; median age 36 ± 16.7 years; mean ISS 26.2 ± 7.8. Predominant injury mechanism was blunt trauma (n = 49, 83%). At presentation: 42% were hypothermic (mean 35.4 ± 1.6°C); 78% acidic (mean pH 7.19 ± 0.13; BE −10.1 ± 6.58 mmol/L); 49% coagulopathic (mean INR 1.31 ± 0.53; APTT 34.7 ± 16.1 s). Three patients died in Emergency Department; remainder taken to theatre. Mean RBC transfusion: 20 units/24 hrs. Univariate logistic regression identified initial GCS (OR = 0.801; p = 0.002) and intra-operative pH (OR 0.003, p = 0.047), as significantly associated with mortality. Univariate linear regression of patient demographics and initial clinical features identified haemoglobin (R² = 0.093, p = 0.033), platelet count (R² = 0.097, p = 0.030), serum lactate (R² = 0.389, p = 0.032), serum bicarbonate (R² = 0.149, p = 0.041) and ISS score (R² = 0.053, p = 0.046) as significantly associated with blood volume transfused. There was no significant relationship between blood volume and mortality (p = 0.387). Mean transfusion ratio RBC:FFP 6:1 (range 11:1–4:1). Mean RBC:Plts 9:1. Overall mortality = 35.6%; median length of stay (survivors) = 26 days.

Conclusions: The ‘lethal triad’ is well established in presentation in the majority of patients receiving MT. Biochemical markers of acidosis are associated with mortality and volume transfused. Sub-optimal transfusion ratios may further exacerbate coagulopathy. This reaffirms need for evidence based guidelines for intra-operative resuscitation and MT.

Abstract ID: 0066  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.32

Indications for laparotomy in blunt hepatic trauma
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Introduction: According to recent studies 80% of all liver injuries can be managed conservatively, indicating that in 20% surgical treatment is still the only way to preserve the life of the patient. In 2000 we established modified AAST guidelines for the management of liver trauma.

Material and Methods: Medical records of all patients with blunt hepatic injuries managed in our institution in the past 8 years were reviewed. Diagnostic workup, grade of liver injury, indications for surgical intervention, surgical approach and clinical outcome was analysed and compared with recent studies.

Results: From 2000 to 2008 a total of 114 patients with blunt hepatic injuries were managed in our trauma unit. 64 patients (56.1%) were treated conservatively, whereas 50 required operative management - mainly due to concomitant abdominal injuries. Overall mortality rate was 18.4%. Two patients died from abdominal haemorrhage prior to surgical intervention. 18 (15.8%) patients were haemodynamically unstable on admission, showing free fluid in focused abdominal ultrasound for trauma (FAST) and therefore underwent immediate laparotomy without prior CT scan. Mortality rate was 61.1%. In this subgroup six (33.3%) patients had only minor (Grade I and II) liver injuries but significant concomitant abdominal injuries (splenic, renal, vascular) accounting for intra-abdominal haemorrhage. Mean time from trauma to operation was 1.6 hours. 95 patients were admitted in haemodynamically stable condition and therefore underwent FAST and contrast enhanced spiral CT for abdominal assessment. Of those 32 patients required surgery at a later point, mainly because of progressive haemodynamic instability from intraabdominal haemorrhage from liver- (15) or splenic (6) injuries or bowel injury (5). Mortality rate was 21.2% and mean time from trauma to operation was 4.0 hours. Sutures were used in 31 patients, primary packing in 19 patients, Pringle’s manoeuvre in 6 patients and hemihepatectomy in two patients to obtain haemostasis. 19 (44.2%) of 43 severe injuries (grade IV and V) were successfully managed conservatively.

Conclusions: The management of hepatic injuries according to our modified pathway based on AAST guidelines showed favourable results. A high laparotomy rate can be explained by a great percentage of concomitant splenic injuries.

Abstract ID: 0067  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.24

Resource utilisation in non-operative management of solid organ injury in blunt abdominal trauma
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Introduction: Majority of trauma patients with solid organ injury from blunt abdominal trauma (BAT) are managed non-operatively. This review examined the utilization of critical resources, namely requirement for blood transfusion, requirement for Intensive Care Unit (ICU) management and overall length of stay (LOS) in such patients.

Material and Methods: Consecutive cases of BAT in the hospital’s trauma registry admitted over 6 years with computed tomography (CT) proven injury of the liver, spleen and/or kidneys managed non-operatively were reviewed. Resource utilization was correlated with the severity and multiplicity of solid organ injuries sustained as well as the overall injury status of the patient based on the Injury Severity Score (ISS) and the Revised Trauma Score (RTS).

Results: Results showed that the Injury Severity Score (ISS), analyzed in 3 bands- namely 3–15, 16–30 and > 30, correlated positively with blood requirement and ICU admission (p < 0.05). LOS peaked in the group of patients with ISS 16–30 and dropped after that. This was likely due to a greater proportion of patients with ISS > 30 who died. RTS correlated well with the need for ICU admission (p < 0.05) but not requirement for blood transfusion or LOS.
The grade of organ injury based on the American Association for the Surgery of Trauma (AAST) grading system and the number of organs injured did not appear to correlate significantly with utilization of the named resources.

Conclusions: ISS correlated well with the named resource utilization and RTS reflected the need for ICU care. The number of abdominal organs injured and the AAST grade however did not appear to influence the degree of resource utilization. ISS and RTS may be useful to help plan resources required for management of trauma patients.

Abstract ID: 0068  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.25

The treatment strategy of abdominal trauma injuries: analysis of consecutive 157 cases requiring operative management

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Introduction: Nonoperative management (NOM) of abdominal organ injuries is one of the most notable trends in the care of trauma patients during the past 2 decades, nevertheless, operative procedure is still necessary for some patients.

Material and Methods: A retrospective review of patients requiring laparotomy for abdominal trauma injuries at Ohta Nishinouchi General Hospital was conducted. Ohta Nishinouchi General Hospital is one of the largest Critical Care and Trauma Center in the northern part of Japan. From January 1998 to December 2007, 47513 cases of ambulance came to our emergency room, and of them, 12892 (27.1%) were trauma injuries and 4546 patients (9.6%) were hospitalized. Among these patients, 157 patients required laparotomy for abdominal organ injuries. We reviewed Revised Trauma Score (RTS), location and severity of injuries by means of Injury Severity Score (ISS), the probability of survival (Ps), time to operation, operative procedures, intra-operative bleedings, mortality and morbidity.

Results: Among 157 patients, the number of injuries to the mesenterium; 55, spleen; 35, liver; 32, small bowel; 31, abdominal wall; 26, colorectum; 24, retroperitoneum; 20, gastroduodenum; 10, diaphragm; 10, pancreas; 8, pelvis; 5 and 10 patients underwent exploratory laparotomy. Out of them, 144 patients (91.7%) underwent immediate operative procedure and the other 13 patients (8.9%) initially selected NOM, but subsequently converted into laparotomy. The mortality rates of the respective organ injuries were liver; 21.8%, spleen; 14.2%, pancreas; 12.5%, gastroduodenum; 10.0%, diaphragm; 10.0%, small bowel; 9.6%, mesenterium; 9.1%, colorectum; 8.3%, and of the patients with extra-abdominal wound undergone exploratory laparotomy was 16.4%. To investigate the predictive factors affecting mortality, we performed statistical analysis. Univariate analysis revealed that ISS, liver injury, brain injury, hemoglobin, platelets count. Multivariate logistic regression analysis demonstrated that ISS and liver injury were independent predictor.

Conclusions: It was already reported that RTS and Ps were predictors for trauma patients. In addition to them, our data showed that high ISS and liver injury were associated poor outcome. To improve the mortality rates of abdominal trauma cases, novel treatment strategies for the patients with high ISS and hepatic trauma are required.
Follow-up study of the clinical trial of spinal cord injury treatment with intrathecal autologous bone marrow stromal cell transplantation: report of the first two cases

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Introduction: Victims of spinal cord injury will suffer from disability and complications throughout his life. We have developed a clinical trial of spinal cord injury treatment administering autologous bone marrow stromal cells (BMSCs) into cerebrospinal fluid (CSF) by a lumbar puncture to avoid another operative insult for transplantation.

Material and Methods: Case 1: A 35-year-old man fell down from a 7-m height. Radiographic studies revealed spine dislocation, fracture, and spinal cord injury at C5 (Fig). The injury was classified as American Spinal Injury Association (ASIA) Impairment Scale A with no motor function at C6 and lower. Bone marrow of the ilium was obtained at the operation of spinal stabilization. He was administered with 3.1 x 10^7 BMSCs in the CSF on day 10, and was evaluated according to the International Standards for Neurological and Functional Classification of Spinal Cord Injury (ISCSCI) and radiographs for two years. Case 2: A 59-year-old man fell down from stairs. ASIA impairment scale was B, weak sensation and sacral sparing was observed without motor function at C6 and lower. At laminoplasty, bone marrow was obtained. He was administered with 2.1 x 10^7 BMSCs on day 11, and followed up for 6 months.

Results: In the first case, ISCSCI motor score improved from 6 to 16 (fullscore = 100) by 3 months with lower (C6,7) functional recovery. The recovery is one of the best cases among similarly injured patients. However, little improvement was observed there after and remained at ASLA A. In the second case, motor function of ISCSCI score 5 did not improve after the operation and transplantation. How ever, in the second week after the transplantation, motor function began to improve and rapidly recovered to score 55 and ASIA D within five weeks. As the cells are their own origin, there were neither ethical nor immunological problems. No deleterious effect such as ossification of BMSCs was observed.

Conclusions: Although we have studied only 2 cases, the results of the follow-up study suggest the safety of this trial. The patients show good recoveries, and the effectiveness of the trial is going to be evaluated by a committee with members outside the study team after an accumulation of more cases.

Abstract ID: 0072  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.29

Major liver trauma in unstable patients and intra-abdominal hypertension: challenging non-operative management over the limits

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Introduction: Non Operative Management (NOM) of major liver injuries in polytrauma patients has dramatically decreased morbidity and mortality. Hemodynamic instability is still mandatory for laparotomy and damage control surgical procedure.

Material and Methods: In 2007 we admitted at our level I Trauma Center two polytrauma patients with grade IV liver injury and large hemoperitoneum CT-documented, hemodynamically unstable. The availability of Trauma ICU and continuous monitoring, angiography room for embolization, Trauma theatre and surgical team at 24/7 basis, led to decide NOM.

Results: Both patients remained unstable in the first 12 hours in TICU. They were transient responders to fluid resuscitation and multi-transfused. The presence of hemoperitoneum leading to a moderate Intra Abdominal Hypertension (IAH), monitored by continuous intra-abdominal pressure measurement, was tolerated and resulted in achievement of Non-Operative control of hemorrhage. The mean values of abdominal pressure in TICU were respectively 25.4 mmHg (range 13–40) and 18.6 mmHg (range 14–22) (Class III–IV and II IAH). The patients’ vitalis were monitored. After arresting hemorrhage and achieving hemodynamic stability, US-guided drainage of the hemoperitoneum in right iliac fossa was performed 6 and 7 days after trauma, resulting in drainage of 2600 and 4200 cc of blood. The patients were discharged 1 month later and follow up was successful. In selected hemodynamically unstable patients and upon availability of appropriate facilities, NOM can be safely challenged over the usual limits. The indicators of tissue perfusion such as pH and BE, seems to be more reliable and sensitive prognostic parameter than hemodynamic instability evaluated by blood pressure and heart rate, in selecting the patients requiring surgical control of hemorrhage. A moderate IAH in young patients able to tolerate an increased intra-abdominal pressure, can allow a mechanical compression of the injured parenchyma achieving the arrest of hemorrhage, and extend the indications for NOM in selected hemodynamically unstable patients, without signs of severe tissue hypoperfusion.
Pancreatic-duodenal trauma: statistical analysis of prognostic factors can lead surgeon’s therapeutic challenge

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Introduction: Pancreaticoduodenal trauma are often associated with multiple major abdominal injuries with high morbidity and mortality. Their management remains controversial.

Material and Methods: In our trauma center 54 patients had a pancreaticoduodenal injury out of 1239 trauma laparotomies (1989–2007). Morbidity and mortality with multivariate analysis of prognostic factors by logistic regression were reviewed. The injuries were as follows: 68.5% pancreas, 20.4% duodenum, 11.1% combined.

Results: Injuries spectrum was 22.2% AAST grade I, 42.6% II, 22.2% III, 7.4% IV, 5.6% V, 63% of the patients had >=2 lesions associated, 83% were unstable. 43 external drainage and/or simple suture were performed, 7 distal pancreatectomy, 2 duodenal resection with anastomosis, 2 diverting procedures. In the last decade feeding jejunostomy was often used (47.6% vs 15.2%). Overall mortality was 22.2% (9.3% intraoperative). Morbidity was 37%. Survivors had shorter operative time (122 vs 149 min), lower AAST grade (p = ns). Survival rate significantly differs comparing grade I–II lesions with duodenal involving injuries (III–V) (p < 0.01). Mortality ranged from 0% with no associated lesions to 29.4% with >=2. With adjunctive feeding jejunostomy mortality was 6.7% vs 28.2% (p = 0.05). Patients developing complications had longer operative time (138 vs 108 min), worse AAST grade (p < 0.05). Combined pancreaticoduodenal injuries showed higher morbidity (80% vs 41.4% and 50% for isolated pancreatic and duodenal injuries respectively) requiring 2nd look laparotomy in 60% of cases vs 6.9% and 12.5% in pancreatic or duodenal lesion (p < 0.01). Multivariate analysis revealed intraoperative cardiac arrest, higher age, longer operative time, AAST grade III and diverting procedures to be the strongest factors of mortality. AAST grade was the strongest predictor of morbidity. Induct involving injuries (III–V), combined lesions strongly predicted morbidity (p < 0.01). Operative time, age and combined lesions remained predictive of mortality after multivariate analysis.

Conclusions: Ductal involvement, combined pancreatico duodenal injuries and hemodynamic status are significant predictors of prognosis. Optimal management seems to be associated with shorter operative time, Damage Control surgical procedures and feeding jejunostomy adjunct.

Abstract ID: 0073
Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.30

Epidemiology of trauma in Eastern Turkey

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Introduction: There is a grey zone about the epidemiology of trauma in eastern Turkey. The present study is aimed at obtaining data on this subject.

Material and Methods: Trauma patients who applied to emergency department (ED) of a state hospital between January 2006 and December 2007 were selected. Data of age, gender, cause of trauma, pathology defined, consultation and outcome were analyzed.

Results: There were 6201 patients and 5255 of them (84.7%) were men. Mean age was 25.6 (1Month-84 years) years. Strike was the most common cause seen in 3630 patients (58.5%). Motor vehicle injury (MVI), fall, poisoning were encountered frequencies of 18.5%, 6.3%, and 5.1%, respectively. Pathologies of various severities were present on head and extremities (totally 53.9%). However, majority of patients were managed and discharged from ED (89%) with no consultation (81.5%). Almost all stricken patients were discharged from ED. There were 232 patients (3.7%) hospitalized for MVI (31.9%) and fall (20.7%). Within the groups, hospitalization rates for piercing/cutting injury and firearm were significantly high (p<0.001). Among the transported 383 (6.2%) patients, the rates of MVI, poisoning, and fall were high. In groups, transportation rates for burn and poisoning were remarkable (p<0.001). Forty eight patients (0.8%) died, mostly from MVI by number, but firearm and suicide by rate.

Conclusions: Strikes caused an excessive trauma patient density at ED, as 98% were discharged in a short time. Patients with burn, poisoning, and fall frequently needed effective ICU, so were transported. Although rates of transportation for firearm and suicide were high, the number was low compared with Western literature. Fall and poisoning were frequently seen to which morbidity and mortality accompanied.

Abstract ID: 0075
Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.32

M-study from Japan

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Introduction: The original TRISS methodology from the Major Trauma Outcome Study (MTOS) is the most widely used outcome prediction model. The coefficients from the MTOS cohorts are still used in the Japan Trauma Data Bank (JTDB) for evaluating the quality of patient care. The purpose of this study is to determine whether the database of JTDB is well matched to the MTOS study and if the original TRISS coefficients could accurately predict outcome in Japan.

Material and Methods: The M-statistics score was calculated based on the data set of JTDB 2004–07 that was disclosed to the participating institutes.

Results: Twenty thousand two hundred fifty eight cases were registered on JTDB 2004–07. Six thousand five hundred seventy cases had data deficit and the remaining 13688 are used to calculate the probability of survival (Ps) by TRISS method. The mean age was 46.8 ± 0.2. Sixty nine percent of cases were male gender. The mean Injury Severity Score was 17.2 ± 0.1. The mean Revised Trauma Score was 0.833 ± 0.002. The M-statistic score was 0.755.

Conclusions: The trauma populations in this study differed significantly from the MTOS. The Regional TRISS coefficients should be adapted for outcome assessment based on the location of the injured
population. This is the first report of an M-study analyzed with ITDB which is a national representative trauma data base of Japan.

Details of the M-static Calculation for Evaluating the differences of Severity Case Mix Between Two Populations

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Abstract ID: 0076  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.33

Is it necessary to clamp chest tubes before removal in trauma patients?

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Introduction: To determine if clamping of CT before removal decreases the incidence of recurrent pneumothorax after removal of CT. Chest tubes (CT) are often clamped and a CXR obtained to show non-recurrence of pneumothorax before its removal. However, there is no uniform consensus whether it is necessary to clamp CT before removal. It is not known if this practice of clamping has benefits to patients in terms of reducing the incidence of pneumothorax recurrence after CT removal, which may require reinsertion of CT. More over, clamping the CT increases the duration of CT insertion and patient discomfort, the number of CXRs done and costs.

Material and Methods: A retrospective review of patients who had CT insertion for traumatic pneumothorax in a single institution over the past 2 years. Patients were divided into 2 groups: Group A was those who had their CT clamped before removal and Group B was those who did not have their CT clamped before removal. The incidence of recurrence of pneumothorax after CT removal, need for 2nd CT insertion, and duration of chest tube insertion were studied between the 2 groups.

Results: 55 patients were studied with 66 CTs removed. There were 30 CTs in Group A and 36 CTs in Group B. The incidence of recurrent pneumothorax in Group A was 7 out of 30 (23.3%) and 5 out of 36 (13.9%) in Group B, there was no statistical difference (Chi square test 0.322). 11 of the 12 recurrent pneumothorax were treated conservatively and resolved on follow-up, with 1 of the 12 (Group A patient) requiring a reinsertion of CT. Clamp ing of patients in group A did not reveal any recurrent pneumothorax which required unclamping of CT. Median duration of chest tube insertion was 12 days in Group A compared to 6 days in Group B.

Conclusions: Clamping of CT before removal did not show benefit in decreasing the number of recurrent pneumothoraces and prolonged hospital stay.

Abstract ID: 0077  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.34

Major workplace related accidents in Singapore: a single institution experience

Z.X. Ng
TTSH, Singapore

Introduction: Major workplace related accidents pose a significant healthcare resource challenge in Singapore. Tan Tock Seng Hospital, being the busiest acute care hospital in Singapore, attends to a significant number of workplace related accidents.

Material and Methods: Our retrospective study looks at the epidemiology of patients who were admitted for major workplace related accidents, in a single institution, with an Injury Severity Score of ≥9. Data was obtained from the hospital’s trauma registry.

Results: There were 196 cases of major workplace related accidents admitted between January 2006 and December 2007. The median age of patients admitted was 37 years with a large proportion being males (0.95). 57% of patients admitted were non residents. The most common ethnic group seen is Chinese (0.54), followed Indians (0.23), Bangladeshis (0.13), Malays (0.03) and then Thais (0.03). The most common mechanism of injury is fall from height (0.66), followed by being injured by falling objects (0.22) and vehicular accidents (0.04). The commonest site of injury is the head and neck (0.28), followed by upper limbs (0.20), and the lower limbs (0.19). 70% of patients admitted required some form of surgical intervention. Patients who fell from a height of >2m had more severe injuries compared to those who fell <2m. Fac tors influencing the length of stay in hospital were ISS, height of fall and whether the patient required any form of surgical intervention. Patients admitted for major workplace related accidents had a median length of stay of 5 days in the hospital, a median length of 24 days of medical leave (ML). The average cost of stay for each patient was S$11,000.

Conclusions: In summary, studying the epidemiology of workplace related accidents has enabled us to improve our understanding of major workplace accidents, propose methods to prevent and reduce such major accidents in future. An indirect benefit of further improvements in injury prevention would be to reduce the socioeconomic stress not only the patient but also on the healthcare system.

Abstract ID: 0078  Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.35

The treatment strategy of blunt hepatic trauma: analysis of consecutive 170 cases

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Ohta Nishinouchi General Hospital, Koriyama, Japan

Introduction: Nonoperative management of blunt hepatic injuries in selected patients is highly successful. How ever, if operative management was required because of hemodynamic instability or concomitant injuries, then the mortality rate is still significantly high.
We retrospectively reviewed the demographics, severity of liver injury, associated concomitant injuries, morbidity and mortality of consecutive 170 patients with documented blunt hepatic injury from January 2001 to July 2007.

Results: The overall mortality was 22 cases (14.0%), except 13 cases with cardiopulmonary arrest on arrival. Eight cases (5.1%) caused by the liver injury itself. Sixty-seven (42.7%) of liver injuries were of low severity (grades I and II), with an overall mortality was 7 cases (10.4%) caused by concomitant injuries and liver-related mortality of 0%. Ninety (57.3%) of liver injuries were high-severity injuries (grades III, IV and V) and an overall mortality was 15 (16.7%) cases, with liver-related mortality of 8 cases (8.9%). Considering the management of liver injury, operative management group was 37 cases (23.6%), nonoperative management group was 120 cases (76.4%). The mortality of operative management group was 11 (29.7%), nonoperative management group was 11 (9.2%). Fifteen out of 26 cases of complex liver injuries (grades IV and V) required operative intervention because of hemodynamic instability and the mortality rate was 46.7%, while the mortality rate of 11 out of 26 cases, which were selected nonoperative management, was 45.5%.

Conclusions: Selective management of hepatic trauma presented a low liver-related mortality rate. Low-grade liver injuries can be managed nonoperatively with excellent results. However, in spite of the selective management, the mortality of high-grade liver injuries is still high. It is needed to consider appropriate operative procedure for high-grade liver injuries cases with hemodynamic unstable status.

Abstract ID: 0079 Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.36

Solid organ angio-embolisation: a 90 day post procedure follow-up
L.T. Teo, F.X.Z. Li, M.T. Chiu, A. Vijayan, C. Manuis, U. Pua, D. Wong, K.T.S. Go
Tan Tock Seng Hospital, Singapore, Singapore

Introduction: Angio-embolisation (AE) has become part of our trauma armamentarium in the management of trauma patients. Majority of AEs are done in pelvic trauma. However, although solid organ AEs have been done, they are not as common nor has there been a follow-up study. The aim of our study is to describe the use of AEs in the management of solid organ injury in trauma and the subsequent 90 day follow-up. We studied the incidence of target organ function post-AE, complications, success of the procedure in arresting haemorrhage, mortality and duration for target organ to return to normal function (based on history and laboratory investigations). A retrospective review of all solid-organ AEs done between 2005 and 2007 was done. Inclusion criteria were Injury Severity Score >9, AEs were done, and post AE check angiography to confirm successful embolisation. Exclusion criteria were those who had incomplete data sheets, no embolisation done, those who had conversion to surgery or died prior to completion of AE. A total of 12 patients admitted into the study. The small sample size reflected the limited use of AE for solid organ injury during the period studied. There were 7 hepatic, 3 spleen and 2 renal AEs done successfully. Majority of AEs were done with coils, Selective AE was done for the main branches of the bleeding vessels. Mean number of transfusions were 4.9 units of packed cells. All patients had normalization of biochemical end organ function within 85 days of follow-up. None had end organ failure post AE. Solid organ AEs in trauma patients is a feasible option in arresting haemorrhage. Even when non bio degradable coils are used, or when main branches of the end organs are angio-embolised, there is neither end organ failure nor abnormal end organ function within 90 days of the procedure.

Abstract ID: 0080 Specific Field: Trauma

Mode of pres.: Poster Discussion
ISW 2009 Session 16.37

Human experimental endotoxemia as a model for SIRS induced by trauma
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[1] University Medical Centre Utrecht, Utrecht, Netherlands, [2] Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands

Introduction: An overwhelming innate immune reaction underlies the pathogenesis of inflammatory complications (e.g. ARDS and MOF), which frequently complicate the clinical course after polytrauma. Better understanding of this inflammatory response is necessary to adjust (surgical) therapy. Inves tigating the innate immune response after trauma is hampered by heterogeneity of injuries, received (blood) products and lack of baseline values. We compared the innate immune reaction during experimental endotoxemia to that of trauma patients. We tested the hypothesis that this human model of acute systemic inflammation can be used for the study of acute inflammation evoked by trauma. We compared phenotype of neutrophils as part of the final common pathway in the innate immune response.

Material and Methods: E. coli polysaccharide LPS (2ng/kg) was injected intravenously in 10 healthy male volunteers to induce an acute systemic immune response. Blood samples were withdrawn before induction of inflammation and at 3 and 24 hours. Values of inflammation model were compared to those of 12 patients with thorax injury, from whom blood samples were withdrawn approximately at 3 hours and 24 hours after injury. Blood samples of 8 healthy volunteers were used for baseline values. Recep tor expression was measured using FACS. Results: Both groups showed a remarkable decline of activated FcgRII expression at 3 hours after onset of inflammation. While expression remained low in the trauma group it was partly restored after LPS challenge. Similar findings were made with regard to expression of chemokine receptors CD88, CXCRI and CXCR2 albeit to a lesser extent. Conclusions: Experimental endotoxemia can be used as a model for innate immune response after trauma, which allows detailed testing of novel therapeutics to treat systemic inflammation after trauma.
of 17kDa (CPI-17) and zipper-interacting protein kinase (ZIPK) in the regulation of PKCa and on vascular calcium sensitivity following hemorrhagic shock.

**Material and Methods:** Using superior mesenteric artery (SMA) from hemorrhagic shock rats (at 40mmHg for 2 hours), the effects of PKCa and agonists on calcium sensitivity and the phosphorylation of 20 kDa myosin light chain (MLC20), and the mediation effects of CPI-17 and ZIPK in this process were observed. In hypoxia-treated VSMCs, the effects of PKCa and agonists on the protein expression and activity of CPI-17 and ZIPK were observed.

**Results:** The results indicated that PKCa and agonists, thymelea toxin and carbachol, appeared to increase the calcium sensitivity and MLC20 phosphorylation of superior mesenteric artery following hemorrhagic shock and antagonize the increase of MLCP activity in VSMC after hypoxia. These effects of PKCa and agonists were abolished by CPI-17 and ZIPK neutralizing antibody. The protein expression and activity of CPI-17 and ZIPK in VSMC were suppressed after hypoxia, but increased by PKCa and agonists. Immunoprecipitation experiment showed that PKCa and, especially PKC, may directly bind with ZIPK, but not with CPI-17 in VSMC. ZIPK may directly bind with CPI-17.

**Conclusions:** These results suggest that CPI-17 and ZIPK participate in the regulation of PKCa and on vascular calcium sensitivity following hemorrhagic shock. The most possible signal pathway is that PKCa and ZIPK inhibit MLCP by ZIPK either directly or via CPI-17, to regulate the phosphorylation of MLC20 and the calcium sensitivity of VSMC.

**Abstract ID: 0082** Specific Field: Trauma

**Mode of pres.:** Poster Discussion  
**ISW 2009 Session 16.39**

**Role of protein kinase C in the beneficial effects of arginine vasopressin on hemorrhage shock-induced vascular hyporesponsiveness and calcium desensitization in rats**

G. Yang, T. Li, J. Xu, L. Liu  
Research Institute of Surgery, Daping Hospital, The Third Military Medical University, Chongqing, China

**Introduction:** The present study investigated the role of protein kinase C (PKC) in the beneficial effects of arginine vasopressin (AVP) on hemorrhage shock-induced vascular hyporesponsiveness and calcium desensitization and its related mechanisms.

**Material and Methods:** Using both isolated superior mesenteric artery (SMA) from hemorrhagic shock rats (30mmHg for 2h) and 90 min hypoxia-treated vascular smooth muscle cell (VSMC), we investigated the roles of PKC α, δ and isoforms in AVP induced restoration of vascular reactivity and calcium sensitivity. In addition we investigated the effects of their specific inhibitors on the activity of myosin light chain phosphatase (MLCP), myosin light chain kinase (MLCK), and the phosphorylation of MLC20 in VSMC.

**Results:** The results indicated that AVP improved the reactivity of SMA to norepinephrine (NE) and calcium following hemorrhagic shock and improved the hypoxia-induced decrease of the contractile response of VSMC. PKC-δ and 5 isoform inhibitor Gö6976 and Rottlerin, respectively, and PKC-isoform inhibitory peptide antagonized these effects of AVP. Hypoxia increased the expression of PKC-δ and in particulate fractions but decreased their expression in cytosolic fractions of VSMC. AVP up-regulated the expression of PKC-δ and in the particulate fractions, reduced the activity of MLCP and increased the phosphorylation of MLC20 in VSMC. These effects of AVP were inhibited by PKC-δ inhibitor Gö6976 and PKC-isoform inhibitory peptide, but not by the PKC-δ isoform inhibitor, Rottlerin.

**Conclusions:** These results suggested that PKC played an important role in AVP-induced regulation of vascular reactivity and calcium sensitivity following hemorrhagic shock. PKC-α and PKC-δ seemed to be the main subtypes involved and the mechanisms may relate to PKC-mediated MLCP-MLC20 phosphorylation regulation signal pathway.

**Abstract ID: 0084** Specific Field: Trauma

**Mode of pres.:** Poster Discussion  
**ISW 2009 Session 16.41**

**Predicting risk-adjusted mortality for trauma patients: logistic versus multilevel logistic models**

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**Introduction:** We sought to determine whether random-intercept multilevel (ML) regression modeling might be useful in the
assessment of hospital care for trauma patients. The oretical advantages of ML over standard logistic regression (LR) include separating variability due to patient-level and hospital-level predictors, “shrinkage” of estimates for lower-volume hospitals toward the overall mean, and fewer hospitals falsely identified as outliers.

**Material and Methods:** We used U.S. Nationwide Inpatient Sample (NIS) data from 2002-4 to construct LR models of hospital mortality after admission with a principal ICD-9-CM injury diagnosis (ICD-9-CM 800-904, 910-929, 940-957, 959). After considering various predictors, we used patient-level indicator variables for age groups, sex, maximum AIS for the head region (3,4,5), maximum AIS for other body regions (3,4,5), and mechanisms (fall, gunshot, motor vehicle). Using standard LR and MLLR, we compared predictions based upon 2002, 2003, and 2004 data to actual mortality observed in the same hospitals in 2004, 2005, and 2006 NIS respectively.

**Results:** Patient-level fixed effects were similar for all methods, with mortality associated most strongly with AIS = 5 head injury, other AIS=5 injury, or higher age groups. ML models identified fewer hospitals as outliers. Differences between actual and predicted mortality were significantly smaller with MLLR models compared to standard LR models (see Table).

**Conclusions:** ML models may have advantages for the measurement and explanation of interhospital differences in trauma outcomes.

<table>
<thead>
<tr>
<th>Hospital effect fixed (standard)</th>
<th>Hospital effect random (multilevel)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
</tr>
<tr>
<td>COMPARABLE HOSPITALS</td>
<td></td>
</tr>
<tr>
<td>Mean absolute error, Observed-Expected</td>
<td>1.12</td>
</tr>
<tr>
<td>Root-mean-square error, Observed-Expected</td>
<td>1.51</td>
</tr>
<tr>
<td>Percentage of hospitals whose predicted deaths were within 95% CI of observed</td>
<td>80.2</td>
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</table>

**Abstract ID: 0085** Specific Field: Endoscopic Surgery

**Mode of pres.:** Poster Discussion

**ISW 2009 Session 24.01**

Endosonographic- and laparoscopic ultrasonography-guided silver tack marking of lymph nodes and primary tumors in patients with upper gastrointestinal cancer (UGIC)

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Odense University Hospital, Odense, Denmark

**Introduction:** This study evaluated a new endosonography (EUS) - and laparoscopic US (LUS) - guided tumor and lymph node marking technique which would allow a direct node-to-node comparison between ultrasound and histology. The idea of this technique was to place a small silver tack in the primary tumor or in a lymph node during EUS or LUS, and then try to recover the tissue containing the tack during open surgery.

**Material and Methods:** A 5x0.8mm sterile silver tag was placed in a lymph node or in the primary tumor under EUS or LUS guidance, and the exact location of the lesion as seen by EUS or LUS was noted. During the following surgical procedure we tried to recover the specimen containing the tag using intraoperative ultrasound or by x-ray of the resected specimen. The location of the recovered tags was compared with the location suggested during preoperative EUS or LUS.

**Results:** Forty-eight patients with biopsy proven UGIC entered the study. Thirty-eight patients had EUS- or LUS-guided marking of a lymph node, and 4 patients had LUS-guided marking of their primary tumor. Six patients were excluded from the study. All 42 tags were successfully delivered into the target node or tumour, and no complications were recorded. The tags were easily recovered during surgery in 37 patients (88%). In four additional patients the tags were clearly visualized during intraoperative ultrasound, but since the patients had irresectable tumours a specimen was not obtained. The tag could not be found in one patient - neither during intraoperative ultrasound nor in the resected specimen. The tags were found in exactly the same lesion and location as predicted by EUS or LUS during the marking procedure in 34 patients (92%). In three patients who had EUS-guided marking of a lymph node the tags were found immediately adjacent to the lymph node. His topological examination of the tag-containing specimens showed no signs of inflammation or fibrosis.

**Conclusions:** This preliminary study showed that EUS- and LUS-guided silver tag marking is feasible and safe in patients with UGIC. The location of the marked lesion correlated with intraoperative findings, and this study provided an accurate method for a direct comparison between lymph nodes and tumours found during EUS/LUS and final histology.

**Abstract ID: 0086** Specific Field: Endoscopic Surgery

**Mode of pres.:** Poster Discussion

**ISW 2009 Session 24.02**

Less bleeding procedure of splenectomy for patients with liver cirrhosis


National Nagasaki Medical Center, Omura, Japan

**Introduction:** Splenectomy (SP) for patients with liver cirrhosis has been reported to improve liver function as well as hypersplenism. Laparoscopic SP has been considered as the procedure of choice to remove the normal-sized spleen. However, it is more difficult to perform when the spleen is enlarged, especially in the control of bleeding or in shortening operative time. The control of bleeding is critical in these patients, because blood loss and transfusion apparently make liver function worse. Thus, the hand-assisted laparoscopic surgery (HALS) seems to be suited to SP. In our institute, HALS has been introduced as the standard procedure of SP since July 2004. This study was aimed to evaluate intraoperative characteristics including the blood loss and operating time in HALS.

**Material and Methods:** From July 2004 to December 2008, 51 patients were undergone splenectomy for hypersplenism with liver cirrhosis in our institution. The medical records of those were retrospectively reviewed, particularly focusing on intraoperative blood loss and operative time.

**Results:** HALS was performed in 49 patients (25 men, 24 women). Partial hepatectomy and/or cholecystectomy were done simultaneously in 35 patients, while SP alone in remaining 12 patients. In all the cases, dissection of the spleen and sealing of short gastric or splenic hilar vessels were performed with a vessel sealing system. In 12 cases, clipping on splenic artery at the tail of pancreas before the dissection of spleen was performed for the control of bleeding. The average weight of spleen was 487 gr. (117–1604 gr.). Operative time was 287 +/− 92 min (190 +/− 31 min in SP), and mean estimated blood loss was 150 gr. (50gr. in SP). There were no postoperative mortalities. In 5 patients, HALS was converted to open SP due to uncontrollable bleeding from splenic
vein or collateral vessels. In the patients clipped on splenic artery before the dissection of spleen, the estimated blood loss was more than in those without clipping.

Conclusions: HALS is safety and effective procedure for splenomegaly with liver cirrhosis. This procedure is able to lead less blood loss and remove the disadvantage of longer operative time in laparoscopic surgery as compared to open surgery. In addition, clipping for sectioning splenic artery before manipulating spleen is not so effective for the control of bleeding.

Abstract ID: 0087  Specific Field: Endoscopic Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 24.03

Shorter learning curve for TAPP inguinal hernia repair: a single surgeon experience
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Introduction: Trans-abdominal pre-peritoneal (TAPP) inguinal hernia repair has a learning curve of 75 to 100 cases, as described in most studies previously. We aim to evaluate learning curve of a single surgeon with TAPP repair.

Material and Methods: The TAPP procedures done in a District General Hospital by a single surgeon from January 2005 till September 2007 were analysed retrospectively. Demographics, complications, recurrence rate and procedure time were recorded.

Results: 114 hernias were operated (90 patients). First 57 hernia repairs were considered as group A and last 57 as group B. Mean age of group A was 58.2 years (range 28-83) and group B was 57.8 years (range 22-84). Two cases were converted to open in group B due to adhesions. There were no major intra-operative complications. Procedure time was shorter in group B (46.9 Vs 52.7 mins per procedure, p value = 0.6829). Recurrence rate was significantly higher in group A, with 5 recurrences within a year after procedure and 1 after one year (6/57, 10.5%). There was only 1 recurrence in group B, a year after procedure (1/57, 1.75%) (p value = 0.1163). Haematoma, wound infection and chronic groin pain were almost equal in both the groups. As surgeon’s experience increased, majority of procedures were done as day case in Group B (50% Vs 15%).

Conclusions: TAPP repairs are technically easier and provide a better view of the anatomy. Our learning curve of 50 odd cases is better than most literature. Accuracy of dissection and reduction of sac has helped our outcome significantly.

Abstract ID: 0088  Specific Field: Endoscopic Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 24.04

The benefits of standardizing the operative procedure for the assistant in laparoscopy-assisted gastrectomy for gastric cancer
Cancer Institute Hospital, Tokyo, Japan

Introduction: Laparoscopy-assisted distal gastrectomy (LADG) has not yet been widely adopted for the treatment of gastric cancers because of the perceived complexity of the procedure. In addition to the proficiency of the operator, other factors could potentially be optimized to improve postoperative outcomes. The aim of this study was to evaluate a standardized operative procedure for assistants performing LADG.

Material and Methods: Of 114 patients, 64 initially underwent conventional LADG (CLDG) and then 50 underwent standardized procedure (SLDG) in which the role of assistant in LADG was completely established. Parameters compared for the SLDG and CLDG groups were operation time, estimated blood loss, intra- and postoperative complications, preservation of the vagus nerve, and the number of pathologically examined lymph nodes.

Results: The operation time for the SLDG procedure (mean ± SE, 229 ± 6 minutes) was shorter than for the CLDG procedure (261 ± 8 minutes; P < .002), and the estimated blood loss for SLDG (57 ± 7 mL) was less than for CLDG (108 ± 17 mL; P < .004). The celiac branch of the vagus nerve was preserved in 73% of SLDG patients compared with 52% of CLDG patients (P < .03). More lymph nodes were pathologically examined in SLDG patients (38.3 ± 1.5) than in CLDG patients (32.5 ± 1.8; P = .02).

Conclusions: Standardization of the LADG procedure for assistants enabled a shorter operation time, reduced blood loss, a higher rate of vagus nerve preservation and more accurate lymph node dissection.

Operative data between conventional (CLDG) and standardized (SLDG) Laparoscopy-assisted gastrectomy

<table>
<thead>
<tr>
<th></th>
<th>CLDG (n = 50)</th>
<th>SLDG (n = 64)</th>
<th>P values</th>
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<tbody>
<tr>
<td>Operation time (min)</td>
<td>261 ± 8</td>
<td>229 ± 6</td>
<td>0.002</td>
</tr>
<tr>
<td>Intraoperative blood loss (mL)</td>
<td>108 ± 17</td>
<td>57 ± 7</td>
<td>0.004</td>
</tr>
<tr>
<td>Total number of pathologically examined lymph nodes</td>
<td>32.5 ± 1.5</td>
<td>38.3 ± 1.5</td>
<td>0.016</td>
</tr>
<tr>
<td>Conversion to open surgery</td>
<td>2 (4%)</td>
<td>0 (0%)</td>
<td>0.371</td>
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</tbody>
</table>

Abstract ID: 0089  Specific Field: Colon and Rectum

Mode of pres.: Poster Discussion
ISW 2009 Session 24.05

Significance of lateral lymph node dissection in Dukes C low rectal cancer for improving prognosis
Fujita Health University, Toyoake, Japan

Introduction: This study was performed to identify patients who benefit from lateral lymph node dissection (LND) for Dukes C low rectal carcinoma according to the number, the side and the site of positive lateral node (PLN).

Material and Methods: The study comprised 149 patients with Dukes C low rectal carcinoma undergoing LND. Three parts of lymph nodes, area A, B and C, were dissected for grade T2 or more advanced tumors. The dissection of area B (the space between autonomic nerve and internal iliac artery) and C (the obturator space) was defined as LND. The patients were retrospectively divided into two groups; patients
Five-year survival rate (5SR) was significantly worse in II Colon and Rectum Specific Field Open and laparoscopic surgery: * equal figures, **58% and Radical surgery for colon cancer may improve survival. LND for low rectal carcinoma was effective for patients. SUV of primary colorectal cancers tend to increase in Colon and Rectum. 18-Fluorodeoxyglucose positron emission tomography was compared results from 2000 Specific Field: Forty-three lesions in 40 patients with colo- amounted to 21% and 33% for hospitals A and B. **40%, respectively Laparoscopic operations in these patient groups endeavoured to improve the surgical procedure and hospital C changed with those of 2007/8 in 538 patients with Dukes B or C stage. Hospital A Hospital B 56% 51% 52%** 43% Hospital C 20% 46% 90% 45% Overall 37% 48% 75% 40% Results: Open and laparoscopic surgery: * equal figures, **58% and ***40%, respectively Laparoscopic operations in these patient groups amounted to 21% and 33% for hospitals A and B. Conclusions: More radical surgery (hosp. A), as well as the use of a specific lymph node fluid (hosp. C), increased the yield of lymph nodes but did not increase the number with Dukes C stage. One hospital had an unchanged result. Cancer outcome results are presently being collected.

Abstract ID: 0090 Specific Field: Colon and Rectum

Mode of pres.: Poster Discussion
ISW 2009 Session 24.06

Increased lymph node retrieval in colon cancer did not change Dukes staging
K. Sødenea [1], K.E. Storli [2]

Introduction: Radical surgery for colon cancer may improve survival and 12 lymph nodes have been recommended as an appropriate minimum in the specimen. Two of three institutions changed their methods in order to increase retrieval. The aim was to examine effectiveness and stage affection.

Material and Methods: Three hospitals compared results from 2000 with those of 2007/8 in 538 patients with Dukes B or C stage. Hospital A endeavoured to improve the surgical procedure and hospital C changed their pathology method while hospital B did not do any changes from 2000 to 2007/8. There was no difference in patient material other than introduction of laparoscopic resections in hospital A and B.

<table>
<thead>
<tr>
<th>Year 2000</th>
<th>Year 2007/8</th>
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<tbody>
<tr>
<td>12 L.n.</td>
<td>12 L.n.</td>
</tr>
<tr>
<td>36%</td>
<td>56%</td>
</tr>
<tr>
<td>48%</td>
<td>51%</td>
</tr>
<tr>
<td>83%*</td>
<td>52%**</td>
</tr>
<tr>
<td>35%</td>
<td>43%</td>
</tr>
<tr>
<td>Hosp. C</td>
<td>Hosp. A</td>
</tr>
<tr>
<td>20%</td>
<td>36%</td>
</tr>
<tr>
<td>46%</td>
<td>48%</td>
</tr>
<tr>
<td>90%</td>
<td>75%</td>
</tr>
<tr>
<td>45%</td>
<td>40%</td>
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</table>

Results: Open and laparoscopic surgery: * equal figures, **58% and ***40%, respectively Laparoscopic operations in these patient groups amounted to 21% and 33% for hospitals A and B.

Conclusions: More radical surgery (hosp. A), as well as the use of a specific lymph node fluid (hosp. C), increased the yield of lymph nodes but did not increase the number with Dukes C stage. One hospital had an unchanged result. Cancer outcome results are presently being collected.

Abstract ID: 0091 Specific Field: Colon and Rectum

Mode of pres.: Poster Discussion
ISW 2009 Session 24.07

The role of FDG PET-CT for the detection of LN metastasis in patients with colorectal cancers
S. Uchiyama, M. Nagano, Y. Haruyama, K. Nagaike, M. Hotokezaka, H. Wakamatsu, K. Chijiiwa

Miyazaki University, Miyazaki, Japan

Introduction: 18-Fluorodeoxyglucose positron emission tomography-computed tomography (FDG PET-CT) is a newly developed modality for the detection of primary or metastatic malignancy. The purpose of this study was to assess the role of FDG PET-CT and multidetector CT (MD-CT) for the detection of colorectal cancer and lymph node (LN) metastasis in cases with colorectal cancers.

Material and Methods: Forty-three lesions in 40 patients with colorectal cancers underwent FDG PET-CT scan between 2006 and 2008 and were surgically resected. We analyzed the significance of standardized uptake value (SUV) and its relation to LN metastasis. The detectability of LN metastasis was examined by FDG PET-CT and MD-CT. The LN metastasis was judged as positive when the size of LN was more than 5mm by MD-CT and increased uptake by FDG PET-CT.

Results: Sensitivity of PDG PET-CT in primary lesions was 95.3% and that of MD-CT was 73.8%. Two lesions could not be detected by FDG PET-CT: one was advanced colitic cancer, and the other was early cancer with submucosal invasion. Detectability of primary lesions by FDG PET-CT was better than MD-CT (p = 0.015). No significant differences of SUV with respect to tumor staging (T0, T1 vs. T2 <), tumor grade (G1, G2 vs. G3), lymphatic or vessel invasion (mild vs. massive) and macroscopic type (protruded vs. ulcerated) were observed. However, the primary tumor size that the tumors larger than 3cm (early p = 0.0028, delay p = 0.0082) and the tumors larger than 4cm (early p = 0.0004, delay p = 0.0010) showed significantly higher SUV than those less than 3cm and 4cm, respectively. Detectability of LN metastasis by PDG PET-CT and MD-CT was that the sensitivity of PDG PET-CT (21.1%) was lower than that of MD-CT (63.2%), but the specificity of PDG PET-CT (100%) was higher than that of MD-CT (71.4%).

Conclusions: SUV of primary colorectal cancers tend to increase in proportion to the tumor size. FDG PET-CT is useful for the detection of primary cancer. Although there is of limited value for the detection of LN metastasis by FDG PET-CT, specificity of FDG PET-CT is better than MD-CT, and PET positive LNs should be considered to be metastatic.

Abstract ID: 0092 Specific Field: Colon and Rectum

Mode of pres.: Poster Discussion
ISW 2009 Session 24.08

Comparison of outcomes following resection of right-sided and left-sided colon cancer
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**Introduction:** It is unclear whether the location of colon cancer determines the prognosis of the patients. In this study, the characteristics and survival of patients with right-sided and left-sided colon cancers were compared.

**Material and Methods:** This is a retrospective review from a prospectively collected database comparing the characteristics and survival of patients with right-sided and left-sided cancer. Lesions proximal to the splenic flexure were considered as right-sided cancer and those at or distal to the splenic flexure were considered left-sided cancer. Patients with rectal cancers and those without bowel resections were excluded. Patients with synchronous cancers involving both sides were also excluded. The operative details, postoperative outcomes, pathology characteristics and follow up status were collected prospectively.

**Results:** From 1996 to 2007, after excluding 20 patients with synchronous cancers involving sides of the colon, 1647 patients (893 men) with the median age of 72 (range: 22-96) years old underwent resection for colon cancer. Four hundred and thirty patients (26.1%) were operated as emergency. The 30-day mortality was 3.8% and the postoperative morbidity was 24.8%. The patients with right-sided cancer were older (mean age 71.2 vs. 68.4 years old, p=0.033) and more of them had comorbid medical conditions (59.2% vs. 53.6%, p=0.029). There was no difference in the gender, urgency of operation, stage of the diseases, operative mortality and morbidity between the two groups. How ever, the survival of patients with right-sided cancer is significantly worse that of patients with left-sided cancer (47.6% vs. 52.3%, p=0.01).

**Conclusions:** From the study, the survival of patients with right-sided colon cancer is worse than that of patients with left-sided cancer. Further investigations to define the causes for the difference is warranted.

**Abstract ID: 0093**  
Specific Field: Colon and Rectum

**Mode of pres.:** Poster Discussion  
**ISW 2009 Session 24.09**

**Does short course pre op radiotherapy (SCPRT) increase the incidence of pelvic sepsis following rectal cancer surgery?**

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**Introduction:** Pre operative radiotherapy for rectal cancer is perceived to be a contributory factor for pelvic sepsis following rectal cancer surgery. However, there is no compelling evidence found in the literature. The aim of this retrospective study is to find out if there is any association between pre operative radiotherapy with surgery and pelvic sepsis.

**Material and Methods:** Some 243 patients were diagnosed and treated for rectal cancer between September 1999 and December 2007 at Kingsmill hospital. 36 patients were identified to have short course pre operative radiotherapy during this period. Further 36 patients who have had surgery only were identified with in this database and matched for age and surgery. Data relating to sepsis namely anastomotic leak, pelvic abscess were collected and compared between these two groups.

**Results:** Overall mortality in this cohort of patients (n=243) were 15 (6.1%) and morbidity were 63 (25.9%). 3/36 (8.3%) and 1/36 (2.8%) patients in the radiotherapy group and control group developed septic complications respectively. There was one death in each group within 30 days of surgery due to causes other than sepsis. There were no significant differences between these two groups (p= 0.6142, Fisher’s exact test).

**Conclusions:** This small cohort of patients did show a trend towards increased tendency to develop septic complications following SCPRT, though the results are not statistically significant. Larger studies are needed to validate this finding.

**Abstract ID: 0094**  
Specific Field: Colon and Rectum

**Mode of pres.:** Poster Discussion  
**ISW 2009 Session 24.10**

Right hemicolectomies: does mesenteric window closure influence the risks of postoperative intestinal obstruction?


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**Introduction:** Conventional teaching dictates routine closure of mesenteric window after right hemicolectomies. There is a paucity of literature regarding the efficacy of this measure in minimizing the risks of intestinal obstruction post-right hemicolectomies. We report our experience with 317 consecutive open and laparoscopic right hemicolectomies.

**Material and Methods:** From 2001 to 2008, all patients who required right hemicolectomies were enrolled into our prospective database. Patient demographics, operative methods, histopathology, post-operative complications and follow-ups were analyzed. Small bowel obstruction was diagnosed clinically and substantiated by abdominal radiographs and barium follow throughs.

**Results:** 317 patients (160 females, 157 males) were identified. Mean follow-up period was 33 months (range 2-77). 236 had open surgery and 81 underwent minimally invasive surgery. 238 (75%) had neoplasm, 32 (10%) had diverticular abscess, 31 (9.77%) had complicated appendicitis, 9 (2.84%) had bleeding right hemicolon diverticular disease and 7 (2.21%) had intestinal obstruction. 97 (30.6%) had closure of mesenteric window (MWC) and 220 (69.4%) did not have closure of mesenteric window (NMWC). Decision for mesenteric window closure was at the discretion of the colorectal surgeon. Multivariate analysis did not reveal significant differences between the MWC group and the NMWC group with regards to age, gender and diagnoses. Univariate analysis did not show significant differences between both groups with regards to intraoperative seprafilm anti-adhesive placement (26.8% versus 18.18%, p = 0.0985), previous abdominal surgery (3.09% versus 8.63%, p = 0.093) or minimally invasive right hemicolectomies (20.6% versus 26.36%, p = 0.3266). In the MWC group, 7 patients (7.21%) had intestinal obstruction during the follow-up period, of which one required adhesiolysis and one needed incisional hernia repair. In the NMWC group, 16 (7.27%) had intestinal obstruction during the follow-up period, of which required adhesiolysis. No statistical differences were identified between the 2 groups with respect to incidence of intestinal obstruction (p = 1.00).

**Conclusions:** This study demonstrates that routine closure of mesenteric window after right hemicolectomies do not minimize the risk of post-operative intestinal obstruction.

**Abstract ID: 0095**  
Specific Field: Colon and Rectum

**Mode of pres.:** Poster Discussion  
**ISW 2009 Session 24.11**

Collagen variation in left-sided colonic obstruction: experimental study in rats

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Introduction: Background/Aim: Emergency resections for colonic obstruction are accompanied with increased risk of anastomotic leakage. Up to date the effect of intestinal obstruction on collagen metabolism is poorly understood. We have determined the collagen concentration by means of appreciation of the hydroxyproline concentration in a rat model of left-sided colonic obstruction.

Material and Methods: Colonic obstruction was induced in 17 Wistar rats of both sexes by applying two ligatures completely obstructing the colon 10mm from each other, three animals were used as controls, receiving manipulations on the left colon. Twenty four hours later three colonic specimens proximal, from the ligature zone and distal to this site and from equivalent regions in the controls were assayed for hydroxyproline concentration.

Results: The hydroxyproline concentration (mean (s.d.) mg/g) was elevated in obstructed rats, but mostly in the distal segment when compared with the proximal region and the controls (proximal –0.52(0.03); stenotic–0.67(0.04); distal–0.84(0.004); controls 0.29(0.06) (NS).

Conclusions: Our data suggest that obstruction positively affects the collagen metabolism, predominantly distally to the ligature site. Although the differences in hydroxyproline concentrations in controls and different obstructed colonic sites were insignificant, we assume that obstructed colon may possess an enhanced capacity to hold sutures.

Abstract ID: 0096 Specific Field: Colon and Rectum

Mode of pres.: Poster Discussion
ISW 2009 Session 24.12

Previous history of laparotomy is not a contraindication to laparoscopic colorectal surgery

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Introduction: Laparoscopic colorectal surgery becomes the good alternative to open colorectal surgery. Randomized clinical trials have demonstrated a good shortterm outcomes. However, a high open conversion rate is the problem of the randomized trials. Most of the open conversion is related with adhesion or tumor factors. Laparoscopic procedures are not always indicated patients with previous history of laparotomy (PHL). The aim of the present study was to evaluate the surgical outcomes of laparoscopic surgery in patients with PHL.

Material and Methods: From Jan 2003 to Nov. 2008, 419 consecutive patients underwent laparoscopic colorectal surgery. Thirty-one patients were converted to open surgery (7.4%). Among them 76 patients (18.1%) had the PHL. We compare the operative and early postoperative outcomes of patients with PHL and control patients (n = 343).

Results: Appendectomy and gynecologic procedures comprised 65.7% of previous laparotomy. Majorabdominal operations such as gastrectomy, small bowel resection and prostatectomy involved 34.3% of patients. Mean operative times of patients with PHL and control group were 214.8 ± 95.6 minutes and 193.6 ± 74.7 minutes, respectively (p = 0.045). However, extent of surgery of previous operations did not differ between major surgery groups and minor surgery groups. Other outcomes such as first oral intake, postoperative hospital stay and postoperative complication rates were not different between two groups. There were no bowel injuries related with laparoscopic adhesiolysis.

Conclusions: There were no differences in surgical outcomes between two groups. Although the previous laparotomy increased the mean operation time about 21 minutes, the surgical outcomes were comparable to patients without previous laparotomy. Pre vious history of laparotomy whether it was major laparotomy or not is no longer a contraindication to laparoscopic colorectal surgery.

Abstract ID: 0097 Specific Field: Colon and Rectum

Mode of pres.: Poster Discussion
ISW 2009 Session 24.13

Circular stapled transanal rectal resection: a useful technique in treating rectal intussusception and rectocele - our experience of a single center with 23 cases

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Introduction: Rectocele and rectal intussusception can lead to mechanical obstruction with difficulty or inability to void formed faeces. Rectocele and intussusception are widespread, often asymptomatic and coexisting with other pelvic alterations like enterocele, hyperdescending perineum and genital prolapsed. The role of each alteration in Obstructed Defecation Syndrome (ODS) is unclear. The Circular Stapled Transanal Rectal Resection (CSTR), removes the prolapsing rectum, frees the rectal lumen and correct intussusception and rectocele. The purpose of this study was to investigate the functional outcome of CSTR procedure of a group of patients with internal mucosal prolapsed or rectocele causing obstructed defecation using a 31 and/ or 33-mm circular stapler.

Material and Methods: From June 2007 to July 2008, 23 female patients (mean age 53.1, range 36-71) with severe ODS due to rectocele and/or intussusception were evaluated by questionnaire, clinical examination, defecography and anal manometry, were treated by the CSTR procedure and enrolled in a prospective single group clinical trial.

Results: The median operating time was 45 minutes (30-110 minutes). The median hospital stay was 40 hours (11-72 hours). Complications during the first 24 hours were fecal urgency, urinary retention, and rectal bleeding. Pruritus ani, thrombosed external hemorrhoids, rectal bleeding, anal fissure, and persistent skin tags were the symptoms seen during the long-term follow-up. The median follow-up was 6 months (1-10 months). A symptom score ODS score 0-4 (0: no obstruction, 4: severe obstruction) was calculated and compared preoperative and postoperative. Patients were asked to judge their postoperative results as “excellent”, “good”, “fair” or “poor”. Correspondingly 84.6% regarded their results as “excellent”.

Conclusions: The CSTR procedure is a useful technique in treating rectal intussusception and rectocele.
Abstract ID: 0098  Specific Field: Colon and Rectum

Mode of pres.: Poster Discussion
ISW 2009 Session 24.14

A prospective study of 200 patients with hemorrhoids treated by doppler guided hemorrhoidal artery ligation: early and long-term results

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Introduction: Doppler guided hemorrhoidal artery ligation is a new technique for treating grade 1-3 hemorrhoids by means of submucosal identification and ligation of the terminal branches of the superior rectal artery. The disruption of the superior hemorrhoidal artery reduces inflow to the hemorrhoids, which may contribute to improvement of symptoms caused by internal or external hemorrhoids. The aim of this study was to assess the benefits of the Doppler guided hemorrhoidal artery ligation considering surgical outcome, functional recovery, and post-operative pain.

Material and Methods: 200 patients with symptomatic grade 1-3 hemorrhoids were admitted for surgical treatment using the Doppler guided hemorrhoidal artery ligation in the day care setting. Under local or general anesthesia the patients underwent identification and ligation of 6-8 terminal branches of the superior rectal artery above the dentate line. Visual analog scales were used for postoperative pain scoring. Surgical and functional outcome was assessed at 6 weeks and 3.6, 12 months after surgery.

Results: There were 92 (46%) males and 108 (54%) females with mean age of 56 years and median duration of symptoms of 4.7 years. The mean operative time was 19 minutes. The operation was performed under local anal block patients, combined with intravenous sedation (179 patients) or under general anesthesia (21 patients), as an outpatient procedure with local anal block patients, combined with intravenous sedation (183) or overnight (17) admission. 92% of the patients remain asymptomatic with mean follow up of 6 months, whether 16 patients required either surgical excision (13 patients) or rubber band ligation (3 patients) for persistent bleeding. There was no mortality, new incontinence, fecal impaction, urinary retention or persistence pain. The mean pain score decreased from 2.1 – 2 hours post operation to 1.3 on the first post operative day. All of the patients had complete functional recovery by the 3rd postoperative day.

Conclusions: Doppler guided hemorrhoidal artery ligation is safe, effective and can be performed in an outpatient procedure with local or regional anesthesia, with minimal post operative pain and early recovery. The benefit of this procedure need to be compared to traditional methods in a randomized control trial.

Abstract ID: 0100  Specific Field: Miscellaneous

Mode of pres.: Poster Discussion
ISW 2009 Session 24.16

Lateral thermal spread: comparison of monopolar and bipolar diathermy, the harmonic scalpel and the ligasure

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Introduction: Heat-generating instruments used for surgical dissection and haemostasis should ideally perform these tasks with minimal thermal spread to surrounding tissues. We investigated lateral thermal spread associated with four instruments.

Material and Methods: We studied the Valleylab Force EZ diathermy generator connected to a monopolar hook and bipolar forceps, the Ethicon Harmonic Scalpel Generator 300 connected to the Ultracision Harmonic Scalpel LCS and the Valleylab Ligasure. A standardised cut of fresh pork was placed at room temperature in an insulated plastic tray. The Harmonic Scalpel and Ligasure were used at power settings 1.3 and 5 and the diathermy at 20,40 and 60 W. Application of energy was for 5,10 and 15 s and temperatures were measured at the tip of the instrument, in the tissue adjacent to the tip and 1 cm away from the tip. Each experiment was performed in triplicate. Temperatures were recorded at 5 s intervals for 180 s with a thermocouple.

Results: The temperatures generated at the tip of the instrument and in the tissue are shown in the Table.

Conclusions: The extent of lateral thermal spread was related to the instrument used and length of application of energy. Compared with monopolar diathermy, the bipolar diathermy, Harmonic Scalpel and Ligasure were associated with less lateral thermal spread. Care should be taken to minimise the time of application and allow a safe working distance from vital structures to avoid inadvertent thermal damage.

<table>
<thead>
<tr>
<th>Temperature (at settings 1/3/5)</th>
<th>Monopolar diathermy at 20/40/60 W (at settings 1/3/5)</th>
<th>Bipolar diathermy at 20/40/60 W</th>
<th>Harmonic scalpel at 1/3/5</th>
<th>Ligasure (at settings 1/3/5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature at tip after 5 s application</td>
<td>47/63/73</td>
<td>34/55/39</td>
<td>30/41/38</td>
<td>28/27/34</td>
</tr>
<tr>
<td>Temperature at tip after 10 s application</td>
<td>43/44/53</td>
<td>32/45/33</td>
<td>17/37/35</td>
<td>23/35/30</td>
</tr>
<tr>
<td>Temperature at tip after 15 s application</td>
<td>20/28/39</td>
<td>19/38/39</td>
<td>14/35/15</td>
<td>18/35/18</td>
</tr>
<tr>
<td>Temperature at tip after 20 s application</td>
<td>56/69/71</td>
<td>38/40/46</td>
<td>33/48/57</td>
<td>39/39/37</td>
</tr>
<tr>
<td>Temperature at tip after 25 s application</td>
<td>51/59/65</td>
<td>34/43/48</td>
<td>17/24/30</td>
<td>21/21/30</td>
</tr>
<tr>
<td>Temperature at tip after 30 s application</td>
<td>69/74/80</td>
<td>35/56/52</td>
<td>58/62/68</td>
<td>40/40/49</td>
</tr>
<tr>
<td>Temperature at tip after 35 s application</td>
<td>62/73/70</td>
<td>32/38/36</td>
<td>21/26/41</td>
<td>26/30/38</td>
</tr>
<tr>
<td>Temperature at tip after 40 s application</td>
<td>31/44/61</td>
<td>20/37/26</td>
<td>15/15/15</td>
<td>18/18/18</td>
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</table>
Abstract ID: 0101 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 24.17

Intra-operative application of a rigid handheld confocal endomicroscope: a pilot clinical study
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Introduction: The Optiscan confocal laser microscope (CLM) is a rigid handheld probe designed to enable real-time in vivo histological surface and sub-surface imaging at laparoscopy or laparotomy. Intra-operative assessment of histology, tumor margins and microvasculature may be possible. As yet there is no data on the intra-operative application of this technique. This study aimed to evaluate the clinical feasibility and utility of CLM during intra-abdominal surgery and to determine the quality of images acquired.

Material and Methods: Intravenous Fluorescein Sodium contrast was used (2ml of 10%solution). Ten patients were recruited for endomicroscopy examination at laparotomy, with confocal images obtained from normal pancreas, bile duct, liver, omentum, ileum, duodenum, lymph nodes and spleen, both from the serosal and cut surfaces. Chronic pancreatitis and pancreatic cancers were also assessed.

Results: Confocal cellular and architectural features of intra-abdominal organs were described and found to be reproducible. Quality of the images improved with experience and magnification was equivalent to light microscopy. The liver capsule prevented deep hepatic imaging. Normal pancreatic acini (Figure 1) were obvious and differentiated from chronic pancreatitis and pancreatic cancer. Residual bile duct epithelium displayed a characteristic uniform epithelial lining (Figure 2). Bleeding impaired some surface imaging, especially from dysplastic issues. No adverse effect was observed. Intra-operative histology was possible without significant disruption of the work flow and only minor equipment redesign was suggested. The disposable rigid outer sheaths successfully maintained sterility.

Conclusions: Real-time “virtual histology” during intra-abdominal surgery is safe, feasible and reproducible. The ability of this technique to differentiate between normal and abnormal tissues has significant potential in guiding the surgeon regarding the type and extent of surgery. The significant potential benefits of this new technology warrants further investigation in defining its role in cancer and other diseases.

Figure: Example of pancreatic image

Abstract ID: 0102 Specific Field: Infection/Antibiotics/Wound Healing

Mode of pres.: Poster Discussion
ISW 2009 Session 24.18

Clinical evaluation of complex decongestive physiotherapy for acute malignant lymphedema of the leg
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Introduction: Malignant lymphedema of the leg has difficulty in the treatment, these pathophysiological state are not fatal but decrease the patients’ quality of life and activity of daily living. This study reports the usefulness of complex decongestive physiotherapy (CDP) as the treatment of acute malignant lymphedema.

Material and Methods: Twenty-five cases of acute malignant lymphedema were treated with CDP by palliative care team in Nakadori General Hospital. The Drugs such as diuretic and anticoagulant agents were not administrated. Diagnosis of acute malignant lymphedema was determined from clinical history and physical examination. Further more, ultra-sonography examination was performed to rule out the possibility of deep venous thrombosis. CDP was structured by Dr Michael Foeldias stepwise treatment as skin care, manual lymph drainage (MLD), compression bandage and ergotherapy. Effectiveness of CDP was evaluated with changes of the body weight, diameter of the leg, serum albumin value and performance status (PS).

Results: No side effect was observed during CDP. There were no changes in body weight and serum albumin value. Improvement of diameter of the leg was observed at fourth treatment with significantly. PS was significantly improved seven days after CDP from 4.1 to 2.7, and with contentious treatment, PS improved to 1.7 and the patients could walk around the bedside.

Conclusions: CDP was more effective for acute malignant leg lymphedema, when applied as soon as possible.

Abstract ID: 0104 Specific Field: Surgical Education

Mode of pres.: Poster Discussion
ISW 2009 Session 24.20

Disparity in educational needs between urban and rural surgeons in India
J.M. Belle [1], R.A. Bang [2], D. Kelkar [3], S.A. Lagoo-Deenadayalan [4]


Introduction: The capacity to which rural surgeons can serve their patients is dependent on material resources available and growth of personal expertise. A comparative descriptive study has been undertaken to characterize differences in professional environment among rural and urban surgeons in India.

Material and Methods: Surgical faculty at an urban tertiary care hospital and publicly-listed members of professional surgical organizations in India have been identified and requested to complete an 80-item online or paper questionnaire profiling practice characteristics, access to professional resources, continuing medical education activities, laparoscopic training and experience, perceived educational
Partial upper median sternotomy for mediastinal parathyroid pathology

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Introduction: Most patients with hyperparathyroidism (HPT) are treated via the cervical approach, with mediastinal exploration reserved for the remaining minority of cases. Mediastinal exploration is traditionally performed via total sternotomy. Mediastinoscopy or thoracoscopy are excellent alternatives, however the worldwide experience is limited. Partial upper median sternotomy (manubriotomy) is another promising alternative that has not been thoroughly evaluated. The aim of this study was to evaluate our results regarding manubriotomy for parathyroid surgery.

Material and Methods: All manubriotomies performed for parathyroid pathology from 1989 to 2008 were reviewed.

Results: During the 20-year period, 1605 patients were operated for HPT. Among the 200 cases (12.5%) with ectopic mediastinal parathyroid glands, 168 were treated via the cervical approach while 32 (2% of the total group and 16% of those with mediastinal disease) required manubriotomy. Their mean age was 51.7 years (female: 56.3%). The majority of the patients (n = 29, 90.7%) had an adenoma, two (6.2%) secondary disease and one (3.1%) parathyroid cancer. Six primary HPT cases (18.7%) underwent first whereas the remaining 26 (81.3%) reoperative surgery; 19 (73%) of the latter had persistent and 7 (27%) recurrent HPT. The technique was successful in all cases, with no conversion to complete sternotomy. Mean operative time was 63.4 min. Analgesic requirements were surprisingly low. Two reoperated renal HPT patients (6.2%) developed permanent and one primary case (3.1%) transient hypocalcaemia. No other complication or mortality occurred. Mean hospital stay was 3.2 days. In a follow-up of 8.5 years, one recurrence has been observed in the patient with parathyroid cancer resulting in a 96.9% cure rate.

Conclusions: Manubriotomy is a safe, feasible and effective technique that provides excellent access for mediastinal parathyroid exploration. It was associated with low morbidity and provided sufficient exposure for treatment in all cases. Manubriotomy should be considered before a total sternotomy in patients with mediastinal parathyroid pathologies that cannot be treated via the cervical approach because it provides comparable access with minimal respiratory impairment and analgesic requirement, short hospital stay and better cosmetic result.
Abstract ID: 0107  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 26.03

A comparison of consumer information on the internet to the current evidence base for minimally invasive parathyroid surgery

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Introduction: The Internet is used as a source of health information for consumers. The aim of this study was to assess consumer health information available on the Internet for minimally invasive parathyroid surgery and compare that to the current evidence base.

Material and Methods: Three search engines, Google, Yahoo and MSN, were used to collect web sites for analysis. Inclusion criteria for analysis were the top 50 non-sponsored results and all sponsored results for each search term in each of the three search engines. Analysis was by review of the information contained in the websites by a single assessor using a validated Website Rating Criteria as well as a standardised of evidence-based criteria.

Results: The number of web pages returned was 308, of which 44 websites were included for analysis. Altogether 27.27% of the websites contained statements which were either not in accord with the evidence base, manipulative of the truth or simply false. An example of such a statement is "has a significantly higher success rate and lower complication rate than standard parathyroid surgery". University websites had a lower rate of false claims 14.29% compared to those linked to individual surgeons or surgical clinics which have a rate of 33.33%. The overall mean ± SD web assessment score using The Website Rating Criteria was 7.8 ± 2.65 (range 2 to 14) or 48.75%. The overall mean ± SD web assessment score against a standardised evidence-base criteria was 13.91±4.88 (range 5-30) or 37.6%.

Conclusions: The accuracy of information available for health consumers on the Internet is a major issue for patients intending to undergo surgical procedures. Websites offering information in relation to minimally invasive parathyroid surgery have an alarmingly high rate of claims that were either false or not in accord with the evidence. It is likely that such claims are posted in order to attract surgical referrals to an individual practice rather than to provide accurate information.

Abstract ID: 0108  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 26.04

Response of bone mineral density (BMD) one year after parathyroidectomy for primary hyperparathyroidism (PHPT) in postmenopausal women with femoral neck osteopenia or osteoporosis

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Hospital del Mar, Barcelona, Spain

Introduction: Osteoporosis (T score <-2.5) is a criterion for parathyroidectomy. The BMD response to surgery is poorly known. Available data come from a mix of male and female small populations of different age, and degrees of BMD loss. Furthermore, the response to parathyroidectomy is not uniform. A prospective study was designed to investigate the impact of parathyroidectomy on BMD in postmenopausal women with osteopenia or osteoporosis, undergoing parathyroidectomy for PHPT.

Material and Methods: This is a prospective cohort study. Ninety -one postmenopausal women with PHPT and osteopenia or osteoporosis at the femoral neck site were investigated for BMD and BMD changes one year after parathyroidectomy. Patients were excluded if taking steroids or other medication interfering with bone metabolism, chronic renal failure (s-Cr> 1.9 mg/dl), reduced mobility or recurrent PHPT. Demographic and metabolic variables were studied before and one year after surgery in relationship to BMD postoperative changes.

Results: Parathyroidectomy resulted in normalization of s-Ca in all patients. One year after surgery, BMD increased at the femoral neck (0.617 vs.0.632 g/cm2; P=0.003) leading to an improvement of the T-score (-2.78 vs. -2.60; P=0.0005) and the Z-score (-0.88 vs. -0.24; P< 0.0001). Similar responses were observed at total femur and lumbar spine sites. The BMD response was heterogeneous, with 31 women (33%) losing or maintaining their preoperative femoral neck BMD (mean -6.2 ± 5%). Patients who gained BMD (mean 6.1 ± 4%) were younger, had more severe PHPT (s-Ca 11.3 vs. 10.7 mg/dL; PTH 199 vs. 123 pg/ml; Alk Phos 235 vs. 171 U/L), similar degree of BMD loss before surgery, higher creatinin (0.87 vs. 0.99 mg/dl) and higher calcitriol (66 vs. 53 pg/ml; P = 0.03). Atone year, there were no differences in metabolic variables (PTH, vitamin D, alkaline phosphatase) between the two groups. Elevated s-PTH (>55 pg/ml) one year after surgery was observed in one third of the patients but did not influence BMD response.

Conclusions: Two thirds of postmenopausal women with PHPT and reduced BMD have a positive BMD response to parathyroidectomy. Variables associated with failure to increase BMD are older age, mild PHPT and renal function.

Abstract ID: 0109  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 26.05

Single access retroperitonoeoscopic adrenalectomy (SARA) versus conventional retroperitonoeoscopic adrenalectomy (CORA): a case-control study

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Introduction: Minimally invasive adrenalectomy has become a golden standard in endocrine surgery. Mainly stimulated by the concept of Natural Orifice Transluminal Endoscopic Surgery (NOTES), further minimizing of the access has become a new trend in minimally invasive surgery. For the first time this study compares the conventional posterior approach with the new technique of single access adrenalectomy.

Material and Methods: In a setting of a prospective study, 24 selected patients (11M, 13F; age 13-67 years) were surgically treated for adrenal tumours using SARA (7/2008 - 1/2009). Patients suffered from Conn’ adenomas (n=9), pheochromocytomas (n=10; 1 bilateral), Cushing’s adenomas (n=4), non-functioning tumour (n=1), and adrenal metastasis (n=1). Partial adrenalectomy was performed in 15 operations, total in 10 procedures. Tumour size ranged from 0.5-6 cm. SARA was performed in prone position of the patient with a single 1.5 cm skin incision beneath the 12th rib. A 10 mm port was inserted for creation of the retroperitoneal space by a 10 mm endoscope. After removal of the first port, two 5 mm ports were inserted through the initial incision and the adrenalectomy was performed. As control group served 24 patients treated by the traditional retroperitoneooscopic approach. This group showed identical diagnoses, tumour sites, gender, and amounts of paraadrenal fatty tissue.
Results: Lethality was zero, morbidity for all 48 patients 6% (SARA: 1 relaxation of the abdominal wall; CORA: 1 hematoma, 1 adrenal insufficiency). Conversion from SARA to CORA was necessary in 2 patients due to an incomplete exposure. Operating time was longer for SARA (55±21 min; range 25-115 min) than for CORA (42±12 min; range: 25-60 min) [p < 0.01]. Mean intraoperative blood loss was less than 10 ml in both groups. Retropertioneoscopy CO2-pressures above 20 mmHg were used in 17/25 SARAs and in 8/25 CORAs [p=0.01] without relevant side effects. Post operative pain medication was administered in 6/24 SARA patients and in 13/24 CORA patients [p < 0.05]. Mean hospital stay was 2.6 days (SARA) and 2.8 days (CORA).

Conclusions: For the first time our data demonstrate feasibility and safety of SARA in a larger group of selected patients. Despite the cosmetic advantages, SARA shows longer operating times and may be superior concerning postoperative pain.

Abstract ID: 0110 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 29.01

Penetrating colon trauma management
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Introduction: The aim of this study was to analyze patients suffering from penetrating colon injuries management, clinical outcomes and factors they were influenced by.

Material and Methods: Analysis from patients with injured colon and treated from 1995 to 2008. Age, time from injury, systolic blood pressure, part of injured colon, contamination of the peritoneal cavity, PATI (penetrating abdominal trauma index) were registered. The two steps analysis was performed. First step- the method of the operation (stoma formation vs. primary repair). Choice of primary repair or stoma formation depended on the surgeon. Factors with the potential to affect the method of colon repair were analyzed. Logistic regression was used to determine the effect of multiple factors which may have influenced the choice of the method for the operation. Second step- the evaluation of the complications after primary colon repair and factors the complications were influenced by were performed.

Results: 61 patient had penetrating colon injuries. Management included primary repair (48) and stoma formation (13). The 23 of patients have developed complications, 11 of them - intraabdominal complications. a ) Two factors, contamination of the peritoneal cavity (P = 0.012) and systolic blood pressure (P = 0.0016), were found to be significantly associated with chosen method of the operation. By analyzing, both systolic blood pressure and fecal contamination were demonstrated to be independent factors for the choice of the method of operation (P < 0.001 and P = 0.003; OR = 0.19(CI 0.088/0.39) and 1.68(CI 1.19/2.36). b ) Contamination of the peritoneal cavity (P = 0.032) and blood pressure (P = 0.01); (OR = 4.2(C11,13/15.6) and 0.96(CI 0.94/0.98)) were significant factors which have contributed to the development of intraabdominal complications. Evaluation of all postoperative complications disclosed that the blood pressure (P < 0.001) and PATI (P = 0.023) were important factors (OR = 0.05(CI 0.009/0.27) and 2.61(C11,14/5.39) for the development of complications in general.

Conclusions: Fecal contamination of the peritoneal cavity and hypotension were determined to be crucial in choice of performing fecal diversion or primary repair in patients suffering colon injuries. The more severe injured and hypotonic patients are more likely to develop complications in cases of penetrating colon trauma.

Abstract ID: 0111 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 29.02

Is postinjury abdominal compartment syndrome still a problem?
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Introduction: The incidence of abdominal compartment syndrome (ACS) during the first 24 hours was 15% among shocked polytrauma patients with consequent a mortality of 50% a decade ago. Recently new preventive strategies were implemented to improve shock resuscitation outcomes. The aims of this study were to reassess the incidence of ACS and to identify the clinical significance of postinjury intra-abdominal hypertension (IAH).

Material and Methods: Two-year prospective cohort study ending December 2008 was performed on a Level-1 Trauma Centre’s ICU. Intra-abdominal pressure (IAP) was monitored second hourly. IAH was defined as IAP > 15mmHg. Consecutive high-risk trauma patients (abdominal injuries (AI), laparotomy (Lap), pelvic fracture (PF), Retropertioneal haematoma (RPH), shock, >5 L crystalloid before ICU, blood transfusion) were included into the study. Significant head injuries (AIS Head > 2) were excluded. Demographics, ISS, shock parameters (Lactate, Based Deficit), resuscitation fluids (crystalloids and packed red blood cells (PRBC) and previously identified predictors of ACS were collected. The main outcomes were ACS, IAH, mortality, MOF and ICU Length of stay (ICULOS). Data are presented as mean+/SEM or %. Univariate analysis performed with Fisher’ exact and student t-test.

Results: 82 polytrauma patients met inclusion criteria (41 +/-19yrs, 71% males, ISS:29+/+12, Al: 43(52%), Lap 31(37%), PF 26(31%), RPH 30(36%). Most had severe shock (BD: -6/+4, Lac:3.3+/+2.7) and required significant resuscitation during the first 24-hr (cryst:11+-/5L, PRBC:5+/+6U). No patients developed ACS and 22(27%) had IAH. Two patients (2%) died, 5 (6%) developed MOF and the ICULOS was 9+/+12 days. There was no difference between IAH and nonIAH patients in demographics, ISS, shock parameters and patterns of injury. Both groups had similar amounts of crystalloid/ PRBC volumes and responses to resuscitation. IAH and nonIAH patients had no difference in their outcomes (Mortality: 0% vs 3%, MOF: 14% vs 3%, ICULOS: 9+/+11 vs 9+/+12 days).

Conclusions: After the implemented preventive strategies no ACS was observed in this high-risk polytrauma cohort. The incidence of IAH is still substantial without apparent effect on the outcomes. After the prevention of the highly lethal ACS further studies are required to determine the importance of postinjury IAH.

Abstract ID: 0112 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 29.03

Role of optic nerve ultrasound in head injury
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Introduction: CT has evolved as the gold standard for evaluation of head injury, but early CT is not always possible. Bedside
ultrasonography is available in most trauma units and optic nerve ultrasonography (ONUS) examination should be feasible.

**Material and Methods:** The Role of ONUS in head injury. Setting: Tertiary care trauma service centres in India. Design: Prospective, blinded, observational study. Methods: From April 2006 to July 2008, all adult patients with head injury but without obvious ocular trauma, for whom it was possible to perform CT, were enrolled. Using a 7.5-MHz ultrasonographic probe on the closed eyelids, optic nerve sheath diameter (ONSD) was measured on either side. A mean binocular ONSD less than 5.00 mm was considered normal. Cranial CT findings were used as a reference standard to evaluate ONUS.

**Results:** The study included 150 participants. Clinical features did not correlate with CT for signs of raised intracranial pressure (ICP). The mean binocular ONSD was significantly increased among individuals with signs of raised ICP on CT compared with the mean ONSD among those without such signs. ONUS revealed evidence of raised ICP in increasing no. cases (confirmed by CT ), Majority had significant intracranial haematoma needing surgical evacuation. Of cases with negative ONUS, confirmed by Cr, only 1 needed surgical intervention for drainage of intracranial haematoma. ONUS was false positive and false negative in few cases which will be discussed. The sensitivity of ONUS in detecting elevated ICP was very high, specificity positive predictive value and negative predictive value were all above 90%.

**Conclusions:** ONUS can be used as alternative to CT scan in situations where CT scan is not feasible.

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**Abstract ID: 0113**

Specific Field: Trauma

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 29.04**

**Evolving management of blunt thoracic aortic injuries**

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[1] Stanford University, Stanford, United States, [2] Stanford University, Stanford, USA

**Introduction:** Non-operative management of blunt thoracic aortic injuries (BAI) has evolved from a strategy to delay surgical intervention in patients too unstable to undergo an operation to a definitive therapy for patients with minor aortic injuries. To date, there is little evidence to guide the management of these patients and their management is often non-standardized. We hypothesized that a population of patients with BAI could successfully be managed without surgical intervention and set out to characterize their management. This study reviews our experience as a Level I trauma center in the non-operative management and follow-up of blunt aortic injuries.

**Material and Methods:** Retrospective analysis of all patients admitted to a Level I trauma center and diagnosed with a BAI were evaluated between January 2001 and August 2008. Fifty-four patients were identified from our trauma registry and data extracted. Inclusion criteria were all patients diagnosed with BAI who had no surgical intervention at the time of discharge. Exclusion criteria included all patients who underwent surgical intervention during their initial hospitalization. For low-up information was obtained through chart review, phone survey, and review of the Social Security Death Index.

**Results:** Of 54 patients diagnosed with BAI (39 males, 15 females), 24 underwent operative repair (9 open and 15 stent graft) and 30 underwent non-operative management and anti-impulse therapy. There was no statistically significant difference in ISS, AIs, and Aortic Injury Severity between the non-operative and operative groups. In-hospital survival was 90% in the nonoperative group and 92% in the operative group. Post-discharge two patients failed nonoperative management; one patient underwent open repair for increasing pseudoaneurysm size and another underwent an open repair for unclear reasons. There was one non-aortic death after initial hospital discharge in the non-operative group. All patients underwent serial imaging and five patients had complete resolution of their aortic injuries.

**Conclusions:** A population of patients with BAI can successfully be managed non-operatively, although the current AIS assessment of aortic injury does not adequately predict this cohort. Trauma centers are faced with the challenge of ensuring appropriate care for these patients and must be committed to ensuring adequate follow-up if non-operative management is utilized.

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**Abstract ID: 0114**

Specific Field: Trauma

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 29.05**

**Time trends in risk-adjusted mortality in a mature inclusive trauma system**

A. Lavoie [1], L. Moore [2], A.F. Turgeon [1], M. Émond [1], E. Bergeron [3], J.A. Hanley [2]


**Introduction:** The trauma care system in the province of Quebec, Canada was implemented in 1992 and completed in 1996. The system includes 59 hospitals ranging from urban tertiary centres to rural community hospitals. The aim of this study was to evaluate the trend in risk-adjusted trauma centre mortality between 1999 and 2006 in a mature, regionalized, and inclusive trauma system.

**Material and Methods:** The study was based on victims of major trauma surviving to arrival in a designated trauma centre. Data was drawn from the Quebec Trauma Registry with mandatory participation of all 59 centres, uniform inclusion criteria, and standardized data collection and validation procedures. Time trends were evaluated by generating risk-adjusted Odds Ratios (OR) of mortality over time. OR were obtained from a hierarchical logistic regression model including The Trauma Risk Adjustment Model (TRAM) score as well as a random intercept to account for clustering within trauma centres.

**Results:** The study population comprised 83,504 patients including 4731 in-hospital deaths (5.4%). Crude mortality varied from 5.2% in 1999 to 4.6% in 2006. A statistically significant decrease in risk-adjusted mortality was observed over the study period (Figure 1) with an average decrement of 4% per year (OR = 0.961 [95% CI: 0.944-0.979]).

**Conclusions:** Risk-adjusted mortality among major trauma victims who survived to arrival at a trauma centre decreased over time.
between 1999 and 2006 in the province of Quebec, Canada. Results suggest that as inclusive and regionalized trauma systems mature, they may provide better care to trauma victims. Further research should attempt to identify determinants of this mortality decrease.

Figure: Figure 1. Risk-adjusted Odds Ratios of trauma mortality and linear trend over time in the province of Quebec, Canada

Abstract ID: 0115 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 29.06

PMN phenotype kinetics after trauma reveals suppressed functionality of the innate immune system

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Introduction: Septic shock is a leading cause of death (30% mortality) with a world wide annual incidence of 18 million affected individuals. Septis resulting from a severe inflammatory insult such as trauma typically occurs after 8-14 days and is facilitated by a compensatory anti-inflammatory response syndrome (CARS) caused by a dysfunctional innate immune system. Deregulated neutrophils (PMNs) play an essential role in the pathogenesis of CARS. Characterization of these PMNs was the subject of this study.

Material and Methods: 47 trauma patients who required ICU support were included and followed for 14 days in terms of both clinical and immunological parameters. The study focused on the morphology, immuno-phenotype and functionality of PMNs during this study period. The functionality of PMN phenotypes was assessed on cells that were isolated by cell sorting. The characteristic of these systemic neutrophils with a low functionality from the tissues, together with insufficient suppletion of functional neutrophils from the bone marrow.

Results: A complex mixture of PMN subpopulations was identified in the peripheral circulation in the 14 days study period after trauma. These phenotypes were identified by differences in Fc-gamma-RIII (CD16)/VLA-4 (CD49d) expression. Two VLA-4 positive PMN phenotypes were found after major trauma. Sorting revealed that (1) CD16Intermediate/CD49dIntermediate cells were (meta) myelocytes and (2) CD16Bright/CD49dBright cells were end stage toxic PMNs. This latter phenotype was also found in the lymph and lung fluid of patients with severe organ failure. Both phenotypes (myelocytes and toxic PMNs) contributed to the innate immune dysfunction. None of the peripheral PMN phenotypes showed any indications for apoptosis.

Conclusions: The appearance of VLA-4 positive PMNs coincides with periods of acute severe systemic inflammation directly caused by trauma and/or during development of sepsis. Functionally these cells have a suppressed phenotype and are very similar to cells obtained from the tissues. These data support the hypothesis that development of CARS 8-10 days after trauma is mediated by development of neutrophils with a low functionality from the tissues, together with insufficient suppletion of functional neutrophils from the bone marrow.

Abstract ID: 0116 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 29.07

Investigation by CT or laparoscopy can reduce negative laparotomy rates in haemodynamically stable patients with abdominal stab injuries

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Introduction: Mandatory laparotomy for torso stab injury risks negative findings, with increased hospital stay and morbidity. We investigate the impact of preoperative CT and laparoscopy on rates of negative laparotomy at a major British trauma centre.


Results: 387 patients admitted with torso stab wounds during study period; male 88%, mean age 29 years (range 9-68). This comprised 180 abdominal, 182 thoracic and 25 thoraco-abdominal injuries. Overall in-hospital mortality: 2% (n = 6). The 205 patients with abdominal or thoraco-abdominal wounds formed the study group. 98 underwent CT for abdominal/thoraco-abdominal injuries: 30 positive, 2 negative. 20 CT-positive patients taken for laparotomy, 2 of which were negative; 5 CT-positive patients had laparoscopy, 2 of which were negative. 1 had thoracic surgery; remainder managed conservatively. 54 patients had negative CT scans; 1 subsequently had a negative laparotomy, and 1 CT-negative patient re-presented with missed diaphragmatic injury requiring surgery. Of total 83 laparotomies: 15 negative, 2 of which had false-positive CT, and remaining 13 had no imaging. Total 21 laparoscopies, 15 negative. There was a significant difference between frequency of true positive and negative findings for laparotomy compared to CT (p = 0.011) and laparoscopy (p = 0.001). For CT diagnosis of intra-abdominal stab injuries: positive predictive value= 84%, negative predictive value = 98%; sensitivity= 96%, specificity=93%.

Conclusions: On average nearly 1 torso stabbing was admitted per week. Initial investigation by CT or laparoscopy reduced negative laparotomy rate compared to a relatively high rate in those who underwent surgery without initial investigation. Patients who have thoraco-abdominal penetrating trauma or those in whom diarrhagic injury is suspected should also undergo laparoscopic evaluation as injuries may be missed on CT.
Computed tomography has a significant role in the management of patients with blunt abdominal trauma. But no clear consensus has been reached on its role in hollow viscus (HVI) and mesenteric injuries (MI). The main goal of this study was to verify the CT findings to the surgical observation of HVI and MI in patients after blunt abdominal trauma.

**Material and Methods:** All patients were treated at Tan Tock Seng Hospital from January 2003 to January 2008. CT scans in patients with blunt abdominal trauma were performed if they were haemodynamically stable and indicated. All scans were performed with intravenous contrast using a 64-slice CT scanner. Our study included all cases with bowel or mesenteric injuries from blunt abdominal trauma that underwent both CT scans and exploratory laparotomy. Some of the typical CT findings recorded included extra-luminal air and mesenteric haemorrhage, while some of the surgical findings included haemoperitoneum, perforation of hollow viscus and mesenteric haemorrhage.

**Results:** Only 31 patients fulfilled our inclusion criteria. The median age of the study group was 40 (range, 22-65) years, with a significant male (83.9%) predominance. Vehicular-related incidents accounted for 67.7% of the injuries and the median ISS was 13 (4-50). The 2 commonest findings on CT scans were extra-luminal gas (35.5%) and free fluid without significant solid organ injuries (93.5%). During exploratory laparotomy, perforation of hollow viscus (51.6%) occurred much more frequent than suspected by the CT findings. Other notable findings included haemoperitoneum (64.5%), mesenteric tears (67.7%) and gangrenous bowel (35.5%). All our patients with significant HVI and MI have abnormal CT scan findings prior to surgery. All patients were discharged well.

**Conclusions:** CT scans have a significant role in the management of HVI and MI in patients after blunt abdominal trauma. Significant free fluid without solid organ injuries is one major indication to consider exploratory laparotomy. Almost all patients with significant HVI and MI will have abnormal CT findings.
answers about: their interest in laparoscopic surgery, their willingness to
play TV games, their confidence about driving, their accomplishment at
playing the piano, and their manual dexterity. The participants performed
an object positioning module on a ProMIS® simulator. Execution time,
instrument path length, and economy of movement for each trial were
recorded on ProMIS®. Comparisons of mean performance measures
between the two groups were made using a Mann-Whitney U test.

Results: The students who had an interest in TV games completed the
task in less time (p = 0.05), had a shorter right instrument path length (p =
0.024) and had superior smoothness of instrument movement (p = 0.030).
The students who thought themselves manually dexterous completed the
task in less time (p = 0.016). The students who were confident about
driving had a shorter right instrument path length (p = 0.027) and had
superior smoothness of instrument movement (p = 0.023).

Conclusions: Our study suggests that the interview can be an effective
measure to examine the aptitude of medical students without
using a simulator. Accordingly, the interview should be useful for
students with no access to a simulator in order to discover whether
they have an aptitude for laparoscopic surgery or not.

Manual dexterity, CH group = students who think themselves manually dexterous, NH group = students who do not think themselves manually dexterous

<table>
<thead>
<tr>
<th></th>
<th>CH group (n=10)</th>
<th>NH group (n=15)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total time</td>
<td>167.5 ± 42.5</td>
<td>201.8 ± 50.9</td>
<td>0.016</td>
</tr>
<tr>
<td>Left Instrument Path (mm)</td>
<td>3679.8 ± 1350.7</td>
<td>4319.6 ± 1506.1</td>
<td>N.S.</td>
</tr>
<tr>
<td>Left Instrument Economy of Movement</td>
<td>895.4 ± 421.6</td>
<td>1024.0 ± 450.0</td>
<td>N.S.</td>
</tr>
<tr>
<td>Right Instrument Path (mm)</td>
<td>3541.7 ± 1278.1</td>
<td>4179.7 ± 928.3</td>
<td>N.S.</td>
</tr>
<tr>
<td>Right Instrument Economy of Movement</td>
<td>687.8 ± 272.1</td>
<td>812.9 ± 375.0</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

Figure: The students who thought themselves manually dexterous
completed the task in less time.

Abstract ID: 0120 Specific Field: Surgical Education

Mode of pres.: Free Paper (oral)
ISW 2009 Session 31.03

An integrated progression of learning using the intercollegiate surgical curriculum
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Introduction: Surgical training is under pressure from a changing
environment, financial restraints and time restrictions. There is an
urgent need for an integrated progression of learning, with effective
and objective assessment of competency progression. Therefore the
UK Surgical Royal Colleges developed an Intercollegiate Surgical Curriculum Program (ISCP) to meet the requirements of training and
provide structured apprenticeship.

Material and Methods: The curriculum set standards within a time
frame with regulatory systems, and training is modular with each
block having standards for
- Clinical judgement
- Specialty knowledge
- Generic professional skills
- Technical/operative skills

Results: The curriculum is now an interactive web-based resource
that has been live for 18 months, having been piloted for 2 years.
There are currently 3200 trainees registered and validated. The project
was funded by the Department of Health, but now a training fee
has been introduced to support and update the ISCP. The curriculum
is a complete management system supporting Program Directors,
Educational Supervisors and Trainees. It provides a clear educational
contract between trainees and the service and creates a learning
agreement. There are clear assessment tools for each stage of a trai-
nee’s education to assess progression of competency.

Conclusions: There have been teething problems and complaints
regarding user friendliness, poor access and complexity. However the
ISCP is now vastly improved and an excellent Helpdesk has resolved
most problems. Ongoing improvement and development is required to
keep pace with changing needs and the web-site is a dynamic site.
Such an explicit and dynamic surgical curriculum is a valuable tool in
providing a graduated progression of surgical training in our changing
society and has international application.

Abstract ID: 0121 Specific Field: Surgical Education

Mode of pres.: Free Paper (oral)
ISW 2009 Session 31.04

Do non-cognitive skills predict surgical performance: a randomized controlled trial evaluating the predictors of skill acquisition on a laparoscopy simulator
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Figure: ISCP Validated Trainees
Introduction: This prospective randomized study explored the impact of a structured virtual reality training (Lapsim®) in novices and correlate it with their personality attributes.

Material and Methods: Fifty novices performed the 7 basic modules of the Lapsim twice at the beginning of the study (base-line). Participants were examined using the aptitude test battery (stress-coping questionnaire, General Self Efficacy (GSE) and The Questionnaire on Current Motivation (QCM)). Then Participants were randomized either for 3 months VR-training or no training. At the end of the study all participants performed the 7 basic modules of the Lapsim twice again. The diathermy cutting module was used as end-point exam. The impact of VR-training was assessed and compared with the non-cognitive parameter of all subjects.

Results: Over 1400 LapSim tasks were assessed. At base-line there was neither differences in laparoscopic nor in non-cognitive performance between the two groups. At endpoint exam the trained group showed better laparoscopic performance (time p = 0.008, tissue damage p = 0.012, economy of motion p = 0.004) when compared to the untrained group. In the untrained group, inferior stress-coping strategies and inferior GSE correlated with poor virtual laparoscopic performance (time p = 0.0001, tissue damage p = 0.005, economy of motion p = 0.001), whereas in the trained group this correlation was absent. The QCM correlated only in the trained group with performance-time (p = 0.01) and to the economy of motion (p = 0.048).

Conclusions: In novices, VR-training can improve laparoscopic skills and reduce the negative effect of inferior personality attributes on acquisition of virtual laparoscopic performance.

Abstract ID: 0122 Specific Field: Surgical Education

Mode of pres.: Free Paper (oral)
ISW 2009 Session 31.05

Virtual surgical volunteerism for the developing world: a new paradigm

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Introduction: Surgical volunteerism is an important aspect of professional satisfaction of surgeons around the world. Despite helping many patients around the world that otherwise could not afford surgical care, the true long term impact of countless hours of volunteering is difficult to measure. Using telemedicine and e-health platform one can add significantly to sustainability of these efforts and increase the frequency of surgical volunteerism in addition to establishing the infrastructure and providing distance educational programs.

Material and Methods: A review of the impact of the Telemedicine Program of Kosova on the rebuilding the medical system after the destructive war of 1999/9 as part of the efforts of improving healthcare in the Balkans using telemedicine and advanced technologies as the platform has become a model for wider adoption and implementation of telemedicine in the region and around the world.

Results: With grants from the European Union and the United States Department of State Bureau of Educational and Cultural Affairs, the authors have introduced and developed a sustainable state-of-the-art telemedicine program that covers the entire country of Kosova and now is spreading to the rest of the Balkan countries. The telemedicine program consists of the infrastructure and the network for telemedicine consultations, virtual educational, electronic medical libraries in each hospital, and the core leadership to independently run the program. Structured educational curriculum and exchange programs have been implemented for physicians, nurses, and technical professionals from the Balkans in telemedicine, e-health, electronic library, trauma, and critical care through live workshops, virtual seminars and lectures, as well as hands on activities. Similar activities have been undertaken in Pakistan, Ecuador and other parts of the world.

Conclusions: Advanced technologies and telemedicine offer a great modality for virtual surgical volunteerism and virtual return of expatriates from developing countries that practice medicine and surgery in Western countries. The application of telemedicine could usher in a new paradigm of surgical volunteerism. Once the infrastructure is established, distance virtual educational programs can be easily undertaken and significantly impact the healthcare of the country.
Abstract ID: 0124  Specific Field: Surgical Education

Mode of pres.: Free Paper (oral)
ISW 2009 Session 31.07

Surgical safety check list: the Italian experience
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Introduction: The University Hospital of Modena is one of the largest hospitals in the Emilia Romagna region and each year about 15,000 surgery procedures are performed. We have been working on safety surgery, for safety of patients throughout the control of the correct function of surgical devices and sterilization of surgical instruments. In particular we have created and applied a project called “SOS surgery” that included all the 4 objectives of the second Global Patient Safety Challenge “Safe Surgery Save Life” that are: Clean Surgery, Safe Anesthesia, Safe Surgical Teams, and Measurement. In agreement with the W.H.O. program we have decided to use the surgical safety check list to improve communication between all members of the surgical team.

Material and Methods: In October 2008 we started a trial for the application of the surgical check list. We have involved one general surgery unit and we’ve appropriately trained the whole surgical team involved. We have identified as check list coordinator a circulating nurse who confirms completion of each step of the check list. At the end of procedures the whole team agree and sign the check list.

Results: During a period of three months we collected 175 check lists. The analysis of the data has highlighted 30 critical events (17%) represented by surgical site not market in two cases, laterality not reported on the surgical note in one, change in anaesthesiological technique not reported on the surgical note in three, an inversion in the order of the procedures as planned in another three, patient without the ID tag in one, the antibiotic prophylaxis not reported on the surgical note in seven, the absence of the anaesthesiological consent in one, the absence of blood risk evaluation in three, a surgical team different from which on the surgical note in six, procedure not properly indicated on the surgical note in two and lack of pre-operative patient preparation in one case. In any case the critical events reported had clinical negative consequences on patients.

Conclusions: The compliance of the whole surgical team in the application of the checklist has been satisfactory and its application has been useful to check and avert critical events. It’s our aim to extend its use first of all to the other general surgery units and then to the other surgical specialties.

Abstract ID: 0125  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 32.01

Inflammatory response in surgery of colon cancer: comparison of open and laparoscopic approach


Introduction: IL-6, TNF-a,CRP are indicators of inflammatory reaction. They are produced genetically via NF-kB. The signaling for the activation of NF-kB is done through Toll-like-receptors (TLRs), which are members of the pattern-recognition receptors and play central role in innate immunity responses. A -defensins are antimicrobial peptides which are mobilized as a first line of defense. Aim: To study and compare levels of IL-6,TNF-a,CRP, TLR2,TLR4 and a-defensins during open and laparoscopic surgery for colon cancer and therefore draw conclusions for the inflammatory response.

Material and Methods: Two groups of 15 patients each were studied. Group A laparoscopic (ages 42-84) and group B open (ages 58-82). Measurements were made preoperative, at 5min after release of the pneumoperitoneum for group A and 5min after division of the colon part to be removed, 6 hours after surgery and 24 hours after surgery. TLR2 and 4 were measured using flow cytometry, IL-6, TNF-a, and a-defensins with ELISA and CRP using automated analyser. Sta tistics were done using t-test.

Results: Statistically significant differences were observed: for TLR2 in 24h, TLR4 at 5min and 6h, IL-6 at 6h and 24h, CRP at 24h and for a-defensins at 5min, 6h and 24h. In all results group A was favored over group B.

Conclusions: The results show statistically significant difference between open and laparoscopic surgery with patients showing higher inflammatory reaction, which indicates higher surgical stress, during open surgery for colon cancer.

Abstract ID: 0126  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 32.02

Single stage totally robotic dissection using da Vinci®-S for rectal cancer surgery: technique and short-term outcome in 50 consecutive patients
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Introduction: To overcome the pitfalls of laparoscopy, a robotic system has been introduced in rectal cancer surgery. However, there is no standard procedure to maximize the advantages of the da Vinci® system. Therefore, we described in this study our technique to apply the robotic system during the whole steps of dissection in rectal cancer surgery without moving the robotic cart.

Material and Methods: Prospectively collected data were reviewed from 50 consecutive patients who underwent single stage robotic dissection for rectal cancer resection between July 2007 and June 2008. Robotic dissection was performed following the below described sequential steps: 1) ligation of the inferior mesenteric vessels, 2) medial to lateral dissection, 3) mobilization of the sigmoid and descending colon, 4) mobilization of the splenic flexure, and 5) resection. The remaining steps of low anterior resection including rectal transection and intracorporeal anastomosis were performed by a conventional an aroscopic method. For interspnicteric resection or abdomino-perineal resection, a conventional per anal or perineal dissection was performed.

Results: There were 32 (64%) men and 18 (36%) women. Their mean age was 58.5 years (range, 30-82). Seven patients (14%) had a history of abdominal surgery. The mean body mass index (BMI) was 23.24 kg/m (range, 19.38-29.20). The mean distance from the anal verge to the lowest tumor margin was 7.32 cm (range, 2-13). The conversion rate was zero%. The mean operative time was 304.8 minutes (range, 190-485) and 20.56 lymph nodes (range, 6-48) were harvested. The length of hospital stay after surgery was 9.16 days (range, 5-24). Anastomotic leak rate was 8.3% and all of the patients with leak were managed conservatively.
Conclusions: Single stage robotic dissection for rectal cancer surgery is feasible, and its short term outcome is acceptable. Our technique can be an ideal procedure to maximize the advantages of the da Vinci® system.

Abstract ID: 0127 Specific Field: Colon and Rectum

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Parastomal hernia: long term follow-up of laparoscopic mesh repair
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Introduction: Open surgery for parastomal hernia has been associated with high morbidity and recurrence rates exceeding 40-50%. Laparoscopic mesh repair with or without a slit in the mesh is a promising alternative. Published series, however, are small with a relative short follow-up.

Material and Methods: Since 1997 laparoscopic mesh repair has been performed in 72 consecutive patients with 48 paracolostomal and 24 pararectostomal hernias. 24 patients had a history of previous repair. Using a two-layer mesh with polypropylene on the outside and a non-adhering layer of extended PTFE towards the viscera, a slit with a central keyhole was cut in the mesh modified after Hofstetter. Covering the fascial defect with a median overlap of 4 cm, the slit was closed laterally. Five patients had a simultaneous repair of incisional hernia. Of 70 patients discharged alive, 66 were followed for 6 months to 10 years (median 31 months). Four patients were lost for follow-up.

Results: Adhesions to the anterior abdominal wall were encountered in 68 patients (94%). Adhesiolysis was time-consuming (median 45 min of a median operating time of 90 min) and the apparent cause of inadvertent full-thickness enterotomy in three of 9 patients with injury to the bowel. Conversion to open surgery was necessary in three patients (4%). Postoperative complications were: Bleeding (2), infection (3), stomal complications (4), sepsa (7), and other complications (5) in a total of 16 patients (22%), nine of which required repeat surgery (13%). Two patients (3%) died (missed bowel injury resulting in multi organ failure, and uncontrollable bleeding in a patient with portal hypertension unknown prior to surgery). The median hospital stay was three days. Late mesh-related complications were observed in five patients (7%): Infection occurred in three patients, one with a small bowel fistula, requiring mesh removal in two. In two patients the mesh was removed due to small bowel obstruction and stomal stenosis, respectively. Stomal hernia occurred in one patient one month after surgery (recurrence rate 1.4%–95% confidence interval 0-7).

Conclusions: Laparoscopic mesh repair of parastomal hernia is associated with a substantial postoperative morbidity including late mesh-related complications, but few conversions and a recurrence rate of less than 7%.

Abstract ID: 0128 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 32.04

Laparoscopic sigmoid colectomy for diverticulitis prospective study of 260 patients
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Introduction: Surgical treatment of complicated colonic diverticular disease is still debated. The aim of this prospective study to evaluate the outcome of laparoscopic sigmoid colectomy for diverticulitis. Indication for laparoscopic surgery were acute complicated diverticulitis (Hinchey stages I and lla), chronically recurrent diverticulitis, bleeding or sigmoid stenosis caused by chronic diverticulitis.

Material and Methods: All patients who underwent laparoscopic colectomy within a 12-year period were prospectively entered in a PC database registry. One-stage laparoscopic resection and primary anastomosis constituted the planned procedure. A four-trocar approach with supraumbilical minilaparotomy was used.

Main data are: age, sex, post operative pain, return of bowel function, operation time, duration of hospital stay, Early and late complications.

Results: During the study period 260 sigmoid colectomies were performed for diverticulitis. 104 patients are male, and 156 are female M: F ratio is 4:6 . postoperative pain is controlled by NSAID or weak opioid, 15 patients (5.7%) required conversion from laparoscopic to open colectomy. Most common reasons for conversion were directly related to the inflammatory process, abscess or fistulas. Mean operative times were 130 +/- 54. Average postoperative hospital stay was 10 +/- 3 days. A Longer hospital stay was recorded among Hinchey lla Complications were recorded in 32 (12.3%). Most common complication requiring re-operation was haemorrhage 5 (1.9%). Anastomatic leak occurred in 11 Patients (3 of them required re-operation.). The mortality was 2 patients 0.76%

Conclusions: Laparoscopic surgery for diverticular disease is safe, feasible and effective. Therefore, laparoscopic colectomy has replaced open resection as standard surgery for recurrent and complicated diverticulitis of our institution.

Abstract ID: 0129 Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 32.05

Normal looking pathological appendix
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Introduction: Patients with acute right iliac fossa pain commonly present with a suspected diagnosis of acute appendicitis. In addition to clinical examination, where facilities and expertise exist, diagnostic laparoscopy, although invasive, is resorted to and can be therapeutic in addition to being a reliable diagnostic modality. The dilemma arises when a normal appendix is visualised at laparoscopy. As there is no definite consensus on practice, we aimed to find out the incidence of appendicular pathology in a normal looking appendix removed during laparoscopy for a suspected clinical diagnosis of acute appendicitis.

Material and Methods: Over a period of 5 years between 2003 and 2007, we identified 100 consecutive patients who had macroscopically normal appendixes removed at laparoscopy for clinically suspected acute appendicitis when no other pathology were found. We identified these patients using the prospectively collected clinical database. Data obtained included sex, age and pathology reports. The data were cross referenced using the pathology database.

Results: There were 13 males and 87 females. The mean age was 28.7. The total number of patients who had pathological appendicitis was 15 (15%). The male to female ratio of patients who had pathological appendicitis was 1:4. Eighty five patients (85%) did not have evidence of acute appendicular inflammation on pathological examination. Of those who had normal visible appendixes, 22 (22%) had
A significant proportion of patients (37% in this study) for liver parenchymal dissection. We compared clinical and operative variables between the open procedure group (n = 6) and the laparoscopic procedure group (n = 5) from January 2005 through June 2008 in our hospital.

**Results:** We developed a three-port method for anatomical left lateral sectionectomy under a minimal incision followed by hand-assisted laparoscopic mobilization as a standard approach.

**Material and Methods:** Minimal access to open laparotomy is made underan 8 cm incision for a hand port. The other ports are the camera port and working port. Immobilization of the liver is totally completed under low pressure pneumoperitoneum. After immobilization of the liver, the usual open technique can be employed for liver resection through minilaparotomy. We used the Cavitron ultrasonic surgical aspirator (CUSA Excel®) with a saline-linked cautery (Dissecting sealer 3.5C®) for liver parenchymal dissection. We compared clinical and operative variables between the open procedure group (n = 6) and the laparoscopic procedure group (n = 5) from January 2005 through June 2008 in our hospital.

**Results:** We developed a three-port method for left lateral sectionectomy. No technical difficulty or major complication occurred in both open and laparoscopic approach. There was no significantly difference of sex (3:3 vs. 4:1, male:female), etiology (2:4 vs. 1:4, HCC:metastasis), ages (62.2 ± 7.8 vs. 61.8 ± 16.6 y.o.), tumor sizes (4.5 ± 1.2 vs.4.1 ± 1.1 cm), operation time (284.8 ± 65.4 vs. 282.0 ± 115.1 min.), and blood transfusion rate (0% vs.0%) between the groups (open vs. laparoscopy). Although our technique is a pilot procedure, intraoperative bleeding and the hospital stay in the laparoscopic group were significantly smaller(129.0 ± 139.3 vs. 483.3 ± 207.9 ml, p = 0.017) and shorter(8.8 ± 1.1 vs. 13.0 ± 1.1 days, p = 0.006) than in the open procedure group.

**Conclusions:** The three-port method is suitable for hand-assisted left lateral sectionectomy and is easily repeatable for all liver surgeons without special skill and equipment.

**Abstract ID:** 0131 **Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Video/CD-Rom

ISW 2009 Session 33.01

**Easy techniques and procedures for laparoscopic hybrid liver resection: the introduction reading to complete laparoscopic hepatectomy**

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**Introduction:** A large incision is inevitable for standard hepatectomy to ensure a good surgical field. A laparoscopic approach has been developed to avoid excessive surgical stress. Left lateral sectionectomy is one of the best indications for anatomical liver resection under laparoscopy. We developed a three-port method for anatomical left lateral sectionectomy under a minimal incision followed by hand-assisted laparoscopic mobilization as a standard approach.

**Material and Methods:** Minimal access to open laparotomy is made underan 8 cm incision for a hand port. The other ports are the camera port and working port. Immobilization of the liver is totally completed under low pressure pneumoperitoneum. After immobilization of the liver, the usual open technique can be employed for liver resection through minilaparotomy. We used the Cavitron ultrasonic surgical aspirator (CUSA Excel®) with a saline-linked cautery (Dissecting sealer 3.5C®) for liver parenchymal dissection. We compared clinical and operative variables between the open procedure group (n = 6) and the laparoscopic procedure group (n = 5) from January 2005 through June 2008 in our hospital.

**Results:** We developed a three-port method for left lateral sectionectomy. No technical difficulty or major complication occurred in both open and laparoscopic approach. There was no significantly difference of sex (3:3 vs. 4:1, male:female), etiology (2:4 vs. 1:4, HCC:metastasis), ages (62.2 ± 7.8 vs. 61.8 ± 16.6 y.o.), tumor sizes (4.5 ± 1.2 vs.4.1 ± 1.1 cm), operation time (284.8 ± 65.4 vs. 282.0 ± 115.1 min.), and blood transfusion rate (0% vs.0%) between the groups (open vs. laparoscopy). Although our technique is a pilot procedure, intraoperative bleeding and the hospital stay in the laparoscopic group were significantly smaller(129.0 ± 139.3 vs. 483.3 ± 207.9 ml, p = 0.017) and shorter(8.8 ± 1.1 vs. 13.0 ± 1.1 days, p = 0.006) than in the open procedure group.

**Conclusions:** The three-port method is suitable for hand-assisted left lateral sectionectomy and is easily repeatable for all liver surgeons without special skill and equipment.

Figure: Laparoscopic hybrid liver resection
**Abstract ID: 0132**  Specific Field: Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Video/CD-Rom  
**ISW 2009 Session 33.02**

Laparoscopic right hepatectomy: use of Ligasure device for vascular control - video  
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**Introduction:** Laparoscopic right hepatectomy belongs to more technically demanding procedures with potential of massive hemorrhage and risk of gas embolism. The standard principle of safe procedure is blood inflow interruption in hilus outside of liver, which represents separate hepatic artery, right portal vein, and right bile duct dissection and their transection. Usually right portal vein is transected by stapler or stitched up by suture. Other possibility is “en mass” right portal pedicle transection by stapler intra hepatic parenchyma. Both mentioned techniques have limitations in use. Stapler deployment requires adequate space i.e. a sufficient length of right portal vein. En mass transection of Glissons pedicle would be associated with stapler failure due to large volume of transected tissue. En mass transection technique increases risk of biliary injuries, which can be preventable by peroperative cholangiography. Our modification of right portal vein transaction is simple and is based on extrahepatic dissection and its division using Ligasure device.

**Material and Methods:** The procedure started by cholecystectomy and preoperative ultrasonography. The right hepatic artery was dissected and transected between clips first. After that right portal vein is isolated and a tie is passed around it. Right portal vein is transected between locked clips using of Ligasure (LigasureVessel Sealing System Valleylab, Boulder, Colorado, USA). Following this dissection continues between ventral aspect of retrohepatic cava and caudate lobe, short hepatic branches are isolated and interrupted by Ligasure, larger vessels are clipped with locked clips. Dissection under right liver lobe continues upward until right hepatic vein is visible. After that right hepatic vein is isolated and transected using Endo GHA vascular stapler. Liver parenchyma is transected afterdemarcation using harmonic scalpel and CUSA. Right lobar bile duct is transected sharply by scissors and sutured by resorbable continuous suture. Specimen is placed into bag and removed from abdominal cavity through suprapubic incision.

**Results:** Four total laparoscopic right hemihepatectomies were performed during 2008. The operative times were 310, 420, 310, and 325 minutes respectively. The average intraoperative blood loss was 400 ml and it was controlled laparoscopically in all cases. The postoperative 30-day mortality was nil.

**Abstract ID: 0133**  Specific Field: Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Video/CD-Rom  
**ISW 2009 Session 33.03**

Is there a place for laparoscopic central pancreatic resection?  
A. Kharabsha [1], A. Breizat [2], Q. Al-Ani [1]


**Introduction:** Pancreatic parenchymatous sparing technique including (central or medial pancreatectomy) especially advocated for benign or low grade malignant tumors. Middle pancreatectomy (MP), first performed for oncologic indication on 1984, since then 200 cases have been reported. The good preservation of endocrine and exocrine function is the main goals behind choosing this technique. We present our experience with a laparoscopic median pancreatectomy.

**Material and Methods:** 41 years old female referred from gynecological department were she was investigated for vague abdominal pain and found to have a heterogeneous cystic 8cm mass involving the body of the pancreas, CT scan revealed a heterogenous cystic and solid 8cm in diameter pancreatic mass, needle aspiration suggest a Pancreatic cyst fluid with a Clusters of monotonus, uniform looking small in size cells with normal chromatin condensation and bland appearing nuclei, inconspicuous nucleioli, and no mitotic figures, with Papillary like structures. Laparoscopic approach using 4 upper abdominal ports and dissection free of the pancreatic mass with a rim of pancreatic tissue, frozen section confirmed free margins, pancreatico-gastrostomy of the distal stump, oversewing of the cephalic portion.

**Results:** Frozen section confirm the free pancreatic margins with a solid psuedopapillary tumor. Patient developed biochemical pancreatic fistula on 5th postoperative day which treated conservatively and discharged well on 10th postoperative day, 6 month after the procedure CT scan follow up a tumor free and normal exocrine and endocrine function.

**Conclusions:** Laparoscopic central pancreatic resection in a 8 cm pancreatic tumor can achieve negative tangential margin. The advantage of minimal invasive technique with pancreatic parenchyma preserving technique is recognized in this approach .
the pancreatic body and tail (such as chronic pancreatitis, neuroendocrine tumor, mucinous cystic neoplasm, and intraductal papillary mucinous neoplasm). Recently we have also begun to see retrospective case-control studies comparing these techniques to open surgery, with Lap-DP showing advantages not only in terms of esthetics related to the surgical wound, but also with regard to reduced intraoperative bleeding, postoperative recovery time, and days of postoperative hospitalization. Propective randomized controlled trials are still needed for confirmation, but it appears likely that this technique will become a standard surgical procedure for the treatment of diseases of the pancreatic body and tail. In contrast, laparoscopic pancreateoduodenectomy (Lap-PD) remains controversial in the minds of many pancreatic surgeons. This is primarily due to the difficulty of laparoscopic reconstruction following resection. How ever, there have recently been a number of single-center reports of the use of this procedure in at least 20 patients per center, showing that Lap-PD is associated with considerable reduction in intraoperative bleeding. Our own experience has been similar. In carefully selected patients, we find Lap-PD to be a useful surgical procedure.

Since the approval of laparoscopic pancreatic resection in January 2004 by the Ethics Committee of Nippon Medical School, the use of this procedure has been introduced in our department, and to date we have conducted a total of more than 40 procedures for Lap-DP and Lap-PD. We would like to show the techniques that we use in these procedures, and will demonstrate those clinical outcomes.

Abstract ID: 0135  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Video/CD-Rom
ISW 2009 Session 33.05

Laparoscopic distal pancreatectomy for cystic tumor of pancreas

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Introduction: Laparoscopic Distal Pancreatectomy (Lap-DP) has been performed for 34 cases of pancreatic body and tail diseases except pancreatic cancer since January 2004 under the approval of the committee of clinical ethics of Nippon Medical School Hospital. We reviewed 18 cases of Lap-DP for cystic tumor of pancreas, demonstrating surgical procedures by video records.

Material and Methods: Two males and sixteen females had a median age of 55 years. Basically 4 port sites were made and EndoGIA was used for resection of pancreas in the operation. Resected specimen was put into surgical bag, then crushed and minced in the bag when it is necessary, and finally taken out of patient through specimen bag when it is necessary, and finally taken out of patient through one port site wound after aspiration of liquid contents of cyst.

Results: Tumors were located in Pancreatic body (Pb) in 7, Pancreatic tail (Pt) in 11 cases. Median diameter of tumor was 5.7cm (range, 1.5-15.0cm). 18 cases were histologically divided into Mucinous Cyst Adenoma; MCA (n = 8), Seaceous Cyst Adenoma; SCA (n = 4), Metastatic pancreatic tumor (n = 2), Solid and Pseudopapillary Tumor; SPT (n = 1), Intraductal Papillary Mucine Producing Tumor; IPMT (n = 1), Retention cyst (n = 1) and pancreatic cancer (n = 1), which was diagnosed intraoperatively and converted to open surgery. Spleen was preserved in 3 cases with the preservation of splenic artery and vein in all 3 cases. Median operation time and the quantity of bleeding during operation were 294 minutes and 185ml respectively. There were neither cases requiring blood transfusion nor yielding surgical complications. Median hospital days after operation was 10.2 days (range, 6-15 days) and Median follow-up period for patients was 22 months (range, 2-46 months).

Conclusions: Lap-DP is an adequate operation for cystic tumors of pancreatic body and tail with regard to less quantity of bleeding and less period of hospital days after operation.

Abstract ID: 0136  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Video/CD-Rom
ISW 2009 Session 33.06

Pancreatic transection with CUSA and reconstruction with 4-5 parenchymal stitches

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Introduction: Pancreatic fistula (PF) remains a major complication following pancreaticoduodenectomy. We have reported a safe surgical technique of pancreatic transection with CUSA and reconstruction with duct invagination anastomosis, especially for the pancreas with soft texture and a small duct. To further reduce PF, we recently started to add 4-5 stitches between the pancreatic parenchyma and the jejunal seromuscular layer.

Material and Methods: The pancreas with a soft gland was transected with CUSA. During this procedure, even branch pancreatic ducts were identified, ligated and divided. The main main duct was exposed (>1cm) easily by CUSA and a small-caliber pancreatic tube was inserted into the duct on the stump. Then, pancreatic duct invagination could be easily done through a 10G intravenous catheter passed through the jejunum. The main duct was anchored to the adjacent serosa. In contrast, remnant pancreas with a large duct was reconstructed with a standard duct-to-mucosa anastomosis. Subsequently, 4-5 stitches of 3-0 monofilament sutures were placed between the stump parenchyma and jejunal seromuscular layer, previously reported by Kakita, et al.

Results: We applied this pancreatic transection and reconstruction technique to the consecutive 14 patients with peripancreatic tumors and 1 with pancreatic trauma. Post operatively, grade A (n = 1) and B (n = 3) PFs developed but grade C PF did not occur in this series. There was no mortality in this series.

Conclusions: Our novel pancreatic transection and reconstruction technique resulted in good patient outcomes although it could not eliminate mild PF.

Abstract ID: 0137  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 36.01

Impact of prophylactic central neck lymph node dissection on recurrence in papillary thyroid carcinoma

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Introduction: Although the role of prophylactic central neck lymph node dissection (CND) in the treatment of papillary thyroid carcinoma (PTC) is controversial, many surgeons perform routine prophylactic CND. This study compares local recurrence rates in PTC
patients undergoing total thyroidectomy with and without prophylactic CND.

**Material and Methods:** A retrospective review of 206 patients undergoing thyroidectomy for PTC was conducted at two tertiary referral centers. Of these, 81 patients had total thyroidectomy for PTC and a follow up of between 2-9 years with a mean of 3.1 years. 45 patients underwent routine prophylactic CND while 36 did not. Both groups were compared using demographics, clinical and pathologic findings, radio-active iodine (RAI) treatment and the incidence of recurrence. Univariate and multivariate statistical analysis was performed.

**Results:** There was no significant difference in age, gender, multifocality or extrathyroidal extension among the two groups. Patients with CND had an average tumor size of 1.5cm vs. 2cm in the group without CND (p<0.05). Patients who underwent CND had an average of 8 nodes removed and positive nodes were found in 36%.

Patients with CND received a higher dose of RAI, 98miCu vs. 66miCu (p<0.05). The incidence of positive nodes correlated with an increased RAI dose (r=0.5). Rates of parathyroid removal and auto-transplantation were comparable, 31% and 4% in the CND group vs. 22% and 3% in the group without CND (P=0.4 and P=1). Rates of temporary hypocalcemia were higher in the CND group 16% vs. 5% (p=0.3), however rates of permanent hypocalcemia were similar 1/19 in the no CND group vs.0 /25 in the CND group (p=0.4). There was a higher recurrence rate among patients without CND 6/33 (16.7%) vs. 2/45 (4.4%), though this difference was not statistically significant (p=0.1).

**Conclusions:** Routine central neck dissection, as an adjunct to total thyroidectomy, identifies positive nodes in nearly 40% of patients with PTC. This is associated with higher doses of RAI for postoperative ablation and a trend towards decreased recurrence in patients undergoing CND.

**Abstract ID: 0138**  Specific Field: Endocrine Surgery

**Mode of pres.: Free Paper (oral)**

**ISW 2009 Session 36.02**

**Long-term outcome in 215 children and adolescents with papillary thyroid cancer (PTC) treated during 1940 through 2008**

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**Introduction:** Although it is accepted that prognosis is excellent in childhood PTC, controversy continues regarding the aggressiveness of initial therapy. Few studies with long-term outcome exist and the issue of subsequent non-thyroid malignancies (suspected in adult PTC) has never been addressed.

**Material and Methods:** We have studied 215 PTC patients <21 yr old, who had initial management at our institution during 1940–2008. The patients (71% female) were aged 3-20 yr (median 16 yr). Patients were followed for up to 64 yr; mean follow-up was 27 yr. Recur recurrence and mortality details were taken from a computerised database.

**Results:** Median primary tumor size was 2.2 cm (range 0.1 to 9.5cm). Only 12 (6%) patients had distant metastases at initial presentation; 11 (5%) had incomplete resection of localized tumor, with gross residual disease. Uni laterial lobectomy (UL) accounted for 76% of procedures during 1940–49. Bilateral lobar resection (BLR) accounted for 93% of procedures during 1950–2008.86% of patients had nodes removed at initial thyroidectomy; 78% had metastasized to neck nodes. During 19502008 radioiodine remnant ablation (RRA) was given within 18 postop months to 32%. After complete surgical resection, PTC recur rented in 27% by 20 yr and in 32% by 40 yr. At 20yr, the recurrence rates at local, regional, and distant sites were 7%, 21% and 5%, respectively. During 1940-69, local and regional recurrence rates after UL were significantly higher than after BLR (p<0.001). At 40 yr, recurrence rates (any site) after UL and BLR were 65% and 25%, respectively (p=0.002). During 1950 through 2008, RRA did not diminish the 25-yr regional recurrence rate of 16% seen after BLR alone (P=0.86). There were no deaths from PTC within 20 postop yr. Only 2 fatal events from PTC occurred between 20 and 30 yr, for a cause-specific mortality at 40 yr of only 2%. All-cause mortality rates did not exceed expectation through 20 yr, but from 30 through 50 yr the number of deaths were significantly (p<0.001) higher than predicted (22 vs 10.6 expected). 17/22 (77%) deaths resulted from malignancy (88% non-thyroid).

**Conclusions:** We conclude that survival from childhood PTC should be expected, but later death from non-thyroid malignancy is disconcerting. 11/15 (73%) dying of non-thyroid cancers had postop therapeutic irradiation (I-131 or XRT/radium), which may prove to be relevant to subsequent carcinogenesis.

**Abstract ID: 0139**  Specific Field: Endocrine Surgery

**Mode of pres.: Free Paper (oral)**

**ISW 2009 Session 36.03**

**Removal of autografted parathyroid tissue for recurrent renal hyperparathyroidism in hemodialysis patients**

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**Introduction:** Recurrent hyperparathyroidism (HPT) is a serious problems after parathyroidectomy (PTx) in long-term hemodialysis patients. Total PTx with forearm autograft may be a suitable operative procedure for these patients. We evaluated frequency of graft dependent recurrent HPT, and clinical outcomes after removal of autografted parathyroid tissue for recurrent HPT in these patients.

**Material and Methods:** Between March 1980 and January 2009, 2660 patients were underwent total PTx with forearm autograft for advanced renal HPT. At PTx mean age was 55.0 years, and mean duration of hemodialysis was 144 months. After resection of all parathyroid glands and thymic tongues 30 pieces of 1x1x3mm parathyroid tissue from possibly diffuse hyperplasia was autotransplanted into brachia-radial-muscle. Graft dependent recurrence was diagnosed based on high PTH gradient and detection of swollen autograft by MRI or US.

**Results:** 1, In 248/2660 (9.3%) patients, removal of graft was performed. The cumulative frequency of graft dependent recurrent HPT was 12.0% at 5 year and 21.4% at 10 year after initial PTx. 2, Mean weight of the removed graft was 1583.7mg. No specimens had histopathologically malignant features. 3, Intact PTH levels after removal of autograft was distributed into 60pg/mL; 70 patients, 60-180 pg/mL; 55 patients, 180-300pg/mL; 28 patients, 300 pg/mL; 38 patients. 4 Out of 248 patients, 36 patients required removal of autograft at several times (2 times; 27 patients, 3 times; 6 patients, 4 times 2 patients, 5 times 1 patient ). And 18 patients underwent resection of missed glands located in the neck or mediastinum after removal of the graft. 5, Only 3 patients suffered from hematoma in the wound. No patients complained on disturbance of forearm movement or re-operation.

**Conclusions:** Recurrent HPT is not negligible in long-term hemodialysis patients. Total PTx with forearm autograft is a safe and preferable procedure in these patients, however sometimes it is difficult to control HPT by only removal of autograft. En-bloc resection with surrounding muscle at removal of autograft is essential to avoid re-operation.
Abstract ID: 0140 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 36.04

The value of intraoperative parathyroid hormone monitoring (IOPTH) and multi-modal localization in reoperative parathyroid surgery (REOPS)

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Introduction: The aim of this study was to evaluate cure rates, pathology, complications, and efficacy of adjuncts such as IOPTH, preoperative sestamibi, computed tomography (CT), magnetic resonance imaging (MRI), ultrasonography (US) and intraoperative venous sampling/localization (IVSL) for REOPS in primary sporadic hyperparathyroidism (PHPT).

Material and Methods: Between 1992-2008, 1481 consecutive patients underwent parathyroidectomy. Of these, 289 were REOPS in 186 referral patients with persistent PHPT and 79 patients who had had a previous thyroidectomy. IOPTH was used in 193 operations, sestamibi=289, CT=162, MRI=61, US=78, and IVSL=28.

Results: IOPTH was the single most useful adjunct and improved the cure rate from 76.1% to 93.8% (p<0.01) with a mean follow-up of 1.8 ± 0.4 years. When IOPTH dropped to normal (n= 168), after excision of the parathyroid tumors, cure rate was 99.4%. However, when IOPTH did not normalize (n=25), cure rate was only 54.1%. When preoperative imaging localized a lesion, a tumor was identified in that location in 74.1% of sestamibi scans, 56.7% of CT, 60.9% of MRI and 44.8% of US. IVSL accurately lateralized 78.6% of tumors. When at least 2 imaging modalities were concordant, sensitivity improved to 89.2% (p<0.01). In patients with persistent PHPT, 32% had single adenomas, 64% had multiple gland disease, 3% had parathyroid cancer and 1% had another malignancy. Rates for permanent hypocalcemia and recurrent nerve palsy were 0% and 0.4%, respectively.

Conclusions: This is the largest series evaluating outcomes in REOPS for PHPT. IOPTH improves outcomes in REOPS. No single localization modality is ideal and multiple imaging modalities are optimal.

Abstract ID: 0141 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 36.05

Normalization of two week post-operative parathyroid hormone values in patients with primary hyperparathyroidism: four gland exploration compared to focused-approach surgery

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Warren Alpert School of Medicine at Brown University, Providence, USA

Introduction: Elevation of parathyroid hormone (PTH) levels is common in patients with primary hyperparathyroidism who have undergone parathyroidectomy. This study compares 2 week post-op PTH levels in patients having focused approach surgery versus four gland exploration.

Material and Methods: Over two years, all patients at Rhode Island Hospital (RIH) and the Cleveland Clinic (CCF) with primary hyperparathyroidism and pre-op localization studies suggestive of single adenoma were included. At RIH, patients had a focused-approach, and at CCF routine four gland exploration was performed. Calcium supplementation was routine at RIH, and selective at CCF.

Results: Patients were similar in age (58.1 ± 13.7 at RIH and 59.7 ± 12.9 at CCF), and gender (81% and 79% female at RIH and CCF respectively). The mean pre-operative serum calcium measured 10.8 ± 0.7 mg/dl at RIH and 11.2 ± 0.6 mg/dl at CCF (p<0.001). Two week post-op calcium values dropped by 14% in each group, to 9.3 ± 0.5 mg/dl at RIH and 9.7 ± 0.5 mg/dl at CCF (p<0.001). Pre-operative PTH values were similar, measuring 138.2 ± 94.8 pg/ml in the focused approach group (RIH) and 138.5 ± 139.3 pg/ml in the four gland exploration group (CCF). The percentage of patients whose intra-op PTH values dropped by 50% prior to completion of surgery was similar, 95.0% at RIH and 95.5% at CCF. Two weeks post-op, the percent whose PTH value was > 65 pg/ml was 17.4% at RIH and 29% at CCF (p=0.05). Incidence of multi-gland disease was 3.3% at RIH and 23.5% at CCF (p=0.001). Vitamin D-25 deficiency was 27% at RIH and 46% at CCF. It was not more prevalent in multi-gland disease. There was a non-significant trend toward higher rates of Vitamin D deficiency in patients whose post-operative PTH values were elevated.

Conclusions: For patients with primary hyperparathyroidism and a localizing study indicating unilateral disease, a significant proportion will have PTH elevation two weeks post-parathyroidectomy. The frequency of post-op PTH elevation may be influenced by the prevalence of Vitamin D-25 deficiency in the study populations, and the varied practices of post-op calcium supplementation. Long term study of these patients is necessary to determine differences in rates of recurrent hyper-parathyroidism.

Abstract ID: 0142 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 36.06

Should routine analysis of the MEN1 gene be performed in all patients with primary hyperparathyroidism under 40 years of age?

University Hospital La Timone, Marseille, France

Introduction: Familial hyperparathyroidism, especially Multiple Endocrine Neoplasia I, is more likely to present with primary hyperparathyroidism (1st HPT) at a young age, mandating bilateral exploration of the parathyroid glands. How ever, the majority of young patients will not be gene carriers or have a family history. Recent evidence suggests that young adults under 40, in whom there is no suspicion of family history, can be managed with the same pre- and peri-operative strategy as for sporadic primary HPT of any age. Our aim was to evaluate the prevalence of mutations in the MEN1 gene, in young adults under 40, who present with apparent sporadic 1st HPT.

Material and Methods: A retrospective review was undertaken of all patients who underwent surgery for 1st HPT between 1993 and 2004. From a total of 1253 patients, 87 patients (6.2%) were under the age of 40. Thirty-three patients provided informed consent to a detailed personal and family history, physical examination and genetic analysis of the MEN 1 gene. Twelve patients were subsequently excluded as they were known gene carriers prior to surgery (10 MEN1, 2 MEN 2A patients). Twenty-one patients underwent genetic analysis.

Results: Of the 21 patients who consented for genetic analysis, the mean age was 30.8 years (18-39 years with 43% younger than 30). These patients had no suspicious family or personal histories suggestive of a MEN phenotype. Fifteen patients presented with symptomatic hypercalcaemia. All 21 patients underwent parathyroid surgery by conventional cervicotomy (12) or endoscopic parathyroidectomy in
Abstract ID: 0143  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 39.01

Optimal ligation level of the primary feeding artery and bowel resection margin in colon cancer surgery: the influence of the site of the primary feeding artery

J. Hida, T. Yoshifuji, K. Okuno

Department of Surgery, Kinki University School of Medicine, Osaka, Japan

Introduction: In colon cancer surgery, it is recommended that en bloc resection involving extended lymphadenectomy, characterized as a hemicolectomy, be performed by ligating the primary feeding artery (PFA) at a high position and resecting proximal and distal with 5-cm to 10-cm bowel margins. How ever, there is little evidence to unequivocally support such extensive lymphovascular resection.

Material and Methods: The distribution of nodal metastases was obtained by the clearing method in 164 patients with colon cancer.

Results: For pericolic spread, for pT1 tumors, the distance from the primary tumor to a diseased node was 2.5 cm; for pT2, the distance was less than 5 cm; for 97% of pT3 tumors and 93.3% of pT4 tumors with nodes involved, the distance was less than 7 cm. For central spread, for pT1 tumors, the rate of spread to central nodes was 0%; for pT2, the rate of spread was 20% to intermediate (IM) nodes (for tumors more than 5 cm from the PFA, the rate for central nodes was 0%); for pT3, the rate was 30.6% to IM nodes and 15.3% to main nodes; for pT4, the rate was 44.4% to IM nodes and 22.2% to main nodes. For curative resection cases with pT3 tumors more than 7 cm from the PFA, the rate to central nodes was 0%.

Conclusions: In T1 tumors, central tumor dissection is not required, but resection with proximal and distal 3-cm margins are required; in T2, central node dissection that includes the IM node should be performed in addition to resection with proximal and distal 5-cm margins. In T3 and T4, central node dissection that includes the main node should be performed in addition to resection with proximal and distal 7-cm margins. However, for T2 more than 5 cm from the PFA, and for T3 more than 7 cm from the PFA, proximal and distal resection alone may be adequate.

Abstract ID: 0144  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 39.02

Superselective microcoil mesenteric embolization in colonic diverticular haemorrhage in an Asian population

K.-K. Tan, D. Wong, R. Sim
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Introduction: Superselective embolization has been effective in the treatment of bleeding colonic diverticular disease with minimal complications. The aim of this study was to review our experience of superselective microcoil embolization in arresting ongoing colonic diverticular haemorrhage in an Asian population.

Material and Methods: We performed a retrospective review of all cases of superselective embolisation for ongoing bleeding from colonic diverticuli from December 2000 to December 2007.

Results: Eighteen patients, (10 males, median age 64 years) underwent superselective embolisation for bleeding colonic diverticular disease. Microcoils were used in all the patients. Right sided diverticuli was the cause of the haemorrhage in 83.3%. Technical success was achieved in 100% of procedures, but clinical success was only observed in 61.1%. The remaining patients underwent surgical resection, 5 for rebleeding and the other 2 after the advice of the surgeon. All these patients bled from right sided diverticuli initially.

Conclusions: Superselective microcoil embolization is a safe and effective procedure in bleeding colonic diverticular disease and should be considered as a first line treatment. Its usage could prevent surgical intervention in some, and allow stabilisation of the conditions in the others before definitive surgery.
Conclusions: This randomized study failed to demonstrate that the emergency preoperative placement of SEMS for patients presenting with left malignant colonic obstruction could significantly decrease the need for stoma placement.

Abstract ID: 0146 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 39.04

Glove method, a useful technique in laparoscopic-assisted colectomy
Nippon Medical School, Tokyo, Japan

Introduction: Laparoscopic surgery for colorectal cancer has been widely accepted in recent years. Compared with open surgery, laparoscopic assisted colectomy (LAC) can reduce postoperative morbidity, time to recovery, and hospital stay, with no oncological disadvantage. However, there might be still limitation because of the technical difficulties. We'll demonstrate the glove method, which is facile and useful procedure in LAC.

Material and Methods: In usual manner of LAC, after maneuver and division of the colon with dissection of the mesentery, a small abdominal wall incision is made to bring the bowel outside of the abdomen, allowing open bowel resection and reconnection using standard instruments. We precede a small incision with LAC; i.e., before insertion of any trocar the abdomen is entered through an approximately 4 cm incision on the appropriate area. When right or left colectomy is performed, small trans-rectus or midline incision is made on the epigastrum close to the umbilicus. In low anterior resection a transverse incision is made on the lower mid hypogastrum. The Applied Alexis™, which is a wound protector and retractor, is placed at the wound and covered with a sterile disposable glove, of which one finger part is cut and to which a trocar is attached. Then the abdomen is insufflated with CO₂ gas and laparoscope is inserted.

Results: This procedure allows more safe insertion of the first trocar. In the right colectomy we attach two more trocars to the other available finger parts of the glove. Therefore laparoscopy and two forceps are handled through the same hole, it can reduce the number of port. In the left colectomy before covering by a glove the greater omentum is dissected and bursa omentalis is opened, using the same technique as an open surgery from the small incision. It makes laparoscopic dissection of the splenic flexure easy. The fulcrum of the trocar, which is attached to a glove, doesn't fix and we can move it so freely that it is feasible to approach organs at an appropriate angle and it can be avoided interfering with other forceps. Especially when distal transection of the lower rectum is performed in low anterior resection, a linear stapler can be more easily held an adequate part of the rectum.

Conclusions: The glove method is so useful and utilizable technique in LAC.

Abstract ID: 0147 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 39.05

Laparoscopic colorectal surgery in elderly patients: a case-control study of 15 years of experience
K.Y. Tan, F. Konishi, Y.J. Kawamura, T. Maeda, K. Mizokami, J. Sasaki, S. Tsujinaka Saitama Medical Center, Jichi Medical School, Saitama, Japan

Introduction: Although good short-term outcomes have been reported for laparoscopic colorectal surgery, a recently published large study identified age over 75 as an independent predictor of complications. The aim of this study is to review the impact of age (75 years) on the short-term outcomes of laparoscopic colorectal surgery.

Material and Methods: Patients who underwent laparoscopic resection for colorectal cancer between January 1993 and August 2008 at our department were reviewed. 379 patients under 70 years of age and 91 patients age 75 and above were analyzed. Quanification of comorbidities was performed using the Charlson Weighted Comorbidity Index. Out come measures were postoperative complication rates and 30-day mortality rates.

Results: There was no significant difference in sex, T stage, AJCC staging between comparison groups. Older patients had significantly higher comorbidity index scores. There was no significant difference in operative blood loss, operative duration and conversion rates. There was no significant difference in the occurrence of postoperative complications between the younger and older patients. However, there was a significantly higher 30-day mortality rate in the older patient group.

Conclusions: Age is not an independent predictor of morbidity and mortality in laparoscopic colorectal cancer surgery. Comorbidity index scores are useful in predicting poor outcomes. Efforts to improve perioperative outcome should concentrate on reducing operative time and blood loss.

Multivariate Analysis for Risk Factors of 30-day Mortality

<table>
<thead>
<tr>
<th>Odds ratio</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 75</td>
<td>15.8</td>
<td>0.4-669.8</td>
</tr>
<tr>
<td>Comorbidity index ≥ 5</td>
<td>1557.4</td>
<td>4.2-584085</td>
</tr>
<tr>
<td>Operative time</td>
<td>0.01</td>
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</table>

Abstract ID: 0148 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 39.06

Features of colorectal lesions among 7700 very old individuals confirmed by autopsy: their surgical significance.
[1] Kurosu Hospital, Sakura, Tochigi, Japan, [2] Tokyo Metropolitan Geriatric Hospital, Tokyo, Japan, [3] Jichi Medical University, Shimotsuke, Tochigi, Japan

Introduction: The authors have checked colorectal lesions of very old individuals, stress being laid to elucidate their surgical importance. Background factors involved in the pathogenesis of these lesions were also analyzed.

Material and Methods: Large intestines of 7700 very old individuals including 51 centenarians, autopsied at the Tokyo Metropolitan Geriatric Hospital during these 35 years, were checked. Analyses of nutrients in Japan during past 60 years were cited from the Annual Reports published by the Ministry of Health and Welfare, Japan. Bac
steriological and biochemical analyses of feces were conducted using samples of patients and volunteers. Statistical analyses of data were mainly done by *-test.

**Results:** The incidence of adenoma increased with age so that 80% of centenarians had adenoma. Size, grade of atypism, and cancerization rates did not increase with age. Ser rated adenomas with eosinophilic cytoplasm, prone to develop in the right colon of the old female with higher cancerization rates, were assured as a new entity. The incidence of cancer increased with age, and right-sided preponderance became more exaggerated with age. Distribution patterns of adenoma and cancer in the large intestine differed each other. Incidence and severity of left-sided diverticulosis increased with age, but, diverticulitis of the right colon did not so. Intra mural ganglionic cells showed mitochondrial damage. Marked up-and-down curve of calorie intake has occurred in Japan during these 60 years followed by the similar trends of both lesions after 20 years or so. Change in cancer incidence preceded to that of adenoma. No specific foodstuff responsible for these trends was found. Intestinal bacterial flora of the healthy very old showed the similar change found in those who developed second or third colorectal neoplasms after removal of primary sigmoid colon cancer.

**Conclusions:** Different distribution patterns of adenoma and cancer in the large intestine and the incidence of cancer altered reflecting the change in calorie intake prior to adenoma may allude that adenoma is not necessarily the precursor of cancer.

**Abstract ID: 0149**  Specific Field: Colon and Rectum

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 39.07**

**Predictors of day stay after colonic surgery in a structured multi-modal care program**

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University of Auckland, Auckland, New Zealand

**Introduction:** Enhanced Recovery after Surgery (ERAS) programs have gained in popularity in colonic surgery. Hospital stay has been reduced dramatically in some institutions, but remains varied in the published literature. We were interested in investigating the factors that influence hospital stay in an ERAS setting.

**Material and Methods:** Between October 2005 and November 2008 prospective data were collected on consecutive patients undergoing elective colonic resection, without a stoma, at a single site. Patients were managed within an ERAS program. Patients unable to communicate in English, with dementia or ASA 4 were excluded. Variables were tested using the Mann-Whitney U (MW), Kruskal-Wallis (KW) and Spearman (Sp) two tailed correlation table for continuous data. Cox regression analysis was used for modeling.

**Results:** 100 patients were included. There were 57 right sided, 41 left sided and 2 total colectomies. Median age was 67.5 years (range 31-92). Median day stay was 4 days (range 3-46). Indications for surgery were: malignancy (80%), diverticular disease (13%) and other (7%). Age, operation site, ASA, indication for surgery and BMI were not correlated with hospital stay. Factors with significant correlations for reduced day stay were Cr-Possum score (p=0.001 MW), laparoscopic (n = 6) and transverse (n=32) incisions (p=0.016 KW). Using regression modeling, patient gender and incision type could be eliminated as independent correlations with day stay. Cr-POSSUM added significant strength to the model.

**Conclusions:** Cr-POSSUM score correlates independently with day stay in an ERAS setting.

**Abstract ID: 0150**  Specific Field: Colon and Rectum

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 39.08**

**Clinical effectiveness of the transversus abdominis plane (TAP) block in patients undergoing abdominal surgery**

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**Introduction:** Various modalities are available for effective post operative pain management following abdominal surgery. Recently there have been moves toward nerve blocks, located between transversus abdominis and internal oblique muscles (TAP block) in the hope that it is effective for pain management with advantages of fewer side effects. This meta-analysis examines whether TAP block is effective for post operative pain control.

**Material and Methods:** We searched the electronic databases available and conducted a meta-analysis on available randomised controlled trials (RCT) on the use of TAP blocks.

**Results:** On average patients with TAP block required less morphine compared to those without [random effects model: SMD -8.12, 95% CI (-13.0,3.22), z = -3.25, p < 0.01]. All 3 RCTs identify a longer time interval to first request of morphine in the TAP block group. No statistical difference was found with respect to pain scores. Cat egorical nausea scores were higher in the placebo group versus the TAP group and was statistically significant in two studies.

**Conclusions:** Patients with TAP block require less morphine postoperatively and appears to have a better side effect profile. The literature leans favourably towards TAP block as an appropriate mode of easing postoperative pain in abdominal surgery.

**Abstract ID: 0151**  Specific Field: Metabolism / Nutrition / Critical Care

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 41.01**

**Effect of perioperative symbiotic treatment to prevent postoperative infectious complications in hepatic surgery: a randomized controlled trial**


[1] Kobe University Graduate School of Health Sciences, Kobe, Japan, [2] Hyogo Cancer Center, Kobe, Japan, [3] Yakult Central Institute for Microbiological Research, Tokyo, Japan

**Introduction:** Recently the effect of symbiotics has been reported to control perioperative complications in hepatobiliary surgery for biliary cancer and hepatic transplantation, however the effect on hepatectomy with liver cirrhosis is not reported. Our aim is to assess the benefits of preoperative and postoperative symbiotic treatment in patients with hepatic surgery.

**Material and Methods:** In this randomized trial, 61 patients with hepatic cancer were randomly assigned to receive oral symbiotics consist of Bifidobacterium, Lactobacillus, and galacto-oligosaccharides preoperatively, 14 days, and post-operatively until 11 days. The infectious complication, intestinal mucosal integrity as measured by serum diamine-oxidase (DAO) activity, and serum IL-6...
Mean operation time was 350 min and blood loss was 1200 ml. Days of stay of ICU and rate of SIRS showed no inter group differences. Infectious complication occurred in 6 (20%) patients in the control group and 0 (0%) in the synbiotics group (p < 0.01). Serum IL-6 concentrations, WBC count, and CRP level was lower in synbiotics group than control group. And decrease in DAO activity after surgery was less in the synbiotics group (p < 0.01). Fecal Bifidobacterium, and Lactobacillus culture, and acetic acid concentration were decreased after hepatectomy in both groups.

Conclusions: Perioperative synbiotic treatment attenuated decrease of intestinal integrity and reduced infectious complication in hepatic surgery with liver cirrhosis.

Abstract ID: 0152 Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Free Paper (oral)
ISW 2009 Session 41.02

Impact of nutritional route on host defense
K. Fukatsu
The University of Tokyo, Tokyo, Japan

Introduction: Enteral nutrition (EN) is the standard nutritional therapy for critically ill and severely injured patients, because EN has been demonstrated to reduce infectious complications as compared with parenteral nutrition (PN). However, the mechanisms underlying the advantage of EN in terms of host defense have not yet been fully clarified. We have recently demonstrated EN to improve host defense in the peritoneal cavity and liver.

Material and Methods: Mice were randomized to chow, IG-TPN, or IV-TPN. The IG-TPN or IV-TPN group was given identical TPN (total parenteral nutrition) solution for 5 days via gastrostomy or jugular vein catheter, respectively, while the chow group received Chow ad libitum with normal saline infusion via jugular vein catheter. Exp 1: The peritoneal resident cells (PRCs) were harvested and counted. The cells were cultured in vitro with or without LPS stimulation, and then NFκB activation was examined using laser scanning cytometry. Exp 2: Glycogen was injected intraperitoneally. At 2 hours after injection, peritoneal exudative cells (PECs) were harvested and NFκB activation in the cells was examined. Cytokine levels were also examined in the lavaged fluid. Exp 3: Hepatic mononuclear cells (MNCs) were harvested and counted, ERK, a MAP kinase, phosphorylation was evaluated with or without LPS stimulation. Cytokine levels in the culture supernatants were also examined.

Results: Exp 1: IV-TPN reduced PRC number and blunted NFκB activation in response to LPS, as compared with Chow and IG-TPN. Exp 2: NFκB activation in the PECs was observed at 2 hours in the chow and IG-TPN mice, while the activation was delayed in the IV-TPN group. Likewise, increase in the cytokine levels was delayed in the IV-TPN mice. Exp 3: IV-TPN resulted in the reduced number of hepatic MNCs and blunted activation of ERK, as compared with Chow and IG-TPN. Cytokine levels were increased LPS dose dependently in the chow and IG-TPN groups, however, in the IV-TPN group, the levels were unchanged with LPS stimulation.

Conclusions: Enteral delivery of nutrients preserves number and function of immune cells in the peritoneal cavity and liver, whereas PN leads to reduced number and blunted response of these immune cells.

Abstract ID: 0153 Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Free Paper (oral)
ISW 2009 Session 41.03

The ACERTO protocol of perioperative care enhances recovery after surgery for gastrointestinal malignancies
Federal University of Mato Grosso, Cuiaba, Brazil

Introduction: Consistent evidence-based studies have been showing that various routines in perioperative care are useless and in some cases harmful. In patients with gastrointestinal (GI) cancer, severe malnutrition is associated with increased morbidity and mortality. The aim of this study was to evaluate the results of the ACERTO protocol in patients undergoing resection due to GI cancer.

Material and Methods: We prospectively studied all patients submitted to GI resection due to cancer in the Department of Surgery in the Julio Muller University Hospital, from July 2005 to December 2007. The study had two distinct periods: before (January 2004 to June 2005), and after the implementation of the ACERTO protocol (July 2005 to December 2007). Data was prospectively collected in both periods.

Results: A total 120 patients (mean age, 56 years; range, 18-81 years; 76 males [63.3%] and 44 females [36.7%]) entered the study. The conventional group was comprised of 52 (43.3%) patients and the ACERTO group 68 (56.7%) patients. Malnutrition rate was 46.6% (n=56) and was similar in both groups. The implantation of the ACERTO protocol was followed by a decrease in both preoperative fasting (17 ± 7 vs. 8 ± 4 h, p<0.001) and postoperative day of re-feeding (3rd [1*10^9] vs. 1st [0.08^9] POD; p<0.001), and intravenous fluids (27 ± 22 vs. 12 ± 11 L, p<0.001). Mortality was 5% (6/120). The changing of protocols reduced the LOS by seven days (17 ± 18 vs. 10 ± 9 d, p=0.008) and surgical site infection rate by approximately 40% (30.8%; 16/52 vs. 10.3%; 7/68, p<0.001; RR = 0.48; 95%CI = 0.25-0.91).

Conclusions: The implantation of the multidisciplinary routines of the ACERTO protocol diminished both hospitalization and surgical site infection in patients submitted to abdominal operations due to GI malignancies.

Surgical site infection in the two groups (p < 0.01)

<table>
<thead>
<tr>
<th></th>
<th>With Infection (N, %)</th>
<th>Without Infection (N, %)</th>
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<tbody>
<tr>
<td>Conventional</td>
<td>16 (30.8)</td>
<td>36 (69.2)</td>
</tr>
<tr>
<td>ACERTO protocol</td>
<td>7 (10.3)</td>
<td>61 (89.7)</td>
</tr>
<tr>
<td>Total</td>
<td>23 (19.2)</td>
<td>97 (80.8)</td>
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</table>

Abstract ID: 0154 Specific Field: Metabolism / Nutrition / Critical Care

Mode of pres.: Free Paper (oral)
ISW 2009 Session 41.04

Semi-elemental versus polymeric nutritional formulae in acute pancreatitis: an indirect adjusted meta-analysis
M. Petrov, B. Loveday, R. Pylypchuk, A. Phillips, J. Windsor
The University of Auckland, Auckland, New Zealand
**Introduction:** While the benefits of enteral nutrition in acute pancreatitis are well-established, the optimal composition of enteral feeding formula is largely unknown. In particular, few trials directly compared (semi)-elemental and polymeric formulae in patients with acute pancreatitis. The aim of the present study was to compare the effect of (semi)-elemental versus polymeric formula in patients with acute pancreatitis using the methodology of indirect adjusted meta-analysis.

**Material and Methods:** Three databases (Scirus, MEDLINE, Cochrane Controlled Clinical Trials Register) and the proceedings of major pancreatology conferences were searched for randomised controlled trials on either (semi)-elemental or polymeric enteral feeding versus parental feeding in acute pancreatitis. An indirect comparison of (semi)-elemental with polymeric formula was adjusted by the results of their direct comparison with a common reference treatment (parenteral feeding). The summary estimates were presented as a ratio of relative risks (RRR) and corresponding 95% confidence interval (CI).

**Results:** A total of 10 randomised controlled trials were meta-analysed. The use of (semi)-elemental versus polymeric formula in patients with mild and severe acute pancreatitis was not associated with a significant difference in feeding intolerance (RRR 0.62; 95% CI 0.10 - 3.97; P = 0.61), total infectious complications (RRR 0.48; 95% CI 0.06 - 3.76; P = 0.48), and mortality (RRR 0.63; 95% CI 0.04 - 9.86; P = 0.74). These effects were preserved when only patients with severe acute pancreatitis were considered.

**Conclusions:** The use of (semi)-elemental versus polymeric formulae is associated with similar risk of feeding intolerance, infectious complications and mortality in patients with acute pancreatitis. Thereby, it seems that the use of more expensive elemental formula does not provide a significant advantage over relatively cheap polymeric formula.

**Abstract ID: 0156  Specific Field: Endoscopic Surgery**

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 42.02**

A novel device for the minimally-invasive measurement of gastrointestinal slow wave activity


[1] The University of Auckland, Auckland, New Zealand, [2] Al Ain University, Al Ain, United Arab Emirates

**Introduction:** Gastric slow wave dysrhythmias are hypothesized to contribute to dysmotility syndromes, including postoperative delays in gastric emptying. How ever, the clinical significance of dysrhythmias is poorly understood. Current methods of electrogastrography (EEG) cannot accurately determine the pattern of slow wave propagation, and the best means to evaluate slow waves is by recording directly from the target organ. We present a new laparoscopic device for recording serosal slow wave activity.

**Material and Methods:** The device consists of a shaft (4 mm diameter x 30 cm) and cable, and contains four individual electrodes. The electrodes were constructed from Teflon-coated silver wire (0.3 mm), soldered to connecting wires. These were bound in a heat-shrink tube and a stainless-steel shield. The shaft was encased in a teflon sleeve and filled with epoxy resin. The device is sterilized using ethylene oxide. In-vivo validation was performed in an open-abdomen porcine model by comparing slow wave recordings using the device to recordings taken from a standard electrode configuration. An intraoperative trial was also conducted, with antral recordings taken from a 28 year-old female undergoing a laparoscopic cholecystectomy.

**Results:** The novel laparoscopic device achieved consistent slow wave recordings in both the porcine and human validation studies. Slow wave amplitudes were similar between the laparoscopic device (0.39 ± 0.02mV) and the standard electrode configuration (0.36 ± 0.01 mV; p=0.45). The SNR was slightly superior in the laparoscopic device (13.7dB vs 12.6dB). High-quality antral slow wave wave recordings were achieved in the intraoperative trial (amplitude: 0.41 ± 0.04 mV; SNR: 12.6dB) at a frequency of 3.1 ± 0.10 cycles per minute.

**Conclusions:** The novel laparoscopic device achieves high-quality slow wave wave recordings. It is easily deployable and isatraumatic to the serosa. We anticipate that this device will prove an important tool in the clinical investigation of slow wave behaviours, particularly in patients undergoing surgical manipulations of gastric anatomy. This device offers new potential to help clarify the role of slow wave dysrhythmias in the pathophysiology of dysmotility syndromes, and especially with regard to surgically-related gastric dysmotilities.
Abstract ID: 0157  Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 42.03

Intra-operative high-resolution mapping of human gastric slow wave activity


[1] The University of Auckland, Auckland, New Zealand, [2] Al Ain University, Al Ain, United Arab Emirates

Introduction: The stomach has an underlying slow wave activity that coordinates contractions. Human gastric slow wave activity is poorly understood, as existing descriptions rely on recordings from very few sites (typically 4). We aim to develop an improved high-resolution description in order to guide diagnostic and therapeutic strategies for dysmotility syndromes, such as post-operative delays in gastric emptying.

Material and Methods: Novel flexible printed circuit board (PCB) multi-electrode arrays (4x8 configuration) were developed for this study. Five patients have undergone intraoperative gastric mapping to date, using up to 6 tessellated PCBs (total of 192 electrodes; 96 cm2) placed on the anterior gastric serosa. Signals were recorded using the ActiveTwo System (Biosemi, Netherlands).

Results: Slow wave frequencies were consistent between regions, however sharp regional variations in other slow wave parameters were found (see table). At least 3 distinct slow wave fronts were found to be simultaneously active along the longitudinal axis of the organ. Isochronal mapping showed consistent aboral propagation. A relatively high amplitude / high velocity pacemaker area was localised to high on the greater curvature.

Conclusions: Initial HR mapping suggests the need to revise existing descriptions of human gastric slow wave activity. The findings of multiple active synchronous slow wave fronts, sharp regional variations in slow wave characteristics, and a high-amplitude pacemaker zone need to be confirmed in a larger cohort of patients before the physiological, pathophysiological, diagnostic and therapeutic implications can be fully understood.

<table>
<thead>
<tr>
<th></th>
<th>Corpus</th>
<th>Antrum</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (cpm)</td>
<td>2.83 ± 0.15</td>
<td>2.85 ± 0.18</td>
<td>0.4</td>
</tr>
<tr>
<td>Amplitude (mV)</td>
<td>0.04 ± 0.01</td>
<td>0.10 ± 0.03</td>
<td>&lt;0.001</td>
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<tr>
<td>Velocity (mms⁻¹)</td>
<td>2.8 ± 0.8</td>
<td>7.4 ± 1.1</td>
<td>&lt;0.001</td>
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<tr>
<td>Morphology</td>
<td>Slow, fractionated</td>
<td>Sharp, fast</td>
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</table>

Abstract ID: 0158  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 42.04

Predictive value of procalcitonin for bowel ischemia and necrosis in bowel obstruction

H. Markogiannakis [1], N. Memos [1], V. Katergiannakis [1], A. Nitsa [2], K. Petrochiliou [2], M. Toutouza [2], N. Alexandropoulos [3], A. Manouras [1]

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Introduction: The predictive value of procalcitonin (PCT) for strangulation has only been evaluated in two experimental studies with conflicting results. Our aim was to evaluate PCT value for early diagnosis of bowel strangulation in acute obstruction.

Material and Methods: Prospective study of all patients with small/large bowel obstruction in 2005 (n=242). Operated patients (n=100) were divided in Ischemia (n=35) and Non-ischemia group (n=65) and, also, Necrosis (n=22) and Non-necrosis group (n=78) according to the presence of ischemia (reversible/irreversible) and necrosis, respectively. Data analyzed were age, sex, vital signs and symptoms, clinical findings, WBC, base deficit, metabolic acidosis and PCT on arrival, time between symptoms onset and arrival and between arrival and operation, and obstruction cause.

Results: Ischemia group had higher heart rate (p=0.001), WBC (p=0.009) and PCT (9.62 vs 0.30ng/ml, p=0.0001), more often constant pain (p=0.01) and hernias as the obstruction cause (p=0.001), and higher mortality (p=0.01) than Non-ischemia group. Mul tivariate analysis identified PCT (p=0.009,OR:2.25,95%CI:1.22-4.14) and hernias (p=0.001,OR:14.7,95%-CI:3.86-56) as ischemia predictors. Necrosis group had more often constant pain (p=0.005) and rebound tenderness (p=0.01), lower systolic arterial pressure (p=0.04), higher heart rate (p=0.001) and PCT (14.53 vs 0.32ng/ml, p=0.0001), and higher morbidity (p=0.003) and mortality (p=0.001) than Non-necrosis group. PCT (p=0.005,OR:2.76,95%CI:1.35-5.62), rebound tenderness (p=0.02,OR:11.16,95%CI:1.41-87.88) and hernias (p=0.004,OR:15.08,95%CI:2.35-96.78) were necrosis predictors. Using ROC analysis, the AUC of PCT for ischemia was 0.76, PCT0.25ng/ml for ischemia had 71.5% sensitivity, 72.5% specificity, 58% positive predictive value (PPV), and 72% accuracy. The AUC of PCT for necrosis was 0.86 and PCT0.25ng/ml had sensitivity, specificity, PPV, and accuracy of 82%, 77%, 50%, and 78%, respectively. A high negative predictive value (NPV) was found for PCT<0.25ng/ml for ischemia (82.5%) and necrosis (94%). Moreover, the PPV of PCT1ng/ml was very high for ischemia (94.5%) and necrosis (89%).

Conclusions: PCT on presentation is very useful for the diagnosis or exclusion of strangulation in bowel obstruction and can serve as an additional diagnostic tool to improve clinical decision making.

Abstract ID: 0159  Specific Field: Miscellaneous

Mode of pres.: Free Paper (oral)
ISW 2009 Session 42.05

The value of CRP and lactate for diagnosis of bowel strangulation on presentation in the emergency department

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Introduction: To evaluate the predictive value of serum C-reactive protein (CRP) and lactate for early diagnosis of strangulation in acute bowel obstruction.

Material and Methods: Prospective study of all patients with small/large bowel obstruction in 2006 (n=224). Operated patients (n=94) were divided in Ischemia (n=34) and Non-ischemia group (n=60) and, also,
Necrosis (n=22) and Non-necrosis group (n=72) according to the presence of ischemia (reversible/irreversible) and necrosis, respectively. Data analyzed were demographics, vital signs and symptoms, clinical findings and blood tests (including WBC, base deficit, metabolic acidosis, CRP and lactate) on arrival, time interval between symptoms onset and arrival and between arrival and operation, and obstruction cause.

**Results:** Ischemia group had higher heart rate (p=0.001), WBC (p=0.02), CRP (55 vs 20mg/l, p=0.003) and lactate (2.5 vs 1mmol/l, p=0.0001) on arrival, more often constipated pain (p=0.001), rebound tenderness (p=0.01) and hernias as the obstruction cause (p=0.001), and higher mortality (p=0.04) than Non-ischemia group. Multivariate analysis identified CRP (p=0.02, OR:1.02, 95% CI:1.02-1.04) and lactate (p=0.005, OR:2.27, 95% CI:1.28-4) as predictors of ischemia. Necrosis group had higher heart rate (p=0.001), CRP (130 vs 61.8mg/l, p=0.0001) and lactate (4.7 vs 1mmol/l, p=0.0001) on arrival, lower systolic arterial pressure (p=0.03), more often constipated pain (p=0.0001), rebound tenderness (p=0.0001) and hernias (p=0.03), and higher morbidity (p=0.01) and mortality (p=0.01) than Non-necrosis group. CRP (p=0.04, OR:1.02, 95% CI:1.01-1.04) and lactate (p=0.01, OR:2.96, 95% CI:1.28-6.83) were predictors of necrosis in multivariate analysis. Using ROC analysis, the AUC of lactate was greater than that of CRP regarding both bowel ischemia and necrosis, a difference that was statistically significant for ischemia. Particularly, the AUC of lactate and CRP for ischemia was 0.81 and 0.68 (p=0.05) while for necrosis 0.87 and 0.76 (p=0.1), respectively.

**Conclusions:** CRP and lactate on presentation are useful for the diagnosis of strangulation in acute bowel obstruction and could serve as additional diagnostic tools to improve clinical decision making. Lactate was found to be more helpful than CRP, especially for the early diagnosis of intestinal ischemia.

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**Abstract ID: 0160** Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)

ISW 2009 Session 42.06

Clinical impact of gastrografin use in the management of adhesive small bowel obstruction

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**Introduction:** Gastrografin (GG) has revolutionised the non-operative management of Adhesive Small Bowel Obstruction (ASBO). Previous studies have shown that GG accelerates resolution of ASBO and decreases length of stay (LOS). We instituted a protocol recommending the use of GG in all cases to discern whether study findings translate into clinical practice. This study reviews outcomes following implementation of our protocol.

**Material and Methods:** Retrospective audit of ASBO cases from 1997-2007. Demographic and clinical data were collected. Patient data were categorised by date of admission and by whether GG was administered. Uptake of protocol, LOS and need for surgery was reviewed. Results were analysed using Mann Whitney U test and Fisher’s Exact test.

**Results:** There were 710 cases of ASBO with 415 females with mean age of 60 years. 376 patients were seen prior to the GG protocol (Period 1) and 334 patients were seen afterwards (Period 2). 16/376 (4.3%) patients received GG in Period 1 whilst 195/334 (58.3%) received GG in Period 2. The mean LOS and Operative rates are summarized in Table 1. Mean LOS decreased over time. 653 patients were managed non-operatively with 200 receiving GG and 453 not receiving GG. Patients that received GG had a significantly longer mean LOS (Period 2: 3.6 vs 3.0 days, p=0.01) than patients who had traditional non-operative management. 57 (8%) patients required surgery. 11 patients who received GG (5.2%) required surgery whilst 46 (9.2%) patients who did not receive GG needed surgery (p=0.046).

**Conclusions:** The use of GG has markedly increased in our hospital. Previously demonstrated benefits from trials have not been replicated in our clinical setting. Use of GG is associated with a decreased need for surgery but no overall reduction in operative rates has been observed. This suggests that factors other than GG use have influenced patient management.

**Mean Length of Stay (LOS) and Operative Rate**

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<td>Operative Rate (%)</td>
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<tr>
<td>Period 2</td>
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<td>n=334</td>
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<tr>
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<td>n=499</td>
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**Abstract ID: 0161** Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)

ISW 2009 Session 42.07

Need for operative treatment in patients with acute small bowel obstruction: a predictive multivariate analysis


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**Introduction:** Proper management of small bowel obstruction (SBO) requires a methodology to prevent non-therapeutic laparotomies and avoid overlooking ischemia. **AIM:** To identify risk factors associated with operative management and strangulation from SBO. **HYPOTHESIS:** Free intraperitoneal fluid on computed tomography (CT) is associated with need for exploration and bowel ischemia in SBO. **Material and Methods:** We reviewed 100 consecutive patients with SBO; all had CT reviewed by a radiologist blinded to outcome. Patients with known ascites were excluded. Need for operative management was confirmed by 4 surgeons based on clinical course. **Results:** Patients were divided in 2: group 1: operative management and group 2: non-operative management. 4 patients treated non-operatively but had ischemia or died of malignant SBO were included in group 1; 2 who had non-therapeutic exploration were included in group 2. On univariate analysis, need for exploration was associated (p < 0.05) with a history of malignancy (29% vs 12%), vomiting (85% vs 63%) and CT findings of free intraperitoneal fluid (67% vs 31%), mesenteric edema (67% vs 37%), mesenteric vascular engorgement (85% vs 67%), small bowel wall thickening (44% vs 25%) and absence of small bowel fecalization (10% vs 29%). Ischemia was associated with peritonitis (36% vs 1%), free intraperitoneal fluid (82% vs 44%).
serum lactate (mmol/L) (2.7 ± 1.6 vs 1.3 ± 0.6), mesenteric edema (91% vs 46%), closed loop obstruction (27% vs 2%), pneumatosis intestinalis (18% vs 0%) and portal venous gas (18% vs 0%). On multivariate analysis, free intraperitoneal fluid and lack of fecalization were independent predictors of need for operative exploration (p < 0.05). The combination of vomiting, lack of fecalization, free intraperitoneal fluid, and mesenteric edema had a sensitivity of 96%, positive predictive value of 90% with an odds ratio of 16.4 (95% CI 3.56-75.43) for requiring exploration.

Conclusions: Clinical, laboratory, and radiographic factors should all be considered when making a decision for treatment of SBO. Free intraperitoneal fluid should be factored into decision making for operative vs non-operative treatment.

Abstract ID: 0162 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 42.08

Safety, feasibility, and short-term outcomes of laparoscopically assisted primary ileocolic resection for Crohn’s disease

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Introduction: Outcomes of laparoscopic resection for ileocolic Crohn’s disease have been reported previously in smaller studies, suggesting its short-term advantages over open surgery. This study assessed the perioperative data and short-term outcomes in the largest, consecutive, single-institution series to date.

Material and Methods: All consecutive patients undergoing elective laparoscopically assisted primary ileocolic resection for Crohn’s disease between 1994 and 2006 were identified in an institutional prospectively collected database. Operative and postoperative outcomes at 30 days were studied. Means ± standard deviations or medians (range) are presented.

Results: One hundred and nine patients (35 men) with a mean age of 35 ± 14 years and a mean body mass index (BMI) of 25 ± 6 kg/m2 were identified. The main indications for surgery were medically refractory disease (63%) and fibrous stenosis (27%). In 41% of the cases, previous abdominal surgery had been performed. A fistula to another loop of bowel or another viscus was encountered in 18% of patients, phlegmon in 24% and abscess in 7%. Operations had a mean duration of 150 ± 45 min and a conversion rate of 6%. The overall 30-day morbidity rate was 11%, and the reoperation rate was 1%. The mortality rate was nil. The median postoperative hospital stay was 4 days (range, 2–15 days).

Conclusions: This series of laparoscopically assisted primary ileocolic resection for Crohn’s disease, the largest reported to date, supports findings in recent metaanalyses that the procedure is safe and feasible and results in better short-term outcomes than open resection. This operation is therefore the procedure of choice for Crohn’s disease at our institutions.

Abstract ID: 0163 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 43.01

Outcome for esophageal cancer following treatment with chemotherapy and radiotherapy but not esophagectomy

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Introduction: More than 50% of patients with esophageal cancer are not suitable for surgery due to locally advanced tumor, metastasis or comorbidities. The outcome for these patients, stratified according the presence or absence of metastases, has not been well established.

Material and Methods: The outcome for all patients who underwent non-surgical treatment for esophageal cancer from 3/2001 until 2/2008 was determined. Data was retrieved from a prospective database and survival determined from the South Australian Cancer Registry.

Results: 149 patients were eligible for analysis, 22 were excluded due to insufficient data. 75 patients were treated for non-metastatic disease, 52 did not have metastatic disease at diagnosis.

Except for age, which was higher in patients without metastases, there were no significant differences between the subgroups of patients with vs. with out metastatic disease. Overall, 114 patients had dysphagia, 33 had pain, and 11 had haemorrhaged from the tumor at the time of diagnosis. Patients with metastatic disease had more dysphagia and pain, but also better palliation.

Kaplan Meier survival analysis showed a median survival of 10.8 months for all patients. There was a significant difference in survival (p<0.001) between the groups with vs. without metastatic disease. Median survival in the patients without metastases 13.6 months vs. 6.5 months in patients with metastases. The five year survival for patients undergoing treatment for localised disease was 12%. No significant difference between adenocarcinoma and squamous cell carcinoma was identified

Conclusions: In patients with localised disease at diagnosis, long term survival can be achieved in some patients, although this is less than following surgical resection, whereas 5 year survival is rare in patients who present with metastatic disease.

Figure: Kaplan Meier survival curve of the two groups. There was a significant difference in survival in favour of the non-metastatic group (log rank test, p)
Abstract ID: 0164  Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 43.02

Treatment of advanced gastrointestinal stromal tumors (GIST)
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Introduction: Gastrointestinal stromal tumors (GIST) are uncommon mesenchymal neoplasms with malignant potential and positive reaction to CD 117(C-KIT) antigen or PDGFRA. They arise from the interstitial Cajal cells. Between 2001 – 2008, 79 patients with GIST were treated at our Department of Surgery.

Material and Methods: Between 2001 - 2008, 79 patients with GIST were treated at our Department of Surgery. Of these, 34 (43.03%) patients with advanced GIST received combined treatment with imatinib (Glivec) in a dose of 400 mg/24 h increased to 800mg/24h, if necessary. A group consisted of 16 women (47.06%) and 18 men (52.94%) with intraperitoneal spread of GIST or liver metastases. Mean age of the patients was 53 years. Mitotic activity in the analyzed group was 5-78/50 HPF. Primary localization of GIST was: stomach -19 (55.88%) including 5 patients with multifocal lesions, small intestine - 7 (20.58%), colon - 3 (8.82%), rectum - 2 (5.88%), and small intestine mesentery - 2 (5.88%). In 5 (14.70%) cases synchronous GIST was detected, i.e. gastric stromal tumor and sigmoid colon cancer (acc. to Astler Coller B2), gastric stromal tumor with pancreatic head cancer in 1 case, sigmoid stromal tumor and carcinoid tumor of the transverse colon in 1 case, and Carney’ triad in 39-year-old male (GIST, pheochromocytoma, lung chondroma). All patients were treated with surgery combined with adjuvant chemotherapy with imatinib.

Results: Complete response (CR) to treatment was obtained in 3 (8.82%) patients, partial response (PR) in 13 (38.23%), stable disease (SD) in 14 (41.17%). Disease progress (PD) was observed in 4 (11.76%) patients two - three years after imatinib chemotherapy. Imatinib therapy was well-tolerated with low number of complications. In the patients with disease progress chemotherapy was continued with sunitinib (Sutent) in a dose of 37,5 mg/24h and after with different inhibitors of tyrosine kinase.

Conclusions: Only combined surgery with targeted chemotherapy with tyrosine kinase inhibitors allows to significantly improve treatment results in the patients with advanced gastrointestinal stromal tumors.

Abstract ID: 0165  Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 43.03

Downstaging treatment with tyrosine kinase inhibitors in patients with advanced gastrointestinal stromal tumours improved resectability
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Introduction: Gastrointestinal stromal tumours (GISTs) express the type III receptor tyrosine kinase KIT. Most GISTs have mutations in the KIT, or PDGFRA gene. Imatinib, a tyrosine kinase inhibitor (TKI), has been the first-line palliative treatment. Sunitinib, the second-line TKI, has been used for patients with mutations not responsive to imatinib. The aim was to compare survival of high-risk GIST patients treated with downstaging TKI with historic controls and to assess if organ-preserving surgery was facilitated.

Material and Methods: The down-staging (n=10) group (imatinib n = 9, sunitinib n = 1) was matched with a historic control group (n=48) who were treated with surgery alone, chosen from our population-based series. Mutational analysis of KIT and PDGFRA was performed.

Results: The mean size of the GIST decreased in diameter from 20.3 cm to 10.1 cm with TKI downstaging treatment. Four patients with RO-resection had no observed recurrences during a mean follow-up of 48.6 months, compared to 32/48 RO-patients (67%) in the historic control group (mean follow-up: 36 months). The five patients with residual metastases have stable disease with continued TKI-treatment after surgery. Using the downstaging strategy major surgical procedures could be avoided; 4 gastrectomies, 3 hemihepatectomies, 2 Whipple procedures and one rectal amputation. The procedures performed could be limited to gastric resections, wedge resections of the liver and salvage of the pancreas and rectum. The patient treated with sunitinib (due to imatinib resistance) had a large gastric tumour involving the left liver lobe and pancreatic head; R0 resection could be performed without hemihepatectomy or Whipple operation after a long down-staging period.

Conclusions: Down-staging treatment with TKI is recommended for patients with bulky tumour disease. Sunitinib can be used for patients with imatinib-resistant tumours, e.g. wild-type or KIT exon 9 mutant GIST, which underlines the importance of mutational analysis for optimal surgical planning.

Abstract ID: 0166  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 43.04

Lymph node evaluation and long-term survival in stage II and stage III colon cancer: a national study
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Introduction: The most important prognostic factor in colon cancer is the presence or absence of metastases to regional lymph nodes. The aim of this study was to evaluate the relationship between the number of nodes examined in Stage II and III colonic cancers and 5-year mortality in the New Zealand population.

Material and Methods: New Zealand Cancer Registry data were retrieved for consecutive cases of colonic cancer from January 1995 - July 2003. Patients with incomplete entries, Stage I tumours and distant metastases were excluded from analysis. Uni variate and Cox
Results: 4309 patients were identified. Younger age, female gender, Pacific Island descent and right-sided tumours were associated with significantly higher lymph node retrieval. Cox regression analysis showed that the number of nodes examined was a significant predictor of 5-year mortality after age, gender, ethnicity, and tumour site were controlled for. Five-year survival consistently improved until the 16-node mark, above which survival advantage was minimal in both the Stage II and Stage III subsets. For Stage III cancers, a higher positive-to-all node ratio was associated with a significant increase in mortality.

Conclusions: Increased rates of nodal examination are associated with a significantly lower 5-year mortality for Stage II and III colonic cancer, but this survival advantage appears to be minimal after the 16-node mark. The positive-to-all node ratio has been validated as a powerful predictor of survival in Stage III cancers. Our results support the current practice of harvesting and examining as many nodes as possible during attempted curative resection.

Figure: A bar graph of Stage III cases showing the 5-year mortality rate as broken down by strata of the positive-to-all node ratio.

Abstract ID: 0167  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 43.05

Number versus distribution in classifying regional lymph node metastases from colon cancer

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Introduction: Metastasis to regional lymph nodes from colon cancer is an important prognostic factor. In the TNM classification, node metastases are classified into three grades based on the number of metastatic nodes. In the Japanese General Rules for Clinical and Pathologic Studies on Cancer of the Colon, Rectum, and Anus (JGR), node metastases are classified into four grades based on the distribution of metastatic nodes.

Material and Methods: Based on the findings of node metastases in 164 patients with colon cancer obtained by the clearing method, node classifications by the JGR and TNM classifications were compared.

Results: The case distribution by the JGR grading was 41.5% in n (-), 29.3% in n1 (+), 18.3% in n2 (+), and 11.0% in n3 (+) disease. In the TNM classification, the distribution was 23.8% in pN1 and 34.8% in pN2 disease. The 5-year survival rate by the JGR was 98.4% in n (-), 74.3% in n1 (+), 51.2% in n2 (+), and 30.0% in n3 (+) disease; in TNM classification, this rate was 76.0% in pN1 and 45.0% in pN2 disease.

Conclusions: In the classification of regional node metastases from colon cancer, the JGR classification showed a wider range in distribution and 5-year survival rate compared with the TNM system.

Abstract ID: 0168  Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 43.06

A short course of preoperative radiotherapy improves prognosis of operable rectal carcinoma: a case control study

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Introduction: Randomized Swedish studies demonstrate the efficacy of a 5 - fraction course of preoperative radiotherapy for rectal carcinoma. The present study evaluates the results in a single Greek institution over a 10-year period with a similar regimen.

Material and Methods: During the period of 1995-2000, 150 consecutive patients with Duke’s B or C rectal cancer were matched to receive preoperative radiotherapy (Group I) or not (Group II). Seventy-five patients received pelvic radiotherapy of 2500 cGY/5 fractions, followed by surgery within 1 week. Radiotherapy was delivered through 4 portals, with the patient lying in the prone position. A CT scan was used to define treatment volume. The 5-fraction course was used for lesions seemed readily resectable. Patients in both groups received adjuvant chemotherapy. Local recurrence, disease free interval and 5-year survival were evaluated and analyzed.

Results: The disease free interval was significantly longer in Group I (p<0.0005). This benefit was mainly due to a significantly lower incidence of local recurrence in Group I (9/75,12%) compared with Group II (30/75,40%) (p<0.0005). The incidence of distant metastases was not significantly different between the two groups. The 5 year survival for all patients, who underwent “curative” surgery was significantly higher in Group I (77,3%) as compared to Group II (39%), (p<0.0005).

Conclusions: Patients with resectable rectal cancer who received 2500 cGY/5 fractions preoperative radiotherapy to the pelvis had excellent local control of disease, longer disease free interval and higher 5-year survival than patients who did not. These patients were able to undergo sphincter preserving surgery and adjuvant chemotherapy.

Abstract ID: 0169  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 43.07

HIPEC in a German municipal hospital using the ThermoChem HT-1000-initial experiences and preliminary results

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Municipal Hospital Magdeburg, Germany

Introduction: During the last decade, hyperthermic chemoperfusion (HIPEC) with cytoreductive surgery in patients with peritoneal carcinomatosis has been increasingly used with greater success and
acceptable outcome. How ever, the majority of patients were usually treated in university hospitals until now.

The aim of this case series was to investigate, wether HIPEC can be used in a municipal hospital setting using a novel tool for extracorporeal lavage (feasibility and safety).

Material and Methods: From September to December 2008, we inaugurated HIPEC with cytoreductive surgery in 13 con- secutive patients with various malignancies such as mesothelioma, colon and ovarian cancer in municipal hospital setting. HIPEC was performed in a closed system in all patients over 70 minutes. The ThermoChem HT-1000 was used as the extracorporeal unit. Post operatively, patients underwent continued analgesedation and artificial respiration overnight.

Results: Macroscopically complete tumor resection (at least R1 in 100%) was achieved in all patients, consisting of main malignant tumor lesion and all visible peritoneal tumor nodes (hospital mortality 0%). The targeted temperature of 42 degrees within the peritoneal cavity was achieved in each patient (100%). In 4 patients (30,76%) peritonitis occurred; two of the subjects need to undergo surgical reintervention. Median hospital stay was 19 d, (range 14-28 d.). Postoperative application of erythrocyte concentrate was 6 in the median. One patient died 12 month after the procedure, the others are still alive

Conclusions: HIPEC with cytoreductive surgery is feasible and safest selected patients also in a municipal hospital. The ThermoChem HT-1000 is a reliable extracorporeal lava unit, which provides easier handling during its intraoperative use.

Abstract ID: 0170 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 57.01

Prophylactic cholecystectomy in midgut carcinoid disease

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Introduction: Patients with midgut carcinoid (MGC) tumors are commonly treated with somatostatin analogues for reduction of hormonal symptoms. Adverse effects may include impairment of gallbladder function, formation of gallstones, and cholecystitis. Prophylactic cholecystectomy has been advocated, but substantial data supporting this recommendation is lacking.

Material and Methods: We have analyzed a cohort of 235 patients with MGC focusing on the risk for gallstone formation and complications thereof, as well as the risk for gall bladder-associated problems when performing additional treatment of liver metastases with embolization and radiofrequency ablation (RFA).

Results: Forty-seven of the 235 patients had been cholecystectomized prior to surgery for MGC, 17 had their gallbladder removed during primary surgery. Of the remaining 171 patients, 142 were treated with somatostatin analogues, and 13 of these developed a gallbladder-related complication (gallbladder empyema n=1, acute cholecystitis n=7, cholangitis n=2, acute pancreatitis n=3). In total, 31 were cholecystectomized during follow-up, Eighty-three out of the 142 were examined by CT or US, and 51/83 (61%) of these exams demonstrated gallstones. Of the 29 patients not treated with somatostatin analogues, one patient had suspected gallbladder-related pain and no patient developed gallstone complication nor were any patients cholecystectomized after primary surgery.

Too few patients in this cohort were treated with RFA to identify any gallbladder-related complications. However, among patients treated with liver embolization, 25% of those with remaining gallbladders developed cholecystitis or other complications in conjunction with the embolization. As a comparison, among the Swedish population (age 35-85) the prevalence of gallstones is 12% for men and 17% for women. The complication risks in a population with gallstones is 0,10,2%.

Conclusions: In our study the prevalence of gallstones is much higher among patients with MGC and somatostatin analogue treatment, as well as the incidence of gallbladder-related complications, compared to the general population. We postulate that treatment with somatostatin analogues may increase the risk for formation of gallstones and complications related to a remaining gall bladder, and suggest prophylactic cholecystectomy in patients with MGC.

Abstract ID: 0171 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 57.02

The causes and treatment of recurrent hyperparathyroidism after subtotal parathyroidectomy in MEN 1

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Introduction: Subtotal parathyroidectomy (SPTX) is the treatment of choice for HPT-MEN 1, but recurrence is common in patients followed-up for long periods of time. There are scarce data on the causes, time interval and surgical management of appropriately operated patients with recurrent HPT-MEN 1. This study investigates the duration of normocalcemia, site of recurrence and treatment of recurrent HPT-MEN 1.

Material and Methods: Retrospective review of prospectively collected data on patients with HPT-MEN 1 treated with SPTX at two referral institutions. The following data were collected: demographic, duration of follow-up, weight of parathyroid tissue resected (initially and at reoperation), type of remnant left after SPTX, time to reoperation, cause/site of recurrence (remnant vs. previously normal gland vs. super numerary gland) and surgical treatment (subtotal adenectomy vs. auto transplantation).

Results: Seventy-six patients received a SPTX (four glands identified) and were followed for a mean of 90 months;15 were left with a single normal gland and 60 with a 50-70 mg remnant of a partially excised adenoma. Nine patients (12%) recurred a mean of 85 months (range 12-144) after SPTX (s-Ca 11,3 mg/dl; PTH 219 pg/ml). They had been followed longer (115 vs 66 months; P=0,005). Five recurrences occurred on a parathyroid remnant, 3 in a previously normal gland and one had both a hyperplastic remnant and a 5th gland. All had a localizing parathyroid scan. Remedial surgery included five subtotal resections of the remnants and 4 immediate parathyroid autotransplantations in the forearm (1 permanent hypoparathyroidism). Mean weight of excised tissue was 938 mg., almost identical to the combined weight of the 3-3,5 glands removed at initial surgery (960 mg). No laryngeal nerve injuries occurred. Two patients had a second recurrence due to a supernumerary 5th and 6th gland.

Conclusions: A mean of 90 months after SPTX, recurrence of HPT-MEN 1 reaches 12%. It usually sits on the preserved parathyroid tissue with no preference for a previously normal gland or a remnant. Recur rences can be treated either by trimming the remnant or autotransplantation. A second recurrence is mostly probably due to a supernumerary gland.
Abstract ID: 0172  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 57.03

[177Lu-DOTA-Tyr3]-octreotate treatment in patients with gastroenteropancreatic neuroendocrine tumours: the value of measuring absorbed dose to the kidneys

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Introduction: The survival of patients with disseminated gastroenteropancreatic neuroendocrine tumours (GEPNETs) has improved during the last decades. Radiouclide therapy using [177Lu-DOTA]-Tyr3-octreotate is a promising option for treatment of disseminated GEPNETs.

Material and Methods: During 2006-2008 26 patients with disseminated GEPNETs (10 endocrine pancreatic tumours, 15 carcinoids (10 midgut, 3 rectal, 1 pulmonary, 1 tailgut), 1 duodenal gastrinoma) were treated with [177Lu-octreotate. The indication was progressive disease despite prior multi modal treatment but a tumour-specific uptake of the radiopharmaceutical of at least twice the normal liver uptake. Radiological response (RECIST), biochemical response (plasma Chromogranin-A (P-CgA)), haematological toxicity (Common Toxicity Criteria (CTC)) and absorbed dose to the kidneys (conjugate view method) was analyzed.

Results: Eight GBq [177Lu-octreotate was given 1-5 times (median=3) with six weeks interval. Ten out of 26 patients could be evaluated radiologically; 4 (40%) had partial response (PR), 4 (40%) had stable disease (SD) and 2 (20%) had progressive disease (PD). The remaining 16 patients either lacked suitable lesions (n = 3), were dead of disease before follow-up (n = 3) or will be evaluated shortly (n = 10). Fifteen out of 26 patients could be evaluated biochemically; 4 (27%) had PR, 5 (33%) had SD and 6 (40%) had PD. The remaining 11 patients either lacked P-CgA (n = 3), were dead of disease before follow-up (n = 3) or will be evaluated shortly (n = 5). The mean absorbed dose to the kidneys was 24 Gy. With a dose limit of 27 Gy to the kidneys 6 patients did not receive the planned 4 treatments but 4 patients had the potential to receive additional treatment. Three patients experienced a CTC grade 3 haematological toxicity with low platelet counts.

Conclusions: The results presented are in line with previously published results. By using the absorbed dose to the kidneys as a limiting factor the treatment can be better optimized, e.g. over-treatment can be avoided and patients with the potential to receive additional treatment can be identified. However, further studies are needed to define tolerance doses to the kidneys and to optimize treatment schedules.

Abstract ID: 0173  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 57.04

Resection surgery for gastrinomas in patients with MEN 1 and ZES guided by selective arterial secretagogue injection test

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Introduction: There have been controversies about the treatment strategy for gastrinomas and pancreatic neuroendocrine tumors (NETs) in patients with multiple endocrine neoplasia (MEN 1) and Zollinger-Ellison syndrome (ZES). ZES in patients with MEN 1 is mostly caused by duodenal gastrinomas and rarely caused by pancreatic gastrinoma. Some doctors have not recommended resection surgery for gastrinomas with MEN 1, because of low cure rate and high rate of early recurrence. On the other hand, aggressive surgeons who did pancreaticoduodenectomy (PD) or pancreas preserving pancreaticoduodenectomy (PPPD) guided by selective arterial secretagogue injection test (SASI Test) with secretin or calcium for gastrinomas with MEN 1, have reported high cure rate between 80 and 100%.

Material and Methods: We have performed resection surgery for 37 patients with ZES, most of whom have been completely cured. Fifteen of them belonged to MEN 1 and underwent 3 PD, 5 duodenectomies and 7 pancreas preserving total duodenectomy (PPTD).

Results: In 12 patients, postoperative secretin (Calcium) test has become negative and has been cured between 19 yrs and one yrs postoperatively. In 2 patients whose preoperative serum gastrin levels were 18,200 and 13,900 pg/ml, respectively, secretin test has been positive. The latest patient had gastrinomas both in the duodenum and pancreas, as localized by SASI Test, and waiting a reoperation for the gastrinoma in the pancreas tail. Pancreatic NETs of all the patients were resected as long as their size become more than 1 cm in diameter, and no hepatic metastases have developed during the follow-up period between 3 months and 19 years. Postoperative complications was few after aggressive resection surgery. As expected, PPTD was less invasive than PD from a viewpoint of postoperative recovery state.

Conclusions: Resection surgery for gastrinomas with MEN 1 guided by SASI Test is useful for cure of gastrinoma. Resection of pancreatic NETs more than 1 cm in diameter is a useful strategy for preventing hepatic metastases from these tumors. PPTD is less invasive than PD and useful for curative resection of multiple (sometimes numerous) duodenal gastrinomas in patients with MEN 1.

Abstract ID: 0174  Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 60.01

Increasing proportion of synchronous bilateral breast cancer: measure of improving diagnostic work-up

M. Hartman [1], G. Edgren [2]

Introduction: Increasing breast cancer incidence rates and improved prognosis results in an escalating number of women at risk of developing a second primary breast cancer. Since women who are diagnosed with breast cancer undergo careful screening of both breasts upon diagnosis, a considerable number of cancers are discovered also in the contralateral breast, either synchronously or at a later point. The temporal distribution of bilateral tumors is largely determined by the diagnostic precision of the clinical work-up. As a measure of the improved diagnostic work-up, we here describe the changing incidence, survival and, temporal distribution of bilateral breast cancer over calendar time.

Material and Methods: We analysed a cohort of 149,322 women in Sweden with a first primary invasive breast cancer diagnosed between 1970-2001, among whom 3,633 women developed a second cancer in the contralateral breast within 3 years of the initial diagnosis. As a measure of the improved diagnostic work-up, we here describe the changing incidence, survival and temporal distribution of bilateral breast cancer over calendar time.
Results: Of the 3,633 women with bilateral breast cancer diagnosed within 3 years, 2,020 were diagnosed synchronously, 392 metachronously between 3 months and 1 year, and 1,221 between 1 and 3 years of first primary. Among women with a bilateral cancer, the median time between the first and second diagnosis decreased dramatically from 123 days in 1970-73 to 19 days in 1998-2001 and the proportion of synchronous disease increased (Figure 1). The relative risk of death from breast cancer, expressed as mortality rate ratios (MRR), was higher among women with metachronous (MRR, 1.85; 95% CI, 1.75-1.95) and synchronous (MRR, 1.53; 95% CI, 1.43-1.63) as compared to women with unilateral cancer (p<0.001).

Conclusions: Synchronous bilateral breast cancer is becoming increasingly common and survival is improving most likely due to improvements in the clinical work-up. It could be that women at a particularly high risk of developing yet another tumor should be followed intensively and regular MRIs is probably the current option.

Results: The median age was 52 (20-96). The median tumor size was 2cm (0.6-5cm). The median breast volume was 493cm$^3$. The median PBVE was 7.4 (1-42) per cent. 94% of patients were very satisfied/satisfied with the cosmetic outcome. 81% of patients felt that the treated breast was nearly identical/ slightly different from the untreated breast. Surgeons scored 89% of the treated breast shape were identical/ with minimal difference to the treated breast. Patient satisfaction decreases significantly when the PBVE exceeds 20 percent, 40% of patients were not/ only slightly satisfied. There was no difference in patient satisfaction regarding different tumor position or tumor distance from nipple.

Conclusions: This study showed high patient satisfaction and good cosmetic outcome after oncoplastic breast conserving surgery, even in small breast sized Chinese women. The application of oncoplastic technique allows large volume excision, with satisfaction remains high in breast volume excision less than 20 percent, regardless of different tumor position or tumor distance from nipple. More complicated oncoplastic technique e.g replacement technique might be required if breast volume excision is greater than 20 percent.

Abstract ID: 0175 Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 60.02

Patient satisfaction and cosmetic outcome after oncoplastic breast conserving surgery
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Introduction: Oncoplastic surgery allowed inclusion of patients with large tumor for breast conserving surgery. However, the cosmetic outcome and patient satisfaction, especially in relation to the the percentage of breast tissue excised is not well documented. This study aims to assess patient satisfaction after oncoplastic breast conserving surgery, and to establish the correlation of patient satisfaction and percentage of breast volume excision (PBVE).

Material and Methods: 162 patients with breast conserving surgery applying simple oncoplastic technique in United Christian Hospital and Breast & Endocrine Surgery Centre from Nov 2007 to Jan 2008 were prospectively recruited for study. Patient satisfaction and cosmetic outcome were prospectively documented using standardised questionnaire. Breast volume (BV) calculation was based on preoperative mammogram (BV = $0.5\times r^2$, which was validated with actual breast volume ($r = 0.98$). Percentage of breast volume excision (PBVE) was calculated by dividing the fresh specimen weight by the calculated BV. Correlation was made between PBVE and patient satisfaction.

Abstract ID: 0176 Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 60.03

3D-CT mammary lymphography can help selective axillary dissection of breast lymph flow deferred from the arm
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Introduction: In early breast cancer, the presence of metastasis in axillary nodes (AN) is an important factor in prognosis and further treatment. However, AN dissection causes many complications such as contracture of shoulder joint, lymph edema, and paralysis of upper extremities. Sentinel node (SN) biopsy provides us valuable information about no need to dissect AN for node-negative patients. However, on node-positive patients, the conventional AN dissection has been performed. 3D-CT lymphography (LG) can show the precise individual lymphatic flow not only from the breast tumor to SN but also from SN to venous angle, which means breast lymphatic channel. We applied 3D-CT LG to distinguish them from the arm channel to avoid any arm complications.

Material and Methods: 3D-CT LG was performed on the day before surgery to mark SN on the skin. Above the tumor and near the areola and the arm pit, 2 ml of lipomiodol 300 was injected subcutaneously. Images of 16-channel multidetector-row helical CT scan were taken at 1, 3 and 5 min after injection. They were reconstructed to produce a 3D image of lymph ducts and lymph nodes. SN biopsy and AN sampling were performed by dye-staining method using endoscopy.

Results: We performed SN biopsy with 3D-CT LG on 160 patients. 3D -CT LG clearly showed the precise lymphatic flow from the tumor to SN. It can show SN at only one min after injection. But following up to 5 min, we can follow the lymph ducts beyond SN into the second to the fifth node groups toward the venous angle with complex plexus, observed in the surrounding anatomical architecture. Detection rate was 100% for SN; 80% for the third group; and 30% for the fifth group. The arm lymph flow was distinguished by the connections between the breast and the arm flow, observed 39% and 71% in the forth and the fifth group. SN was shared from between the breast and the arm in 5 patients (3.1%). They complained arm edema only by SN biopsy. We can distinguish and sample AN drained from the breast, guided by 3D-CT LG and dye-staining using endoscopy.
Conclusions: By 3D-CT LG, we can recognize the accurate and more precise lymph flow in the surrounding anatomical architecture. It helps us easily to pursue lymph flow and to remove SN and AN from the breast selectively using endoscopic surgery.

Abstract ID: 0177 Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 60.04

Post mastectomy locoregional recurrence in Malaysia: experience from the University Malaya Medical Centre

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Introduction: Locoregional recurrence after mastectomy maybe an ominous event which could predict distant recurrence and death. This study aimed to study the outcome of breast cancer patients who underwent mastectomy in University Malaya Medical Center (UMMC) from 1998 to 2002 and to identify prognostic factors for locoregional recurrence.

Material and Methods: A retrospective cohort of 522 patients who underwent mastectomy in UMMC from 1/1/1998 to 31/12/2002 was studied. Metastatic disease was excluded. All patients were followed up until 15/6/2008. Locoregional recurrences were confirmed by documentation in case notes or histopathological report. Kaplan Meier analysis was done. Predictive factors for locoregional recurrence were determined by univariate log rank test. Multivariate analysis was done using the Cox proportional hazard regression model.

Results: Overall, the PMLRR was 16.4%. Median follow-up was 67 months. Isolated locoregional recurrence (ILR) developed in 42 of 522 patients (8.0%). From this subgroup of patients, 25 (59.5%) remained disease free after treatment while 17 (40.5%) had disease progression. The 10 year ILR free and overall disease free survival was 88.9% and 57.9% respectively. PMLRR commonly occur within the first 3 years post mastectomy. Malay race (p=0.01), lymph node involvement (p=0.03), HR, Stage 3 disease(p=0.009), tumour size > 5.0cm (p=0.006), involved margins, grade 3 tumour (p=0.02), neo-adjuvant chemotherapy (p=0.03) and chest wall radiotherapy (p=0.005) were identified as significant adverse prognostic factors for ILR. Multivariate analysis found only Stage 3 disease and margin involvement as independent prognostic factors for ILR.

Conclusions: The ILR was 8.0%. Margin involvement and Stage 3 disease were identified to be independent prognostic factors for ILR. Prompt treatment of locoregional recurrence and close follow up of patients at higher risk are recommended.

Abstract ID: 0178 Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 60.05

Does analysis of biomarkers in tumour cells in lymph node metastases give additional prognostic information in primary breast cancer?

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Clinical Sciences, Lund, Sweden

Introduction: Prognostic and treatment predictive biomarkers in primary breast cancer are routinely analysed in the primary tumour of the breast, whereas metastatic tumour cells in ipsilateral node metastases are not further characterised. The present study aimed to define the concordance between biomarkers in matched pairs of breast cancers and lymph node metastases and relate the expression to clinical outcome.

Material and Methods: Patients with primary breast cancer treated for two years with adjuvant tamoxifen was included in the study (n=288). A tissue microarray including primary tumours and lymph node metastases was constructed and oestrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor (HER2), Ki-67, CD44 and CD24 were analysed by immunohistochemistry.

Results: The concordance between biomarker expression in primary tumours and corresponding lymph node metastases was significant for all analysed biomarkers using Chi-square test and kappa-statistics (concordance: ER93%, PR84%, HER2 97%, Ki67 86%, CD44 83% and CD24 75%) and thus only ER and HER2 had excellent concordance between the two locations.

Conclusions: The concordance for biomarker expression in matched pairs of primary tumours and lymph node metastases is excellent for ER and HER2 in breast cancer. In contrast, the agreement for PR and Ki-67 indicates that around 15% of patients have discordant results for these biomarkers at different locations. Survival analysis are ongoing in order to elucidate if discordant results in primary tumour versus lymph node metastases gives additional prognostic information.

Abstract ID: 0179 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 63.01

Effect of positron emission tomography/computer tomography on the management of oesophageal cancer and neoadjuvant chemotherapy

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Introduction: In EC accurate pre-therapeutic tumour evaluation should be provided for a multi-disciplinary and individually tailored patient management programme. Therefore, the ability to predict early treatment response in an individual EC patient would greatly aid therapeutic. The purpose of this study was to evaluate the use of hybrid positron emission tomography using ((18)F)-fluorodeoxyglucose (FDG-PET)/CT scan in the assessment of primary staging and evaluation of treatment response during neoadjuvant radio-chemo-therapy (RTX) in esophageal carcinoma (EC).

Material and Methods: 83 patients with histologically proven EC underwent PET/CT. 24 patients underwent primary esophagectomy, 9 palliative treatment and 50 neoadjuvant RTX (cisplatin, 5-FU, radiation: 50.4 Gy). In the latter PET/CT was repeated 6 weeks after induction chemotherapy. Quantitative measurements of tumour FDG uptake (SUV) were correlated with histopathologic response. Degree of histomorphologic regression was classified into major (< 10% vital residual tumour cells (VRCT)) and minor histomorphologic response (10 % VRCT). Statistics: Wilcoxon U-test

Results: At primary staging SUV was increased in 81 of 83 EC (negative in 2 T1 tumours) and was more intense towards locally advanced tumours. Additional findings by PET/CT were found in 15 patients leading to a therapy change in 6. In patients with primary

Conclusion:

...
esophagectomy pathologic lymph nodes were found in 14 and 8 by
diagnostic ultrasound and PET/CT (histology n=10), respectively.
Until now 39 patients underwent surgery after RTX. Overall SUV
decreased in median by 52%. 4 patients did not show any decrease in
SUV after induction therapy. In patients with major histomorphologic
response decrease of SUV was significantly higher than in patients with
minor histomorphologic response (67% vs 45%, p<0.001).
**Conclusions:** PET/CT is a valuable tool for the noninvasive assessment
of initial staging and histopathologic tumour response during
neoadjuvant RTX and may differentiate responding and nonre-
sonding tumours early. By avoiding ineffective and potentially
harmful treatment, this may markedly facilitate the use of preopera-
tive therapy, especially in patients with potentially resectable tumors.

**Abstract ID:** 0180  **Specific Field:** Esophagus

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 63.02**

**Visualization of blood supply in gastric tube during esophagectomy by indocyanin green fluorescence**


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**Introduction:** The blood supply of the gastric tube is important in
performing esophagogastrectomy safely during esophagec-
tomy. Indocyanin Green (ICG) has been used for the evaluation of liver function in Japan. Recently, ICG fluorescence is also used for
the detection of sentinel lymph nodes in breast surgery and for the
visualization for the blood supply of vascular anastomosis in vascular surgery. To visualize the blood supply of gastric tubes, we started to
use ICG fluorescence during an esophagectomy in July of 2008. In
this paper, we evaluate the efficacy of ICG fluorescence.

**Material and Methods:** After esophagectomy, we made a gastric tube
and pulled it up through retrosternal or posterior mediastinal route.
The anastomosis was done in the cervical area by hand sewing or
circular stapler. Before and after pulling up the gastric tube, ICG
2.5mg ICG was injected by bolus. Then the ICG fluorescence were
detected by a detection camera (Hamamatsu Photonics) and recorded.
The patients consisted of 7 esophagectomies for thoracic esophageal
cancer and 1 free jejunal graft for cervical esophageal cancer.

**Results:** The ICG fluorescence of the gastric tube was easily detected
in all cases 2 minutes after the ICG injection. The micro-anastomosis
of blood network in the gastric wall was well visualized. The blood supply for free jejunal graft was also well visualized. One case was
added to the venous anastomosis between the short gastric vein and
supply for free jejunal graft was also well visualized. One case was
detected by a detection camera (Hamamatsu Photonics) and recorded.
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detected by a detection camera (Hamamatsu Photonics) and recorded.
The patients consisted of 7 esophagectomies for thoracic esophageal
cancer and 1 free jejunal graft for cervical esophageal cancer.

**Conclusions:** The detection of ICG fluorescence was safe and useful for
the evaluation of blood supply of reconstructive organ in esophagectomy

**Abstract ID:** 0181  **Specific Field:** Esophagus

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 63.03**

**Ischemic conditioning of the gastric conduit prior to transthoracic esophagectomy: does it reduce anastomotic leakage?**

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**Introduction:** In previous studies it could be demonstrated that ischemic conditioning of the gastric conduit prior to esophagec-
tomy can increase gastric blood flow in the anastomotic region. However, there are no clinical data available whether the implemen-
tation of this concept is able to reduce the incidence of anastomotic
leakage.

**Material and Methods:** From 02/97 to 04/08 419 patients underwent
transthoracic en-bloc esophagectomy and reconstruction with a gastric
tube and intrathoracic esophagogastrostomy (Ivor-Lewis procedure).
Because of a locally advanced tumour 203 patients (48.3%) received
neoadjuvant radiochemotherapy according to a standardized protocol. In
181 patients (43.1%), a transthoracic esophagectomy with one-stage
reconstruction was performed (‘immediate group’). Since 10/03 surgical
strategy was changed and 238 patients (56.9%) underwent a two-stage
procedure (‘delayed group’). In the first operative procedure using a
laparoscopic approach, the stomach was partly devascularized and
thereby completely mobilized (‘laparoscopic gastrolysis’). After an
interval of 4-5 days, transthoracic esophagectomy and gastric recon-
struction was performed in the same fashion as in the ‘immediate group’.

**Results:** The mortality rate was lower in the delayed group without
reaching statistical significance (2.9% vs. 6.1%). A total of 35 anas-
tomotic leaks were diagnosed during the postoperative course, 17
in the ‘immediate group’ (17/181; 9.4%) and 18 in the ‘delayed group’
(18/236; 7.6%). In the ‘immediate group’, 6 of 17 patients with
anastomotic leakage died postoperatively (35.3%), in the ‘delayed group’
4 of 18 patients (22.2%). The rate of late leakages (>10.
postoperative day) was higher in the delayed group compared to the
immediate group (55.5% vs. 35.3%). While in the immediate group 10
of 17 patients with anastomotic breakdown required re-thoracotomy,
14 of 18 patients of the ‘delayed group’ could be sufficiently treated
with endoscopic stenting. Septic complications following anastomotic
leakage were significantly less in the ‘delayed group’.

**Conclusions:** In this retrospective analysis, the incidence of anastomotic
leakage following ischemic conditioning was not significantly
lower. However, the postoperative course of this ‘delayed group’
seems to be more favourable.

**Abstract ID:** 0182  **Specific Field:** Esophagus

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 63.04**

**Unavailable colonic conduit: an innovative technique of gastric pullup with corrosive antral stricture**

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and Government General Hospital, Chennai, India, India

**Introduction:** Coloplasty is the gold standard in the management of
oesophageogastric caustic strictures. Though the gastric strictures are
preferably resected, the debate about removing / retaining strictures
oesophagus with extensive peri-oesophagitis is ongoing.

We report our experience with seven patients where we have done
modified techniques with the available stomach as the “conduit” even
in the presence of Antral stricture.

**Material and Methods:** Corrosive stricture can affect pharynx,
oesophagus and stomach in all possible combination. In stomach
stricture of the antrum makes gastric conduit unavailable. In these
situations the colon is the next available option. In unfortunate situa-
tions where colon is unavailable due to various reasons one has to
resort to specialised reconstruction proceures. This study group were
managed with an innovative technique of gastric pull up inspite of antral stricture. Protection of the right gastric and right gastric vessels are essential.

Results: The table clearly depicts the clinical back ground, previous procedure and the current modified procedure done in these patients. All these patients recovered well and are able to speak and eat well.

Conclusions: Though coloplasty is the preferred method of reconstruction in the presence of combined oesophagogastric caustic strictures, we have used stomach in situations where no alternative is available.

## Details of The Study Group

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>Cause</th>
<th>Procedure Done</th>
<th>Followup</th>
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<tr>
<td>1</td>
<td>37</td>
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<td>Poor Arcade / Previous GJ</td>
<td>Afferent limb disconnection End to side JJ / Gastric Pull up</td>
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<tr>
<td>2</td>
<td>23</td>
<td>F</td>
<td>Unavailable Colon / Prev R Hemicolectomy</td>
<td>GJ / JJ Gastric pullup</td>
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<tr>
<td>3</td>
<td>22</td>
<td>M</td>
<td>Diseased Colon</td>
<td>Lower Oesophagogastric pullup Strictureplasty Pharyngooesophageal anastomosis after Laryngopharyngectomy</td>
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<tr>
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<td>Pharyngogastric anastomosis Rouxen-Y GJ / JJ</td>
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<td>64</td>
<td>F</td>
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<td>Rouxen-Y GI / JJ Gastric pull up</td>
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<td>Rouxen-Y GI / JJ Gastric pull up</td>
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Abstract ID: 0183  Specific Field: Esophagus

Mode of pres.: Free Paper (oral)  ISW 2009 Session 63.05

Minimally invasive versus open esophagectomy for patients with esophageal cancer


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Introduction: Minimally invasive esophagectomy (MIE) compared to open esophagectomy (OE) has been shown to have clinical advantages but selection bias is present.

Material and Methods: All patients undergoing MIE or OE for cancer between 1999 and 2007 were eligible for analysis. To minimize selection bias, only patients who also met the selection criteria for the thoracoscopic approach were included in the open esophagectomy group.

Results: 56 patients underwent MIE and 98 OE. No significant differences in demographics or pathological data between groups occurred, with the exception of thoracic epidural analgesia (OE: 98%, MIE 71.1%, p<0.001), and neoadjuvant treatment (OE 50.5%, MIE 71.4%, p=0.016). Morbidity and in-hospital death were not significantly different. Duration of surgery was longer in MIE (250 versus 209 minutes, p<0.001) and blood loss less (320 mls versus 857 mls, p<0.001). Intensive care unit stay was shorter in MIE (3.0 versus 6.8 days, p=0.022). The relative risk (RR) for in-hospital death was 0.57 (p=0.475) if the patients underwent MIE. After adjusting for thoracic epidural analgesia, the RR was 0.29 (p=0.213) for the MIE group. The RR for surgical morbidity was 1.47 (p=0.154) for patients undergoing minimally invasive esophagectomy. Neoadjuvant treatment increased the relative risk for surgical morbidity to 1.78 (p=0.028). No difference between the two groups concerning survival occurred.

Conclusions: MIE is comparable to OE. In MIE, neoadjuvant treatment increased the risk of surgical morbidity. Thoracic epidural analgesia in MIE reduced the risk of in-hospital death and should be considered for all patients undergoing esophagectomy.

Figure: Kaplan Meier survival curve with no significant difference (log rank test p=0.826)

Abstract ID: 0184  Specific Field: Esophagus

Mode of pres.: Free Paper (oral)  ISW 2009 Session 63.06

Conventional vs. minimally invasive oesophagectomy: outcomes in English hospitals between 1996 and 2008

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Introduction: Recent reviews investigating the role of minimally invasive surgery for oesophageal resection have not established definitive superiority of this technique over conventional methods. The study aimed to compare the clinical outcomes of Minimal Invasive Oesophagectomy(MIO) with those treated using open esophagectomy.
This was a population-based study on patients undergoing oesophagectomy for oesophageal cancer. Data were extracted from the Hospital Episode Statistics database (HES) for the last 12 years (1996-2008). The outcomes of interest were inhospital mortality, 365-day mortality, 28-day readmission rates, and length of hospital stay. Multifactorial logistic regression was used to identify the independent predictors of 30-day and 365-day mortality, readmissions and length of hospital stay.

**Results:** Eighteen thousand six hundred and seventy three (18,673) oesophagectomies were performed over the 12-year study period; of which 699 (3.7%) were performed by minimally invasive surgery. In univariate analyses, in-hospital mortality and 365-day mortality were lower in patients undergoing MIO (OR=0.68, P=0.014 and OR=0.64, P=0.027 respectively) while length of hospital stay and readmission rates were similar (OR=0.96, P=0.076, OR=1.16, P=0.203). Once adjusted for age, gender, comorbidities, social deprivation and ethnicity, MIO was not identified as an independent predictor of reduced in-hospital mortality (OR=1.01, P=0.963). However, a trend towards improved survival at 1 year was observed following MIO in multivariate analyses (OR=0.68, P=0.058). Independent predictors of in-hospital mortality identified were increasing age (P) and year of study.

**Conclusions:** There was a trend towards better 1-year survival in patients undergoing Minimally invasive oesophagectomy while in-hospital mortality, hospital stay and readmission rates were similar following conventional and MIO.

**Abstract ID: 0185**

**Specific Field: Miscellaneous**

**Mode of pres.: Free Paper (oral)**

**ISW 2009 Session 64.01**

**Chronically increased intra-abdominal pressure changes the structural properties of the diaphragm**

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**Introduction:** Increased intra-abdominal pressure (iAP) influences many organs in different ways. Muscular remodeling is a well known phenomenon. Stu dies on diaphragmatic remodeling concerned mainly pulmonary conditions and alterations of the intrathoracic pressure.

This study aims to investigate the effect of the chronically iAP by analyzing changes of diaphragmatic structural and biochemical properties.

**Material and Methods:** 45 male rabbits were equally divided into control (A), iAP (B) and increased weight (C) groups. iAP was increased in group B by introducing into the abdomen a balloon that was insufflated to 16cmH2O and the pressure remained stable for 2 months. When the animals were sacrificed, their costal diaphragms were dissected and frozen sections were cut and stained, while biochemical analysis was also performed.

**Results:** Type I fibers ratio was equal between group A and B, while there was a difference between those groups and group C. Fibers A ratio was decreased between A and B and increased between A and C, and B and C groups. The type A/X fiber ratio increased between B and both A and C groups.

Lipid peroxidation was elevated in B in comparison to A and C. Glu tathione peroxidase activity was elevated in animals of both group B and C. Glu tathione reductase was elevated in B compared to A. Proteine carboxylation presented difference between B and the other groups. Prooxidative-antioxidative balance it was elevated for group B.

**Conclusions:** Chronically iAP changes the muscular fiber ratios of the diaphragm, simulating remodeling after injury, while the biochemical profile of the diaphragm is also altered simulating of ischemia-reperfusion. In total, diaphragm sustains structural and biochemical changes in order to adapt to chronically iAP.

**Abstract ID: 0186**

**Specific Field: Oncology**

**Mode of pres.: Free Paper (oral)**

**ISW 2009 Session 64.02**

**Characterization of cisplatin-resistant gastric cancer cell population by protein kinetic analysis**

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**Introduction:** Clarifying mechanisms of cancer cells acquiring drug resistance has been a critical issue in cancer chemotherapy. Cisplatin (CDDP) is one of the most widely used anti-cancer agents for adenocarcinoma of the stomach. To evaluate the CDDP-resistant mechanism at molecular level, we attempted to isolate CDDP-resistant population from MKN45 gastric cancer cell line.

**Material and Methods:** MKN45 was cultured under continuous exposure of 1.6μM (corresponding to Gl1/2) CDDP. Both parental MKN45 (Parental line, PL) and its resistant (Resistant population, RP) were examined on a growth suppression assay to ensure that there was no cross-resistance. To examine time-and dose-dependent protein kinetics, cell lysate of both PL and RP were collected every 6h over 24h of CDDP exposure for time-course; and after 24h CDDP exposure with 4 different concentrations for dose-escalation experiments. Collected lysates were analyzed by Western blotting (WB) using antigen-specific primary antibodies including p53, p21, and Caspase3. Protein kinetics in response to CDDP were interpreted using a cell signaling map.

**Results:** Cell culture under continuous exposure of 1.6μM CDDP yielded 7 clones that seemed to be resistant to CDDP. One of the clones showed 9-fold higher 50% growth suppression concentration than PL with no cross-resistant among 3 drugs tested including 5-FU, CPT-11, and paclitaxel. Twenty four hours after continuous exposure of 4 different CDDP concentrations, p53 protein level of PL increased in a dose-dependent manner, whereas that of RP increased upto 1.6μM then decreased. In a time course experiment after 160μM exposure, p53 protein continued to increase in time-dependent manner in PL; whereas RP had a high level of expression even in the absence of CDDP. Both p21 and Caspase3 protein also showed expression in different patterns between PL and RP.

**Conclusions:** We established a CDDP-resistant population of gastric cancer cell line MKN45. Results of comparative protein kinetics experiments between PL and RP suggest that different mechanisms inducible of cell cycle arrest or apoptosis exist in each population. The difference can be considered to have been acquired in the process of CDDP drug-resistance development.
Abstract ID: 0187 Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 64.03

Metastasis suppressor genes in pancreatic ductal adenocarcinoma: role and epigenetic regulation by promoter methylation

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Introduction: A characteristic of the pancreatic ductal adenocarcinoma (PDAC) is the early development of distant metastases. The aim of this study was to identify genes relevant to the process of metastasis in PDAC and analyze them for genetic and epigenetic alterations.

Material and Methods: We evaluated the metastatic and invasive potential of 16 PDAC cell lines using a variety of methods including orthotopic mouse models for PDAC. The results were analyzed using gene expression and promoter methylation with methylation specific PCR (MSP) and bisulfite sequencing PCR (BSP). Results: 5 of 12 investigated MSG showed promoter methylation in both BSP and MSP while the remaining did not show methylation. Results from both techniques were highly correlated (p<0.01-0.001, except for TIMP3). Promoter methylation correlated significantly with loss of mRNA expression in 2 of 5 methylated MSG (p<0.05). MSG mRNA expression did not correspond with a less aggressive phenotype of PDAC: 5 of 12 genes were significantly overexpressed in PDAC cell lines compared to normal pancreatic tissue, whereas only 4 showed expected reduced mRNA expression. Furthermore, a significant correlation between the mRNA expression levels and metastasis scores was detected for AKAP12 and MASPIN (p<0.05) and CD44 mRNA expression levels correlated significantly with invasion scores (p<0.05).

Conclusions: MSG have mostly been identified by analyzing their impact on a distinct and often single tumor entity, such as mammary carcinoma. Our data suggests that not all of these genes may play an according role in PDAC and that in fact some of them may even promote tumor invasion and metastasis. We suggest their function for PDAC be reinvestigated. Furthermore, epigenetic regulation by promoter hypermethylation appears not to be a key regulator for most MSG in PDAC.

Abstract ID: 0188 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 64.04

The development of an endoscopic bipolar radiofrequency probe for endobiliary ablation in the management of malignant biliary obstruction: initial in vivo experiments

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Introduction: EndoHPB is an endoscopic bipolar radiofrequency (RF) catheter designed for endobiliary ablation of malignant strictures. It is anticipated that EndoHPB will have a role in conjunction with standard stent deployment in the management of malignant obstructive jaundice. The aim of these initial in vivo experiments was to determine the ability of the device to ablate tissue in the common bile duct (CBD), to determine the power requirement and time parameter to achieve coagulation, and to assess its ease of operation via a side endoscope.

Material and Methods: Three female pigs were anaesthetised and prepared. A Pentax side viewing endoscope (ED3440T) was used and the opening of the CBD identified. The duct was opened and enlarged using cutting forceps introduced via the biopsy channel of the endoscope. A 0.035" x 260cm Hydra Jagwire (Boston Scientific) was inserted into the duct and the EndoHPB catheter was inserted over this guidewire into the CBD. The device was connected to the power source (RITA 1500x RF generator) and varying wattage and time parameters of EndoHPB activation were applied at different locations along the CBD within the same animal. On completion of the experiment the pig was killed, the abdomen opened and the CBD resected.

Results: The EndoHPB catheter is compatible with the Pentax ED3440T side viewing endoscope which has a 3.2mm biopsy channel. Given the short length of the pig CBD, it was only possible to test the catheter’s ability to coagulate tissue without compromising the lumen at two levels of the duct. The power setting of 5W for 2min appeared to be ideal, with higher power settings above 10 watts producing heating outside the CBD with complete coagulation of the CBD.

Conclusions: The EndoHPB is compatible with any endoscope with 3.2mm biopsy channel and a working length of 1500mm. In the porcine model, the ideal bipolar RF power setting appears to be 5W for 2min. Based on this data, a pilot clinical study to assess the safety and effectiveness of EndoHPB in the palliation of malignant biliary obstruction is to be undertaken.

Abstract ID: 0189 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 64.05

No closure colonic anastomosis with the use of tissue adhesive: an experimental study

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Introduction: The experimental study is aimed to validate technical and biological possibilities of the cyanoacrylate tissue adhesive in colonic surgery.

Material and Methods: Six animals were included into the experimental study (pig, female, average weight 31.7 kg). In general
anaesthetics a sigmoid colon was completely discontinued. The
colic anastomosis was created using a modified circular stapler
with all the staples removed in advance. The disconnected colonic
ends were attached with circular stitches to the main part of the
stapler and to the anvil of the stapler. The cyanoacrylate tissue
adhesive was applied on the conjoined parts of the sigmoid colon
and the stapler was subsequently closed and fired to carry out anasto-
omosis. The integrity of anastomoses, the existence of possible
perianastomotic adhesion formation, peritonitis or other complica-
tions of healing were evaluated on the 7th post-operative day.
Anastomoses were resected including minimally a 5-cm of bowel on
either side. The resected portion of the intestine was fixed in 10% formalin solution, processed using standard paraffin technique, and
stained by hematoxylin-eosin. The specimens were then examined
under light microscopy.

Results: Anastomotic dehiscence did not occur in any case. The
wound healing process was assessed by inflammatory cell infiltration,
neoangiogenesis, collagen deposition, hydroxyproline deposition and
fibroblast activity. There were no pathological or atypical signs of
healing of the intestinal wall.

Conclusions: A cyanoacrylate tissue adhesive provides, under
experimental conditions, a sutureless anastomosis equal in healing to
the conventionally sutured one. The study is supported by the Ministry

Abstract ID: 0190 Specific Field: Hepatobiliary and
Pancreas Surgery

Mode of pres.: Video/CD-Rom
ISW 2009 Session 65.01

Laparoscopic robotic partial liver resection
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Introduction: Minimally invasive surgical techniques have been
increasingly used for liver surgery during the last decade. Robotic
surgery has the potential to facilitate laparoscopic liver resection due
to the versatility of the robotic arms. In this video, we demonstrate a
robotic partial liver resection of a segment 6 colorectal metastasis in a
63 year old male.

Material and Methods: After the laparoscopic optical trocar intro-
duced, and adhesions taken down, a laparoscopic ultrasound was used
to confirm tumor location, and the margins indicated using pre-
coagulation. The da Vinci robotic system (Intuitive Surgical, Inc) was
used to complete the resection using a finger-fracture technique and
tissue coagulator for hemostasis. A hand port was not needed to
complete the resection.

Results: A complete and satisfactory resection margin is obtained,
and confirmed to be adenocarcinoma consistent with the primary
tumor. Patient had an uneventful post-operative course, and was
discharged on POD# 2.

Conclusions: Robotic surgery has the potential to facilitate laparoscopic
liver resection due to the versatility of the robotic arms. Furthermore,
with the dexterity obtained by using the robot, many open surgical
techniques can be applied to laparoscopic surgery for safe and effective
resection, and eliminated the need for a hand port in this case.

Abstract ID: 0191 Specific Field: Hepatobiliary and
Pancreas Surgery

Mode of pres.: Video/CD-Rom
ISW 2009 Session 65.02

The technique of laparoscopic radiofrequency ablation
in a patient with previous hepatectomy
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Introduction: Laparoscopic RFA is an option for patients with
unresectable liver tumors. Performance of the procedure laparoscopi-
cally, rather than open, is important for patient recovery and quality of
life. Patients with previous abdominal operations, especially liver
resections, are challenging for a laparoscopic approach. This video
illustrates our technique in 67 year old male with a previous left
hepatectomy and RFA for metastatic colorectal cancer, and a new
recurrence in Segment 5 of the liver.

Material and Methods: Laparoscopic ports were incerted using
standard technique, and adhesions taken down laparoscopically with
electrocautery. And additional 10mm port was place for laparoscopic
ultrasound to confirm location of tumor. A biopsy is taken from the site
of previous RFA, and confirmed to have fibrosis but no disease. The
new lesion is also biopsied, and shown to have adenocarcinoma. A 9
prong, 5cm ablation catheter is inserted at 2 cm, 3 cm, and 4cm deep
for RFA. Intraoperative laparoscopic ultrasound is used to monitor the
ablation progress and identify critical structions.

Results: The patient underwent full RFA of the new lesion. He had an
unremarkable post operative course, and a CT scan done 1 week later
confirmed successful RFA.

Conclusions: Patients with previous abdominal operations, especially
liver resections, are challenging for a laparoscopic approach. With an
experience of laparoscopic RFA in more than 700 patients, we
developed a successful technique laparoscopic approach. This video
illustrates our technique in a patient with a history of previous liver
resection and RFA.

Abstract ID: 0192 Specific Field: Colon and Rectum

Mode of pres.: Video/CD-Rom
ISW 2009 Session 65.03

Emergency surgical situation in the Crohn’s disease
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Introduction: The CROHN’S DISEASE, discovered in 1932 by CROHN, GINSBURG and OPPENHEIMER, with the name of “terminal ileitis”, has remained mysterious and we do not know yet almost all its causes, its pathology and its therapy. The recent works, however, have permitted to make clear some essentials notions. This disease, however, is not a “terminal ileitis”, and the ten percent (10%) of cases, can be localized on the “ileum not terminal”, from which the name of “regional ileitis”, that the vast majority of authors have the tendency to accept. For other authors and, secondly, some localizations can be observed after a while on the intestinum jejunum and colon.

EMERGENCY SURGICAL SITUATIONS IN CROHN’S DISEASE These are represented by: 1) Intestine occlusion; 2) Abscesses; 3) Fistulas; 4) Intestinal perforation; 5) Become cancerous; 6) Obstructive Hydronephrosis; 7) Pancreatic Fibrosis; 8) Toxic Megacolon; *** 1) Intestine occlusion can occur in any period of the disease and occurs in the about forty percent (40%) of cases; 2) Perianal Abscesse is generally secondary to infection of Morgagni’s crypt; 3) The Fistulas In anal rectum during Crohn’s disease, can anticipate in years the clinical manifestation. (see Fig. 19); The sac- 

cate intestine perforations occur frequently and are a surgical emergency; Its is possible that Crohn’s disease takes to cancer of ileum; Obstructive Hydronephrosis is given by an inflammatory process in the peritoneal zone that transforms in an perforation localized usually to both the reins; The pancreatic Fibrosis during the Crohn’s disease is caused probably by prolonged state of denutrition; The toxic-Megacolon is caused - by denutrition-rapid intestine tran-
sition-alteration of the bacterial intestine floraas of blood, electrolytic, and proteins with feces-

Material and Methods: See fig. Surgical Cases 19 and 20.

Results: See fig. 11 page 22.

Conclusions: The nutrition sofistical, the stresses, the Lymphocytes increase, caused deficit immunity, and then <<Locus minoris resistentiae>>. Successively stenosis of ileum-intestine occlusion.

Abstract ID: 0193 WITHDRAWN

Abstract ID: 0194 Specific Field: Endocrine Surgery

Mode of pres.: Video/CD-Rom
ISW 2009 Session 65.05

Early report of ultrasound vocal cord assessment in patients undergoing cervicotomy

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Introduction: The majority of endocrine surgery centres routinely perform pre-operative vocal cord checks prior to cervicotomy. Ultrasound (USS) scanning is routinely used in the work up of patients being assessed with thyroid and parathyroid disease. We report on the additional use of USS as a method of performing pre-operative vocal cord checks.

Material and Methods: We report the results on 32 patients undergoing USS as an assessment of thyroid and cervical lymph node status prior to thyroidectomy. In addition to USS vocal cord assessment all patients had a pre-operative vocal cord checked performed using nasso-endoscopy. During USS assessment the patient lay in the supine position and the vocal folds were assessed during quiet respiration and phonation. The patients then underwent nasso-endoscopy to validate the USS vocal cord findings.

Results: 32 patients (26 female 6 male) underwent thyroid surgery. None had thyroid cancer. 30 (94%) patients’ vocal folds were seen on USS to move normally; these corresponded with normal vocal cord movement on nasso-endoscopy in all of the patients. 2 patients had calcified thyroid cartilage making USS assessment too difficult to interpret.

Conclusions: USS assessment of vocal cord function appears to be possible and feasible in the great majority of cases. Greater numbers are needed to confirm the accuracy of USS in patients with abnormal vocal cord movement; and to confirm the proportion of patients in whom USS vocal cord assessment can be successfully undertaken. However these findings would suggest it is a reliable means of assessing vocal cord function prior to cervicotomy in most patients.

Abstract ID: 0195 Specific Field: Endocrine Surgery

Mode of pres.: Video/CD-Rom
ISW 2009 Session 65.06

Surgical technique of sentinel lymph node biopsy in differentiated thyroid carcinoma using methylene blue dye: video presentation

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Introduction: Few teams proposed sentinel lymph node (SLN) mapping as a possible more accurate method of lymph node staging in differentiated thyroid cancer. We present surgical technique of SLN biopsy using Methylene blue dye as a tracer.

Material and Methods: We have performed SLN mapping and biopsy in 156 patients with DTC. After preparing myo-cutaneous flaps, infrayroid muscles were divided in the midline and separated, laterally from the thyroid gland. Before mobilization of the thyroid, approximately 0.2 ml of 1% methylene blue dye was injected peritumorally. In cases of bilateral tumors dye was injected in both lobes. No structures were cut so far. Immediately after the lobe was stained,
connective tissue between the sternohyoid and sternocleidomastoid muscles was sharply divided and internal jugular vein exposed looking for the blue stained lymphatic vessels and lymph nodes in jugulo-carotid chain. After 10 minutes the dissection was continued above and beyond the omohyoid muscle, towards the internal jugular vein and common carotid artery until the blue stained lymph nodes were found and recognized as SLNs. If there were no stained nodes, the first node closest to the afferently stained lymphatic vessel was considered as SLN. An extended dissection of surrounding non-SLNs above and beyond the omohyoid muscle. In cases of multifocal, bilateral tumors the procedure was performed on both sides. All dissected nodes were examined by frozen section and conventional histopathology examination. After SLN biopsy, total thyroidectomy with dissection of central neck compartment and clearance of pre-tracheal and paratracheal nodes was routinely performed. At the time of dissection the majority of lymph nodes in the central neck compartment were blue stained, which also enabled easier differentiation from the parathyroid glands. Prior to total thyroidectomy, all parathyroid glands were preserved on venous-arterial stalks and both recurrent laryngeal nerves were identified and followed to the entrance into the larynx. All thyroid glands and lymph node specimens were sent to conventional histopathological examination.

**Results:** The procedure is safe and accurate. The mean operative time was not significantly prolonged.
Results: There were 7,732 trauma patients seen during that time with 760 (9.8%) sustaining gunshot wounds (GSW). Of those, head and neck injuries occurred in 229 (30%). One hundred and ninety-nine (26%) sustained a GSW to the thorax, and injuries to the abdomen and pelvis were sustained in 217 (28.5%). In total, truncal trauma accounted for 54.5% of the injuries seen. Extremity injuries occurred in just 258 (34%). Data from OIF, shows the mechanism and distribution of injuries to be quite different. In contrast to previous conflicts, improvised explosive devices accounted for greater than 50% of the injuries in OIF. Head/Neck injuries accounted for 30% of the wounds, which is similar to the civilian experience; however, truncal injuries accounted for just 14% of the injuries seen and extremity injuries accounted for, a significant, 56% of all the injuries observed.

Conclusions: Conclusion: The civilian experience with gunshot wounds often focuses on truncal trauma, yet the military data shows a need for knowledge of injuries to the extremity. Trauma training programs should emphasize the care of the injured extremity with special consideration to vascular trauma. This is particularly salient in the era of diminishing opportunities secondary to vascular fellowships since a significant number of military surgeons train in civilian programs. This divergent experience may be important in the future as the civilian trauma surgeon is called upon to support the military.

Abstract ID: 0199 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 70.04

Out with the old in with the new: a novel approach to treating pain associated with rib fractures

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Introduction: Rib fractures continue to be a challenging problem from both a pulmonary and analgesia standpoint. The morbidity and costs associated have been well documented in the literature. As a result, numerous modalities have been used to treat this condition, but none have proven satisfactorily viable and efficacious. The objective of this study was to assess a novel technique for the placement of an elastometric infusion pump (EIP) to deliver local anesthetic in a continuous manner in the paravertebral space in lieu of an epidural.

Material and Methods: This was a prospective nonrandomized study, conducted in the surgical intensive care unit (SICU) of an urban Level II Trauma Center. We evaluated twenty consecutive blunt trauma patients with ≥ 3 unilateral rib fractures. Mean age was 61 years (22-92), mean ISS was 24 (16-29), and the mean number of rib fractures was 3.8 (3-6). Half (10/20) of the subjects had discernable pulmonary contusion on chest X-Ray upon admission. We then developed a novel technique to place an EIP catheter in the paravertebral space to provide continuous nerve blockade with the infusion of a local anesthetic.

Results: For each patient, preplacement numeric pain scale (NPS) and incentive spirometry (IS) lung volumes were determined. Ninety minutes following the injection of local anesthetic the NPS and IS were repeated. Overall, the mean NPS significantly improved (preplacement NPS = 9, postplacement NPS = 3) and this was associated with an approximately 150% increase in lung volumes (preplacement IS = 0.50, postplacement IS = 1.2). No patient required mechanical ventilation, and none of the study patients developed a hospital acquired pneumonia.

Conclusions: This data indicates that the placement of an EIP catheter in the paravertebral space is a viable, safe, and potentially efficacious procedure for the amelioration of pain secondary to rib fractures. Additional investigation on a larger scale is needed to verify these findings and to assess the effect on narcotic use, ICU/hospital stay, and overall cost.

Abstract ID: 0200 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 70.05

Comparisons of three surgical procedures on Intestine ischemia reperfusion injury in a superior mesenteric artery injury model

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Introduction: Temporary ligation, primary anastomosis, and temporary shunt were reported to deal with SMA injuries. Controversy exists as which is the most appropriate in the setting of damage control surgery (DCS). We aimed to find out which brought minimal ischemia reperfusion injury in the trauma-shock-hypothermia swine model.

Material and Methods: SMA was clamped and completely transected while pigs were hemorrhaged to a mean arterial pressure (MAP) of 40 mmHg and maintained for 30 minutes. Cold lactated Ringer’s was gradually infused to induce hypothermia. Pigs were randomized into temporary ligation (A), primary anastomosis (B), and temporary shunt (C) groups. Hemodynamic parameters were hourly recorded. Intestine injury was assessed by histologic examination and measurement of lipid peroxidation at the end of ischemia and experiment.

Results: Overall mortality rate was 50%, 25% and zero in Group A, B and C, respectively (P<0.05). The total intestine ischemia time was predominantly shorter in group C than that of other groups. Significant elevations of malonaldehyde (MDA) were noted after 3 hours and 6 hours reperfusion in Group A. Animals in other groups, however, didn’t exacerbate during the 6-hour reperfusion. Group C animals showed the lowest MDA level at the end of experiment. Myeloperoxidase (MPO) levels showed no significant elevations with ischemia or reperfusion until 6 hours after the ischemic period, when it reached approximately three to six folds in Group A and B. MPO in group C retained unchanged until the end of experiment.

Conclusions: Our study suggested that temporary shunt insertion was preferred in the setting of SMA injury demanding DCS; as it reduced the ischemia time, alleviated the intestinal ischemia/reperfusion injury and thus decreased the mortality in SMA injury swine model.

Abstract ID: 0201 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 70.06

Ratification of IATSSC/WHO’s Guidelines for Essential Trauma Care assessment in the South American region

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Introduction: To evaluate the usefulness of the International Association for Trauma Surgery and Intensive Care (IATSSC)/World
Health Organization (WHO)'s Guidelines for Essential Trauma Care (EsTC) in providing an internationally applicable and standardized template to assess trauma care capabilities in the South American Region.

**Material and Methods:** Field assessment was conducted in 7 provinces (urban and rural, pop. 2,239,509) and 27 facilities (5 large Hospitals (LH); 15 small hospitals (SH):7 Basic hospitals (BH)) in Ecuador using EsTC criteria. 260 individual items in Human Resources (HR-availability, clinical knowledge, skills) & physical resources (PR) were evaluated via inspection, review of local statistics, administrative & staff interviews. EsTC was evaluated: scale 0 (absent); 1 (inadequate;<50%); 2 (partly adequate; >50%); 3 (adequate–100%).

**Results:** 210,045 ED visits and 61,365 (29%) ED trauma visits were recorded (Incidence rate 2,740/100,000 pop). Deficits were noted in prehospital trauma care (inadequate coordination, communication), education & training (ATLS < 30%, TNCC 0%), facility based trauma care ( poor PR & HR) and quality assurance (1/27 hospitals).

**Conclusions:** IATSC/WHO Guidelines for EsTC provide a simple and useful template to assess trauma care capability in variable facilities & international settings and could serve as a valuable tool and for trauma system development. Endorsement of EsTC guidelines by the Panamerican Health Organization and lead trauma societies (the Panamerican Trauma Society, AAST) should be considered.

**Abstract ID: 0202** Specific Field: Colon and Rectum

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 74.01

**Oxidative stress markers in open and laparoscopic colectomy for the treatment of colorectal cancer**

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**Introduction:** Oxidative stress produced when a redox homeostasis disturbing is occurred, and it is found to be increased in patients with cancer. Aim of this study is to evaluate and compare the preoperative and postoperative oxidative stress in patients with colorectal cancer, treated by open or laparoscopic colectomy.

**Material and Methods:** Thirty patients with colorectal cancer were randomized in two groups, open m/f (9/6), mean age 70.1 years and laparoscopic m/f (8/7), mean age 68.4 years, of 15 patients each. The oxidative stress was evaluated by measuring the lipid peroxidation (F2 isoprostanes concentration) in the blood plasma, and uric acid concentration in the blood serum. The measurements were performed preoperatively, 5min after the deflation of the pneumoperitoneum for the laparoscopic, or after the manipulation of the small intestine for the open group, 6h and 24h after.

**Results:** No statistical significant differences regarding demographic data were observed. There were a significant decrement of lipid peroxidation markers (F2 isoprostanes) at 24h postoperatively in both groups (open, p=0.027 and lap, p=0.002), and uric acid concentration at 5min and 6h postoperatively in open group (p<.0001). Between the groups a statistical significant decrement regarding F2 isoprostanes were observed, favored the lap vs open group (p<0.0001) in all time intervals, and uric acid open vs lap (p<0.0001) at 6h and (p=0.004) 24h after.

**Conclusions:** In both procedures a significance postoperative decrement of lipid peroxidation markers were observed and this decrement is more marked in the laparoscopic group, as well as uric acid concentration is lower in the open group. Knowing the importance of free radicals as signaling molecules in various processes, including cancer, and their involvement in immune responses may be considered as a pathway in order to explain some of the early and late benefits regarding laparoscopic colectomy for colorectal cancer.

**Abstract ID: 0203** Specific Field: Colon and Rectum

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 74.02

**The assessment of postoperative urinary function after autonomic nerve preserving operation in rectal cancer surgery**

M. Tsubaki
Dokkyo Medical University, Tochigi, Japan

**Introduction:** The aim of this study was to clarify the influence of surgical procedures on postoperative urinary function after autonomic nerve preserving operation (ANP) in rectal cancer surgery.

**Material and Methods:** 172 cases of rectal cancer operated on from April 1998 to December 2006 were reviewed. ANP for the entire plexus without pelvic lymph node dissection (AN4) was performed for rectosigmoid and middle rectal cancers. When the cancers were located in the lower rectum or had the lowest margin below the peritoneal reflection with over T3 and/or lymph node metastases, pelvic lymph node dissection was performed. In this procedure, four types of ANP were performed. AN4+lat was ANP for the entire plexus, AN3 was ANP for the unilateral hypogastric and pelvic plexus, AN2 was ANP for the bilateral pelvic plexus, and AN1 was ANP for the unilateral pelvic plexus only. The influence of the surgical procedures on postoperative urinary function was evaluated by the number of patients who had spontaneous urination on the day of discharge. In addition, 14 patients with AN4 and 13 patients with the AN4+lat operation were evaluated for International Prostate Symptom Scores (IPSS) preoperatively and postoperatively (at least one year after operation).

**Results:** All cases with AN4 completely maintained their urinary function. 95.7% of patients with preservation of autonomic nerves and pelvic lymph node dissection maintained urinary function on the day of discharge. Postoperative IPSS scores of the patients with the AN4+lat operation were worse than those with TSME, and postoperative IPSS scores of the patients with Miles’ operation were worse than those with sphincter preserving operation.

**Conclusions:** We conclude that preservation of autonomic nerves, even if pelvic lymph node dissection is performed is important to maintain postoperative urinary function. However postoperative urinary function can be influenced by the surgical procedures even if the entire plexus is preserved.

**Abstract ID: 0204** Specific Field: Colon and Rectum

**Mode of pres.: Free Paper (oral)**  
ISW 2009 Session 74.03

**Nucleotide-guided mesorectal excision (NGME) during TEM for rectal cancer: preliminary results**

E. Lezoche [1], A.M. Paganini [1], G. D’Ambrosio [1], M. Guerrieri [2], L. Barchetti [1], M. Rimini [2], E. Capalbo [1], P. Campenni [1]
TEM is used for local excision of T1N0 rectal cancer and in selected T2-T3 N0 cases after neoadjuvant radiochemotherapy. TEM usually removes few mesorectal lymphnodes adjacent to the tumor, which may leave the histopathological N parameter undefined. This may be a criticism to the use of TEM to treat T2-T3 patients. Aim is to evaluate the role of NGME during TEM to increase the lymphnode harvest and to improve staging.

**Material and Methods:** From September 2005 to January 2009, 18 patients (pts) (12 males, 6 females, mean age 69 years, range 37-87 years) underwent TEM with NGME for rectal adenocarcinoma. Pre-treatment staging was: T1 N0 11 pts, T2 N0 3 pts, T3 N0 1 pt, T3 N13 pts. Pre -treatment median tumor size was 3 cm (range 1-8 cm). Seven pts underwent neoadjuvant radiochemotherapy, with tumordownsizing in all of them. At surgery, 99m-Technetium-marked nanocolloid was injected in the peritumoral submucosa 45 minutes before excision. After excision, the site was explored with a transanal probe in order to detect any residual radioactivity. If present this was marked with metal clips and excised by TEM. Hot lymphnodes were processed by immuno-histochemistry.

**Results:** Median tumor distance (distal margin) from anal verge was 5.5 cm (3-15 cm). Mean operative time was 92.6 min (50-300 min). Median time to passage of stool was 2 days (1-4 days) and median hospital stay was 5.5 days (2-13 days). Morbidity included fever and pain in 2 pts each, and soiling in 1 case. Mortality was nil. With improving experience in radioguided surgery the mesorectal lymphnode harvest has increased from 0 to 10. No micrometastases were observed. Final pathology report was Tis No1 pt, T1 N0 9 pts, T2 N0 5 pts, T3 N0 2 pts, T2 N1 1 pt. The latter patient underwent low anterior resection with total mesorectal excision (TME), and pathological classification was N0. At mean follow up of 12.8 months (range 1-24 months) 17 pts are alive and disease-free. One patient died from unrelated causes 2 months after excision of Tis N0 rectal cancer.

**Conclusions:** NGME during TEM increases the lymphnode harvest and it may improve the accuracy of staging after TEM, although no conclusive data can yet be drawn.

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**Abstract ID: 0205**  Specific Field: Colon and Rectum

**Mode of pres.:** Free Paper (oral)
**ISW 2009 Session 74.04**

**Impact of multimodality treatment on total mesorectal excision (TME) surgery for very low rectal cancers**

Y.K. Lim, W.L. Law, J. Poon, K.M. Fan

Queen Mary Hospital, Hong Kong, Hong Kong SAR

**Introduction:** This study reviews the impact of multimodality treatment of either pre-operative, or post-operative chemotherapy and/or radiotherapy on total mesorectal excision (TME) surgery for very low rectal cancers that required either low anterior resection with peranal coloanal anastomosis or abdomino-perineal resection (APR). Results of peri-operative and oncological outcomes of patients will be presented.

**Material and Methods:** 180 consecutive patients with very low rectal adenocarcinomas within 4 cm from anal verge, who underwent elective TME surgery from 1994 to 2007, were retrospectively analysed. Patients were compared in groups that had surgery only (Grp A), pre-operative chemoradiotherapy then surgery (Grp B), and adjuvant therapy post-operative (Grp C). Dependant variables related to patients, treatments, radiotherapy and tumour were analysed.

**Results:** Over 13 years, there were 180 patients in the prospectively collected database that had very low rectal cancer that required either peranal coloanal anastomosis or abdomino-perineal resection (APR). There were 115 males and 65 female with a mean age of 65.43 years (range 30-89). 134 of them underwent an APR while 46 had a sphincter-preserving ultra-low anterior resection with peranal coloanal anastomosis, combined with defunctioning stomas (40 ileostomies and 6 colostomies). 38 of the surgeries were laparoscopically performed. The cohort had a mean follow-up period of 52.98 months (range: 0.57 to 178.9). 69 patients underwent surgery only, while 58 patients received pre-operative chemoradiotherapy, and 53 patients had post-operative adjuvant therapy in addition to surgery. 9 out of the 58 patients with preoperative chemoradiotherapy could go on to have sphincter-saving rectal resection. The overall peri-operative complication rate was 43.4% in Grp A vs. 29.3% in Grp B vs. 39.6% in Grp C. The local recurrence rate was significantly lower in Grp B (6.9% vs. 21.7% in Grp A vs. 33.9% in Grp C). The overall 30-day mortality was 0.56% (1 patient had small bowel gangrene from Grp A).

**Conclusions:** Pre-operative chemo radiation in patients with low rectal cancer treated with surgery is not associated with a higher incidence of peri-operative complications. Its benefits may include a higher rate of sphincter-preservation surgery and reduction of local recurrence rate.

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**Abstract ID: 0206**  Specific Field: Colon and Rectum

**Mode of pres.:** Free Paper (oral)
**ISW 2009 Session 74.05**

**The role of mineralocorticoids in patients with J-shape ileal “pouches” following restorative proctocolectomy**

V. Penopoulos, M. Ha

B’Surgical Department, “G. Papanikolaou” Regional General Hospital, Thessaloniki, Greece

**Introduction:** The two-phase restorative proctocolectomy is the treatment of choice for surgical therapy of ulcerative colitis (U.C.) and familial adenomatous polyposis (F.A.P.). Besides the well known complications, the entire removal of the colo-rectum leads to an impairment of fluids and electrolytes absorption.

**Material and Methods:** Over a period of six years, we observed 60 proctocolectomised patients with ileal pouch-anal anastomoses (IPAA). All patients with high pouch output but without organic malfunction were identified. The organic reasons were excluded with a) pouchoscopy b) radiography or c) M.R. Imaging. We evaluated the following parameters: 1) blood electrolytes (Na⁺, K⁺), 2) blood urea and creatinine, 3) arterial blood pH, 4) urine pH, 5) urine electrolytes (Na⁺, K⁺), 6) plasma aldosterone, 7) free cortisol, 8) free corticosterone, 9) 18-hydroxycorticosterone and 10) free 11-desoxy-corticosterone.

**Results:** No significant differences in the analysis of the routine parameters were detected. A significant drop in the urine sodium concentration of 30.5 ±15.3 mmol/l (control group 95 ±4.54 mmol/l) was observed in the group with “high pouch output”. In this group the plasma aldosterone values were strongly increased, with an average of 58.2 ±31.2ng/dl (control group 12.2 ±5.4 ng/dl). Neither group of patients showed increased activity of free corticosterone and free cortisol. Only free 11-desoxy-corticosterone was elevated in the group with “high pouch output”.

**Conclusions:** Our results suggest that, the mineralocorticoid adrenal activity plays a “key” role in water and electrolyte homeostasis. Plasma aldosterone levels seem to be a diagnostic marker, reflecting...

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An enhanced recovery programme for elective colorectal surgery can be successfully applied in a community hospital setting

ICENI Centre, Colchester Hospital University Foundation NHS Trust, Colchester, UK

Introduction: Several studies have reported the benefits of enhanced recovery programmes for elective colorectal surgery, particularly when combined with a laparoscopic approach. The purpose of this study was to audit the outcomes of an enhanced recovery programme at a single UK district general (community) hospital over a 4 year period.

Material and Methods: All patients who underwent elective colorectal resection within an enhanced recovery programme between March 2005 and July 2008 were included. Data were analysed retrospectively via case notes. The following data were collected: Gender, age range, indication, operation, postoperative stay, time to first ambulation, time to removal of catheter, time to commencing oral fluids and diet, time to first bowels or stoma working, complications, readmission rates and mortality within 30 days.

Results: Overall there were 384 patients (195 female) who underwent resections (66% colonic, 34% rectal). All patients were managed under the enhanced recovery programme. The most frequent age range was 71-80 years and 66% of operations were performed for cancer. 84% of cases were performed totally laparoscopically with 9% converted and 7% performed open. Median postoperative stay was 6 days with a trend towards decreasing stay over the study period. Most patients successfully commenced oral fluids and diet on the first postoperative day, were ambulant on the second day and most catheters were successfully removed on day 3. There was an overall rate of complications of 30% (37% of which were major). There was a 7% readmission rate within 30 days and a 6% 30 day mortality.

Conclusions: Previous data suggest that laparoscopic surgery and enhanced recovery programmes can reduce hospital stay and return to activity without increasing rates of complications. A UK national audit of traditional colorectal surgery in 2006 and data from the UK National Hospital Episode Statistics showed a median hospital stay of 11-12 days, demonstrating that our data compares favourably. 30 day mortality in our series falls within the boundaries set by The Association of Coloproctology of Great Britain and Ireland. The overall results suggest that predominantly laparoscopic colorectal surgery within an enhanced recovery programme in community hospitals is both safe and feasible.

Abstract ID: 0208 Specific Field: Colon and Rectum

Pilot clinical study on a new bipolar radiofrequency ablation device in the endoscopic palliation of rectal cancer (Endoblate)

S.E. Khorsandi [1], P. Vavra [1], J. Dostalik [2], D. Zacharoulis [3], S.A. Khan [1], N.A. Habib [4]

Abstract ID: 0207 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 74.06

An enhanced recovery programme for elective colorectal surgery can be successfully applied in a community hospital setting

ICENI Centre, Colchester Hospital University Foundation NHS Trust, Colchester, UK

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Abstract ID: 0208 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 74.07

Pilot clinical study on a new bipolar radiofrequency ablation device in the endoscopic palliation of rectal cancer (Endoblate)

S.E. Khorsandi [1], P. Vavra [1], J. Dostalik [2], D. Zacharoulis [3], S.A. Khan [1], N.A. Habib [4]
increased in both IR and RIPC groups as compared to the sham group, but it was significantly lower in the RIPC group compared to the IR group (6.76 ± 0.19 vs. 11.99 ± 0.33, P<0.001). Renal blood MDA was increased in both IR and RIPC groups compared to the sham group, but it was significantly less in the RIPC group compared to the IR group (1.55 ± 0.38 vs. 2.94 ± 0.16, P=0.002). Finally, kidney tissue MDA was increased in both the IR and RIPC groups compared to the sham group, but it was significantly lower in the RIPC group compared to the IR group (5.92 ± 0.82 vs. 13.98 ± 2.41, P=0.005).

Conclusions: RIPC induced by a temporary infrarenal aortic occlusion decreased substantially the IR renal injury caused by subphrenic aortic cross clamping.

### Abstract ID: 0210 Specific Field: Colon and Rectum

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 75.02**

**New prediction rule for mortality in acute mesenteric ischemia**

Y. Haga [1], M. Odo [1], M. Homma [1], K. Komiya [1], K. Takeda [2], S. Koike [3], T. Takahashi [4], K. Hiraka [5]


**Introduction:** Although the prognosis of acute mesenteric ischemia (AMI) is usually poor with the mortality rate of roughly 50 to 90%, prognostic factors in AMI have not yet been well elucidated, probably because of its rarity. This study was undertaken to generate a prediction rule for AMI by accumulating multi-center data.

**Material and Methods:** This is a retrospective cohort study, consisting of 110 patients who had been treated in the past 5 years, from 26 national hospitals in Japan. prognostic factors for in-hospital mortality were analyzed by a logistic regression analysis.

**Results:** The patients included 50 males and 60 females with a median age of 75 years. These included 33 patients with superior mesenteric artery (SMA) thrombosis, 26 with SMA embolus, 17 with SMA occlusion due to unidentified reason, 16 with focal segmental ischemia, 8 with superior mesenteric vein thrombosis, 4 with non-occlusive mesenteric ischemia and 6 with undetermined types. Sixty-nine patients were laparotomy, 10 underwent intervention radiology (IVR) procedures and 18 did not receive any aggressive therapy because of poor general conditions. Thirty patients had relatively mild conditions that were resolved without surgery or IVR. The overall in-hospital mortality rate was 51%. Logistic regression analysis demonstrated two independent prognostic factors, electrocardiography scale with an odds ratio [95%CI] of 1.7 [1.2-2.4] and shock index of 11 [1.5-80]. A stepwise analysis gave a prediction equation for in-hospital mortality (R) using these variables and age score. We further modified this equation to a simpler scoring system (S) (Table). Both R and S showed a good discriminatory ability for death as determined by areas under the receiver-operating characteristic curve (0.83 [95%CI: 0.74-0.91] for R; 0.82 [0.74-0.91] for S). The observed mortality rates increased as the R or S increased (Figure).

### Risk score (S) for patients with acute mesenteric ischemia

<table>
<thead>
<tr>
<th>Age</th>
<th>ECG findings</th>
<th>Shock index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>≥70 years</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Atrial fibrillation</td>
<td>≥0.7</td>
</tr>
<tr>
<td>3</td>
<td>60-90/min</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Any other abnormal rhythm</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>≥5/min ectopics</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Q waves and ST/T changes</td>
<td></td>
</tr>
</tbody>
</table>

**Abstract ID: 0211 Specific Field: Vascular Surgery**

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 75.03**

**Benefits of routine intraoperative digital subtraction angiography in arteriovenous fistula surgery**

R. Foerster [1], J. Scholz [2]


**Introduction:** Intraoperative digital subtraction angiography (IDSA) is known to improve the results of reconstructive vascular surgery. The fact that this tool is not yet being used routinely in arteriovenous fistulae (AVF) surgery can be attributed to the lack of DSA-capable C-arms in the operation theatre and the fear of administering contrast agent (CA). The aim of this study is to demonstrate the practicability and benefits of IDSA for AVF surgery.

**Material and Methods:** From January to August 2008, 104 patients (59 male, 45 female; 66, 26-94 years) received 117 operations, 63 (54%) to create a primary AVF and 54 (46%) to revise an existing fistula. In 16 operations (14%) IDSA was not possible for various reasons. Therefore, the documentation from 100 operations and the corresponding IDSA findings could be analysed.

**Results:** IDSA in the primary AVF group (n=52) was always conducted at the end of the operation with visualization of the perianastomotic region through Seldinger cannulation of the brachial artery, except in one case were venous anastomosis of a prosthesis was visualized via puncture. 2.2 (2-6) ml CA were required per case. In 15 cases (29%) the finding lead to an intraoperative consequence of which most frequent was the dissection of a steal branch (n=10). In the revisions (n=48) CA was injected solely into the outflow branch (n=10, 21%) or the inflow branch (n=2, 4%), in 11 operations into both (23%) and in the remaining 25 Ops (52%) a combination of either outflow or inflow imaging together with a DSA at the end of the operation was used. For a revision, 14.3 (2-60) ml CA was needed. Findings to be corrected immediately were identified in 30 cases (63%). Most frequently a transluminal dilatation of the outflow branch was needed (n=21).

**Conclusions:** IDSA in AVF surgery is practicable and reveals conditions that can be corrected immediately. In AVF revisions the rate of identified residual lesions to be treated is so high that IDSA should be compulsory. Long since standard in other areas of vascular surgery, IDSA should become a routine procedure in AVF surgery as well.
Genetic mutations have been detected in patients

Prospectively collected data of all consecutive patients (26 women, 254 men) with a mean age of 69.3 years underwent AAA surgery. Of 280 operations 200 were performed as elective and 80 as emergency procedures. EVAR was performed strictly in an elective situation (n=33). 31 patients underwent emergency surgery for symptomatic AAA and 49 patients for rupture. Mortality in elective AAA repair was 2% (4/200 pts) and 10% in emergency patients (8/80 pts). Because of the retrospective data analysis it was not possible to specify whether emergency patients would have been suited for EVAR according to aneurysm morphology. The percentage of Octogenarians was higher in the emergency group with 27.5% (22/80 pts, 5 female and 17 male pts) compared to patients undergoing elective open surgery with 8.4% (14/167 pts). Mortality in Octogenarians operated for ruptured AAA with 9.1% (2/22 pts, 1 female and 1 male) was lower than in younger patients (10.3%, 6/58 pts). For patients undergoing emergency surgery the mean Glasgow Aneurysm Score in survivors was significantly lower (p<0.05) with 85.7±15.6 (range 55-128) than in non-survivors 99.4±14.1 (range 77-123). GAS values were higher than 100 in 13 survivors.

Conclusions: Classic open aortic surgery for AAA repair can be performed with acceptable risk in Octogenarians. For therapy of ruptured AAA it is not justified to exclude patients from surgery because of their age, gender or preoperative score values.

Fatal hemorrhage from ruptured aneurysm of the marginal artery of Drummond: case report with review of literature


[1] Alexandra Hospital, Singapore, Singapore, [2] National University Hospital, Singapore, Singapore

Introduction: Visceral arterial aneurysms are uncommon and rarely rupture. Very few cases of aneurysms involving the marginal artery of Drummond exist in the English literature. We report a case of acute abdomen and hemoperitoneum that at laparotomy, was found to be secondary to bleeding from a ruptured marginal artery aneurysm in the transverse mesocolon. The literature is reviewed and management options are discussed.

Material and Methods: An 80-year-old male with background ischemic heart disease and pulmonary tuberculosis presented with acute spontaneous central abdominal pain since 1 day. On examination he was pale and had signs of hypovolemic shock. The abdomen was distended with maximum tenderness in the epigastric area. After initial resuscitation, bedside ultrasound showed free fluid in the abdomen suggestive of hemoperitoneum. He needed an emergency laparotomy as his hemodynamic parameters remained unstable.

Results: At surgery, the hemoperitoneum was from an actively bleeding ruptured aneurysm in the marginal artery of Drummond close to the transverse colon. The bowel wall was densely adhered to the aneurysmal wall and a quick segmental resection of the colon with end to end anastomosis was carried out using staplers. Post-operative stay in ICU was complicated by an acute myocardial infarct and pneumonia. The patient died 1 week later. Histology of the segmental colectomy confirmed a ruptured 2cm aneurysm of the marginal artery containing thrombus. Sections of the artery showed atherosclerosis with intramural thrombus and aneurysmal dilation with chronic inflammation in the wall.

Conclusions: Aneurysm of the marginal artery of Drummond, although rare, can rupture and present with life threatening hemoperitoneum. In unstable patients, the diagnosis is usually made at emergency laparotomy. A segmental resection of the affected bowel is the quickest treatment.

SDH mutation in paraganglioma of the neck (carotid body tumor)

T.U. Cohnert, S. Koter, S. Schweiger, P. Konstantiniuk, A. Baumann
Graz Medical University, Graz, Austria

Introduction: Genetic mutations have been detected in patients treated for paragangliomas and pheochromocytomas. We analyzed our current preoperative diagnostic and intervention procedures as well as the follow-up strategy in patients treated for neck paraganglioma to evaluate the necessity for additive testing.
Material and Methods: In 40 patients (pts.) operation for 47 paragangliomas (PGL) between January 1988 and December 2008 was performed. Clinical data and follow-up were collected prospectively and analyzed retrospectively. Statistical data are shown as mean values and standard deviation. In larger tumors a preoperative interventional embolization was performed. Postoperatively pts were seen as outpatients once per year including ultrasound control. Pts. operated since 2006 patients underwent genetic analysis for SDH mutation B, C and D.

Results: Of the 40 pts. with a mean age of 54.7 + 15.3 years there were 29 female and 11 male pts. In 21 pts the unilateral tumor was located on the right side, in 11 pts. on the left side. At time of diagnosis 8 pts (8/40 pts=20%) presented with bilateral paraganglioma. Histological analysis showed benign paraganglioma in 39 pts and malignant paraganglioma in 1 pt. After a follow-up of 1 to 240 months (mean 90.2 + 21.0 months) 37 pts were alive and well whereas 3 pts. were lost to follow-up. Duplex ultrasound gave no evidence for recurrence of NPG in 37 pts. The patient with the malignant tumor is alive and free of recurrence after 14 years and 10 months. 7 patients underwent genetic analysis for SDH mutation B, C and D. One patient with bilateral paraganglioma tested positive for SDH-D Mutation, 3 siblings showing phaeochromoctyoma. 2 additional patients with unilateral PGL also tested positive for SDHD. SDHB and SDHC were not detected.

Conclusions: More female patients were affected than male pts. In male patients there was a higher incidence of bilateral paraganglioma of the neck. Long-term survival in patients after surgical removal of neck paraganglioma appears not limited. Because of the possibility to identify mutations in the SDH-gene (SDHD, SDHB, SDHC) further testing of patients with bilateral paraganglioma is mandatory. Screening for phaeochromoctyoma in these patients and evaluation of patients’ families is recommended.

PGL distribution by gender

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Unilateral PGL</th>
<th>Bilateral PGL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>29</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>Male</td>
<td>11</td>
<td>7</td>
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</table>

Abstract ID: 0215 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 75.07

Piroxicam (COX-1) and meloxicam (COX-2) inhibitors ameliorate hepatic oxidative stress promoted by ischemia-reperfusion injury


Introduction: The present study was aimed at assessing the effect of piroxicam or with meloxicam, inhibitors of cyclooxygenases (COX) 1 and 2 respectively, on the indicators of the tissue damage induced by liver ischemia reperfusion injury (LIRI), which is unavoidable in liver surgeries, especially in transplants, hepatic resections, and trauma.

Material and Methods: We used male Wistar rats, randomly distributed in one sham group, and three groups subjected to LIRI, one of them without treatment and two of them treated with a piroxicam or with meloxicam, COX-1 and COX-2 inhibitors, respectively. Warm ischemia was performed by total vascular occlusion during 90 min and then reperfusion was allowed. Samples were taken at the following post-reperfusion times: 0, 0.5, 1.0, 1.5, 2.0, 4.0, 12, and 24 h. In serum, we determined the catalytic activity of the following hepatic enzymes (HE): alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), and ornithin-carbamyl-transferase (OTC). In liver samples, we studied cellular alterations through histological studies, and we measured lipid peroxidation markers by the assay of thiobarbituric reactive substances (TBARS), protein carbonylation (PC) by immunohistochemistry (IHQ) and apoptosis markers by the TUNEL technique. We also measured reactive oxygen species (ROS) in the bile by means of electron paramagnetic resonance (EPR).

Results: All indicators of cell injury appeared from the first reperfusion hour on, and reached their maximum at 2 and 4 h post-reperfusion. A marked increase in serum activity of the four HE was observed simultaneously with a greater histological damage. A raise in TBARS, PC and apoptosis was recorded which correlated with an elevated ROS pool in the bile. Based on PC data, endothelial cells (EC) and Kupffer cells (KC) were the first to show oxidative damage due to LIRI before parenchymal cells. Administration of piroxicam or meloxicam during the pre-ischemic period produced a highly significant decrease in all the studied injury indicators. No significant differences were revealed between the two drugs.

Conclusions: There is a potential use for NSAID’s to minimize the indicators of injury as an intravenous administration of metoprolol is as effective as intravenous administration of amiodarone in the prevention of AF after cardiac surgery. We hypothesized that intravenous administration of metoprolol is as effective as intravenous administration of amiodarone in the prevention of AF after cardiac surgery.
Material and Methods: 314 consecutive patients scheduled to undergo first on-ump CABG, aortic valve replacement or combined aortic valve replacement and CABG were enrolled. The exclusion criteria were emergency surgery, previous episodes of AF or flutter, sick sinus syndrome, II or III degree atrioventricular block, uncontrolled heart failure, severe peripheral arteriosclerotic disease, severe chronic obstructive pulmonary disease or asthma and systolic blood pressure less than 100 mm Hg at the time of randomization. On the first postoperative morning each enrolled subject was randomized to receive either metoprolol (n = 157) or amiodarone (n = 157) intravenously for 48 hours. Patients in the metoprolol group received metoprolol 1–3 mg/h according to the heart rate, and those in the amiodarone group 15 mg/kg/24h, so that 100mg was not exceeded. The endpoint of the study was the first occurrence of AF or 48 hours after the start of metoprolol or amiodarone administration.

Results: AF occurred in 38/157 (24.2%) patients in the metoprolol group, compared with 39/157 (24.8%) patients in the amiodarone group. There were no serious complications related to intravenous amiodarone or metoprolol administration.

Conclusions: The intravenous administration of metoprolol is as effective as intravenous administration of amiodarone in reducing the incidence of AF after cardiac surgery.

Abstract ID: 0217 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 89.01

Five-year follow up of a randomized clinical trial of total thyroidectomy versus Dunhill operation versus bilateral subtotal thyroidectomy for multinodular non-toxic goiter

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Introduction: The extent of thyroid resection in multinodular non-toxic goiter (MNG) is controversial. The aim of this study was to evaluate long-term results of different thyroid resection modes with special emphasis put on recurrence rate and morbidity rate.

Material and Methods: From 01/2000 through 12/2003, 600 consenting patients with MNG qualified for thyroidectomy at our institution were randomized to three groups equal in size, n = 200 in each. Patients in Group A underwent total thyroidectomy (TT), patients in Group B underwent Dunhill operation (DO), whereas patients in Group C underwent bilateral subtotal thyroidectomy (ST). All the patients underwent ultrasonographic, cytological and biochemical follow-up at least for 60 months postoperatively. Primary outcome measure was recurrence of recurrent goiter and need for redo surgery. Secondary outcome measure was postoperative morbidity rate (hypoparathyroidism and recurrent laryngeal nerve injury).

Results: Recurrent goiter was found in 0.5% TT vs.4.5% DO vs. 11% ST (p = 0.01 for TT vs. DO, p = 0.02 for DO vs. ST, p < 0.001 for TT vs. ST) and completion thyroidectomy was necessary in 0.5% TT vs.1.5% DO vs.3.5% ST (p = 0.03 for TT vs. ST). Transient postoperative hypoparathyroidism was present in 10.5% vs.4.0% vs.2.0% (p < 0.01 for TT vs. DO, p < 0.001 for TT vs. ST), whereas recurrent laryngeal nerve injury rate was 5.5% and 1.0% TT vs.4.0% and 1.0% DO vs.2.0% and 0.5% TT (transient and permanent, respectively; non-significant differences).

Conclusions: TT can be regarded as a procedure of choice for patients with MNG. It is associated with significantly lower incidence of goiter recurrence and less frequent need for completion thyroidectomy than other more limited thyroid resections. However, TT involves a significantly higher risk of postoperative transient but not permanent hypoparathyroidism. More over, prevalence of recurrent laryngeal nerve injury is not increased in TT operations.

Abstract ID: 0219 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 89.03

Significant weight difference between double parathyroid adenomas is the cause of false positive [ioPTH] test after resection of the first lesion

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Introduction: It has been reported that some 50% of patients with double parathyroid adenoma show a >50% decline of [ioPTH] after
resection of the first lesion. This may lead to overlooking a second adenoma and to persistent hyper-parathyroidism. The present study was designed to test the hypothesis that significant adenoma weight differences may explain the inappropriate decline of [ioPTH] in patients with double lesions.

**Material and Methods:** Review of prospective clinical database records at two tertiary institutions. Patients with a histopathologic diagnosis of double adenoma (two hypercellular glands > 70 mg of weight) and one or two focus of uptake in the preoperative parathyroid scan were included. MEN 1 was ruled out. Diagnosis of double adenoma was suspected either preoperatively (double uptake), intraoperatively (focal bilateral exploration) or at reintervention due to persistence of disease. All patients had [ioPTH] determined at induction of the anesthesia (0'), at the time of adenoma resection and 10' after excision of the first lesion. The later was considered as the 0' sample for ioPTH sampling at the time of resection of the second lesion. Normalization of [ioPTH] was considered if less than 60 pg/ml at 10'.

**Results:** Thirteen patients (3M, 10F, mean age 62 yrs.) met the inclusion criteria. A diagnosis of double adenoma was suspected preoperatively in 5 cases, intraoperatively in 6 cases and postoperatively (existence) in 2. After resection of the first lesion, [ioPTH] failed to decline in 4 patients (30%) and a second adenoma was removed. Both had similar weights (404 vs. 598 mg). In 9 (70%) patients [ioPTH] showed a false positive decline. These patients had the largest adenoma removed first (846 ± 226 mg) and none had a normal [ioPTH] 10' after resection (mean PTH: 102 ± 46 pg/mL). The second adenoma was always smaller (288 ± 177 mg; P = 0.004) and its resection either during the same operation (7) or at reintervention (2) led to normalization of PTH at 10' in all cases (PTH: 40 ± 15 pg/mL).

**Conclusions:** Two thirds of patients with double parathyroid adenoma showed a >50% decline of [ioPTH] after resection of the first lesion. This appears to be due to initial removal of the largest lesion.

**Abstract ID: 0220  Specific Field: Endocrine Surgery**

**Mode of pres.:** Free Paper (oral)
**ISW 2009 Session 89.04**

Papillary thyroid microcarcinoma: extra-thyroidal extension, lymph node metastases and risk factors for recurrence in a high prevalence of goiter area

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**Introduction:** Papillary thyroid microcarcinoma (PTMC) is classified with increasing frequency. Since risk factors for an aggressive clinical behavior have not been clearly delineated, the best therapeutic option and follow up protocol for PTMC have not been established yet. We reviewed our series of patients with PMTC to determine risk factors for recurrence in a high prevalence of goiter area.

**Material and Methods:** The records of all the patients who underwent total thyroidectomy (TT) with a final pathology report of PTMC between October 2002 and June 2007 were reviewed. Demongraphic, clinical and pathological characteristics were registered. PTMC was defined as a papillary thyroid carcinoma 10 mm in diameter. Fol low up evaluation was obtained by outpatient consultation and/or telephone interview. Patients who completed follow up evaluation were included in this study.

**Results:** Among a series of 2220 patients who underwent thyroidectomy for a thyroid carcinoma, 1029 had a PTMC. Among them, 965 underwent TT. Follow up evaluation was completed in 200 patients. There were 40 males and 160 females, with a mean age of 49.4 years (range 11–81). Diagnosis was incidental in 175 patients. PTMC were larger than 5mm in 145 patients and multifocal in 88. Extracapsular spread (ECS) was present in 41 cases, node metastases in 20 and distant metastases in 2. Loco-regional recurrence was observed in 43 cases. Patients with ECS were significantly younger (43.4 Vs 51.0 years) (P < 0.005) and had more frequently a multifocal disease (24/ 41 Vs 63/159) (P < 0.05). Patients with node metastases were significantly younger (36.7 Vs 51.0 years) (P < 0.005), more frequently males (8/20 Vs. 32/180) (P < 0.05) and had more frequently a pT3 tumor (12/20 Vs. 29/180) (P < 0.001). Riskfactors for recurrence were male sex, multifocal disease, ECS and node metastases at diagnosis (P < 0.05). Lesion size <5mm was not associated with a lower rate of ECS, node metastases and recurrence.

**Conclusions:** Incidental diagnosis of PTMC is frequent in a high prevalence of goiter area. PMTC showed variable aggressiveness, independent from tumor size. The extent of surgery, the need for radio-iodine ablation and follow up protocol should be based on prognostic parameters, such as gender, multifocality, ECS and node metastases at diagnosis, as for larger tumors.

**Abstract ID: 0221  Specific Field: Endocrine Surgery**

**Mode of pres.:** Free Paper (oral)
**ISW 2009 Session 89.05**

Three distinctly different kinds of papillary thyroid microcarcinoma should be recognized: our treatment strategies and outcomes

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**Introduction:** Papillary thyroid microcarcinoma (PMC) follows, in general, a benign clinical course. However, treatment strategies remain controversial. According to our previous retrospective review of 178 patients (pts) with PMC who underwent surgery between 1976 and 1993, the most significant risk factors for cancer-specific survival (CSS) were symptoms at presentation due to either extra thyroidal invasion (Ex) or metastasis. Distant metastasis (M) and cancer-specific death were not seen in 148 cases (83%) of asymptomatic PMC without clinically evident (1 cm) lymph node metastasis (N) or recurrent nerve palsy. Based on these results, we identified 3 biologically different types of PMC that should be treated individually. Type I comprises incidentally detected PMC without symptoms which is harmless and the lowest risk cancer. Conservative follow-up with ultrasound every 6 or 12 months is feasible. Type II involves the early stage of the usual low-risk carcinoma. Lobectomy is warranted when an increase in size is noted. Type III comprises clinically symptomatic PMC, representing a high-risk cancer. Wider resection followed by radioiodine and TSH suppression is recommended.

**Material and Methods:** Since 1995, we have conducted a prospective clinical trial of non-surgical observation for asymptomatic PMC. As of 2007, 193 of 204 candidates (95%) have decided to accept this conservative clinical trial of non-surgical observation for asymptomatic PMC. Of 204 candidates (95%) have decided to accept this policy, whereas 57 pts underwent surgery for symptomatic PMC between 1976 and 2006.

**Results:** Conservative follow-up for a mean of 5.1 (range, 1–17) yrs on 255 lesions of asymptomatic PMC revealed that 24 (9%) had increased in the size, 208 (82%) were unchanged and 23 (9%) had decreased. No pts had developed Ex or M. Three pts (1.6%) who developed apparent N and 9 (5%) in whom tumor increased eventually received surgery after 1–12 yrs of follow-up. No recurrences have been identified.
postoperatively. Conversely, 10-yr CSS for symptomatic PMC was 78%. By multivariate analysis, Ex, large N (2 cm), and poorly differentiated component were significantly related to adverse outcomes.

**Conclusions:** Non-surgical follow-up seems to be an attractive alternative to surgery for asymptomatic PMC. Almost 90% of pts are Type I, and another 10% are Type II which can be treated by conservative surgery. A small number of PMCs with bulky N or Ex are high-risk Type III and require aggressive treatment.

**Abstract ID:** 0222

**Specific Field:** Burns

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 94.01**

**“Volume replacement” plus “dynamic support”: a new regimen for effective burn shock resuscitation**

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**Introduction:** Ischemia/hypoxia is one of the key clinical issues following severe burns. To those who suffering severe burns, even though fluid replacement therapy is delivered promptly, ischemic/hypoxic visceral damage is inevitable. Previously, postburn cardiac reduction has been considered to be the result of burn shock. This serial study investigated the early myocardial damage in the occurrence and development of burn shock and new regimen for treatment of burn shock.

**Material and Methods:** Since 1986, we have performed serial studies on severe burns, including clinical studies, animal experiments and in vitro studies. Relevant parameters associated with myocardiocyte and myocardial tissue damage, cardiac function were determined.

**Results:** It was found that ischemic/hypoxic myocardial damage and functional impairment of myocardium due to activation of renin angiotensin system existing in heart itself occurs immediately following severe burns even before significant reduction in blood volume secondary to increase of capillary permeability. Our findings also demonstrated that postburn cardiac damage occurs promptly and more earlier than any other organs. Application of measures ameliorating cardiac damage may improve organ blood flow in liver, kidney, and intestines, and mitigate organ damage at the same time of fluid resuscitation by Parkland formula. These facts suggest that such prompt myocardial damage leads to cardiac deficiency, and it is also a precipitating factor for burn shock and ischemic/hypoxic injury of systemic tissues and organs. Therefore, we called it “shock heart”. The cellular and molecular mechanisms leading to myocardial damage were systematically investigated.

**Conclusions:** Since myocardial damage and functional impairment occurs immediately following severe burns even before significant reduction in blood volume secondary to increase of capillary permeability, and postburn cardiac damage occurs promptly and more earlier than any other organs, new resuscitation regimen including “volume replacement” plus “dynamic support” (cardiac support and myocardial protection) may conduce to burn shock resuscitation, and reduce organ complications due to insufficient or extra fluid infusion.

**Abstract ID:** 0224

**Specific Field:** Burns

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 94.03**

**Amnion-derived cellular cytokine solution accelerates healing of experimental partial-thickness burns**


**Introduction:** Amnion-derived multipotent progenitor cells (AMP cells), unlike most stem cells, have been demonstrated to be non-tumorigenic and non-immunogenic. Amnion-derived cellular cytokine solution (ACCS), a secreted product of AMP cells, is a cocktail of cytokines existing at physiological levels and was used to accelerate epithelialization of experimental partial-thickness burns.

**Material and Methods:** Using modifications of Zawacki’s guinea pig partial-thickness scald burn model, a total of 65 animals were treated with ACCS, ACCS + AMP cells, unconditioned medium (UCM) + AMP cells, or UCM alone or saline as controls. Dosage times ranged from every other day to once a week. Percent epithelialization was serially determined from acetate wound tracings. His tology was performed on wound biopsies.

**Results:** ACCS, UCM + AMP cells, and ACCS + AMP cells improved epithelialization compared with the two control groups (P < 0.05). When ACCS was delivered more frequently, statistically significant more rapid epithelialization occurred (P < 0.05). By day 7, all groups treated with ACCS had reached at least 90% epithelialization; whereas, control groups were between 2040% epithelialized (P < 0.05). Histology showed excellent regeneration of the epidermis.

**Abstract ID:** 0223

**Specific Field:** Burns

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 94.02**

**Cerium nitrate decreases systemic inflammation associated with major burn injury**

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**Introduction:** Cerium is a rare earth lanthanide metal that could offer substantial benefits in the treatment of major burns. It is applied as a topical substance and complements the activity of silver-containing compounds. Several studies have demonstrated the immunomodulatory affects of Ce(NO₃)₃ by decreased neutrophil activation and adhesion, reducing leukocyte and endothelial activation through decreased IL-6 and TNF-α levels, and lower T-cell activation through decreased IL-2 levels. Despite these findings, cerium has not gained universal acceptance. The aim of our study is to examine the systemic inflammatory response in infected wound burns after treatment with cerium.

**Material and Methods:** Male Sprague-Dawley rats underwent a 30% full-thickness scald burn and were divided into three groups: Group 1 (Burn Only), Group 2 (Burn + Infection), and Group 3 (Burn + Infection + Cerium treated). Blood and lung tissue were taken at five hours, one day, and five days post-burn. Cytokine levels were measured in serum samples, while apoptosis was detected in lung tissue. Analysis of variance, Bonferroni, and a Dunnett’ test were used for statistical analysis.

**Results:** There was an increase in cytokines and apoptosis for all groups when compared to the negative control group at 5 hours, 1 day, and 5 days. After burns became infected both systemic responses intensified. However, each cytokine response was blunted and apoptosis levels increased after cerium treatment.

**Conclusions:** Cerium nitrate increases systemic apoptosis, decreases inflammation, and may be used for the treatment of major burn injuries.
with rete ridge formation. Hair growth occurred in ACCS-treated animals, but not in the control group.

**Conclusions:** Amnion-derived cellular cytokine solution accelerates the healing of experimental partial-thickness burns. Based on these findings, a multicenter clinical trial is underway.

**Abstract ID: 0225**  
**Specific Field: Burns**

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 94.04**

Fluid resuscitation in major burns: the problem of fluid creep

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**Introduction:** The Parkland formula remains the gold standard for designing fluid resuscitation strategies for major burns, forty years after its description. It remains a guide, however, and does not negate the value of regular reassessment of the patient’s clinical condition. While contributing significantly to the reduced incidence of ‘burns shock’, renal failure and mortality, it may also be responsible for the increasingly evident ‘fluid creep’, an entity coined to describe the features of severe over hydration in burns patients.

**Material and Methods:** We discuss a case of ‘fluid creep’ as it presented in an eight year old boy with 52 percent full thickness burns. A thorough literature review was performed and strategies proposed to prevent and respond to ‘fluid creep’.

**Results:** The fluid volumes infused above that calculated were 1.6 and 4.7 litres on days one and two respectively in an effort to maintain haemodynamic stability and urine output above 2 ml/kg/hour. Our patient developed abdominal and limb compartment syndromes and required abdominal decompression and fasciotomies in unburnt limbs. A modified Parkland Formula (3 ml/kg/% burn) is a useful guide to fluid resuscitation calculations, but the patient’s general condition should be repeatedly reviewed and alterations made according to clinical examination, biochemical markers and endpoints of resuscitation, in addition to urine output.

**Conclusions:** ‘Fluid creep’ is now a recognized entity with significant detrimental effects. Strategies to prevent and manage its development should be incorporated into ‘care bundles’ designed for the management of severely burnt patients.

**Abstract ID: 0226**  
**Specific Field: Burns**

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 94.05**

Ventilator associated pneumonia in a paediatric burns centre

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**Introduction:** Despite recent improvements in burns care, specifically wound care and antimicrobials, infection remains the most significant cause of mortality. Severely burnt children requiring ventilation are especially vulnerable to ventilator associated pneumonia (VAP).

**Material and Methods:** This is a prospective study of severely burnt children who developed pneumonia at a paediatric burns centre. Emphasis was placed on the epidemiology of the pneumonia, the causative microbiology, resistance patterns, and the patient’s course of treatment.

**Results:** 92 children were included in the study. The vast majority sustained either scalds or flame burns. 37 children were diagnosed with pneumonia. Prominent causative organisms included pseudomonas aerugiosa and staphylococcus aureus. Empiric Antibiotics should be initiated early and adjusted according to culture and sensitivities. BAL remains the gold standard to identify causative organisms.

**Conclusions:** Ventilator Associated Pneumonia is an important consequence of prolonged ventilation in severely burnt children and frequently results in mortality and morbidity. Experience in this unit and internationally has emphasised the use of clear reinforced prevention and treatment protocols.
Abstract ID: 0228  Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 95.02

Impact of lymphovascular invasion in patients with T2N0 gastric cancer
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Introduction: Patients with stage I gastric cancer often suffer from tumor recurrence despite a generally favorable surgical outcome. It is therefore important to determine the prognostic factors in order to improve such outcomes.

Material and Methods: Between April 1985 and March 2000, a total of 1,880 patients with histologically proven stage I gastric cancer were included in this study. Surgical outcomes (survival time, prognostic factors, pattern of recurrence) were evaluated in these patients.

Results: Multivariate analysis in patients with stage I gastric cancer revealed that depth of invasion, lymph node metastasis, and lymphovascular invasion independently influenced prognosis. Moreover, advanced age was selected as an independent prognostic factor in patients with stage IA, and lymphovascular invasion in patients with stage IB gastric cancer by multivariate analyses. The five-year survival rates in stage T1N1 patients with lymphovascular invasion, T2N0 with lymphovascular invasion, and II were 95.1%, 83.5%, and 76.9%, respectively. There was a significant difference in survival time between stage T1N1 and II (p = 0.0195) but not between stage T1N1 and T2N0 or stage T2N0 and II.

Conclusions: T2N0 gastric cancer patients with moderate-severe lymphovascular invasion may be suitable candidates for adjuvant chemotherapy. It will be of interest to compare surgical outcomes between patients with stage IB and II gastric cancer in a high-volume study.

Abstract ID: 0229  Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 95.03

Selection of high risk patients in advanced gastric cancer (AGC)
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Introduction: Effective chemotherapeutic agents have results in improved surgical outcome in advanced gastric cancer (AGC), and high risk markers have been anticipated to be developed for further advancement of effective adjuvant regimens by patient selection. We are therefore committed to identify such markers for enrichment of high risk patients in AGC.

Material and Methods: The primary cancer tissues of 562 AGC (stage IB to IV) were used to identify high risk markers. Clinico-pathological factors were compared with molecular markers from the prognostic point of view as genomic, epigenetic, proteomic, and lectin profiles by TaqMan PCR/FISH, Q-MSP, immunostaining, and lectinmicroarray. Oncogene PRL-3 and tumor suppressor gene (TSG) HOP/0B1/NECC1 were examined in terms of potential to inhibit cancer cells as molecular targets.

Results: (1) In stage IB, PRL-3 immunostaining and promoter DNA methylation of HOP showed poor prognosis in addition to perioperative Transfusion (POT). (2) In stage II, HOP methylation was also a high risk biomarker in addition to lymph node metastasis density over 20 (ND20) and POT. (3) In stage III, both HOP and ND40 were identified as IPF. Moreover lymph node metastasis of #8a or 4d showed non-curability in the proximal gastric cancer (PGC), suggesting they were the 3rd-tier nodes in PGC. (4) In stage IV, preoperative CA19-9 value, ND50, and P factor were IPF as well as HOP, while CY1 was not. The specificity and sensitivity of CY1 prediction were 90% and 80%, respectively, by lectin scores of microarray using combinations of PHA-E, PHA-L, LCA, WGA. (5) PRL-3 inhibition by RNAi results in defective invasion of cancer cells. HOP also showed the similar effect in invasive capacity and moreover it affects tumorigenesis, either.

Conclusions: We dissected high risk patients in AGC, and enrichment of such patients would be useful to develop further improvement of surgical outcome by application of more sophisticated adjuvant therapy than the present standard. PRL-3 HOP are likely molecular targets in AGC with high risk patients.

Abstract ID: 0230  Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 95.04

Stomach resections for metastatic gastric cancer: rationale and long-term outcome
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Introduction: Metastatic gastric cancer remains a significant oncological problem as the majority of Western patients are diagnosed with disseminated disease and no routine therapeutic regimen is commonly accepted in such cases.

Material and Methods: Using a multicenter data set, we studied 1,880 patients with gastric cancer operated between 1999 and 2005. Perioperative and long-term outcomes of 415 patients with distant metastases were analyzed to determine potential risks and benefits of surgical intervention.

Results: Of 415 patients analyzed, 162 (39%) underwent gastrectomy, and the remaining 253 (61%) explorative laparotomy. The overall mortality rates were similar for resected (8%) and non-resected cases (9%), and were insignificantly higher than for resected non-metastatic disease (6%, P = 0.097). Patients with metastatic disease had significantly higher rates of surgical (23% vs 7%, P < 0.001) and medical (30% vs 15%, P < 0.001) complications following gastric resections compared to laparotomy alone. However, median overall survival was significantly longer (P < 0.001) in resected cases (8.2 months, 95%CI 6.6–9.7) than for unresectable disease (3.9 months, 95%CI 3.5–4.4). The survival benefit was observed only if distant metastases were located in either liver or peritoneum.

Conclusions: Stomach resections for metastatic gastric cancer are associated with higher morbidity rates. Careful selection of candidates for resective procedures offers significantly better survival rates compared to laparotomy alone.
Abstract ID: 0231 Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 95.05

Intraperitoneal infusion of Docetaxel with S-1 for metastatic or recurrent gastric cancer with peritoneal metastasis
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Introduction: Though many modalities of chemotherapy have been tried for metastatic or recurrent gastric cancer (GC) patients (pts) with peritoneal dissemination, it remains uncontrollable yet. Docetaxel (DOC) and S-1 have different mechanisms of anti-tumor activity and they are effective against advanced GC. Recently, intraperitoneal administration (IP) of DOC has proved to be effective for peritoneal dissemination.

Material and Methods: Eligibility included metastatic or recurrent GC with peritoneal dissemination, capability of oral intake, adequate organ function, and good PS (0–2). IP catheters were placed for all patients after confirmation of peritoneal dissemination by laparoscopy or laparotomy. The treatment of oral S-1 (80 mg/m² daily day 1–14, q4w) and DOC (35–45 mg/m² ip day 1 and 15, q4w) was repeated until disease progression or unacceptable toxicities.

Results: Between Aug. 2001 and Dec. 2008, 46 pts with a median age of 58 (21–80) were enrolled. M/F ratio was 24/22. Reductive gastrectomy was performed for 27 pts and the median treatment course was 3 (1–10). The grade 3/4 toxicities were neutropenia (8.7%), anemia (10.9%), anorexia (26.1%), pain (8.7%), fatigue (6.5%), and diarrhea (6.5%), respectively. However febrile neutropenia, grade 4 non-hematological toxicities and TRD were not observed. The incidence of cancer cell positive cytology changed to negative was 75%, but no obvious peritoneal metastasis disappeared. The MST was 548 days and 1- and 2-year survival rate was 64.1% and 34.7%, respectively.

Conclusions: With respect to low toxicity and high feasibility, IP infusion of DOC with oral S-1 is an alternate treatment for metastatic or recurrent GC with peritoneal dissemination.

Abstract ID: 0232 Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 95.06

Radical gastric surgery in elderly patients: is it worthwhile?
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Introduction: There is an increasing incidence of gastric cancer in the elderly mainly affecting the 70–80 year age group. At present, there are no guidelines on the extent of surgery in this age group. This study examines the outcomes of radical gastric surgery for elderly patients to determine the safety and efficacy of such surgery, taking into consideration clinico-pathological factors.

Material and Methods: Based on a prospective gastric cancer database in the Department of Surgery, National University Hospital, a total of 223 patients undergone radical gastric cancer surgery between January 2000 to December 2008 and were considered for analysis in this study. They were divided into the elderly (70 years, n = 118) and non-elderly (< 70 years, n = 105) groups. We analysed patient and tumor characteristics, use of chemotherapy and radiotherapy against overall survival.

Results: The elderly group had more patients with baseline diabetes mellitus, ischaemic heart disease and hypertension. 46.4% in the elderly group and 54.0% in the non-elderly group had advanced disease (Stage III and above). The overall operative morbidity rate was 22.9% and mortality rate 1.35%. The 3-year survival between the elderly and non-elderly groups was 41.0% vs 63.3% (p = 0.05) and the 5-year survival was 27.9% vs 57.2% (p < 0.05). Although operative procedures were similar in both groups, there was significantly lower overall survival in the elderly group than in the non-elderly group HR 2.12 (95%CI 1.37–3.26; p = 0.001) and Cox adjusted HR 1.84 (95%CI 1.10–3.08; p = 0.02). Survival was worse in the elderly compared to the non-elderly with advanced disease HR 4.59 (95%CI 2.79–7.54; p = 0.001). Diabetes mellitus was an independent risk factor resulting in decreased overall survival HR 1.86 (95%CI 1.11–3.13; p = 0.02) but comorbid ischaemic heart disease and hypertension did not affect survival. Even though the patients in the elderly group were significantly less likely to receive chemotherapy and radiotherapy, it did not contribute to the decrease in survival in the elderly group.

Conclusions: Age, diabetes, advanced cancer stage were independent risk factors affecting survival of elderly patients in radical surgery for gastric cancer. Limited surgery should be considered for elderly patients with the above risk factors.

Abstract ID: 0233 Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 95.07

Predictive factors for severe weight loss after radical gastrectomy for gastric cancer
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Introduction: Malnutrition is an important complication after surgery for gastric cancer. Our aims are to study the nutritional status of our patients who underwent radical gastrectomy and to identify the risk factors for significant weight loss after surgery.

Material and Methods: From a prospective gastric cancer database, 130 gastric cancer patients who underwent gastrectomy from 2001 to 2007 in National University Hospital are studied. Collated data includes demographics, pre-operative nutritional status, neo-adjuvant therapy, gastric cancer type, pathological stage, intra-operative findings, postoperative course, peri-operative nutritional regimens and patients’ weights at 3, 6 and 12 months postoperative intervals. Patients are divided into three groups for multivariate analysis: (1)0–5%; (2) >5–15%; (3) >15% weight loss compared to baseline pre-operative weight.

Results: On diagnosis, 46% presented with weight loss. Significant postoperative weight loss (>15%) was identified in 36.5% at 3 months, 23.6% at 6 months and 29.1% at 12 months intervals. On multivariate analysis, female patients are significantly associated with severe weight loss at 12 month interval. (O.R 3.5 (95%CI 1.1–8.3) p = 0.01). Neo-adjuvant therapy patients are at significant risk of severe weight loss at 6 months interval (46% versus 14%, p = 0.02).
Age, tumour stage, type of surgery or reconstruction, perioperative nutritional supplements and postoperative complications did not influence risk of long term weight loss. Weight loss at diagnosis was a significant predictive factor for post-operative complications (OR 3.1 (95%CI 1.0–9.2), p = 0.03).

Conclusions: This study represents a stimulus for further trials to evaluate postoperative dietary interventions in gastric cancer patients at risk of malnutrition post resection. Female patients and neoadjuvant chemotherapy patients are significantly associated with severe weight loss after gastric cancer surgery. Surgeons and dieticians must pay closer attention to these groups. Preoperative weight loss is an important risk factor for postoperative complications.

Abstract ID: 0234 Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 95.08

Gastro-duodenal tuberculosis: the masquerader
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Introduction: Gastro-duodenal tuberculosis is a rare presentation of a common disease. It is difficult to diagnose and can mimic several other diseases e.g. malignancy. Increased awareness is important for correct diagnosis and adequate treatment.

Material and Methods: We retrieved records of 20 patients over the last 14 years, in whom the final pathologic diagnosis was gastro-duodenal tuberculosis and analyzed these.

Results: The mean age was 32 years (13–67), M:F ratio was 12:8. The mean duration of illness was 11 months (2–60 months). The presentation was obstruction (vomiting) (19 patients), pain abdomen (10), dyspeptic symptoms (2), anorexia & significant weight loss in most patients (17). Three patients also had low grade fever and 1 patient each had bleeding and obstructive jaundice. Four patients had h/o taking anti-tubercular therapy in the past. None of patients had other sites of active tuberculosis at presentation. They were investigated with endoscopy (14 patients), barium examination (7 patients) and CT scan (8 patients). Imaging showed a mass in 3 patients, suspicious of malignancy. The lesions were distributed as -antrum/pylorus/ first part of duodenum in 5 patients; second part of duodenum/or beyond in 15 patients. Preoperative endoscopic biopsies did not yield a positive diagnosis in any of the patients. All patients had obstructive symptoms and underwent surgical bypass (gastro-jejunostomy in 10 and duodeno-jejunostomy in 10). Additionally hepatico-jejunostomy (1) and truncal vagotomy (2) was done. At surgery 12 patients had significantly enlarged lymph nodes, 7 of these had caseation and 4 patients had tubercles over the peritoneal surface. All patients had pathology confirmation of tuberculosis (caseating granulomas). Only 1 patient had delayed gastric emptying in the post-operative period and there was no mortality. All patients were given nine months of standard anti-tubercular drugs form the cornerstone of treatment.

Figure: CT scan, Endoscopy and pathology of a patient of duodenal tuberculosis

Abstract ID: 0235 Specific Field: Endocrine Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 99.01

Breast cancer associated with primary hyperparathyroidism

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Introduction: Patients with primary hyperparathyroidism (pHPT) have an increased risk of developing malignant tumours. Breast cancer comprises about 25% of such associated cancers in women. Little is known about the association between pHPT and the development of cancer. A shared etiology such as genetic predisposition or acquired disability to withstand environmental influence has been suggested. The aim of this study was to identify prognostic variables in breast cancer associated with previous pHPT.

Material and Methods: All women (n = 77) from the Stockholm-Gotland and Uppsala-Örebro region, diagnosed with breast cancer following an earlier registration of a parathyroid adenoma were selected from the Swedish Cancer Registry 1978–2005. For each
breast cancer patient with a parathyroid adenoma, five control subjects with breast cancer but with no registration of a parathyroid adenoma, matched for age, calendar year and region were randomly enrolled. Data collected from the Regional Oncologic Centre Registry was used for analysis of breast cancer size, stage and hormonal receptor status.

**Results:** The mean interval between the parathyroid adenoma and breast cancer registration was 81 ± 61 months. Mean age at diagnosis of breast cancer was 68 ± 11 years. Small differences of borderline significance were found between cases and controls (size 18 ± 10 mm vs. 20 ± 7 mm, p = 0.059; ER + 89% vs. 81%, p = 0.052 and PR + 71% vs. 65%, p < 0.05). When we analysed patients older than 50 years separately (95% of all patients), the differences were still small although significant (size 19 ± 6 vs.22 ± 14 mm; ER + 90% vs. 82%; PR + 71% vs.64%, p < 0.05). No distant metastases were registered and the prevalence of lymph-node metastases was similar (16% vs.21%).

**Conclusions:** We found no poorer prognostic factors associated with breast cancer among women with a former primary hyperparathyroidism. Instead, they seemed to have smaller tumors and more often positive hormonal receptor status.

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**Abstract ID: 0236 Specific Field: Endocrine Surgery**

**Mode of pres.: Poster Discussion**  
**ISW 2009 Session 99.02**

**Strategy for surgical treatment of papillary thyroid carcinoma located in the isthmus**

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**Introduction:** Controversy regarding the primary surgical strategy for papillary thyroid carcinoma (PTC) located in the isthmus exists because of anatomical reasons and its biological characteristics of this tumor type. The aim of this study was to evaluate the clinicopathologic characteristics and short-term prognosis of PTC located in the isthmus by comparing to the bilobar carcinoma, and to establish a surgical strategy for treating these tumors.

**Material and Methods:** We identified 1,973 patients who satisfied our inclusion criteria. These patients were divided into two groups; patients with tumors located in the isthmus (Group I, n = 181), and patients with tumors located in other parts of the thyroid (Group II, n = 1,792). Their medical records were reviewed retrospectively to identify the clinicopathologic characteristics and short-term prognosis of each group.

**Results:** The mean age in each group was 47.6 years and 47.7 years, respectively. For Group I and II, the mean primary tumor diameter was 1.02 cm and 1.13 cm, capsular invasion was 70.2% and 60.8%, intraglandular dissemination was 48.6% and 39.8%, and coexisting thyroiditis was 4.0% and 5.2%, respectively. For nodal status in Group I and II, central node involvement was 40.3% and 42.1%, and lateral node involvement was 9.4% and 18.2%, respectively. At the time of postoperative iodine-131 remnant ablation, 34.3% of the patients in Group I and 38.0% of the patients in Group II had a stimulated thyroglobulin level that was less than or equal to 0.2 U/mL. Overall complications occurred in 35.4% of patients in Group I and 29.6% in Group II.

**Conclusions:** PTC frequently spread by intraglandular dissemination and capsular invasion, but not commonly occurred in nodal metastasis, when compared to bilobar tumors. Thus it is suggested that total thyroidectomy may be sufficient as an appropriate primary surgical procedure for the treatment of PTC in the isthmus, and lateral neck dissection should be performed only in cases of clinically evident lateral lymph node metastases.

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**Abstract ID: 0237 Specific Field: Endocrine Surgery**

**Mode of pres.: Poster Discussion**  
**ISW 2009 Session 99.03**

**Classification systems of well-differentiated thyroid carcinoma and correlation with recurrence and disease-free states**

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**Introduction:** Numerous staging systems for well-differentiated thyroid cancer (WDTC) exist, with the majority designed to predict long-term survival. However, while most thyroid cancer patients with WDTC ultimately die of other causes, up to 30% develop a recurrence. The aim of this study was to assess the various classification systems and the correlation with recurrence and disease-free states.

**Material and Methods:** The records of 243 patients with WDTC from a local database in St. John’s, NL were reviewed. The average length of patient follow-up was 67.3 months, with 40.3% of patients having follow-up of 5 years duration or more. We examined rates of recurrence (defined by either a stimulated thyroglobulin (Tg) > 2 ug/L, ultrasound (US) or radiiodine scan indicative of recurrent local/distant disease, or direct pathological evidence), and rates of disease-free state (defined by either a stimulated Tg < 2 ug/L with negative radiiodine scan and negative US/CT where US/CT were performed, or persistently undetectable baseline Tg in select patients with contraindication to Tg stimulation). These were correlated with stage by four different classification systems: NTCTCS, TNM, MACIS, and the ATA Recurrence Risk Classification.

**Results:** The recurrence rates for Stages I–IV were 13.2%, 8.0%, 33.3%, and 80.0%, respectively, by NTCTCS, 13.2%, 10.2%, 0%, and 56.7%, respectively, by TNM, and 13.9%, 20.0%, 25%, and 66.7%, respectively, by MACIS. The recurrence rates for the low, intermediate, and high risk categories were 2.3%, 23.2%, and 66.7%, respectively, by ATA Recurrence Risk. The disease-free rates for Stages I–IV were 62.3%, 48.1%, 52.6, and 20.0%, respectively by NTCTCS, 71.1%, 76.9%, 60.0%, and 36.7%, respectively, by TNM, and 68.8%, 80.0%, 75.0%, and 16.7%, respectively, by MACIS. The disease-free rates for the low, intermediate, and high risk categories were 83.2%, 67.4%, and 19.4%, respectively, by ATA Recurrence Risk.

**Conclusions:** Of all of the classification systems, the ATA system correlated most consistently with recurrence and disease-free states in this study population. This study also underscores the relatively high risk of recurrence in the lower stages of the other classification systems.
DNA methylation of MAPK signaling inhibiting genes in papillary thyroid carcinoma

National Cancer Center, Goyang, Korea

Introduction: The purpose of this research was to identify DNA methylation status of MAPK signaling inhibiting genes located at downstream of BRAF signal cascade. We also studied association between DNA methylation status of these genes and clinico-pathological prognostic factors of PTC according to BRAF mutation status.

Material and Methods: 76 PTC paraffin embedded PTC tissue and 3 PTC cell lines were studied. Expression of three MAPK signaling inhibiting genes (DUSP4, DUSP6 and SERPINA5) and DNA methylation were searched using RT-PCR and methylation specific PCR respectively. DNA methylation status was validated using bisulfite sequencing. Clinico-pathological characteristics are compared according to BRAF mutation status and each gene promotor methylation status.

Results: DUSP4 and DUSP6 expression increased in all cell line and DNA of two genes was unmethylated. SERPINA5 gene expression decreased and SERPINA5 DNA was methylated in TPC cell line.

When we treated TPC cell line with anti methylating agent 5’ AZ Adoxycytidine, SERPINA5 expression restored and methylated SERPINA5 DNA was unmethylated. SERPINA5 DNA promoter was methylated in 82.9% of PTC tissues (63/72). The result of methylation specific PCR was well matched with bisulfite sequencing result. SERPINA5 methylation was associated with higher BRAF mutation rate in PTC tissues (p = 0.024). SERPINA5 methylated PTCs showed higher lymph node metastasis rate than unmethylated PTCs in BRAF mutation negative PTC even though it did not reached statistical significance.

Conclusions: MAPK signaling inhibiting gene SERPINA5 expression decreased in PTC cell line and its expression is regulated by DNA methylation. SERPINA5 DNA methylation is associated with higher BRAF mutation rate in PTC.
Conclusions: Participants from resource limited countries benefit from ATC/FCCS courses as demonstrated by increased knowledge and confidence across all topics presented. However, the strongest increase in confidence was in performing life-saving procedures. Therefore, future courses should emphasize essential procedures, reduce didactics and link knowledge acquisition to skill-based teaching.

Abstract ID: 0240 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 100.02

Global survey of trauma & burn education

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Introduction: The WHO recently adopted a resolution to urge improved competency in the provision of injury care through medical education. Since any practitioner may be the initial provider of trauma care, this survey sought to investigate trauma education experience and competency among final year medical students.

Material and Methods: An internet survey was developed and distributed to medical students as a joint undertaking of the IFMSA, IATSIC, and WHO. The study was conducted from March to December 2008. Demographic data and questions pertaining to both instruction and attainment of specific skills in burn and trauma care were assessed.

Results: There were 1,502 responses from 77 countries, with at least 10 countries from each economic stratum. The current analysis was restricted to final year medical students (n = 774). There were 394 females (51%) and 377 males (49%). Over 93% of final year students reported receiving some form of trauma or burn training, with 79% reporting a minimal compulsory requirement. When stratified by economy, additional elective training was more likely to be available in upper-middle and high-income countries. Only 22% of final year students planned to pursue further training in emergency medicine or surgery. Only 20% of students received more than 2 months of training. Students received minimal didactic training in most core components but did not have an opportunity for practical exposure. Only 38% acquired practical training in hemorrhage control, 36% in c-spine stabilization, and 23% in the management of head injury. Only 19% and 8% felt prepared to surgically repair a laceration and intravenous infusion, respectively. Only 21% of students felt prepared to intubate and 6% prepared for venous cutdown. With little global variance, 99% of students agreed that formal trauma education should be included in medical education but only 55% felt prepared to provide basic trauma care.

Conclusions: Trauma education and experience varies among medical students in different countries. Most students feel that trauma & burn education is a critically important component of their training. However, many critical concepts and procedures were not formally taught and only half of final year students feel adequately prepared to provide basic trauma or burn care. This study confirms that the trauma care training received by medical students needs to be strengthened in countries at all economic levels globally.

Abstract ID: 0241 Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 100.03

Trauma evaluation and respiratory failure prediction of patients with chest injury in earthquake of Wenchuan

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Introduction: This study aimed to summarize the characteristics of trauma patients with thoracic injury in earthquake of Wenchuan, and to validate the accuracy of the Injury Severity Score (ISS), the New Injury Severity Score (NISS) and the Chest Injury Index (CII) for prediction of respiratory failure.

Material and Methods: 1823 patients injured in earthquake of Wenchuan were transferred to our hospital. 184 (10.1%) of them who suffered chest injury were included in the study. The risk factors of respiratory failure were analyzed with Logistic Regression. The predictive accuracies of ISS, NISS and CII were compared with ROC curves.

Results: 156 patients (84.78%) had suffered injuries of more than one organ. 38 patients (20.65%) developed respiratory failure. Only the occurrence of flail chest, pulmonary contusion and crush syndrome were risk factors of respiratory failure. There are significant differences in area under the ROC curve between NISS with the two other trauma scores for prediction of respiratory failure (Figure 1). The best cutoff point of NISS is 24 with the sensitivity of 4.74% and specificity of 4.45%.

Conclusions: Chest injury in earthquake is often accompanied with multiple injuries. The incidence of respiratory failure is high. Injury is the only determinant in development of respiratory failure. The existence of flail chest, pulmonary contusion and crush syndrome was significantly associated with respiratory failure. NISS can predict the development of respiratory failure in chest injury patients. We recommend NISS as a useful tool for trauma evaluation in patients with chest injuries after earthquake.

Figure: ROC curves of trauma score systems in respiratory prediction.
Abstract ID: 0242  Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 100.04

AVP in combination with NE is a good choice for definitive treatment of uncontrolled hemorrhagic shock

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Introduction: The present study is aimed to search for a better definitive treatment modality for uncontrolled hemorrhagic shock by comparing the effects of Lactated Ringer’s solution(LR), whole blood and arginine vasopressin in combination with norepinephrine on uncontrolled hemorrhagic shock after hemostasis.

Material and Methods: Three hundred and fifty Sprague Dawley rats were used to make uncontrolled hemorrhagic shock by trans-action of splenic parenchyma plus one of splenic artery branches and received follow up management: one volume of whole blood plus one volume of LR(whole blood group), 3 ug/kg of NE in two volumes of LR(NE group), 0.4 U/kg of AVP in two volumes of LR(AVP group), 3 ug/kg of NE + 0.4 U/kg of AVP in two volumes of LR(AVP + NE group) and AVP + NE + whole blood(AVP + NE + whole blood group), rats in control group did not receive any treatment in this phase. The parameters observed included mean arterial blood pressure(MAP), hemodynamic vari-ables, blood pH value, base excess and PO2, and blood flow and mitochondrial respiratory function of liver and kidney.

Results: NE used alone could only increase the hemodynamic parameters but did not prolong the animal survival and other parameters of shocked rats. 04 U/kg of AVP had somewhat improvement on hemodynamics, the blood flow and mitochondrial respiratory function of liver and kidney. AVP in combination with NE potentiated the effects of AVP and NE used alone, which appeared good benefical effect on uncontrolled hemorrhagic shock at definitive treatment stage, their effect was better than whole blood. Whole blood could further potentiated this effect of AVP in combination with NE.

Conclusions: AVP in combination with NE had good effects on uncontrolled hemorrhagic shock when used at the definitive stage, it may be a good choice of the definitive treatment for uncontrolled hemorrhagic shock when blood is not available. Whole blood could potentiate the resuscitation effect of AVP plus NE, this may be an ideal definitive treatment modality for uncontrolled hemorrhagic shock aged.

Abstract ID: 0243  Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 100.05

Penetrating abdominal trauma: 20 years experience in a Western European trauma center

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[1] Emergency Surgery and Trauma Surgery Unit (Head Dr. F. Baldoni) - Maggiore Hospital - Trauma Center, Bologna, Italy, [2] Trauma CU (head Dr. G. Gordini) - Department of Emergency - Maggiore Hospital Trauma Center, Bologna, Italy

Introduction: Incidence of penetrating abdominal trauma in western Europe is low. While non-operative management (NOM) of blunt trauma has become the gold standard, the management of penetrating trauma is still controversial. NOM and laparoscopy are currently used in selected patients, reducing unnecessary laparotomy.

Material and Methods: We retrospectively reviewed 6523 patients admitted for thoraco-abdominal trauma (5861 blunt vs 662 penetrating). We sorted 114 patients with penetrating abdominal trauma in 2 groups (1989–2000 vs 2001–08, before and after the establishment of dedicated trauma unit) analyzing characteristics and outcome in comparison.

Results: In the latest period the incidence of penetrating trauma significantly increased (from 4.17/yr up to 8.53/yr, being now 13.95% of all trauma laparotomies vs 7.8% in the past decade). GSW incidence decreased (30% vs 12.5%, p = ns) compared to stab; no differences have been recorded in sex, age, GCS(11.8 vs 13.2), ISS(22 vs 18), pH, BE and blood transfusion (6.4 vs 4.3U) requirement. Interestingly a markedly significant change has been observed in demographics of victims (67.2% extra-EU origin vs 8% in the previous decade, p < 0.01). Recently NOM spread widely in selected stable patients (21.9%). Failure rate of NOM was 14.3%. Unnecessary laparotomy decreased from 36% to 21.1% (p = ns). Introduction of laparoscopy was helpful for reliable, less invasive exploration, allowing detection of peritoneal penetration and visceral exploration. Two GSW (4%) vs 3 (5.8%) cases of the latest years required Damage Control Surgery. A recent significant reduction in mortality and morbidity has been reported (3.85% vs 18%, p < 0.05; 20% vs 39%, p = ns).

Conclusions: The ecent immigration phenomenon and social changes contributed to a significant rise in the incidence of penetrating trauma in Italy. The increased use of NOM and laparoscopy contributed in decreasing incidence of unnecessary laparotomies as well as morbidity and mortality.

Characteristics of Penetrating Trauma: 20 years experience in comparison

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<td>64</td>
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<td>Incidence (year)</td>
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<td>8.53</td>
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<td>PT/All Trauma Laps</td>
<td>7.8</td>
<td>13.95</td>
<td>&lt;0.01</td>
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<td>Extra EU citizens</td>
<td>8</td>
<td>67.2</td>
<td>&lt;0.01</td>
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<tr>
<td>NOM</td>
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<td>14/64</td>
<td>(2 failed)</td>
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<tr>
<td>Unnecessary Laparotomy</td>
<td>18</td>
<td>36</td>
<td>11</td>
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<td>4</td>
<td>3</td>
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<td>3.85</td>
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Abstract ID: 0244  Specific Field: Trauma

Mode of pres.: Free Paper (oral)
ISW 2009 Session 100.06

Indication of angiography and transcatheter arterial embolization for hemorrhage associated with pelvic fractures

H. Yamamoto [1], N. Kubo [2], H. Yamanura [1], N. Katou [1], Y. Mizobata [1]
Angiography (Angio) is the gold standard for the treatment of pelvic arterial hemorrhage associated with pelvic fractures. However, controversy still exists about the indication of Angio, as the procedure may prevent the patients from close monitoring or another appropriate procedure. The objective of this study is to clarify the indication of pelvic angiography and transcatheter arterial embolization (TAE).

Material and Methods: We retrospectively analyzed 80 patients with pelvic fractures who were admitted to the trauma ICU of Osaka General Hospital during 30 months period and who underwent contrast material-enhanced CT for initial diagnosis. We evaluated presence of extravasation on CT (EXCT), as well as the anatomic sites of EXCT, vital signs on arrival, amount of blood transfusion received, and angiographic findings. Patients were divided into four groups according to the presence or absence of shock (systolic BP <90 mmHg) on arrival (Shock) or EXCT.

Results: In Shock(+)EXCT(+) group (n = 17), 13 patients underwent Angio. The frequency of Angio in this group (13/17) was significantly higher than that in Shock(−)EXCT(−) group (4/48). All the patients who underwent Angio in Shock(+)EXCT(+) group were found to have arterial hemorrhage and required TAE. Two of remaining four patients required massive and prolonged blood transfusion, and the condition of one patient was so severe that the patient underwent pelvic packing. Four patients in Shock(−)EXCT(−) (n = 48) underwent Angio but none of them were found to have arterial hemorrhage. Pelvic fractures of five patients in Shock(+)EXCT(−) (n = 7) were stable, and none of these patients received Angio, whereas one of two remaining patients with unstable pelvic fracture underwent Angio and TAE. Four patients received Angio in Shock(−)EXCT(+) (n = 8), but only one patient underwent TAE.

Conclusions: We conclude that presence of both shock on arrival and EXCT is the absolute indication of Angio and TAE, whereas absence of either shock on arrival or EXCT is the absolute contraindication of Angio and TAE.

Abstract ID: 0245  Specific Field: Trauma
Mode of pres.: Free Paper (oral)
ISW 2009 Session 100.07

Blunt pancreatic injury: a 12-year review of the Auckland City Hospital experience

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Introduction: Pancreatic injury in blunt trauma is uncommon and can be difficult to diagnose and manage. This study is a review of all blunt traumatic pancreatic injuries over a 12 year period at Auckland City Hospital and was done to determine the incidence, etiology, severity, treatment status, and outcomes of this rare injury.

Material and Methods: A retrospective review was conducted of the Auckland City Hospital Trauma registry to identify all adult patients with a blunt mechanism of injury and a diagnosis of pancreatic injury confirmed either on imaging and/or at surgery. This study was conducted between January 1, 1995 and December 31, 2007.

Results: Pancreatic injuries were identified in 30 of 15,579 patients (0.2%) with blunt trauma. Twenty nine patients had accidental injuries. The primary causes of injury were motor vehicle collision (18/30) and rugby (4/30). Assault, fall, cycling, and recreational vehicle use were the cause of the remaining injuries. There were 14 grade I (47%), 8 grade II (27%), 6 grade III (30%), 1 grade IV (3%), and 1 grade V (3%) injuries. Operation was undertaken in 17 patients. The most common surgical procedures performed were distal pancreatectomy (+/- splenectomy (5/17), laparotomy and drainage (6/17), and pyloric exclusion with drainage (3/17). Seven patients underwent a total of 28 re-operations for sepsis or bleeding and its sequelae. Diagnostic ERCP was performed in 2 patients and no pancreatic duct stents were placed. Patients with grade 2 injuries had other significant intra-abdominal injuries in 88% of cases; had a median ICU length of stay (LOS) of 2 days (range 0–44) and median hospital LOS of 23 days (range 4–118). Two patients died as a result of other injuries.

Conclusions: Pancreatic injury as a result of blunt trauma is uncommon but a source of significant morbidity. Patients with grade 2 pancreatic injuries are typically multiply injured and they endure prolonged, complicated, and resource intensive hospital stays. ERCP was not frequently used in the diagnosis or management of these patients.
Breast Surgery

Over the study period, a total of 1016 patients underwent breast surgery. Of the 6673 patients registered with cancer, 3740 patients had cancer of the breast. Age is a known risk factor for breast cancer behavior. We compiled a list of all patients who had undergone needle biopsies. Although breast cancer in younger Chinese patients was uncommon, the number of cases has been increasing. Eight histopathologically confirmed patients were identified: four with ductal carcinoma in situ (DCIS) and four with invasive ductal carcinoma. Male breast cancer (MBC) is an uncommon condition. ADH (atypical ductal hyperplasia) is commonly found and is a precursor to breast cancer. The management of MBC in Iran is discussed.

Material and Methods: We compiled a list of all patients who had undergone image-guided biopsies at our Breast Unit from July 2007 to December 2008. This includes ultrasound and stereotactic biopsy, and the use of core cut needle with or without vacuum assistance. The histology on biopsy was reviewed to determine the prevalence of ADH in our patient population. For patients with ADH, their risk factors were compared; age, family, or personal history of breast cancer; degree and extent of ADH.

Results: Over the study period, a total of 1016 patients underwent image-guided biopsy, of these, 247 (24.3%) had malignancy. 733 (72.2%) had benign pathology, and the remaining 36 (3.5%) had ADH. There was no significant difference in the age, parity, use of HRT or oral contraceptives. There is no significant family history in the study group. 24 patients went on to have open biopsy, of the remaining 12, one defaulted follow-up, 11 declined surgery and remain well on follow-up. These patients had vacuum-assisted biopsy, and there was only a foci of ADH seen. Of the 24 patients who underwent excisional biopsy, 10 had findings of concomitant malignancy (41.7%) within the same lesion. 14 of the patient who underwent open biopsy confirmed that there was only ADH present. There was no significant difference between these two groups, when we reviewed the presence of microcalcifications within the biopsy specimen, or the extent of ADH.

Conclusions: The clinical presentation and tumour stages were similar between the groups. We observe that the 11 patients who had complete removal of the lesions with vacuum assistance and the finding of only a foci of ADH remain well. Of the others, 41.7% of them had concomitant malignancy. We advise that all patients with ADH on core biopsy should be counseled for excisional biopsy, and close follow-up may be an option for those patients with complete removal and only a foci of ADH.

Abstract ID: 0247

Carcinoma of breast in Chinese women: does age affect the choice of treatment and outcome?

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Introduction: Age is a known risk factor for breast cancer behavior and younger patients are believed to have poorer overall survival. We studied the effect of age on the clinical characteristics, tumour pathology, therapeutic options and outcome in the private medical sector in Hong Kong.

Material and Methods: From 2003–2008, data on newly diagnosed carcinoma of breast patients under the care of the multidisciplinary breast cancer team based at a private hospital in Hong Kong was collected prospectively. Patients were divided into: age less than 40 years (Group I); 41 to 69 years (group II) and over 70 years (group III). The differences in clinical characteristics, tumour behavior, treatment strategies and survival for these three groups were analyzed.

Results: 2112 patients were studied. Group I: 339, group II: 1562 and group III: 152

The clinical presentation and tumour stages were similar between the three groups. Younger patients had higher tumour grading (p = 0.000) and more lymphovascular permeation (p = 0.011). For older patients, combination therapy was employed less frequently (p < 0.0005) while more radical resection with less reconstructive procedures were performed. (p = 0.000) The 2-year disease free survival was 99.4% and there were no difference between the three groups.

Conclusions: Although breast cancer in younger Chinese patients was more aggressive pathologically, the differences between clinical presentation, tumour staging and survival were similar among the...
different age groups. Treatment strategies should follow the cancer staging and tumour characteristics rather than age alone.

Abstract ID: 0250  Specific Field: Breast Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 102.04

Young women with breast cancer in a limited resource environment
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University of Stellenbosch, Cape Town, South Africa

Introduction: Despite the higher incidence of breast cancer in young women in developing countries there is a paucity of data on their management. We retrospectively report a series of young women aged 35 years with primary breast cancer in a resource-restricted environment with emphasis on the outcomes of treatment and prevalence of BRCA mutations

Material and Methods: All patients who were diagnosed with primary breast cancer at 35 years or younger from January 1998 to June 2008 were retrieved from the Cancer Registry of a breast clinic at tertiary hospital and a private breast health centre in South Africa. Demographic, clinicopathological features, treatment and survival were analyzed.

Results: A total of 141 patients aged 35 or younger were identified. Out of these, two patients presented with TNM stage 0(1.4%), 14 patients with stage I(9.9%), 47 patients with stage II(33.3%), 47 patients with stage III(33.3%) and 31 patients with stage IV(21.9%). Tumour grade was available in 92 tumor specimens and 47% were grade 3. Estrogen receptor status was available in 118 tumour specimens an 68% were positive. Fifty-three patients had limited predetermined BRCA screening mutations and 8 patients(5.7%) were positive. One hundred four patients from stage 0, I, II, III underwent subsequent treatments; 95 patients(91.3%) underwent surgery (83 patients had mastectomy +/- reconstruction and 12 patients had breast conserving surgery), 90 patients(86.5%) received adjuvant chemotherapy, 68 patients(65.4%) had radiotherapy and 50 patients(48.1%) had hormonal therapy. At a median follow up of 30 months, 4 patients developed a metachronous contralateral breast cancer, 3 patients developed isolated locoregional recurrence, 11 patients developed synchronous locoregional and distant recurrence and 22 patients relapse with distant metastasis. The 5-year overall survival and disease free survival for the entire group was 20% and 8% respectively.

Conclusions: Young women with breast cancer in resource-limited environment has a similar clinicopathological features of rich resource countries, however their disease are more advanced and poor outcome despite optimum available treatment. Early detection programs particularly public awareness and clinical and breast self-examination are important to improve this problem.

Abstract ID: 0252  Specific Field: Breast Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 102.06

Usefulness of immediate breast reconstruction after breast-conserving therapy using autologous free dermal fat graft
Hiroshima Prefectural Hospital, Hiroshima, Japan

Introduction: Breast-conserving therapy (BCT) has become the standard strategy for breast cancer. As the breasts of Japanese women are sometimes too small to maintain symmetry, some reconstruction may need to be used to repair surgical defects caused by partial mastectomy. We report our experience with 11 patients who underwent BCT and immediate breast reconstruction using autologous FDFG, and evaluate the usefulness of FDFG.

Material and Methods: Immediate reconstruction of surgical defect was performed on 11 patients using autologous FDFG from the lower abdomen after BCT between May, 2007 and April, 2008. The mean of age and the tumor size were 53.2 year-old and 2.4 cm, respectively. The median follow-up period was 11.8 months (range 8–19). Breast symmetry of the patients was considered in line with the Japanese Breast Cancer Society guidelines, and in one case, needle biopsy and MRI of the graft were performed to observe the change of the graft 18 months after the operation.

Results: The MRI revealed that the graft was enhanced only on the edge, but not on the whole, and the needle biopsy showed that there were no viable cells in the tissue, representing the necrosis of the grafted tissue. In spite of them, we obtained symmetry in the size of the whole breast, the position and level of the nipple, and shape: the average of the score was 10.0 out of 12 points under the Japanese Breast Cancer Society guidelines. The score for breast stiffness was the lowest of all, however, the score for the symmetry of the breast and nipple position were excellent, suggesting that even free dermal fat graft is sufficient to repair the surgical defects.

Conclusions: This technique has better cosmetic benefits than transposition of residual breast tissue, and is more convenient than muscle flap grafting, and safer than implantation of foreign materials.
Abstract ID: 0253 Specific Field: Breast Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 102.07

The breast health navigator as a quality indicator in the war on breast cancer

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Carolinas Medical Center, Charlotte, NC, USA

Introduction: In 2007, there were an estimated 1,301,867 new breast cancer cases worldwide and 464,854 deaths. In developed countries, breast cancer is diagnosed at an earlier stage with higher survival rates; in developing countries the cases are usually more advanced and the survival rate lower. Lack of screening programs, diagnostic and treatment limitations, and cultural and religious issues impact the survival rates of the underserved in developed countries. Since the inception of patient navigation programs in 1990, the impact has been an increase in 5-year survivals from 39% to 70%. With the help of an AVON Foundation grant, a Breast Health Navigator position was implemented at Carolinas Medical Center to facilitate breast cancer patients going through screening, diagnostic services, and treatment.

Material and Methods: A pilot study, consisting of a control group of patients with breast cancer, was completed, specifically to analyze the time between diagnosis, start of treatment, and completion of treatment. These results were then compared with a group of patients followed by the Breast Health Navigator. Areas that were targeted for improvement included treatment consultation within 30 days of diagnosis, appointment compliance rate (emphasis on chemotherapy appointments), and completion of the entire treatment plan after diagnosis of breast cancer.

Results: The Breast Health Navigator program impacted outcomes, especially with the underserved population who experience many social challenges. There was a significant improvement in the time from diagnosis to appointment with the medical oncologist/surgeon, from 23.5% to 85.4% of patients being seen within 30 days. Appointment compliance also improved from 78.2% to 95.2% (neo-adjuvant) and 85% to 97.9% (adjuvant).

Conclusions: Breast cancer is a significant global issue. There is a need for leveling the playing fields for all women regardless of economic status. A patient navigation program improves early detection, increases adherence to treatment, decreases healthcare costs, and improves survival rates.

Comparison of tumor characteristics of Chinese breast cancer patients aged below 40 with those aged 40 and above

<table>
<thead>
<tr>
<th></th>
<th>Aged under 40 N = 73(%)</th>
<th>Aged 40 and above N = 819(%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histology grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade I</td>
<td>7 (15.6)</td>
<td>110 (19.9)</td>
<td>0.050</td>
</tr>
<tr>
<td>Grade II</td>
<td>17 (37.8)</td>
<td>279 (50.5)</td>
<td></td>
</tr>
<tr>
<td>Grade III</td>
<td>21 (46.7)</td>
<td>164 (29.7)</td>
<td></td>
</tr>
<tr>
<td>Estrogen receptor status</td>
<td></td>
<td></td>
<td>0.031</td>
</tr>
<tr>
<td>Positive</td>
<td>36 (58.1)</td>
<td>507 (71.1)</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>26 (41.9)</td>
<td>206 (28.9)</td>
<td></td>
</tr>
<tr>
<td>C-erbB2 overexpression</td>
<td></td>
<td></td>
<td>0.017</td>
</tr>
<tr>
<td>Score 0</td>
<td>16 (26.7)</td>
<td>265 (37.7)</td>
<td></td>
</tr>
<tr>
<td>Score 1</td>
<td>11 (18.3)</td>
<td>144 (20.5)</td>
<td></td>
</tr>
<tr>
<td>Score 2</td>
<td>9 (15.0)</td>
<td>117 (16.6)</td>
<td></td>
</tr>
<tr>
<td>Score 3</td>
<td>24 (40.0)</td>
<td>177 (25.2)</td>
<td></td>
</tr>
<tr>
<td>Triple negative tumor</td>
<td></td>
<td></td>
<td>0.020</td>
</tr>
<tr>
<td>ER/PR/HER-2 negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 (16.7)</td>
<td>55 (7.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non triple negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 (83.3)</td>
<td>643 (92.1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abstract ID: 0254 Specific Field: Breast Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 102.08

Young Chinese patients with breast cancer have a similar survival to their older counterparts

A. Kwong, D. Suen

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Introduction: Studies have demonstrated that breast cancer in younger women tends to be biologically more aggressive, which leads to a worse survival than in older women. These findings were however mostly based on the Western population. This study aims to compare the tumor biology and survival of breast cancer in Chinese women with their older counterparts.

Material and Methods: A retrospective study of patients with breast cancer who have undergone surgery in a university hospital from January 2001 to December 2005 was performed. Tumor characteristics and survival of patients aged below 40 were compared with those of aged 40 and above.

Results: 892 Chinese patients with breast cancer underwent surgery during the study period. 73 patients (8.2%) were aged below 40 and 819 patients (91.8%) were aged 40 and above. Rates of breast conservation (p = 0.031), breast reconstruction (p = 0.010) and use of chemotherapy (p = 0.016) were higher in the younger age group than their older counterparts. Breast cancer in younger women was of higher grade and more poorly differentiated (p = 0.050), less estrogen receptor positive (p = 0.031), and more HER-2 oncogene overexpression (p = 0.017). Triple negative tumors were also more common among the younger age group (p = 0.020). [Table 1] The 5-year overall and disease-free survivals were comparable between these two age groups.

Conclusions: Early onset breast cancers in Chinese patients tend to have poorer prognostic indexes. Despite this, the survival of breast cancer in this younger age group was similar to that of their older counterparts. This may be attributed to more aggressive treatment in this age group.

Abstract ID: 0255 Specific Field: Breast Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 102.09

Parametric images in the contrast enhanced ultrasound of the breast

S. Kanazawa [1], H. Ogata [1], Y. Mitsuzuka [2], A. Mitsuda [3], T. Hatori [3], N. Shiraga [4], K. Shibuya [3], H. Kaneko [1]

[1] Division of General and Gastroenterological Surgery Department of Surgery (Omori) Toho University School of Medicine, Tokyo, Japan, [2] Department of Clinical Functional Physiology Toho University Omori Medical Center Omori Hospital, Tokyo, Japan, [3] Department of Pathology Toho University Medical Center Omori
Hospital, Tokyo, Japan, [4] Department of Diagnostic Radiology Toho University Medical Center Omori Hospital, Tokyo, Japan

Introduction: Contrast enhanced ultrasound (CEUS) using perflutane microbubbles (Sonazoid™) which is the 2nd generation ultrasound contrast agent, is well known as available diagnostic method in liver disease. From 2007, we have been applying CEUS of the breast using Sonazoid as a clinical trial.

Material and Methods: Sonazoid was administered the half a dose of the recommended use for liver disease intravenously and it was flushed in 3 seconds (sec) by a saline of 5 mL. We used the computer software Commune and analyzed the CEUS of the breast using Sonazoid in 4 tumors which were diagnosed as a scirrhous carcinoma, as a papillotubular carcinoma, as a mucinous carcinoma and as a fibroadenoma histologically, and observed these tumors in detail. The Parametric image depicted by Commune classified Sonazoid flowing into the blood vessel by colors with every credit hour and visualizes it. We classified every 5 sec and observed 30 sec in total. The classification color was gray in 0–5 sec, was red in 5–10 sec, was yellow in 10–15 sec, was green in 15–20 sec, was blue in 20–25 sec and was purple in 25–30 sec.

Results: The mucinous carcinoma was stained in red, the papillotubular carcinoma was red-yellow, the fibroadenoma was yellow, and the scirrhous carcinoma was yellow-green. The Parametric image depicted the tumor feature in detail. The mucinous carcinoma and the papillotubular carcinoma were contrasted earlier than the fibroadenoma. The scirrhous carcinoma was contrasted in 4 tumors latest. A difference of the histological character appeared as a stained color difference.

Conclusions: CEUS of the breast using Sonazoid was seemed to be available diagnostic method in the breast disease. And the Parametric image was available analyse method in the CEUS of the breast. The Parametric image reflected the internal structure of the tumor or the range of tumor invasion in detail. Furthermore, it seemed that the time when Sonazoid flowed into the tumor seemed to vary by the histological difference of the tumor. This means the possibility of improvement precision to estimate of the histological character of the breast tumor before the operation.

Abstract ID: 0256 Specific Field: Breast Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 102.10

Breast reconstruction with pedicled TRAM flap: long-term oncological and cosmetic results from a developing country

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National Cancer Institute, Cairo, Egypt

Introduction: Pedicled TRAM flap is one of the most common methods of autologous breast reconstruction. Despite advances in free flap breast reconstruction, pedicled TRAM flap remains an excellent option for unilateral breast reconstruction. This is a retrospective study of 54 patients who underwent breast reconstruction with pedicled TRAM flap from 2003 to 2008: Oncological and cosmetic results were reviewed.

Material and Methods: Fifty four patients underwent breast reconstruction with pedicled TRAM flap from October 2003 to December 2008. Mean follow-up was 21 months (Range 6–61 months) Forty two patients underwent immediate breast reconstruction (IBR). Eight patients had delayed breast reconstruction (DBR) with monopedicled TRAM flap. Four patients had TRAM flap for chest wall reconstruction after extensive surgery for either recurrent disease or osteoradionecrotic ulcers.

Results: Oncological results: No single case of local recurrence. In the IBR group, 1 patient developed contralateral axillary lymph bode metastasis, 2 patients developed bone metastasis and one patient developed lung metastasis. In the DBR group, 1 patient developed contralateral breast cancer 2 years after reconstruction (5 years after original mastectomy) and one patient developed lung metastasis 16 months after reconstruction. Early complications: 1 patient had D.V.T (1.8%) Flap related complications: complete flap loss 1 patient, partial flap loss 4 patients (7.4%), 3 patients had wound infection (5.5%), and one patient had haematoma. Donor site complications: seroma, umbilical necrosis. Delayed complications: No hernia was seen One patient had only abdominal bulge. Cosmetic results: They were evaluated by surgeon and patients: Patients who underwent TRAM flap reconstruction for chest wall coverage were excluded from this evaluation. Excellent results in 12 patients Very good in 19 patients Good in 13 patients Poor in 7 patients.

Conclusions: Pedicled TRAM flap remains a gold standard in breast reconstruction. It enables the surgeon to create a normal ptotic and soft breast after mastectomy. It is an alternative cheaper technique in low income countries compared to breast implants.

Abstract ID: 0257 Specific Field: Paediatric Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 103.01

Peritoneal drainage for newborn intestinal perforation: primary treatment or unnecessary delay?

D.E. Meier, M. Ahmeti
Texas Tech U. HSC El Paso, El Paso, USA

Introduction: Peritoneal drainage (PD) was first described as a temporizing measure for extremely ill newborns with intestinal perforation (IP). Subsequent reports have presented PD as definitive treatment while others label PD as an unnecessary delay. This study evaluates PD as initial treatment for all newborns with IP.

Material and Methods: This is a retrospective study of all newborns with IP treated by a single surgeon using PD as the initial treatment. PD was achieved using an incision in each lower quadrant with a Penrose drain placed between the two. The peritoneal cavity was irrigated with warm saline at time of PD and daily until the effluent was clear. If there was no improvement in 12 hours or if there was deterioration at any time, a laparotomy was performed. If
the child improved, enteral feeds were started when the infant was stooling and gastric residuals low. Contrast Xrays were obtained only for signs of stricture or leak. Data analysis included gestational age and weight, time from birth to IP, findings at PD, need for subsequent operations, and outcome.

Results: Twenty four consecutive newborns underwent drain placement from 1/04-1/09. The median gestational age was 29 weeks (22-41) and weight was 755 grams (430–2101). Free air was seen on Xray in 9. The other 15 underwent drain placement based on progressive abdominal distention, discolouration, and sepsis. The overall mortality rate was 33% (25% in children < 1500 grams and 75% in children > 1500 grams). Four (17%) needed laparotomy within 72 hours of PD because of progressive sepsis, and 2 (50%) died. When succus was found at PD (n = 20) the mortality was 25%, but when only discolored ascites was encountered (n = 4), 75% died. PD served as definitive treatment without subsequent operations for 8 (50%) of the 16 survivors.

Conclusions: PD and extensive irrigation is not a delay tactic but instead serves as the definitive treatment for 50% of newborns who survive IP. However for children > 1500 grams laparotomy may be the primary treatment of choice. For all children with progressive sepsis and abdominal distention without succus at PD urgent laparotomy is indicated to assess the need for resection of non-viable intestine.

Abstract ID: 0258  Specific Field: Paediatric Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 103.02

CT imaging in paediatric trauma: let’s not overstate the risks
W.J. Teague, S. Hill, G. Bibbo, H. Boucaut
Women’s & Children’s Hospital, Adelaide, Australia

Introduction: Use of CT imaging in the primary assessment of major trauma victims is well established. Caution against injudicious CT use has been advocated in recent landmark papers. Emphasis was placed on lifetime attributable risk of cancer mortality, asserting that true risk of CT radiation exceeds previous estimates, especially in children. This assertion is hotly debated. The current study aims to show if paediatric major trauma patients are exposed to dangerous levels of radiation by best-practice trauma management.

Material and Methods: Prospective data were obtained for all major trauma patients presenting to a paediatric level 1 trauma centre over 12 months. Radiographs and/or CTs were ordered according to clinical indication, and resulting age-adjusted effective dose of radiation exposure calculated in millisieverts (mSv). Increased risk of cancer mortality attributed to this dose was stratified according to industry criteria as: high, moderate, low, very low, minimal, or negligible. Risk criteria are defined in the table, e.g. ‘moderate’ represents 1-0.1% increased risk.

Results: 40 patients were identified, of which 31 satisfied inclusion criteria. Of 31 patients, 65% underwent 1 CT. No children were at high increased attributable risk of cancer mortality due to radiation exposure during their primary assessment. Highest recorded effective dose was 24 mSv, which is associated with a 0.29% (i.e. moderate) increased attributable risk of cancer mortality. 7 other children were at moderate increased risk, but 74% children had a negligible to low increased attributable risk of cancer mortality (see table).

Conclusions: These data allow 2 key conclusions: first, CT imaging is indicated and performed in the majority of children following major trauma. Second, the majority of paediatric major trauma patients are at negligible to low increased attributable risk of cancer mortality due to radiation exposure during primary assessment. Paediatric-specific protocols contribute to safe use of CT in children. Whilst advances in ultrasound may see reduced use of CT in major trauma, we suggest risk of missed injury through inadequate or inappropriate imaging far outweighs the increased attributable risk of cancer mortality due to CT radiation.

Attributable increased risk of cancer mortality

<table>
<thead>
<tr>
<th>Risk range</th>
<th>Patients (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>&gt;1%</td>
</tr>
<tr>
<td>Moderate</td>
<td>1-0.1%</td>
</tr>
<tr>
<td>Low</td>
<td>0.1-0.01%</td>
</tr>
<tr>
<td>Very low</td>
<td>0.01-0.001%</td>
</tr>
<tr>
<td>Minimal</td>
<td>0.001-0.0001%</td>
</tr>
<tr>
<td>Negligible</td>
<td>≤0.0001%</td>
</tr>
</tbody>
</table>

Abstract ID: 0259  Specific Field: Paediatric Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 103.03

Associated anomalies may not prolong hospital stay in abdominal wall defects
R. Pradhan, U. Samarakkody, V. Shrivastava
Department of Paediatric Surgery, Waikato Hospital, Hamilton, New Zealand

Introduction: To study the abdominal wall defects treated at a regional tertiary centre over 25 years with emphasis on associated anomalies and the impact they had on the length of stay in the hospital.

Material and Methods: From 1984 to 2008, 117 newborns with abdominal wall defects were treated at our hospital. 42 of these had exomphalos and 75 had gastrochisis. The patients were categorised as having associated anomalies or not. Those with anomalies were further subdivided into gastrointestinal and extra gastrointestinal anomalies. The relationship between the associated anomalies and the length of hospital stay was analysed. Statistical analysis was performed using student t test & the p value of < 0.05 considered as statistically significant.

Results: Out of 75 patients with gastrochisis, 15(20%) had GI anomalies, 10(13.3%) had extra GI anomalies. 45(60%) did not have any anomalies. Patients with anomalies had an average hospital stay of 21.1 days, whereas those without anomalies stayed in hospital for an average of 13.8 days. 5(6.7%) patients had both GI and extra GI anomalies, their average length of stay being 36 days. Out of 42 patients with exomphalos, 6(14.3%) had GI anomalies, 20(47.6%) had extra GI anomalies. 8(19%) patients did not have any anomalies. Patients with anomalies stayed an average of 14.1 days in hospital, while those without anomalies stayed an average of 20.1 days. 6(14.3%) had both GI and extra GI anomalies, the average length of stay being 5.6 days. 20 patients had exomphalos major and 19 had exomphalos minor with hospital stays of 26.1 and 4.7 days respectively.

Conclusions: Despite the common belief that associated anomalies cause long hospital stay in abdominal wall defects, we have found the opposite to be true in exomphalos. In gastrochisis associated anomalies were responsible for the prolonged hospital stay.
Abstract ID: 0260  Specific Field: Paediatric Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 103.04

Testicular and paratesticular pathology in children: a histopathological review over 12 years
M. Marulaiah, A. Gilhotra, L. Moore, H. Boucaut, D.W. Goh

Womens and Childrens Hospital, Adelaide, Australia

Introduction: Our institution is the principal tertiary paediatric surgical referral centre for a population of 1.6 million people. The aim of this study was to determine the spectrum and relative incidence of paediatric testicular and paratesticular pathology in this population.

Material and Methods: With ethics approval, pathology results of all testicular and paratesticular specimens obtained between August 1995 to September 2007 were analysed. Cases were retrieved retrospectively from the computerised database, and further clinical details recorded, including age, mode of presentation, laterality, and associated inguinoscrotal pathology.

Results: Over 12 years 2 months, 474 patients(502 specimens) were identified; median age 9.5 years(1 day–17 years). Testicular and paratesticular pathologies were most frequent in patients aged 1–2 years(11%) and 11–12 years(10.5%).

439 patients had non-neoplastic pathology, of which 65% presented acutely. Commonest non-neoplastic pathologies were torsed appendage of testis(49%), and ‘vanishing testis’(15%). Vanishing testis was most frequently explored at 1–2 years of age and commoner on the left(66%). Testicular torsion occurred in 11%; with a bimodal peak age of < 1 year and 13–14 years. Interestingly, testicular torsion was also more on the left(68%). Atrophic testes were most often explored between 1 and 2 years of age, majority of which were undescended(55%). Epididymal cyst(4%) was the most frequent non-neoplastic epididymal pathology.

32 patients had proven neoplastic tumours. Of 27 patients with testicular neoplasms, 55% were malignant(29% primary and 26% secondary), the commonest primary malignant being: endodermal sinus tumour and benign: epidermoid cysts and teratomas. Testicular neoplasms presented mostly in patients aged < 2 years. Rhabdomyosarcoma(75%) formed the bulk of para-testicular neoplasms.

Conclusions: The variety of scrotal and testicular pathology in children is considerable with acute pathological conditions forming the bulk in the older(7–15 years) children whereas impalpable testis and tumours form a majority of lesions among infants (< 1 year). Overall, acute presentation is more common. It is interesting that both torsion of the testis and vanishing testis occur more on the left. Benign testicular neoplasms are more frequent than primary malignant ones.

Abstract ID: 0261  Specific Field: Paediatric Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 103.05

A uni-directional tunneller for inguinal orchidopexy
A.W. Lambert [1], J. Evans [1], C. Cosgrove [2], S. Huddart [3]

[1] Derriford Hospital, Plymouth, United Kingdom, [2] Royal College of Defence Medicine, United Kingdom, [3] University Hospital of Wales, Cardiff, United Kingdom

Introduction: This paper describes a simple new surgical instrument which has been designed to improve the safety and reduce the trauma of inguinal orchidopexy. The benefits of its use in two centres is presented.

Material and Methods: A unidirectional testicular tunneller has been developed comprising a head, shaft and an eye. At operation, following testicular mobilisation, the tunneller is passed through the groin incision into the scrotum and a dartos pouch created by cutting against the head of the instrument. This allows the surgeon to operate with their dominant hand on each side and removes the need to cut against their finger. The testis is then attached to the eye of the instrument and pulled into the scrotum before being fixed. Wounds are closed in the usual manner.

Results: From November 2002 to December 2008, two surgeons operated on 222 boys using a unidirectional testicular tunneller; mean age 5 years 8 months (range 6 months – 15 years 11 months). 53 procedures were bilateral. There were no complications related to the use of the tunneller. All patients were treated as day cases.

Conclusions: The unidirectional instrument described in this paper simplifies inguinal orchidopexy, improves procedural safety and reduces surgical trauma. It allows the surgeon to operate with their dominant hand, no matter which side is being operated. In view of these advantages and the absence of complications related to this instrument, its use in inguinal orchidopexy is recommended.

Abstract ID: 0262  Specific Field: Paediatric Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 103.06

Use of the external jugular vein for central venous catheterization as a preferred access site in pediatrics
A.A. Beigi [1], H. Masoudpour [2], E.F. Khademi [3]

[1] Department of Vascular Surgery, Alzahra hospital, Isfahan, Iran, [2] Surgery Department, Alzahra Hospital - Isfahan Faculty of Medicine, Isfahan, Iran, [3] Isfahan University of Technology, Isfahan, Iran

Introduction: This present study reviews the complication rate, operation time of central venous catheterization via internal jugular (IJV) and EJV in children.

Material and Methods: We performed an analysis of 60 infants’ chart under 6 months old in which central venous catheterization using cutdown technique through the EJV and IJV was attempted in 2008. They prospectively randomized into two groups (EJV group, n = 30; IJV group, n = 30). We performed some special maneuvers during external jugular vein catheterization.

Results: Thirty patients (male:female = 19/11) were in group EJV, with a mean age of 3.3 ± 3 months old. Thirty patients (male:female = 18/12) were in group IJV, with a mean age of 2.9 ± 2.6 months old. Mean operating time was 24.3 ± 8.7 minutes (range, 25 to 75 min) in group EJV, and 38 ± 10.3 minutes in group IJV. The mean operating time was significantly shorter in group EJV than in IJV (P < 0.05). In group IJV, thrombotic alterations were detected in 2 out of 30 patients. Both of them were asymptomatic and manifested by inability to infusion. Thrombosis of central veins was not found in the EJV group. The risk of thrombosis in IJV group was higher than EJV group (P < 0.05). The only immediate postoperative complication was a case complicated with hematoma around the insertion site in group IJV. All the patients in group EJV, was operated under local anesthesia helping heart monitoring. IJV catheterization was performed under general anesthesia in the operating room. The technical success rate was 100% (n = 30) in IJV group and 90% (n = 28) in EJV group. In three patients of EJV group who was under 2 months old, the catheter was inserted through internal jugular vein. No episode of pneumothorax and hemothorax was found in both groups.

Conclusions: The external jugular vein cutdown performed by well-trained surgeon is an appropriate approach for central venous access
Laparoscopic surgery during pregnancy is still being debated, especially in cases of suspected appendicitis.

**Material and Methods:** Study Design: Cases of suspected appendicitis treated by the laparoscopic approach in a single institution over a 10-year period were reviewed (1997–2007). The objectives were to evaluate immediate complications of the procedure and pregnancy outcomes, including preterm delivery.

**Results:** Results: Out of 45 case, 15 (33%) underwent surgery in the first trimester, 22 (49%) in the second trimester, and 8 (18%) in the third semester. Two (4%) patients had major complications (intra-abdominal abscess and uterine perforation), and 2 others (4%) minor complications (cystitis and ileus). No patients delivered within a month after surgery. Three (8.1%) patients delivered early preterm, i.e. prior to 35 weeks' gestation, and 18, 1% delivered before term (< 37 weeks). No significant differences were found in the rates of preterm delivery, adverse outcome or operative time between trimesters of pregnancy at the time of surgery. Mean operative time was 49 ± 19 minutes.

**Conclusions:** This series shows that preterm delivery and complication rates are low after laparoscopic appendectomy.

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**Abstract ID: 0265** Specific Field: Miscellaneous

**Mode of pres.:** Free Paper (oral)

**ISW 2009 Session 105.02**

A prospective audit of diagnostic laparoscopy in the diagnosis of abdominal tuberculosis


**Introduction:** HIV/AIDS has resulted in a resurgence of abdominal tuberculosis in South Africa. Confirming the diagnosis can be difficult. The role of laparoscopy in making the diagnosis is undefined. This prospective study looks at the role of laparoscopy in establishing the diagnosis of abdominal tuberculosis (TB).

**Material and Methods:** All patients with clinically suspected but histologically or microbiologically unconfirmed abdominal TB were referred to the investigating team. If a histological diagnosis of TB could not be made by any alternative route the patient was offered a diagnostic laparoscopy. All grossly pathological tissues were biopsied and free fluid was aspirated. Tissues were sent for histology and microbiological assessment and the fluid was sent for microbiological assessment.

**Results:** From January 2008 to January 2009 eighty four patients were referred to us. Twenty nine patients died before any procedure. All were HIV positive. Twenty patients required emergency laparotomy either for bowel obstruction or peritonitis. Thirteen were HIV positive. All 20 patients had positive histology for TB and two of them demised (10%) post laparotomy. Thirty five patients underwent diagnostic laparoscopy and 28 of them were HIV positive. Laparoscopic findings included intraabdominal lymphadenopathy and ascitic fluid in 24, intra abdominal mass in 11, deposits on bowel wall, peritoneum or omentum in 10 patients. In two patients (5.7%) an alternative diagnosis was found (appendicitis). Twenty four patients (68.5%) had positive histology for TB. In six patients (17%) histology
Laparotomy is an effective way of diagnosing abdominal TB with significant morbidity and mortality. Laparoscopy is useful to diagnose alternate surgical pathology. Histology obtained at laparoscopy confirms the presence of TB in 70% of cases. Our preliminary results suggest that diagnostic laparoscopy is very useful in the assessment of suspected abdominal Tuberculosis.

Abstract ID: 0266  Specific Field: Miscellaneous

Mode of pres.: Free Paper (oral)  ISW 2009 Session 105.03

Reverse 3D HD in endoscopic surgery

E. Lezoche [1], A.M. Paganini [1], G. D’Ambrosio [1], R. Croci [1], D. Scoglio [1], P. Campenni [1], E. Capalbo [1], L. Organetti [2]


Introduction: This paper describes a new video station that is able to digitalize and visualize a signal coming from any video source, even a full HD one.

Material and Methods: The video station may reverse the signal when the signal is a simple PAL 768 per 576. This is made possible by a software interface having an artificial intelligence of 256,000 software neurons that monitors the depth of visual angle Alfa in real time and automatically corrects it. The 3D vision may be obtained using any video monitor that is currently available, including autostereoscopic monitors, which reproduce a 3D vision even without using any type of special glasses. The new video station uses an artificial intelligence to obtain an intelligent rendering, bringing it to full HD 2D and to full HD 3D, even when the signal is a simple PAL 768 per 576.

Conclusions: This new video station improves image resolution and depth perception in endoscopic surgery increasing safety, and it may be employed using any endoscopic video source without the need to change it.

Abstract ID: 0267  Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)  ISW 2009 Session 105.04

Prognostic factors for positive idiopathic thrombocytopenic purpura (ITP) outcome following laparoscopic splenectomy

M. Kindelis [1], R. Dambrauskiené [1], A. Mickevicius [2], A. Maleckas [1]

[1] Kaunas Medical University, Kaunas, Lithuania, [2] Kaunas University of Medicine, Kaunas, Lithuania

Introduction: Laparoscopic splenectomy is considered as the second step treatment for ITP patients. The purpose of this study was to determine the efficiency of laparoscopic splenectomy for ITP patients and to identify the independent prognostic factors that may predict the positive outcome.

Material and Methods: 239 patients medical records were analysed retrospectively. The special questionnaire, which included present platelet count, the steroid usage and its dosage, was sent to all patients. The complete remission (CR) was defined, when the platelet count was above 10^9/L.

Results: The 239 adult patients with median age 51, 3 (16–93 years) were included in this cohort. The median follow up period was 75 months.167 patients were lost. 67 patients, who relapsed after steroid treatment, underwent laparoscopic splenectomy. The immediate postoperative CR was 71.4% after laparoscopic splenectomy compared to 38.1% in non-splenectomized patients (p < 0.000). The long term CR was 78, 8% in patients after splenectomy compared to 47, 4% in non-splenectomyed patients (p < 0.018). After unvaried analysis three clinical variables were found to be significantly related to the splenectomy outcome: disease duration (p < 0, 007), preoperative platelet count (p < 0, 049) and platelet count on the third postoperative day (p < 0, 000).Moreover, multiple logistic regression analysis confirmed that preoperative platelet count > 51x 10^9/L, relative risk = 1, 036, 95% (CI, 1, 003–1, 069), platelet count > 129x10^9/L on the third postoperative day RR = 1, 034, 95% (CI, 1, 003–1, 066) and disease duration < 17 months RR = 0, 972 95% (CI, 0, 974–1, 066) were significant predictors for positive ITP outcome after laparoscopic splenectomy.

Conclusions: Splenectomy is effective treatment for ITP. The disease duration < 17 months, preoperative platelet count > 51x10^9/L and disease duration < 17 months RR = 0, 972 95% (CI, 0, 974–1, 066) were significant predictors of positive long-term outcome after laparoscopic splenectomy.

Abstract ID: 0268  Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)  ISW 2009 Session 105.05

Laparoscopic suture fixation repair of ventral hernia in 370 consecutive patients: how I do it

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Introduction: Repair of ventral and incisional hernia without mesh should be abandoned due to high recurrence rate. The laparoscopic ventral hernia repair (LVHR) has reduced the recurrences rate considerably by putting larger mesh with larger overlap. Success of LVHR largely depends on proper overlap, tension, orientation and fixation of the mesh. The optimal method for fixation of the mesh is controversial. Most authors use tackers and/or transfascial sutures. Our aim was to evaluate the efficacy of transfascial suture fixation of mesh in laparoscopic repair of ventral and incisional hernia.

Material and Methods: During 2000–2007 we repaired 370 consecutive ventral and incisional hernias using transfascial sutures. The mean age of patient was 55 years and majority of patients were female in child bearing age. The mean size of defect was 9 cm (65 cm^2) and mean size of mesh used was 19 cm (294 cm^2). In our technique three circles and radial lines were drawn on both side of Dual mesh and on the skin with the help of circular protractors. The innermost circle represents the true size of the hernia defect and outmost circle the size of mesh. The Dual mesh was fixed with one zero Ethilon sutures circumferentially on the outer and middle circle on equidistance radial lines.

Results: Mean VAS score on the first and third postoperative days was 2 and 1. The pain was equally divided between the port sites and
the suture site. Mean time of operation was 90 minutes (range 55 – 300). Average hospital stay ranged 2–9 days (mean 4). There were three bowel injuries, two conversions to open, one mesh infection, one recurrence, no wound infection and mortality. Seroma occurred in 25 patients, 7 requiring aspirations.

Conclusions: Our technique is based on principle of equal distribution of tension forces on the mesh by accurate calculation of number, position and the interval of sutures. There is proportionate increase in the number of sutures according to the size of mesh. The protectors helped us in mapping out and in standardizing the number, position, intervals of sutures and in the orientation of the mesh. We rely on the tensile strength of sutures and in our experience the suture fixation of the mesh is reliable, has less morbidity in terms of pain and recurrences.

Figure: Laparoscopic suture repair of ventral hernia

Abstract ID: 0269  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 105.06

Laparoscopic hepatectomy for liver tumors: proposals for standardization

Toho University School of Medicine, Tokyo, Japan

Introduction: Laparoscopic hepatectomy (LH) for liver tumor has been performed in only a limited number of institutions, and did not gain a wide following in the 1990s. This is mostly due to the difficulty in achieving hemostasis during liver parenchymal transection. With recent advances in the techniques and devices used in laparoscopic surgery, the number of surgical teams attempting LH has been increasing gradually. We draw on our experience with LH to present recommendations for standardization in the treatment of liver tumors.

Material and Methods: At our center, 90 LHs were performed from April 1993 to January 2008. These were divided equally into early cases and late cases, and short-term postoperative results were compared. Classical indications for LH are that the tumor should be smaller than 5 cm and located in areas that provide easy access for laparoscopy, ie, in the left lateral segment (Segments II and III) or on the surface of the inferior segments (Segments IVa, V, and VI). Forty-nine of the LH procedures were total-laparoscopic procedures, 41 were hybrid procedures (16 were hand-assisted, and 25 were laparoscopy-assisted procedures). The tumors were malignant in 76 cases and benign in 14. In liver parenchymal transection, precoagulation of liver tissue is performed by using devices that conduct radiofrequency or microwave energy.

Results: Among late cases, the numbers of malignant tumors and tumors located in the posterosuperior region of the liver (Segments VII, VIII, and IVb) were significantly higher than among early cases; however, operative blood loss and postoperative hospital stay were significantly lower in the late cases (158.9 ± 213.4 cc vs. 377.6 ± 421.2 cc, P = 0.007; and 8.7 ± 3.6 days vs. 15.3 ± 8.7 days, respectively; P = 0.0001). No operative deaths occurred in either group.

Conclusions: Although LH does have a learning curve, surgery for partial hepatectomy in the inferolateral segments, and for left lateral sectionectomy, can be standardized as a daily procedure in patients satisfying the classical indications for LH. Moreover, the use of hybrid procedures may help overcome the limitations of LH, and further advance standardization in this field.

Abstract ID: 0270  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 105.07

Laparoscopic exploration of common bile duct and laparoscopic biliary bypass

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Introduction: The best management of common bile duct stone is still controversial. ERCP is still largely practiced before and after the cholecystectomy. Depending on the availability of expertise, laparoscopic choledocholithotomy (LECBD) and laparoscopic biliary bypass (choledocho-duodenoostomy) can be safely performed at district hospital.

Material and Methods: From 1998–2007, 143 patients presented with obstructive jaundice secondary to common bile duct stone (CBD). 65 had successful ERCP, failed in 11 & 10 patients refused ERCP. 58 patients had simultaneous laparoscopic exploration of common bile duct & cholecystectomy for stones, in 6 patients after cholecystectomy and 11 had open choledocholithotomy. Transcystic attempted in 6 patients and successful in 3 patients. Direct laparoscopic CBD exploration was attempted in 64 patients. The diameter of CBD varied from 9 mm to 27 mm, number of stones varied from 1 to 9 and the size of stone from 5 mm to 22 mm by ultrasound. CBD exploration was done through anterior choledochoctomy. The port positioning was same as for conventional laparoscopic cholecystectomy with one extra 5 mm port in right upper quadrant for Fogarty balloon and choledochoscope. CBD was cleared using Fogarty balloon, Dormia basket, irrigation, and choledocho-scopy. Common bile duct was drained by “T-tube in 4 patients and Tran-cystic drain in 53 patients. Sub hepatic drain was used in all patients. Permanent biliary drainage procedure was performed in 17 patients following failed ERCP and failed LECBD for impacted stones at the lower end of CBD and biliary sticture. A diamond shaped 2–2.5 cm size side to side choledochoduodenostomy was created between anterior longitudinal doudenostomy and anterior longitudinal choledocho-tomy and stented with transcystic ureteric catheter drain.

Results: There was no mortality. There was no postoperative bile leak, wound infection, cholangitis, and pancreatitis. The mean hospital stay was 4 days

Conclusions: Laparoscopic exploration of CBD is feasible and safe. When indicated biliary diversion can be performed laparoscopically at the same time depending on the availability of local expertise.
Abstract ID: 0271 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 105.08

Laparoscopic pancreatectomy under the scrutiny: review article
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Introduction: A systematic review carried out to assess the published evidence for safety, feasibility and reproducibility of laparoscopic pancreatectomy.

Material and Methods: Literature search used Medline, EMBase and Pre-medline databases. A total of 397 patients (22 series) of laparoscopic distal pancreatectomy and Laparoscopic Enucleation (LEn) and 50 patients (5 series) of laparoscopic pancreaticoduodenectomy (LPD) were included.

Results: In over 90% of cases the disease was benign (45% are neuroendocrine lesions). The mean tumor size ranged from 1.8–5.8 cm. Spleen preservation was reported in around 37% of the LPD. The mean blood loss and average operative time was 278 ml (100–1800) and 192 minutes (104–354) respectively. Approximately 16% (0–40%) of the procedures were converted to open.

LEn was feasible in around 22% of the cases. When compared with LPD, LEn incurred significantly less operative blood loss [10 vs. 38 ml; (P < 0.001)], shorter mean operative time [152 vs. 251 minutes (P < 0.001)] and shorter mean post-operative hospital stay [4.7 vs. 6.4 days (P < 0.001)].

Postoperative complications, pancreatic fistula and Re-operation were 26%, 13% (0–33%) and 8% respectively. The first 30-days mortality rate was around 0.5%. Mean postoperative hospital stay ranged between 4.1–11.8 days. Recurrence of the original pathology was observed in only 8 patients.

In LPD cancer was the indication in over a third of patients. The mean operative time and blood loss were 410 minutes and 222 ml respectively. In 14% the procedure was converted to open. The recovery was uncomplicated in 76% of the patients, only 4 patients (8%) requiring re-operation. The operative mortality and mean postoperative hospital stay was 6% and 16.5 days respectively. The disease recurred in six patients (12%).

Conclusions: LDP is a feasible primary approach. The procedure requires a very skillful surgeon and advanced laparoscopic setting. In LPD it is still experimental in approach and be investigated further.

Abstract ID: 0272 Specific Field: Thoracic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 106.01

A rapid identification method of parathyroid by non-staining dark field microscopy and ECLIA of PTH
J. Sasaki, H. Kurihara, Y. Nakano
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Introduction: It is necessary to identify parathyroid during thyroid surgery.

Material and Methods: Resect 1 cubic millimeter tiny tissue from suspicious tissue believed to be parathyroid. Place it on a slide glass, squeeze it by a cover glass and observe it by dark field microscope without staining. Fatty tissue is seen as a group of highly transparent water drops. Parathyroid is seen as a brown cell group with scattered fatty cells. Lymph node is seen as a dense group of white cells. Thyroid is seen as sparse yellow cell group with scattered pink no cell areas, Thymus resembles fatty tissue but has small white cell groups in several places. The procedure needs only around 5 minutes. Six hundred and seventy five thyroid cancer surgeries have been carried out in the past 27 years in our clinic.

Results: Six hundred and seventy five thyroid cancer surgeries have been carried out in the past 27 years in our clinic. In these, 846 parathyroid suspicious tissues were identified by this method. In these, 619 (73.1%) of tiny tissues were judged to actually be parathyroid and their mother tissues were transplanted to the muscle. The remaining tiny tissues in which 118 (13.9%) were judged to be fatty tissue, 65 (7.7%) to be lymph node, 31 (3.6%) to be thyroid and 13 (1.5%) to be thymus. So, their mother tissues were abandoned. These identified tiny tissues were later H.E. stained and histologically confirmed as to whether the rapid identification diagnosis was correct. The sensitivity of the method was 97.3% of high reliability. The post operative permanent hypoparathyroidism occurred in only 4 cases (0.6%). After finishing the rapid identification, 4 used tiny tissues were washed separately by 0.5 ml saline solution.Concentration of intact PTH in each solution was measured by electro-chemi-luminescence immunoassay (ECLIA) and all showed above 5000 pg/ml of a tremendous high titer.

Conclusions: The rapid identification method of parathyroid by non-staining dark field microscopy is a valuable method and should be used more widely. The identification by ECLIA of intact PTH is a promising method for the future.

Abstract ID: 0273 Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 106.02

OPG, RANK, RANKL and TRAIL expression in thyroid disease
S.K. Sood [1], S. Balasubramanian [1], B. Harrison [2]
Abstract ID: 0274  Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 106.03

Laparoscopic sleeve gastrectomy as a single-stage bariatric procedure

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Introduction: Laparoscopic sleeve gastrectomy is increasingly being recognised as a stand-alone procedure in bariatric surgery, with long term follow-up data now emerging. We present our early experience with a mean BMI in the super-obese range.

Material and Methods: Retrospective review of clinical and laboratory records of patients undergoing laparoscopic sleeve gastrectomy at Middlemore Hospital between March 2007 and July 2008.

Results: One hundred and one patients were identified, with a mean age of 42.7 years (95% CI 40.9 – 44.5). Māori and Pacific Islanders made up 31% of the patient subset. Patients had a mean BMI of 50.2 kg/m² (95% CI 48.8 – 51.7), and 45 patients were super-obese. They had a median hospital stay of 2 days (1 – 7 days), and a mean follow-up of 6.0 months. Mean excess BMI loss (excluding patients with a major complication) was 46% (95% CI 43.3 – 48.7). 64% of diabetics and 37% of hypertensives showed an improvement in medication requirement. There was a major complication rate of 8%, including 3 staple line leaks (one of which required laparotomy), 2 staple line bleeds (one requiring laparotomy), 1 infected haematoma, and 1 critical stricture. There were no deaths.

Conclusions: Laparoscopic sleeve gastrectomy has achieved satisfactory weight-loss results with an acceptable complication rate in the short to medium term.

Mean Excess BMI Loss

<table>
<thead>
<tr>
<th>Time (months)</th>
<th>Excess BMI Loss (%)</th>
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<tbody>
<tr>
<td>1</td>
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<td>57.9</td>
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<td>16</td>
<td>54.8</td>
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Abstract ID: 0275  Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 106.04

Vertical banded gastroplasty calibrated at 6.5 cm, and food tolerance

P. Chiotasso

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Introduction: Bariatric surgery often compromises the food tolerance, which influences the quality of life. The aim of this study was to evaluate the food tolerance of patients having had a vertical banded gastroplasty (VBG) calibrated at 6.5 cm which is more wide than usually done.

Material and Methods: We used the questionnaire of Suter giving a score of 1 to 27 (control obese subjects : 24.2). 200 patients with a VBG were prospectively reviewed during their follow-up between January and June 2008. Patients were administered the questionnaire.

There were 190 females and 10 males, mean age being 41.0 years. The mean duration of follow-up was 22.6 months (5 – 48). The mean lost of weight at one year was 31.0 kg (20 – 53).

The mean score of food tolerance was 22.1 (17 – 26). 44% of the patients had a score equal or greater than 24.

Food tolerance is reduced after VBG calibrated at 6.5 cm, but seems acceptable, while the lost of weight at one year is maintained.
Abstract ID: 0276  Specific Field: Transplantation

Mode of pres.: Free Paper (oral)
ISW 2009 Session 106.05

Living donor liver transplantation for hepatocellular carcinoma across Milan criteria
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Introduction: Liver transplantation is the best treatment option for patients with unresectable hepatocellular carcinoma (HCC) and liver cirrhosis. Although restrictive selection criteria using Milan criteria yielded excellent survival results, the outcome of LDLT under extended selection criteria for HCC remains controversial.

Aim of study: To investigate the outcome of LDLT for HCC using extended selection criteria for HCC.

Material and Methods: A total of 83 patients who underwent LDLT for HCC were retrospectively analyzed. Patients with extrahepatic metastases, major vascular tumor invasion and diffuse HCC were excluded. Recurrence-free survival results were analyzed. Significant prognostic factors were identified using univariate and multivariate analyses.

Results: Thirty-three patients (39.8%) had HCC with pathological features exceeding Milan criteria. The median follow-up period was 46 months (22–120 months). The short-term outcomes between two groups were comparable. The 1-year, 3-year and 5-year recurrence-free survival rates for patients within Milan criteria were 93%, 78% and 72%, whereas those for patients beyond Milan criteria were 90%, 70% and 60%. There was no statistically significant difference between two groups. Treatment before liver transplantation was the independent poor prognostic factor for recurrence-free survival.

Abstract ID: 0277  Specific Field: Transplantation

Mode of pres.: Free Paper (oral)
ISW 2009 Session 106.06

Erlotinib and sunitinib, novel agents to prevent transplant vasculopathy and restenosis
J. Savikko [1], J.M. Rintala [2], M. Masabacka [2], S. Rintala [2], P. Kossinen [3]

[1] Department of Gastroenterological Surgery, Helsinki University Central Hospital, Helsinki, Finland, [2] Transplantation Laboratory, University of Helsinki, and Helsinki University Central Hospital, Helsinki, Finland, [3] Department of Medicine, Division of Nephrology, Helsinki University Central Hospital, Helsinki, Finland

Introduction: Chronic rejection is a major reason for late allograft loss. Restenosis limits the long-term success of percutaneous trans-luminal coronary angioplasty (PTCA). The common feature in these two disorders is uncontrolled proliferation and migration of vascular smooth muscle cells (SMC). Several growth factors are important mediators in transplant vasculopathy and restenosis by inducing migration and proliferation of smooth muscle cells. Inhibition of these growth factors are potential intervention sites. Here we investigated the effect of two novel receptor tyrosine kinase inhibitors, erlotinib and sunitinib, on SMC proliferation and migration both in vivo and in vitro. Erlotinib is a selective EGF receptor tyrosine kinase inhibitor whereas sunitinib is a potent inhibitor of both VEGF and PDGF receptors.

Material and Methods: The aorta of Wistar rats was denuded by an embolectomy catheter. Rats were treated either with erlotinib (1, 5 or 10 mg/kg/d) or sunitinib (1, 5 or 20 mg/kg/d) or with vehicle only (polyethylene glycol). Histological changes and analysis of neo-intimal area were evaluated from midaortic sections 14 days after injury. Rat carotid artery smooth muscle cells were used to study the in vitro effect of erlotinib and sunitinib on SMC proliferation and migration.

Results: In the vehicle-treated group, moderate neo-intima formation was detected 14 days after denudation. Erlotinib and sunitinib inhibited neo-intima formation dose-dependently. The lowest erlotinib-dose did not reduce neo-intima formation compared to controls whereas the higher 5 mg/kg/d erlotinib-dose significantly prevented neo-intima formation. Almost no neo-intima formation was seen with the highest erlotinib-dose. Significant reduction in neo-intimal area was seen already with 1 mg/kg/d sunitinib-dose and neo-intima formation was prevented almost completely with the 5 mg/kg/ddose. Highestsunitinib-dose decreased neo-intima formation even further. In in vitro experiments both erlotinib and sunitinib prevented SMC proliferation and migration in a dose-dependent way.

Conclusions: Our results demonstrate that erlotinib and sunitinib are potent inhibitors of accelerated arteriosclerosis. Based on these findings both erlotinib and sunitinib could be a potential intervention in preventing transplant vasculopathy as well as restenosis after PTCA.

Abstract ID: 0278  Specific Field: Miscellaneous

Mode of pres.: Free Paper (oral)
ISW 2009 Session 106.07

Using a multi-method user centred, prospective hazard analysis to assess information transfer in a surgical care pathway
K. Nagpal, A. Vats, A. Smith, C. Vincent, K. Moorthy
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Introduction: Care pathways can be complex, often involving multiple care providers and as such are recognised as containing multiple opportunities for error. Evidence suggest that information transfer and communication (ITC) failures are common across all phases of surgical care. Hazard analysis techniques have been used to identify potential process failures in other high reliability industries. The primary objective of this study is to identify ITC failures across all the phases of surgical care using a prospective hazard analysis method. The analysis aims to map the process of surgical care, highlight specific areas prone to ITC failures and to identify critical failures resulting in patient’s harm.

Material and Methods: The hazard analysis team consisted of healthcare professionals (surgeons, anaesthetists and nurses) involved in surgical process of care. Triangulation of information from focus group sessions, interviews and Delphi method were used to map the entire surgical care pathway and identify specific areas, which require further improvement.

Results: Fourteen main processes were initially identified in three phases (preop, intraop and postop). These were subsequently clubbed into six main phases. Out of these, four main phases including pre-operative assessment and planning (PAP), pre-procedure teamwork, postoperative handover and daily ward care were found to be vulnerable to information transfer and communication errors by hazard analysis team. A total of 135 failures were identified in these four phases. Thirty percent (43) of those were critical failures, which were mainly observed in the PAP and pre-procedure teamwork phases. There was a considerable variation in the perception of critical failures by various healthcare professionals. Subsequently actions/
recommendations were made for fifteen critical failures as others already had some safety checks in the system.

**Conclusions:** The study has demonstrated the feasibility of using mixed methods to identify ITC failures across the entire surgical care pathway. It serves to highlight the points in the care pathway where quality improvements efforts are required.

**Abstract ID:** 0279  Specific Field: Endocrine Surgery

**Mode of pres.:** Free Paper (oral)

ISW 2009 Session 121.01

Comparison of adrenal cortical carcinoma (ACC) staging systems by combined large database analysis


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[2] Medical College of Wisconsin, Milwaukee, United States

**Introduction:** Recent interest in international cooperative trials for patients(pts) with ACC has emphasized the importance of a uniform staging system for this rare cancer. We evaluated the ability of the 2 major ACC staging systems to predict stage-specific mortality in a combined cohort of non-overlapping pts from the NCI SEER and UT MD Anderson databases.

**Material and Methods:** 841 unique ACC pts were identified. Stage at presentation was assigned according to the Sullivan staging system(as adopted by the UICC) that combines local tumor invasion & metastatic disease into a single stage IV & the Lee staging system(as recently evaluated by the European Networkforthe Study of Adrenal Tumors [ENSAT]) that separates local-regional disease(stage III) from distant metastatic disease(stage IV). Overall Survival OS) was calculated by the method of Kaplan and Meier & the log rank test.

**Results:** With a median follow-up of 7 years, both Sullivan (P < .0001) & Lee (P < .0001) (Figure) staging systems strongly predicted OS.Stage-specific OS was similar for stages I and II both within & between the 2 staging systems (Table). Stage IV pts had a poorer OS than Stage III pts in both Sullivan (HR 3.32, CI 2.7–4.0) and Lee (HR 4.7, CI 3.9–5) staging systems. Stage III pts had a poorer OS than Sullivan stage III pts (P = 0.05, median 42 vs. 60 mo) & Lee stage IV pts had a poorer OS than Sullivan stage IV pts (P < .0001, median 5 vs 9 mo). Concordance probabilities were 0.638 & 0.656 for the Sullivan & Lee systems respectively, indicating superior stage-specific OS discriminatory power for the Lee staging system.

**Conclusions:** The Lee staging system as recently reintroduced by ENSAT for ACC is similar to other modern cancer staging systems in that it separates pts with local-regional disease from those with distant metastatic disease. The Lee/ENSAT staging system accurately reflects the natural history of the disease. It provides a rationale for surgical treatment of ACC pts with local tumor invasion of adjacent organs while also supporting initial systemic therapy for most pts with distant metastasis, who generally have a very short OS.

### Median Survival as Staged According to the Sullivan and Lee Staging Systems

<table>
<thead>
<tr>
<th>Stage</th>
<th>Median Survival in months (95% CI)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Sullivan</td>
<td>80(2-NR)</td>
</tr>
<tr>
<td>Lee</td>
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**Abstract ID:** 0280  Specific Field: Endocrine Surgery

**Mode of pres.:** Free Paper (oral)

ISW 2009 Session 121.02

Laparoscopic resection is inappropriate in patients with known or suspected adrenocortical carcinoma

B.S. Miller, J.B. Ammori, P.G. Gauger, J.T. Broome, G.D. Hammer, G.M. Doherty

University of Michigan, Ann Arbor, United States

**Introduction:** Complete surgical resection is the mainstay of treatment for patients with adrenocortical cancer (ACC). Adjuvant therapies are not effective. Use of laparoscopy for benign adrenal tumors has increased, however its use has been questioned in patients with ACC. This study compares outcomes of patients undergoing laparoscopic vs. open resection for ACC.

**Material and Methods:** We performed a retrospective review (2003–2008) of patients with ACC seen in a multidisciplinary adrenal clinic. Data were collected for demographics, operative and pathologic data, adjuvant therapy, and outcome. Results are reported using descriptive methods and chi square analysis. P < 0.05 was considered significant.

**Results:** 88 patients [66% female, median age 47 yrs (range 18–80y)] were identified. 17 patients underwent laparoscopic adrenalectomy, all performed elsewhere prior to referral.70% of patients undergoing laparoscopic resection versus 51% of patients undergoing open resection had Stage 1 or 2 ACC. Median tumor size of those undergoing laparoscopic resection was 7.0 cm (range 4–14) versus 12.5 cm (range 5–20) in those undergoing open resection. Overall, recurrent disease in the laparoscopic group occurred in 58.8% versus 59% in the open group (p = 0.21). Mean time to first recurrence for those undergoing laparoscopic resection was 9.6 months versus 19.2 months in the open group (p < 0.005). Despite significantly smaller tumor size, 29% of patients undergoing laparoscopic resections had positive margins or notation of intraoperative tumor spill versus 13% of those undergoing open resection (p = 0.07). Local recurrence occurred in 35% of the laparoscopic group vs.28% in the open group (p = 0.19). 24% of the laparoscopic group developed distant metastases versus 31% of the open group. Mean follow-up for the cohort was 2.47 years.

**Conclusions:** Laparoscopic resection should not be performed in patients with known or suspected ACC. Time to tumor recurrence in
patients undergoing laparoscopic resection is shorter compared with those undergoing open resection. The incidence of incomplete resection is greater in those undergoing laparoscopic resection despite selection of smaller tumors. Careful and complete surgical resection via an open approach is essential for ensuring optimal operative therapy for patients with ACC.

Abstract ID: 0281  Specific Field: Endocrine Surgery
Mode of pres.: Free Paper (oral)
ISW 2009 Session 121.03

Posterior retroperitoneoscopic adrenalectomy for clinical and subclinical Cushing’s syndrome
P.F.Alesina [1], S. Hommeltenberg [1], B. Meier [1], S. Petersenn [2], K.W. Schmid [3], K. Mann [2], M.K. Walz [1]

Introduction: Adrenalectomy for Cushing’s syndrome may be associated with an increased complication rate and long operating times. We report our experience with the posterior retroperitoneoscopic adrenalectomy in a large group of patients with clinical or subclinical Cushing’s syndrome.

Material and Methods: Between 7/1994 and 1/2009, 163 patients (146 f, 17 m; age 50 ± 13 y., range:12–78 y.) affected from Cush- ing’s syndrome were operated by the posterior retroperitoneoscopic access. Preoperative diagnosis was Cushing’s adenoma in 151, bilateral adrenal hyperplasia in 12 patients. All Patients were divided into two groups: manifest Cushing’s syndrome (mCS) [97 patients:92 f, 5 m; age 45 ± 13y; BMI 29] and subclinical Cushing’s syndrome (sCS) [66 patients:56 f, 10 m; age: 56 ± 11 y; BMI 30]. sCS was assumed in cases without typical symptoms but with pathological dexamethasone suppression test. Tumour size ranged from 1–10 cm (mean:3.6 ± 1.4 cm; mCS 3.2, sCS 3, 6). Partial adrenalectomy was performed in 34 cases (23 mCS-group, 11 sCS-group). With one exception, histopathology showed benign lesions. Continuous variable are expressed as mean ± SD, comparison of means and parametric data were analyzed using t test, categorical data by the chi-square test.

Results: Mortality was zero. Postoperative complications were minor (4 segmental relaxations and 4 hypoesthesias of the abdominal wall, 1 hematoma). Mean operative time was 58 ± 36 minutes (range: 20–230) and did not differ between right and left procedures (59 ± 37 vs. 58 ± 35) and between mCS and sCS (59.8 vs 61.7; p = ns). Mean intraoperative blood loss was 20 ± 70 ml (range: 0–300), mean hospital stay 5 ± 3 days (range: 2–18; mCS: mean: 4.6, sCS mean: 5.3, p = ns). After a mean follow-up of 5.8 ± 3.9 years all patients with Cushing’s adenoma are cured. Postoperative oral steroids suppression (POSS) was administered in 120 patients (96 mCS, 24 sCS). If POSS was started, mean duration of therapy was 13.4 (mCS) and 16.7 months (sCS) [p = n.s.], respectively. Four patients with sCS without POSS where readmitted due to adrenal insufficiency (4/37:11%).

Conclusions: Posterior retroperitoneoscopic adrenalectomy is safe and fast even in patients with Cushing’s syndrome. POSS is not necessary in about 50% of patients with sCS. Patients with POSS need treatment on average for more than 1 year.

Abstract ID: 0282  Specific Field: Endocrine Surgery
Mode of pres.: Free Paper (oral)
ISW 2009 Session 121.04

PI3 K-Akt pathway activation: a marker of malignant potential and a therapeutic target in pheochromocytoma
J.T. Adler, D.G. Hottinger, M. Kunnimalaiyaan, H. Chen
University of Wisconsin, Madison, United States

Introduction: Operative resection is the only curative treatment for pheochromocytomas. The phosphatidylinositol-3 kinase (PI3 K)-Akt pathway has been shown to promote proliferation of a variety of malignancies, but the role of the pathway in pheochromocytomas is unclear. We hypothesized that the PI3 K-Akt pathway would be constitutively active in pheochromo-cytomands that inhibition of this pathway would be a viable treatment strategy to suppress growth and hormonal secretion in pheochromocytoma cells.

Material and Methods: Sixteen pheochromocytoma tumor samples were analyzed for expression of active, phosphorylated Akt and the neuroendocrine (NE) marker achaete scute complex-like 1 (ASCL1). Pheochromocytoma PC-12 cells were treated with 100 μM of the PI3K-specific inhibitor LY294002 for 48 hours. Growth was assessed by a methylthiazolyldiphenyl-tetrazolium (MTT) bromide cellular proliferation assay for six days. The PI3 K-Akt pathway was assessed by measuring phosphorylated and total Akt by Western analysis. Western analysis was used to measure the NE markers ASCL1 and chromogranin A (CgA) and to determine the mechanism of growth regulation.

Results: Human pheochromocytomas expressed significant amounts of active, phosphorylated Akt, and there was a significant correlation between malignant pheochromocytomas and the amount of expressed ASCL1 (P = 0.02). Treatment of pheochromocytoma cells with LY294002 significantly suppressed levels of phosphorylated Akt, indicating inhibition of the PI3 K-Akt pathway. Moreover, treatment led to a dose-dependent decrease in both ASCL1 and CgA, indicating hormonal suppression. The MTT growth assay showed decreased cellular proliferation. With treatment, cleavage of the apoptotic markers caspase-3 and PARP was observed.

Conclusions: The significant association between ASCL1 and malignant pheochromocytoma tumor indicates a possible role for ASCL1 as a marker for malignant pheochromocytoma. Moreover, pheochromocytoma tumor samples express high levels of phospho-rylated Akt, demonstrating that this pathway may represent a therapeutic target in the treatment of pheochromocytoma. Inhibition of the PI3 K pathway may represent a novel strategy to treat unresectable or malignant pheochromocytomas.

Abstract ID: 0283  Specific Field: Endocrine Surgery
Mode of pres.: Free Paper (oral)
ISW 2009 Session 121.05

Mitotane for treatment of advanced adrenal cortical carcinoma (ACC): relationship of drug level and length of treatment to disease progression
UT MD Anderson Cancer Center, Houston, United States
Introduction: ACC is a rare malignancy with a high recurrence rate after surgery. ACC patients (pts) who recur following surgery often receive the adrenolytic agent mitotane, or mitotane in combination with systemic chemotherapy. The ideal strategy for integration of mitotane into the treatment of pts with measurable ACC remains unclear. We investigated the outcome of pts who received mitotane as part of front-line therapy for advanced ACC.

Material and Methods: ACC pts who received mitotane as front-line therapy for measurable disease were identified from a prospectively maintained database. Pts who received mitotane as second-line therapy or in the adjuvant setting were excluded. The primary outcome measurement was progression-free survival (PFS).

Results: Between 1983 and 2008, 106 pts with measurable disease ( unresectable primary tumor [5%], persistent [3%] or recurrent [16%] local-regional disease, metastatic disease [44%] or a combination [33%]) were treated with mitotane alone (68%) (M) or mitotane plus chemotherapy (32%) (M + C). 76% of pts receiving chemotherapy were treated with etoposide-platinum regimens. Overall PFS for pts who received M + C was no different than that of pts who received M alone (p = 0.22). Pts who achieved a mitotane level of 14 mcg/ml demonstrated an improved PFS compared to those whose maximum level was < 14 (median PFS 10 vs. 4 months, p = 0.004). An improved PFS could also be demonstrated for pts with maximum mitotane levels as low as 6 (p = 0.002) (Table, Figure). Time on treatment was also a strong predictor of outcome, with pts who received mitotane for less than 3 months (median 7 vs. 3 months, P < 0.001).

Conclusions: Prospective trials will be required to demonstrate whether the addition of systemic therapy to mitotane alone is beneficial in pts with advanced ACC. Although achieving a therapeutic level of mitotane appears to be important, benefit may also occur at mitotane levels significantly lower than the accepted standard of 14. Time on treatment, in addition to drug level, could be an important component of effective mitotane therapy.

<table>
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<th>Cutoff (max mitotane level achieved, mcg/ml)</th>
<th>Median PFS, ≥ cutoff (mo)</th>
<th>Median PFS, &lt; cutoff (mo)</th>
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Abstract ID: 0284 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 126.01

Early reoperation after laparoscopic fundoplication: the risk according to the indication for surgery and the role of routine postoperative contrast studies


Introduction: The necessity for routine postoperative contrast studies following laparoscopic fundoplication for either gastroesophageal reflux disease or paraesophageal hernia is unclear.

Material and Methods: To determine whether a routine contrast study influenced surgical decision-making following laparoscopic fundoplication, we reviewed records from a prospective database of 1894 patients who underwent a fundoplication for reflux or paraesophageal hernia between October 1991 and June 2008, and identified those who underwent early reoperation. The value of barium swallow examinations in the management of these patients was then determined.

Results: Fifty-three patients (2.8%) underwent reoperative procedures within seven days of their original operation: 21 had originally undergone surgery for a paraesophageal hernia, and 32 for reflux. Twenty-five patients (47.2%) underwent reoperation for dysphagia, 17 (32.1%) for acute paraesophageal hernia, and six (11.3%) for a leak. Fifteen (8.8% of all patients) of the 17 patients who underwent repair of an acute hiatus hernia, had no symptoms and underwent surgery because of the radiological findings. Primary surgery for a large hiatus hernia was associated with a higher incidence of early reoperation (p = 0.001).

Conclusions: Approximately 1 in 125 patients who undergo laparoscopic surgery for reflux or hiatus hernia will have a significant finding on an early postoperative contrast swallow, and might benefit from this investigation.

Abstract ID: 0285 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 126.02

Postoperative endoscopic and radiologic aspects of the antireflux barrier as a predictor factor for late clinical and objective reflux recurrence after cardial calibration and posterior gastropy

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University of Chile, Santiago, Chile

Introduction: After antireflux procedure 10-15% of patients present failure of the anatomical repair of the esophagogastric junction. The purpose of this paper is to evaluate the early radiological and endoscopic characteristic of the repair and correlate it with the late results in terms of recurrence of the disease.

Material and Methods: Prospective study including 90 patients submitted to antireflux surgery which were evaluated 1 month after the operation with radiologic (Barium Sulphate) and endoscopy in order to precise the anatomical characteristic of the antireflux wrap. After 3-5 years patients were reevaluated with clinical questionnaire endoscopy, manometry and 24 h pH monitoring in order to precise recurrence of the disease.

Results: Radiological or endoscopic defective restoration of the new antireflux barrier was observed in 17.7% of cases. In these patients incompetent LES was present in 50%, endoscopic esophagitis was present in near to 90% and positive acid reflux in 93.3%.

Conclusions: Abnormal or defective restoration of the cardia is associated with insufficient antireflux barrier and induce persistence of reflux symptoms, incompetent LES endoscopic esophagitis and abnormal acid reflux. It is mandatory to follow all the surgical details in order to avoid misperforming procedure ant to evaluate objectively the results in order to have real data.
Abstract ID: 0286  Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 126.03

Cross-sectional appraisal of Barrett’s oesophagus surveillance at a large centre in UK

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Introduction: Guidelines for surveillance in Barrett’s oesophagus are still debated. There is no evidence from randomised controlled trials justifying current practices and the natural history of Barrett’s oesophagus is undefined. The aim of this study was to analyse local practice and investigate the incidence of oesophageal adenocarcinoma and associated death in patients screened for Barrett’s oesophagus at a large University Hospital in UK.

Material and Methods: This is a retrospective study of a series of 346 consecutive procedures on 257 patients diagnosed with Barrett’s oesophagus between 2002–2003. Data was retrieved from histology databases for patients with histological confirmation of Barrett’s oesophagus. Additional information was obtained from endoscopy reports and patients records.

Results: Of the 257 patients, 89 (35%) were females and 168 (65%) were males. The median age was 51 years. All patients were treated with PPIs and they were in a surveillance programme or were newly enrolled. Most clinicians in the institution adopted a yearly surveillance but data over the two-year period indicated surveillance ranged from one (72%) to five (0.4%) procedures. Histological analysis identified 295 (85.3%) cases of Barrett’s oesophagitis, 41 (11.8%) cases of mild and moderate dysplasia, no severe dysplasia and ten cases of adenocarcinoma (2.9%). The length of the suspected Barrett’s segment was provided for 94 (37%) patients and varied from 0.5 cm to 13 cm with an average of 5.4 cm. Six deaths were recorded among screened patients who developed adenocarcinoma and of those who survived three had in-situ adenocarcinoma.

Conclusions: Endoscopic surveillance for patients with Barrett’s oesophagus may be required in selected groups of patients only and surveillance intervals may need individual adjustment. Regular, routine surveillance of all Barrett’s patients may not be required and it has been demonstrated to be an expensive.

Abstract ID: 0287  Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 126.04

High-energy laser therapy of Barrett’s esophagus: long-term results

University of Padova, Padova, Italy

Introduction: Endoscopic ablation of Barrett Esophagus (BE) performed in experimental studies is under consideration to prevent the risk of cancer development. At present long term results in term of safety and efficacy are poor. Here we present the long-term results of laser therapy for BE in a group of patients.

Material and Methods: All the patients treated by laser-therapy for BE and followed up for at least 2 years were considered for enrollment in this study. After histology of intestinal metaplasia all the patients underwent laser treatment with Nd:YAG or Diode lasers under sedation. Those without antireflux surgery received also high dose proton pump inhibitors. Sessions were scheduled every three months the first year and then every 6 months until complete endoscopic ablation was obtained. Follow-up endoscopies with multiple biopsies were scheduled yearly. Length and circumferential extension of BE were reported during each endoscopic exam.

Results: A total of 20 patients with intestinal metaplasia underwent endoscopic laser-therapy and presented a follow-up longer than 2 years. From them 13 presented long segment Barrett and 7 short Barrett. After a total of 173 sessions, in mean 8 per patient, no complications were recorded. Stable complete endoscopic and histologic remission was obtained in 11 patients (55%). In the other 9 patients a mean reduction of 54% of the metaplastic area was obtained. Complete ablation was obtained in 6/7 Short Barrett and 5/13 long Barrett (p = 0.05). After a mean follow-up of 66 months, no cases of degeneration or recurrences were observed.

Conclusions: According to our experience, ablation of BE with laser therapy is a safe method, effective in most cases of short BE, thought its efficacy is minor in the long form. As we still do not know its impact on cancer development and other authors have reported infrequent, but severe complications, laser treatment of uncomplicated BE should continue to be monitored in experimental trials in specialized Endoscopic Units.

Abstract ID: 0288  Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 126.05

Surgical treatment of esophageal leiomyoma

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Introduction: In recent years, minimal invasive approaches have been introduced, providing thoracoscopic/laparoscopic techniques in the treatment of esophageal leiomyomas. Since only limited data are available about these surgical procedures, the aim of this retrospective study was to determine the technical feasibility and patients’ safety of thoracoscopic enucleation of esophageal leiomyomas.

Material and Methods: Between January 2001 and January 2007, 10 consecutive patients (male: female = 8:2; median age 42 (20–69) underwent thoracoscopic enucleation of an esophageal leiomyoma. The indication for surgery was either the presence of dysphagia or a tumor size greater than 2 cm. Five leiomyomas were located in the middle, and 5 in the lower third of the esophagus. For the surgical approach, a 4-trocar access via the right pleural cavity in single-lung ventilation was chosen.

Results: All minimally invasive procedures were successfully completed without conversion to open surgery. Every tumor was completely resected without opening of the mucosa and histopathologically confirmed as an esophageal leiomyoma. The median time of operation was 160 minutes (95–300 minutes), the median postoperative hospital stay was 7 days (5–13 days). No relevant intra-/ or postoperative complications were detected. The postoperative swallowing function was not disturbed in any patient and stable for a median follow-up of 33 months.

Conclusions: Enucleation using a thoracoscopic approach is a feasible and safe procedure for esophageal leiomyomas.
Abstract ID: 0290  Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 127.01

Results following surgical resection of GIST

M.B. Mortensen, C.W. Fristrup, H.O. Nielsen, C. Hovendal

Odense University Hospital, Odense, Denmark

Introduction: Surgical resection remains the treatment of choice in patients with localized Gastrointestinal Stromal Tumours (GIST). The reported overall 5-year survival following radical (R0) resection exceeds 60%. The majority of studies are relatively small and data on the immediate postoperative morbidity and mortality are lacking. The aim of this study was to evaluate the postoperative morbidity, mortality and long term survival in patients referred for surgical treatment of GIS.

Material and Methods: All patients referred to our department between January 2001 and February 2009 with histology proven GIST were consecutively registered in our database. We performed a retrospective analysis of the surgical procedure, R-status, postoperative (30-days) morbidity and mortality as well as long term survival in these patients.

Results: 70 (38 M/32F) patients with a median age of 64 years (range 35–90) were included. The tumours originated from the stomach (67.1%), small bowel (22.9%), esophagus (2.9%), rectum (1.4%) and retroperitoneum or unknown site (5.7%). Sixty-five patients underwent surgery, and a histological R0 resection was obtained in 62 cases (88.6%), whereas three patients (4.3%) had a palliative resection. Two patients with advanced tumours had neoadjuvant treatment (imatinib) prior to R0 resection. Five patients (7.1%) had disseminated disease. In the R0 group a local resection was performed in 48 patients (77.4%), whereas a larger (organ) resection was necessary in 14 patients (22.6%). No lymph node metastases were found in the curative resected patients. Postoperative complications were seen in 9 patients (13.8%), and four cases were severe (e.g. anastomotic leakage). Two patients (3.1%) died within 30 days of surgery, but in both patients the GIST was incidentally found during acute surgery for bleeding or perforated gastric ulcer. The complications in these patients could not be linked to the excision of the GIST. The median observation time was 23.4 months, and the overall 5-year survival after R0 resection was 70% (CI 48–84%).

Conclusions: The resection of the GIST itself had a low postoperative morbidity and no procedure related mortality. The 5-year overall survival in a population of both symptomatic and incidental GISTs was 70%.

Abstract ID: 0291  Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 127.02

Clinical impact of MMP and TIMP gene polymorphisms in gastric cancer


University of Cologne, Cologne, Germany

Introduction: Matrix metalloproteinases (MMPs) can degrade type IV collagen of extracellular matrices and thus play a key role in the migration of malignant cells. Aim of the present study was to investigate possible correlations of MMP and TIMP genotypes on gene expression, on clinicopathological parameters and on prognosis in gastric cancer.

Material and Methods: Genomic DNA was extracted from paraffin-embedded tissues of 135 patients who were treated surgically between May 1996 and January 2005 for primary gastric carcinoma. Allelic discrimination for MMP-2(–1306C>T), TIMP-2(303C>T) and MMP-7(–181A>G) was performed by quantitative real-time PCR using two allele-specific TaqMan probes in competition for amplification of each gene. MMP-2 and TIMP-2 gene expression in resected tumor tissues was immunohistochemically detected. Genotyping was correlated with expression and with histopathologic parameters. Relations to overall survival were evaluated with univariate analysis according to the Kaplan-Meier approach (log-rank test).

Results: The genotype distribution and allele frequencies of the SNPs were not significantly different from the control group. A significant correlation was seen for TIMP-2(303C>T) with a higher pN-stage (p = 0.01) and pM-stage (p = 0.02) for patients with CC
Abstract ID: 0292  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 127.03

Pelvic exenteration for advanced and recurrent malignancy
Lund University Hospital, Lund, Sweden

Introduction: Aggressive surgical technique and improved oncological treatment render many pelvic tumours amenable to potentially curative resection. This review evaluated the safety, morbitity, survival benefit and quality of life following such procedures.

Material and Methods: A consecutive series of patients underwent multivisceral pelvic resection between January 2003 and November 2008. Pre-operative assessment within a Multi Disciplinary Team followed CT, MRI, PET-scan and endoscopy. Twenty nine total, 36 posterior exenterations, and 16 composite abdominococcal resections were performed. In 33 cases reconstruction included musculocutaneous flaps. Urinary diversion was achieved by an ileal conduit in 23 and a continent pouch in six patients. HRQL was evaluated prospectively by the QLQ-C30 questionnaire in 16 cases.

Results: Eighty five patients (41 men, median age 67 (range 33–90) years) were evaluated. Primary tumours included 43 colorectal, 2 anal, 1 prostatic, 2 sarcomas and 5 gynaecological malignancies. Recurrences were 20 colorectal, 8 anal, 1 gynaecological malignancies. 3 patients with suspected recurrence were proven free of malignancy. 69% of all cases had been treated pre-operatively by chemotherapy and pelvic irradiation. Surgical morbidity was 46%. One re-laparotomy was required for anastomotic defect; two pelvic abscesses were drained transperineally. There was one flap failure requiring re-do surgery. In primary tumours R0 resection was 71%, R1 18% and R2 11%. In recurrence R0 was 64%, R1 and R2 18%. Median follow-up was 26 months (range 2–70). Hospital mortality was naught. Local recurrence developed concurrently with distal metastases in 18 patients. Twenty patients had disseminated disease and two local recurrences only. Nineteen patients died after 11 (range 4–55) months median follow-up. Overall cancer related mortality was 23%, 5%. Global health status and functional score were significantly improved at 16 months after surgery.

Conclusions: Multivisceral pelvic surgery is possible with acceptable morbidity and mortality rates as well as improved quality of life. Earlier diagnosis and thorough staging are needed to identify patients who may benefit by aggressive surgery especially in recurrent disease.

Abstract ID: 0294  Specific Field: Cardiac Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 127.05

Evaluation of estimation of physiologic ability and surgical stress (E-PASS) for risk estimation in cardiac surgery
A. Kotera, J. Kei, M. Okamoto, T. Katayama, Y. Haga
National Hospital Organization Kumamoto Medical Center, Kumamoto, Japan

Introduction: We had generated a prediction rule for digestive surgery, designated ‘Estimation of Physiologic Ability and Surgical Stress (E-PASS).’ This system was reported later to be also useful in...
many fields, including orthopedic surgery, vascular surgery and lung surgery. In this report, we evaluated E-PASS to predict postoperative morbidity and mortality in cardiac surgery, in comparison with European System for Cardiac Operative Risk Evaluation (EuroSCORE).

**Material and Methods:** We retrospectively investigated data on E-PASS, EuroSCORE and postoperative course of all the patients (N = 139) who underwent elective cardiac surgery between January 1, 2006 and December 31, 2008. In-hospital mortality was primary endpoint in both systems. Correlation coefficient (R) was quantified by Pearson’s method. Area under receiver operative characteristic curve (AUC) was used to determine the discriminatory ability to predict mortality.

**Results:** As shown in the Table, EuroSCORE requires 17 variables, whereas E-PASS 10 variables. In both E-PASS and EuroSCORE, the observed-morbidity and mortality rates increased as the predicted-morbidity and mortality rates increased (Figure). In total patients, the observed- to estimated-mortality rates ratio (95%CI) was 0.82 (0.42–1.6) for EuroSCORE and 0.88 (0.44–1.7) for E-PASS. The predicted mortality rates of E-PASS significantly correlated with those of EuroSCORE (R = 0.53, N = 139, P < 0.0001). AUC (95%CI) were 0.79 (0.68–0.90) for EuroSCORE and 0.84 (0.76–0.92) for E-PASS.

**Conclusions:** E-PASS requires fewer variables and seems to be more accurate to predict postoperative mortality, in comparison with EuroSCORE.

<table>
<thead>
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<th>Variables required for EuroSCORE and E-PASS</th>
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**Abstract ID: 0295**  
**Specific Field: Miscellaneous**

**Mode of pres.:** Free Paper (oral)  
ISW 2009 Session 127.06

**Evaluation of estimation of physiologic ability and surgical stress (E-PASS) for surgical audit: multicenter prospective study**

Y. Haga [1], K. Ikejiri [2], Y. Wada [3], T. Takahashi [4], M. Ikenaga [5], N. Akiyama [6], S. Koike [7], M. Koseki [8]


**Introduction:** Clinical audit has been increasingly required for the accreditation process in every modern healthcare system. We previously developed an audit system for elective digestive surgery, designated as Estimation of Physiologic Ability and Surgical Stress (E-PASS). This study was undertaken to evaluate its usefulness in a multicenter fashion.
Abstract ID: 0297  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 136.01

Application of computational portal flow dynamics simulation to liver regeneration analysis


Hyogo College of Medicine, Nishinomiya, Japan

Introduction: Portal blood flow has been implicated in a critical factor regulating liver regeneration after surgical resection, while there has been few definitive evidence supporting this hypothesis. Whether the remnant liver regenerates uniformly or some specific region of the remnant liver preferentially regenerate is also unknown. We hypothesized that changes in blood flow in each portal branch regulate the regional regeneration, and tested this hypothesis employing computational simulation systems.

Material and Methods: Patients with primary liver cancer who underwent anatomical liver resection were analyzined. According to preoperative MD-CT, 3-D structure of portal branches was quantified in each system as a measure of quality.

Results: In Group B, E-PASS had better correlation between the observed-and estimated-mortality rates in ten risk bands and showed better AUC values, as compared to ASA-based model or P-POSSUM (Table and Figure). Number of variables required for E-PASS is much less than P-POSSUM (Table). In Group A and B, the OE ratios for E-PASS among high-volume hospitals significantly correlated with those for P-POSSUM (R = 0.96, N = 6, P = 0.0021) and for ASA-based model (R = 0.83, N = 9, P = 0.0051).

Conclusions: Because of its simplicity of use and accuracy, E-PASS may be suitable for large-scale survey on surgical audit.

Accuracy of three surgical audit systems

<table>
<thead>
<tr>
<th></th>
<th>E-PASS</th>
<th>ASA-based model</th>
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<td>R values</td>
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Figure: ROC curve of three audit systems
constructed, and each segment volume was accurately calculated using 3-D virtual hepatectomy simulation software as we reported before. Same procedure was performed 3 months after the operation, and regeneration volume in each segment was determined. Direct measurement of prompt changes in blood flow in each portal branch after surgery is technically difficult, so we used computational flow dynamics (CFD) software (Fluent 6.2, Fluent Inc.) for flow simulation. For the CFD analysis, mesh models of portal branches were constructed. On the Fluent 6.2, changes in blood flow in the remnant portal branches were simulated by virtual cutting of an interested portal branch. Portal flow simulation was also performed 14 days and 3 months after operation using DICOM data obtained from MD-CT at each time point.

Results: Regional regeneration volume in each segment in the remnant liver was not uniform during the 3 months. According to the CFD software, the simulated increases in blood flow and pressure after virtual portal resection were also not uniform. The blood flow change in portal branches rather than that in pressure at day 14 well correlated with the regional regeneration volume in each segment at 3 months. The sudden increase in portal pressure just after the virtual cutting of interested portal branch was almost normalized by day 14 in non-fibrotic liver.

Conclusions: Liver regeneration after surgical resection does not uniformly occur, and the non-uniform increases in blood flow in portal branches rather than those in pressure possibly account for the non-uniform liver regeneration. Computational portal flow dynamics simulation could be a useful tool for analyzing liver regeneration after hepatic surgery.

Abstract ID: 0298 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 136.02

Ligation-free liver parenchyma dissection with the paddle electrode combined with the low voltage coagulation mode

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Introduction: Soft Coagulation, low voltage coagulation, has a great potential in clinical application due to its unique characteristics with no electric sparks produced. In order to take advantage of this coagulation output, the paddle shaped electrode with an irrigation channel was designed. We have used this electrode in clinical series and experienced a less bleeding during liver dissection.

Material and Methods: The paddle electrode is a laterally compressed round-shaped electrode with an internal irrigation channel that can be connected to the saline via flexible tubing. Liver parenchyma is divided by the combination of Soft Coagulation output using the irrigating paddle electrode connected to the VIO electrical unit. This can allow the dissection of the parenchyma while leaving the small veins and Glisson’s sheaths intact behind. The Glisson’s sheaths and small veins left behind are coagulated with bipolar forceps. Larger Glisson’s sheaths and veins are coagulated using BiClamp forceps. For the bleeding from perforated hepatic vein walls where branches of veins were pulled off during the dissection of nearby areas, the irrigating paddle electrode can be pressed against the vessel wall allowing the Soft Coag current flow to the vein wall to shrink the perforations.

Results: The blood loss was 1.22 g/cm2 in partial resection, 0.68 g/cm2 in subsegmentectomy, and 1.57 g/cm2 in segmentectomy or lobectomy. With the exception of one patient who has been on dialysis, no blood transfusion was required in other 20 cases. When the coagulation current is applied together with the saline solution, the latter increases the conductivity between the electrode surface and the target tissue allowing the current to effectively conducted into the tissue while preventing the sticking of the tissue to the electrode surface. The larger contact surface of the paddle electrode helps to stop the oozing from the parenchyma of the liver.

Conclusions: The combination of Soft Coagulation and the irrigating paddle electrode are very effective in controlling the bleeding during liver resection procedures. The simple change in the electrode shape and addition of the irrigating capability to the electrosurgical electrode enhances the characteristics and performance of the unique electrosurgical output mode of Soft Coagulation.

Abstract ID: 0299 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 136.03

Bilateral lobectomy excluding the caudate lobe for a special type of complex hepatolithiasis

J. Dong, Wenping Lu
Hospital & Department of Hepatobiliary Surgery, General Hospital of PLA, Beijing, China

Introduction: It is a rarest phenomenon for bilobar diffuse stone disease presenting atrophy-hypertrophy complex (AHC) and the caudate lobe enlarging in compensation for the bilateral lobe of the liver. Bilateral lobectomy excluding the caudate lobe is an unusual operative strategy for hepatolithiasis. The objective of this article is to evaluate the feasibility of bilateral lobectomy excluding the caudate lobe for this special type of complex Hepatolithiasis.

Material and Methods: Between March, 2003 and February, 2007, a total of 588 patients with hepatolithiasis were admitted to the department and 329 underwent operative treatment. Six patients (1%, 6 out of 588 patients) with bilobar diffuse stone disease presenting AHC and the caudate lobe enlarging in compensation for the bilateral lobe of the liver. There were 1 men and 5 women with a mean age of 47.3 years (range 35 to 60). Median follow-up was 17.1 months, ranging from 9.1 to 29.1 months. All of the 6 patients have been undergone bilateral lobectomy excluding the caudate lobe successfully.

Results: There was no intraoperative and postoperative death. The mortality rate within 30 days was 33.3% (2 of 6 patients), including 1 patient with pneumonia and wound infection and the other with pneumonia and pleural effusion. Fatal complications did not occur and surgical injury was not observed. The mean hospital stay was 22.8 days (12–22 days), The immediate stone clearance rate after hepatectomy and intraoperative cholecdochoscopy was 100%. Only 1 patients had recurrent stones at 8 months after operation, and this patient developed a cholangitis, died from cholangitis induced sepsis and liver failure. The other 5 patients had no recurrent stones diagnosed by sonography, CT scan or MRCP, and had good long-term results.

Conclusions: The operative procedure of that bilateral lobectomy with preserving the hypertrophic caudate lobe is good choice for these unusual patients, and the regenerating caudate lobe may tolerate extended hepatectomy very well.
Abstract ID: 0300  Specific Field: Hepatobiliary and Pancreas Surgery

Extended right hepatectomy with portal vein resection and reconstruction using renal vein graft prior to hepatic dissection for hilar cholangiocarcinoma

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Introduction: We report a successfully resected case of hilar cholangiocarcinoma, which involved the right hepatic artery and bilateral portal vein.

Material and Methods: A 71-year-old Japanese woman presented with obstructive jaundice. Abdominal CT and MRCP demonstrated marked dilatation of bilateral intrahepatic bile ducts and a tumor 3 cm in diameter at the porta hepatis. Hilar cholangiocarcinoma was diagnosed and we performed PTC, CTAP showed that the bifurcation of the right and left portal veins was involved in the tumor (Figure). However, the left hepatic artery and umbilical portion seemed to be free from cancer invasion. Therefore, an extended right hepatectomy with portal vein resection and reconstruction was performed.

Results: We first isolated the left hepatic artery, left portal vein, and portal branch P2 and P3 + 4. After division of the right hepatic artery, we performed lymphadenectomy around the pancreatic head and hepatoduodenal ligament. The left renal vein was resected to provide a portal vein graft. After clamping the portal trunk and left portal branch as far from the bifurcation as possible, the portal vein was resected. Reconstruction was performed using a renal vein graft prior to hepatic dissection. Total clamping time of the portal vein was 37 min. After unclamping the portal vein, the right liver was dissected along the middle hepatic vein towards the right side of the umbilical portion. Then, the left hepatic duct adjacent to the umbilical portion was divided and Roux-en-Y hepaticojejunostomy was performed. Operating time was 7 h 38 min and blood loss was 1484 ml. Postoperative pathological diagnosis was well differentiated adenocarcinoma with right hepatic artery and portal vein invasion. Periportal lymph node metastases could be seen. The surgical margins of the bile ducts were free from cancer invasion. Postoperative adjuvant chemotherapy with gemcitabine was continued for more than one year without apparent recurrence.

Abstract ID: 0301  Specific Field: Hepatobiliary and Pancreas Surgery

Etiology and localization of micrometastasis in liver parenchyma: oncopathologic background for types and extension of liver resections as part of the surgical strategy in gallbladder carcinoma


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Introduction: The liver plays a central role in spread of gallbladder carcinoma. In more than 80% of cases, the liver is origin of recurrence of cancer, either by local recurrence or by livermetastasis. Available oncopathologic knowledge of spread of gallbladder cancer is in the liver parenchyma is shown.

Material and Methods: By pubmed (Boston) and other databases 65 relevant studies were found with focus on spread of gallbladder carcinoma in the liver parenchyma.

Results: The liver parenchyma can first be reached by direct extension of gallbladder carcinoma. Because carcinoma cells appear distal of the macroscopic tumour front in variable degrees, in liversection a sufficient safety distance has to be reached. Hematogen venous spread leads to a dissemination of tumour cells by a various number of small venous vessels, which drain directly in the liverbed of the gallbladder in the segments IV a an V (according to couinaud) or by drainage of a singular cystic vein, which joins the right portal venous system. Cancer cells can reach the liverparenchyma in the retrograde fashion of lymphatic spread, too. This modus can appear by compression and/or infiltration of draining lymph nodes and lymphatic tissue with following retrograde lymphatic flow in the functional right liver. Both models and available scientific evidence, wich supports both models (section analysis, animal models, radiologic and immunohistochemic analyses) are presented an are discussed critically. Some authors combine both models and introduced the terminus “angiolympathic” spread of micrometastasis in liverparenchyma by gallbladder carcinoma.

Conclusions: Surgical treatment of gallbladder carcinoma must be based on oncopathological knowledge. Despite R0 resection remaining occult micrometastasis in liverparenchyma can be origin of tumour recurrence. The uneven distribution in the segments IVa and V or the functional right liver opens targeted therapy methods by segmental or extended liverresections, which can today be performed with low risc.

Abstract ID: 0302  Specific Field: Hepatobiliary and Pancreas Surgery

A pilot study on the use of a novel radiofrequency vascular catheter in the multimodal management of primary and secondary cancers of the liver

S.E. Khorsandi [1], P. Kysela [1], V. Valek [2], O.M.S. Olufemi [3], I. Lázár [3], V. Prochazka [4], N.A. Habib [5]
A number of different transarterial techniques have been developed for the locoregional control of liver tumors. Presently available endovascular techniques rely on the delivery of embolic material which has the risk of collateral damage to non tumorous liver or other non target organs. This pilot study reports our assessment of the endovascular application of a novel radiofrequency catheter (VesCoag) in the multimodal management of primary and secondary cancers of the liver.

**Material and Methods:** A prospective, uncontrolled multicentre study was undertaken. Patients considered for inclusion in the study had primary or secondary cancer of the liver, which were not suitable for surgical resection.

**Results:** In this series VesCoag was used to occlude the tumor arterial blood supply (n = 13). The average age of the patient was 68.5 years (range 48–80), five patients were female and eight were male. The indications for treatment were metastatic disease in 4, hepatocellular carcinoma in 7 and intrahepatic cholangiocarcinoma in 2. In all cases, VesCoag was able to be manipulated into the target vessel for probe activation. There were no technical problems such as vessel dissection or rupture. The average fluoroscopic time was 12.86 minutes and the mean duration of probe activation was 240 (range 20–600) seconds. The lowest wattage used was 2W and the highest 120W. In no cases was bipolar radiofrequency activation sufficient to produce vessel sealing, so in all patients (n = 13), VesCoag was used in monopolar mode. There were four minor complications of pain. The angiographic endpoint of occlusion of the targeted vessel after VesCoag activation was achieved in 11 patients. In 12 out of 13 cases an additional endovascular therapeutic manoeuvre was performed after VesCoag activation. These additional therapies were chemoembolization n = 10, chemotherapy n = 1 and lipiodol n = 1.

**Conclusions:** This initial assessment shows VesCoag to be safe and fulfilling its design remit of producing precise occlusion of the targeted vessel.

**Abstract ID: 0303**  
**Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 136.07**

Do the primary tumor factors impact on outcome after resection of colorectal liver metastases?

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**Introduction:** The outcome after resection of liver metastases from colorectal cancer is influenced not only by factors of metastatic lesions but also by those of primary disease. We aimed to clarify whether primary tumor factors are predictive of post-resection outcome of colorectal liver metastases.

**Material and Methods:** One hundred ninety patients (male 115, female 75; synchronous 68; metachronous 122; colon 127, rectum 63) who underwent surgery for colorectal liver metastases at the Cancer Institute Hospital from 1995 to 2005 were recruited for analysis.

**Results:** Overall 5-year survival of the patients with synchronous liver metastases and those with metachronous ones were 49.0 and 56.8%, respectively (p = 0.35). Univariate analysis showed the depth of primary tumor invasion and size of liver metastasis were significant predictors for synchronous liver metastasis group, while depth, extent of lymph node metastases, vascular infiltration of primary, number of liver metastases, size of liver metastases, surgical margin, pre-hepatectomy CEA and CA19-9 level were significant for metachronous group. Multivariate analysis was performed using these predictors and varied with $p < 0.2$. In synchronous group, the outcome after hepatectomy was significantly influenced by the extent of lymph node metastasis of the primary tumor as well as size of metastatic lesion. Meanwhile, in metachronous group, only pre-hepatectomy CEA level and clearance of surgical margin significantly influenced the outcome. The primary tumor factors did not significantly affect those patients.

**Conclusions:** The primary tumor factor influenced the outcome after hepatectomy for synchronous liver metastases. This should be paid attention for deciding the indication of hepatectomy for synchronous liver metastases, especially for simultaneous resection with primary site.

**Abstract ID: 0304**  
**Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Free Paper (oral)  
**ISW 2009 Session 136.08**

Evaluation of intrahepatic biliary dilatation (IHBDR) by preoperative and postoperative MRCP to differentiate type I and true type IV choledochal cyst

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**Introduction:** Todani’s classification of choledochal cysts (CDC) into Type I and Type IV depending on intrahepatic involvement has prognostic significance. After CDC excision > 90% of Type I CDC remain symptom free whereas 30–40% of Type IV develop complications such as recurrent cholangitis, strictures and hepatolithiasis. Incidence of type IV A cysts in various large series has varied widely from 13% to 83% possibly because of lack of clarity and uniform criterion on what constitutes a true type 4A cyst. Current classification does not account for the nature of intrahepatic involvement and association with congenital stenosis.

**Material and Methods:** Aim: To differentiate Type I and type IV choledochal cyst (CDC) by post op MRCP after CDC excision Methods: Prospective study. Patients with CDC with IHBRD underwent preop MRCP and were classified for extent and type of IHBRD-fusiform (uniform upstream dilatation with no stenoses), saccular (IHBR with intrahepatic stenosis) and segmental (IHBRD involving only right or left system). Postop MRCP after CDC excision was performed after minimum 6 month follow up and compared with preop MRCP to reclassify them as true type IV or type I CDC.

**Results:** 30 pts were included in the study. Preoperative MRCP revealed fusiform dilatation in 18, Saccular - 9, and Segmental (Left system) in 4 pts. On Postop MRCP saccular IHBRD persisted in 8/9 and segmental IHBRD persisted in 2/3 pts. On the other hand fusiform dilatation resolved in most but persisted after 6 months in 3 pts.

**Conclusions:** Type of IHBR on preoperative MRCP can differentiate Type I and Type IV CDC in most but not all patients as demonstrated in our study. Serial follow up with MRCP is needed in some patients after CDC excision to identify true Type IV CDC.
Saccular/cystic type IHBRD with intrahepatic stenosis

The challenge in performing endoscopic procedure is

Endoscopic Surgery

Specific Field:

Gastric ulcer perforation accounts for major morbidity

Endoscopic Surgery

Specific Field:

Hepatobiliary and

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The robotics-controlled grasper was able to effectively

S119

Specific Field:

Endoscopic perforated hollow viscus repair appears

In the Erlangen models, a total of 15 lesions located at the

In this blinded, IACUC approved study, 15

was less than laparoscopic. Evaluation of whether it is feasible in

total time than laparoscopy, the specific mean NOTES repair time

technically feasible with outcomes in the porcine model similar to

Conclusions:

At necropsy all repairs were intact without gross evidence

animal failed to thrive on POD 7. No intra-abdominal cause of death

was found. At necropsy all repairs were intact without gross evidence

of intraperitoneal contamination.

of 15 animals thrived to study completion. Two animals (one from

patch was 47 versus 25 minutes for NOTES repair (p = 0.04). Twelve

(p = 0.003). Mean specific repair time for the laparoscopic omental

resection was performed using the robotic grasper and hook. Hemos-

tasis was achieved with the hook. The gastrotomy site was left open

and the animal was euthanized. The 3 transgastric segmental hepatec-

were successfully performed with no laparoscopic assistance. The

operation time was 8.5 min (range: 6–11 min).

Conclusions: The robotics-controlled grasper was able to effectively

grab and retract the liver tissue while the other robotic manipulator

holding the hook dissected the liver at the desired plane. Robotic

coordination of the two end-effectors was precise and triangulation of

the two arms was achieved with ease. On the other hand, ESD is

feasible and safe using the robotics-enhanced endoscopic system.

Figure: Saccular/cystic type IHBRD with intrahepatic stenosis persisted after surgery in 8/9 patients

Abstract ID: 0305 Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 137.01

NOTES perforated viscus repair successful and comparable to laparoscopy in a porcine model

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Introduction: Gastric ulcer perforation accounts for major morbidity associated with peptic ulcer disease. Procedure related complications contribute to 1-year mortality. Natural orifice translumenal endoscopic surgery (NOTES) may offer a new minimally invasive repair and decrease morbidity.

Material and Methods: In this blinded, IACUC approved study, 15 domestic swine were randomized to laparoscopic or NOTES repair. A full thickness gastric perforation (1 cm) was created laparoscopically followed by 4 hours waiting time to allow peritoneal contamination. Following peritoneal cavity irrigation (5L saline), repair proceeded with either laparoscopic omental patch or NOTES approach. For NOTES repair, a sterile overtube was placed within the prepped oropharynx. An upper endoscope was advanced into the stomach and through the perforation. Omentum was grasped with endoscopic biopsy forceps, pulled into the gastric lumen, and fixed with metallic clips. Procedure times and clinical parameters including necropsy at 2 weeks were recorded.

Results: Nine animals were randomized to NOTES and 6 to laparoscopic repair. NOTES repair failed in 1 animal (inability to pass the endoscope through perforation); this repair was completed laparoscopically, data were analyzed as intention to treat. Mean total procedure time (set-up, irrigation, repair) for laparoscopy (excluding trocar placement) was 90 compared to 133 minutes for NOTES repair (p = 0.003). Mean specific repair time for the laparoscopic omental patch was 47 versus 25 minutes for NOTES repair (p = 0.04). Twelve of 15 animals thrived to study completion. Two animals (one from each group) succumbed to airway compromise in recovery; 1 NOTES animal failed to thrive on POD 7. No intra-abdominal cause of death was found. At necropsy all repairs were intact without gross evidence of intraperitoneal contamination.

Conclusions: Endoscopic perforated hollow viscus repair appears technically feasible with outcomes in the porcine model similar to laparoscopy. While NOTES procedures, including set-up, took more total time than laparoscopy, the specific mean NOTES repair time was less than laparoscopic. Evaluation of whether it is feasible in humans, possibly with less anesthesia, appears warranted.

Abstract ID: 0306 Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 137.02

Natural orifice transluminal endoscopic surgery and endoscopic submucosal dissection with robotics-enhanced manipulator system

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Introduction: The challenge in performing endoscopic procedure is mainly due to the limitations of the available instruments. We recently developed a robotics-enhanced endoscopic system, consisting of a master controller, telesurgical workstation, and slave robotic manipulator that transmits the movement of the operator. The master, through an array of sensors and joints, controls a slave manipulator with grasper and diathermy hook inserted through the operative channel of the endoscope.

Material and Methods: To validate the efficacy, we have performed endoscopic submucosal dissection (ESD) and Natural Orifice Transluminal Endoscopic Surgery (NOTES) procedures. The ESD model consisted on the resection of gastric lesions in 5 Erlangen porcine stomach models and in 5 live pigs. 20 mm gastric lesions were marked with needle knife and then a solution of 0.04% indigo carmine was injected submucosally. Dissection was carried out either using the robotics-controlled grasper and hook or conventional IT knife.

Results: In the Erlangen models, a total of 15 lesions located at the cardia, antrum, or body were successfully resected. The mean size of the specimens was 37.4 x 26.5 mm. Mean time was 23.9 min (8–48 min). In the live pigs, the average time was 16.2 min (3–29 min).

Conclusions: The robotics-controlled grasper was able to effectively operate and decrease morbidity.

Abstract ID: 0307 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 137.03

The informed consent process in NOTES cholecystectomy

A.R. Ferreres [1], S. Horgan [2], J. Paleari [1], A. Rondán [1], O.O. Laudanno [1], R. Franzosi [1], V.P. Gutiérrez [1]

Introduction: The advent of NOTES surgery has raised issues regarding the informed consent process required from the ethical and
Material and Methods: Between August 2007 and December 2008, 40 NOTES cholecystectomies were attempted in the frame of a cooperation agreement between the Surgical Departments of the University of California, San Diego and the University of Buenos Aires. All the procedures were elective and hybrid: 35 were transvaginal and 5, transgastric. The process of information included the following steps: 2 individual interviews and one group meeting, printed information with diagrams and pictures and evacuation of doubts and further enquiries. Final decision was documented in a form with open spaces where the following points were included: a) nature of the disease and proposed operation, b) potential benefits, c) risks and complications and d) alternative treatment. Patients' competency was assessed by means of MMS (Mini-Mental-State examination) and psychological evaluations were performed to all patients.

Results: 37 operations were completed as intended (92.5%). Two operations had to be converted to a laparoscopic approach. Average consultation time for complete fulfillment and documentation of the informed consent process was 45 minutes +/- 14 minutes. All the patients were satisfied with the provided information, though 17 of them (42.5%) considered it as excessive. Average MMS result was 27 (range 24–30) and the anxiety level was low in 36 of the 40 patients (90%).

Conclusions: a) the development of new techniques imposes a refinement in the information provided as well as its adequate documentation, b) compliance with ethical and legal regulations must be accomplished by the due process and interchange and doubt solving, c) expertise of the surgical team and training in experimental models is a “must” for this type of surgery.

Abstract ID: 0308 Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 137.04

“No visible scar” laparoscopic cholecystectomy: first experiences with transvaginal hybrid-NOTES cholecystectomy

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Introduction: Laparoscopic cholecystectomy has become standard procedure during the last two decades. Natural orifice transluminal endoscopic surgery (NOTES) will further decrease the operative trauma to the abdominal wall and reduce postoperative pain, wound infection, risk of hernia and hospital stay. We now report the first results of transvaginal Hybrid-NOTES cholecystectomy from Switzerland.

Material and Methods: From July 2008 to December 2008, 5 women were treated by transvaginal Hybrid-NOTES cholecystectomy. Pneumoperitoneum was created through a 5 mm incision in the umbilicus. Two rigid trocars (12 mm and 5 mm) were inserted in the posterior fornix of the vagina. Patient data, operative time, complications and postoperative course were recorded prospectively in each patient.

Results: The average age of the 5 patients was 34.6 years (19 to 44 years) and the mean body mass index was 24.8 kg/m². One patient had in advance a cesarean section and two patients a conization. In all patients operation was performed without intraoperative complications and no further procedure was done simultaneously. The mean operative time was 79 minutes (65 to 88 minutes). The mean hospital stay was 2.6 days (2 to 3 days). Non steroidal anti-inflammatory drugs and paracetamol or metamizol were administered for postoperative analgesia. The postoperative course was except for little vaginal bleeding in the first 3 to 7 days uneventful. The further postoperative follow-up after 4 weeks was without complications.

Conclusions: The transvaginal Hybrid-NOTES cholecystectomy is a feasible and probably safe procedure. Operative time was despite lack of experience not longer than in laparoscopic cholecystectomy. The posterior colpotomy is a simple approach to the abdominal cavity and wound healing is very rapid. Using rigid instruments and techniques which are wellknown from laparoscopy, transvaginal cholecystectomy is possible without other medical specialties.

Abstract ID: 0309 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 137.05

Laparoscopic right hemicolecction, notes extraction vs. counter incision: a prospective study

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Introduction: Laparoscopic colectomy is now accepted for both benign and malignant colon diseases as safe and effective as open approach. Laparoscopic right hemicolecctomy either with a totally intracorporeal or extracorporeal anastomosis has been performed for the treatment of ascending colon diseases including cancer, polyps, chronic inflammatory bowel diseases, AVM. However, research has not been conducted comparing intracorporeal anastomosis with or without NOTES extraction of the specimen.

Material and Methods: From December 2007 to February 2009 all laparoscopic right hemicolecctomies were analyzed. The operative procedures and instrumentation were standardized for all laparoscopic right hemicolecctomies with either NOTES extraction or counter incision extraction.

Results: Thirty females patients were prospectively followed. Fifty percent received laparoscopic hemicolecctomy with intracorporeal anastomosis and NOTES extraction (transvaginal) and 15 patients laparoscopic right hemicolecctomy with intracorporeal anastomosis and counter incision extraction (RLQ muscle splitting). The mean operative time for the NOTES extraction was 159.6 +/- 27.1 minutes vs. 133.5 +/- 29 minutes for the counter incision, the mean blood loss was 83.3 ml vs. 89.0 ml for the counter incision, the mean hospital stay was 5.5 days vs. 5.9 days and 2.8 days for the counter incision, the intraoperative and postoperative morbidity rates were 0% vs. 0.66%, respectively vs. 0% and 13% for the counter incision.

Conclusions: Laparoscopic colectomy either with intracorporeal is safe and effective for managing a variety of colonic diseases, including malignant disease. NOTES extraction resulted in increased operative time but decreased postoperative complications.

Abstract ID: 0310 Specific Field: Endoscopic Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 137.06

Single port “scarless” laparoscopic surgery: experience of the first 50 cases

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Introduction: Minimising the scarring and invasiveness of surgery is a goal of surgeons. A multi channel port allowing simultaneous insertion of 2 instruments and a scope permits laparoscopic surgery via a single incision. Careful placement of the incision inside the umbilicus leaves no visible scar. Currently available conventional instruments and techniques minimise additional cost. It also builds upon already acquired laparoscopic skills, hence shortening learning curves.

Material and Methods: All patients undergoing surgery via a multi-channel port through the umbilicus in a University Hospital from September 2008 to January 2009 were included. Informed consent was obtained from all the patients. Data on patient characteristics, operation, duration, use of additional ports and complications were collected prospectively and analysed using Microsoft Excel 2003. Patients were offered a 6 week review by telephone or a clinic appointment.

Results: 56 patients (40 females) underwent surgery (Table 1). Age range was 18–85 (median 35). Cholecystectomy was the only procedure that required additional ports (8 cases needed a single 5 mm epigastric port and 2 were converted to a standard 4 port laparoscopic cholecystectomy). The reasons for additional ports was either dense adhesions in Calot’s triangle or inability to retract a thick-walled gallbladder. Operating time was comparable to the conventional laparoscopic surgery. The only early minor procedure-related complication was a small intra-abdominal haematoma following an appendicectomy in a patient with malrotation. All the patients were followed up. Patients reviewed to date remain satisfied with the outcome of no visible scarring.

Conclusions: This modification of laparoscopic surgery is suitable for a variety of procedures and early results have shown no disadvantages when compared to conventional laparoscopy. If dissection proves difficult then we recommend early conversion by use of additional ports as needed. Single port “scarless” surgery is feasible and safe with a short learning curve in selected cases.

<table>
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Abstract ID: 0311 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 137.07

TULC: total umbilical cholecystectomy
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Introduction: Reducing scars and surgical trauma in abdominal surgery, especially the aim of further reduction of visible trauma after cholecystectomy has led to studies combining laparoscopic and other methods. In our study we report about a series of 70 patients who underwent laparoscopic cholecystectomy without visible scars by operating totally through the umbilicus.

Material and Methods: Positioning of the patient was like for usual laparoscopic cholecystectomy. A 10-mm incision was made left in the umbilicus and the pneumoperitoneum was created with a Verres needle. A 10-mm optic was inserted and a diagnostic laparoscopy was performed. Two more incisions in the umbilicus were made for inserting the dissector and an overhault, one 5-mm incision right in the umbilicus and another 5-mm incision left. In Trendelenburg position the gallbladder was exposed with the overhault by retraction, the dissector was used for preparation. After clearly identifying the cystic artery and the cystic duct, both were clipped with a 5-mm clamping device and cut. Further preparation of the gallbladder and mobilization from the liver occurred with an electric hook. For removal a 5-mm optic was inserted through the right incision and a removal bag was placed through the 10-mm port. By connecting the two incisions left in the umbilicus the gallbladder was removed. Intracutaneous suture was made with non-coloured resorbable 5-0 suture and the defect additionally glued with skin adhesive glue (Dermabond).

Results: 70 patients were operated successfully in a period of 10 months. Operating time was 65 (45–80) min. No conversion to open surgery or other intra- or postoperative complications occurred in any patient. Hospital stay was 3.5 (2–7) days, postoperative examination showed no difference to usual laparoscopic cholecystectomy with a good cosmetic result with no visible scars.

Conclusions: Concluding, a TULC cholecystectomy provides a safe, most minimal invasive operation with no special planning or equipment needed using standard laparoscopic instruments in the routine program, no need of perforation of healthy organs with all the adjunctive risks and best cosmetic results in patients with symptomatic cholecystolithiasis.

Abstract ID: 0312 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 161.01

The benefit of PET-CT in the therapeutic algorithm of esophageal cancer
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Introduction: Since 2006, 135 patients with oesophageal cancer underwent PET-CT examination at the 1st Clinic of Surgery. The authors analysed the benefit of the examination in terms of disease staging and therapeutic strategy.

Material and Methods: Primary PET-CT examination is performed in all patients with oesophageal cancer to exclude generalisation. A follow-up PET-CT is performed in these patients following neoadjuvant therapy; if disease progression is observed, these patients are not indicated for surgical treatment.

Results: In our set of patients, PET-CT ruled out generalisation in 93 patients who had neoadjuvant radiochemotherapy. 45 of these patients then underwent surgical therapy. In 5 patients, follow-up PET-CT examination showed disease generalisation to distant lymph nodes and surgical treatment was not indicated. Primary PET-CT examination revealed disease generalisation in 40 patients. These patients were indicated for palliative oncological treatment.
Conclusions: Accurate classification of disease stage before initiating demanding therapy leads to the improvement of unsatisfactory results of oesophageal cancer therapy. An appropriate method of choice is PET-CT examination, which can detect disease generalisation and enables performing intensive therapy only in indicated patients. The study was supported by grant of IGA MZd CR NS 9622-3

Abstract ID: 0313 Specific Field: Esophagus
Mode of pres.: Free Paper (oral)
ISW 2009 Session 161.02

Rational areas of lymph node dissection for esophageal carcinoma based on the anatomy of lymphatic drainage
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Introduction: Controversy exists as to areas of lymph node dissection required in esophageal cancer surgery. Whether for therapeutic value or better staging, dissection area should be based on the anatomy of lymphatic drainage of the esophagus. To verify the anatomical basis, we checked the frequency of involved nodes according to the areas of dissection. To estimate therapeutic value of lymphadenectomy, we also analyzed survival effect of dissection of lymphatic involvement.

Material and Methods: Consecutive 425 patients with esophageal carcinoma who underwent R0 esophagectomy with three-field dissection between 2001 and 2005 were analyzed. Frequency of lymph node metastasis was compared according to the areas: the neck, the upper mediastinum, the mid-mediastinum, the lower mediastinum, the perigastric and the celiac area. Therapeutic value of dissection was estimated by survival of the patients with involved nodes according to these areas.

Results: When the tumor invaded submucosa, frequency of lymph node metastasis was higher in the upper mediastinum, perigastric area and the neck (Table). When the tumor invaded or penetrated the muscle layer, frequency of lymph node metastasis in the mid and lower mediastinum increased. However, it was still higher in the upper mediastinum and the perigastric area. Survival after R0 three-field dissection were not different among the patients with involved nodes in the upper, mid, lower mediastinum, the perigastric area and even the neck (Figure).

Conclusions: Frequency of node metastasis indicated the importance of submucosal lymphatic plexus in the esophageal wall and lymphatic channels in the upper mediastinum and the perigastric area as the lymphatic drainage of the esophagus. Lack of difference in the survivals among the patients with involved nodes according areas indicated efficacy of three-field dissection as rational extent of lymph node dissection based on the anatomy of lymphatic drainage for esophageal carcinoma.

Abstract ID: 0314 Specific Field: Esophagus
Mode of pres.: Free Paper (oral)
ISW 2009 Session 161.03

Prognostic influence of immunohistochemically detected lymph node micrometastasis and histological subtype in pN0 oesophageal cancer
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Introduction: Differences in frequency and clinical impact of lymph node micrometastasis between histological subtypes of oesophageal cancer have not been determined.

Material and Methods: 1204 lymph nodes from 32 squamous cell carcinomas and 54 adenocarcinomas with complete resection and pN0 status were re-evaluated using a serial sectioning protocol including immunohistochemistry. Intra-nodal tumor cells were classified as micrometastases (0.2–2 mm) or isolated tumor cells (<0.2 mm).

Results: There was no significant difference in the frequency of micrometastases between adenocarcinoma and squamous cell carcinoma (11.3% vs. 3.1%, p = n.s.). In the squamous cell carcinoma group, Kaplan-Meier curves showed a significantly prolonged 5-year survival (p = 0.02) and disease free interval (p < 0.01) for immunohistochemically node negative versus node positive patients. In patients with adenocarcinoma, no such difference (p = n.s. and p = n.s., respectively) was seen. In patients who did not undergo pre-treatment, those with adenocarcinoma had a significant 5-year survival (65% vs. 35%; p = 0.03) and disease free interval (83% vs. 58%; p < 0.05) advantage over those with squamous cell carcinoma. After pre-treatment, no difference between the histological subtypes was detected. Regression analysis did not reveal any factors that significantly affected overall survival in node negative patients. However, four factors did significantly influence disease free interval: pre-treatment (HR 3.3 [95% CI 1.2–9.1], p = 0.02); micrometastasis (HR 5.3 [95% CI 1.4–19.7], p = 0.01); UICC stage II vs. 0/1 (HR 2.2
[95% CI 1.1–4.4], p = 0.03); and adenocarcinoma (HR 0.3 [95% CI 0.1–0.9], p = 0.03).

Conclusions: The differences in frequency and clinical impact of immunohistochemically detected micrometastasis may indicate that adenocarcinoma and squamous cell carcinoma should not be treated as one entity.

Abstract ID: 0315 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 161.04

Randomized clinical trial of circular everted versus hand-sewn or stapled esophagogastronomy for prevention of anastomotic stricture

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Introduction: Successful anastomosis is essential in esophagogastronomy. The application of stapler effectively reduces the leakage rate while the stricture formation has become more frequent. This randomized clinical trial compared a circular everted plus side extension esophagogastronomy with hand-sewn or stapled esophagogastronomy for prevention of anastomotic stricture.

Material and Methods: Between November 2007 and September 2008, 160 patients with esophageal or gastric cardia carcinomas were consecutively admitted and underwent surgical treatment at our department. After excluding 5 patients (2 refused to participate and 3 did not meet inclusion criteria), the remaining 155 patients were completely randomized to receive either a circular everted plus side extension esophagogastric anastomosis (EA group), or the conventional hand-sewn (HA group), or a stapled (SA group) anastomosis, after the removal of esophageal tumor and the reconstruction of a gastric tube. The primary outcome measure was the incidence of anastomotic stricture at 3 months after the operation (defined as the diameter of the anastomotic orifice ≤ 0.8 cm on esophagogram), analyzed by intention to treat.

Results: There were one operative death (in HA) and one simple exploration (in EA). The anastomotic leakage was observed in 4 patients (2 cervical and 1 intrathoracic leak in HA, and 1 intrathoracic leak in SA). The follow-up rate was 96.1% (1 patient in EA, 3 in HA, and 2 in SA were lost). Some 45 patients who received EA, 52 patients who received HA, and 47 patients who received SA were included in the final analysis (Figure 1). The 3 groups were preoperative similar. The anastomotic stricture rate was 0% (0/45) in EA group, 9.6% (5/52) in HA group, and 19.1% (9/47) in SA group, respectively ($\chi^2 = 9.605$, $P = 0.008$). The reflux/regurgitation score among 3 groups was similar ($\chi^2 = 2.051$, $P = 0.359$).

Conclusions: The circular everted plus side extension esophagogastric anastomosis could prevent stricture formation, without increasing gastroesophageal reflux.

Abstract ID: 0316 Specific Field: Esophagus

Mode of pres.: Free Paper (oral)
ISW 2009 Session 161.05

Mediastinal microdialysis in the early diagnosis of anastomotic leakage after esophageal resection for cancer

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Introduction: The aim of the present study was to evaluate the safety of mediastinal microdialysis and its efficacy regarding the early diagnosis of anastomotic leakage after esophageal resection for cancer.

Material and Methods: From a cohort of 64 consecutive patients scheduled for esophageal resection a total of 26 patients consented to participate in the study. The tip of the mediastinal microdialysis catheter was placed in close proximity of the intrathoracic anastomosis and held in place by a 4–0 absorbable suture. A subcutaneous microdialysis catheter placed in the pectoral region served as a reference. Samples were collected every 4 hour in the first eight postoperative days and analysed for the concentration of lactate, glucose, pyruvate, and glycerol (Mean (95% confidence intervals)). The lactate/pyruvate ratio (L/P-ratio) was also calculated.
Results: There were no microdialysis procedure related complications, but one patient was excluded due to postoperative catheter malfunction. Twenty patients had an uncomplicated postoperative course, whereas five patients experienced complications: 2 early anastomotic leakages (10 days postop.), 1 late anastomotic leakage (11 days postop.), 1 esophago-tracheal fistula and 1 with severe respiratory problems. The mediastinal lactate, L/P-ratio and glucose values were normal in the uncomplicated patients (3.6(0.0–7.4), 21.6(1.9–40.3) and 6.9(2.7–11.1), respectively) In the two early leakage patients a significant increase in the mediastinal lactate and L/P-ratio was observed (8.2 (0.0–19.9) and 45.6(10.0–81.2),) and this occurred before clinical symptoms and prior to the diagnosis of the leakage. In the case with severe respiratory problems the mediastinal lactate and L/P-ratios were 7.7(3.5–11.9) and 43.2(22.0–64.4), respectively. No changes in the lactate or L/P ratio were observed in the cases with late anastomatic leakage or esophago-tracheal fistula.

Conclusions: The use of mediastinal microdialysis seems to be a safe and promising tool in the diagnosis of early anastomotic leakage in patients undergoing esophageal resection for cancer.

Abstract ID: 0317 Specific Field: Stomach / Duodenum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 161.06

Influence of wrap length on the effectiveness of Nissen and Toupet fundoplications: five-year results of a prospective randomized clinical trial

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Introduction: Incontinence or hypercontinence of the fundic wrap mainly depends on the length of the valve or type of the procedure. Less attention was paid to the fundic wrap length. The goal of the study was to compare the effectiveness of two different wrap lengths among the patients undergoing partial or total fundoplications.

Material and Methods: 153 patients were randomized to either Nissen (1.5 or 3 cm wrap) or Toupet (1.5 or 3 cm wrap) laparoscopic fundoplication. The groups were compared according to overall treatment failure rate. The treatment failure was defined as: a) refluxesophagitis that requires continuous medical treatment or reoperation; b) dysphagia occurring every day; c) symptomatic recurrent hiatal hernia. Twenty three patients were lost to follow-up, leaving 63 (32 vs. 31) patients for analysis in Nissen group and 67 (36 vs.31) in Toupet group.

Results: There seems to be no difference in short-term (6 and 12 months) outcomes with Nissen approach and Toupet longer wrap group. Treatment failures were significantly (p < 0.05) more common in Toupet 1.5 cm group in comparison to Toupet 3 cm (17.5% and 2.7% respectively), however, such differences did not appear in Nissen groups (7.8% in 1.5 cm and 15.6%/ in 3 cm; p > 0.05). After 5 years of follow up treatment failures remained significantly (p < 0.05) more common in Toupet 1.5 cm group in comparison to Toupet 3 cm (30.6% and 9.7% respectively). Differences between Nissen groups didn’t reach significant level (18.7% in 1.5 cm and 25.8% in 3 cm; p > 0.05).

Conclusions: The evaluation of the treatment results suggests that the wrap length is important in partial Toupet fundoplication to avoid treatment failures.Formation of the 3 cm wrap is superior to 1.5 cm wrap in cases of partial posterior Toupet fundoplication. In cases of Nissen procedure the influence of wrap length (1.5 versus 3 cm) on treatment failures remains unconfirmed.

Abstract ID: 0318 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 162.01

Five-year follow up of a randomized clinical trial of unilateral thyroid lobectomy with or without levothyroxine treatment postoperatively

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Introduction: Long-term outcomes of patients with obvious unilateral multinodular goiter (MNG) who had thyroid lobectomy only is not commonly reported. In addition to this, possible advantages of postoperative prophylactic treatment with levothyroxine have not been elucidated. The aim of this study was to compare the prevalence of recurrent nodular goiter in the contralateral thyroid lobe among patients after unilateral thyroid lobectomy for unilateral MNG receiving versus not receiving prophylactic levothyroxine treatment postoperatively in a five-year follow-up.

Material and Methods: From 01/2000 through 12/2003, 150 consenting patients underwent a unilateral thyroid lobectomy for unilateral MNG at our institution. They were randomized to two groups equal in size, n = 75 in each. Patients in Group A received prophylactic levothyroxin treatment postoperatively (dose range: 50–125 µg/day, to maintain TSH values below 1.0 mU/L), whereas patients in Group B received no prophylactic levothyroxine treatment postoperatively (except cases developing hypothyroidism). All the patients underwent ultrasonographic, cytological and biochemical follow-up at least for 60 months postoperatively. Primary outcome measure was prevalence of recurrent goiter within the contralateral thyroid lobe. Secondary outcome was the rate of the reoperation for the recurrent goiter.

Results: During five-year follow-up among Group A vs. B patients, respectively, the recurrent goiter within the contralateral thyroid lobe was found in 1.3% vs. 16.0% of patients (p = 0.001), mean contralateral thyroid lobe volume was 9.9 ± ml vs. 17.6 ± ml (p < 0.001), and 1.3 vs.8.0% (p = 0.05) of patients required contralateral thyroid lobectomy surgery (1 vs. 3 for oncologic suspicious FNA result, and 0 vs. 3 for compressive symptoms). Of Group B patients 76.0% were euthyroid with no need for levothyroxine substitution, whereas 24.0% required levothyroxine treatment for hypothyroidism.

Conclusions: Three-fourth of patients were euthyroid following unilateral thyroid lobectomy for unilateral MNG. However, prophylactic levothyroxine treatment significantly decreased recurrence rate of nodular goiter within the contralateral thyroid lobe and need for completion thyroideectomy.
Introduction: MIP is enhanced by Surgical Ultrasonography (SU) but are the skills of the Surgeon Ultrasonographer reproducible and reliable?

Material and Methods: A prospective study was undertaken from 2003 to 2005 by 2 surgeons (S1, S2), working independently, but with identical Ultrasonic hardware and patient selection criteria.

Results: 257 patients underwent Parathyroidectomy (S1: 130 patients, S2: 127 patients). The results (S1vS2) of Sensitivity (82v78%), Specificity (95v95%), Concordance (68v65%), MIP success (94v96%) and overall success (97v99.2%) were extremely comparable. In all 170/257 patients (66%) had concordant results and underwent MIP (Participation rate PR), with 8 procedures being converted to a standard open operation. 63% of all patients underwent a successful MIP. 5/257 patients had persistent hypercalcemia (2%). On further analysis, S2 had stricter criteria for a positive SU localisation and although the initial sensitivity was slightly less than S1, the overall success rate differed little. The requirement of both a positive SS and positive SU lowered the PR for MIP but ensured satisfactory success. A retrospective “speculative” analysis was made of S2 results. Had S2 proceeded to an MIP based upon the SU result only the PR would have risen to 78% but with 8/99 false positive SU examinations, the net success would only be 71.5%. Similarly a reliance on a positive SS only would have increased the PR to 68% but with 6/87 false positive SS, again the net success would have only been 63.5%.

Conclusions: With the criteria of both a positive SS and SU the failure rate was low enough to exclude the need for intraoperative PTH assays based on a cost benefit ratio. The highly comparable results of both S1 and S2 confirms that SU is a reliable and reproducible skill, essential for all Endocrine Surgeons.

Abstract ID: 0320 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 162.03

Neck ultrasound for predicting the non-recurrent laryngeal nerve
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Introduction: The non-recurrent laryngeal nerve (NLN) is often the important cause of nerve damage during neck surgery. The anomaly is almost always associated with a congenital vascular abnormality. Most neck vascular anomalies can be detected by ultrasound, which allows for an easy, indirect prediction of the non-recurrent laryngeal nerve.

Material and Methods: The study group was comprised of 2330 patients with thyroid disease undergoing thyroidecetiomy. Neck ultrasound with 3.5 and 10 mHz probes were routinely performed preoperatively. The absence of the innominate artery was defined as positive with the presence of the right non-recurrent laryngeal nerve. Both sides of the inferior laryngeal nerve were identified during surgery. Magnetic resonance angiography (MRA) was performed if the surgical findings and neck ultrasound were not concordant.

Results: Of 13 patients designated as positive by the 10 mHz probe, 11 were also identified by the 3.5 mHz probe, and shown to have a right non-recurrent laryngeal nerve during surgery. The two patients who were shown to be positive by the 10 mHz linear probe only were due to a low insertion of the bifurcation of the common carotid and subclavian artery with a short innominate artery and tortuosity of the innominate artery, respectively, which were confirmed by both MRA and the 3.5 mHz probe. Ten non-recurrent laryngeal nerves followed a transverse course parallel to the trunk of the inferior thyroid artery, one below the trunk and nine above the trunk. One non-recurrent laryngeal ran together with the vessels of the superior thyroid pedicle. The incidence of non-recurrent laryngeal nerves was 0.48% in Chinese people. The sensitivity and specificity for predicting non-recurrent laryngeal nerves with the 3.5 mHz probe were 100%; however, an 18% false positive rate existed with the 10 mHz probe.

Conclusions: In conclusion, neck ultrasonography with the 3.5 mHz probe can accurately demonstrate the right non-recurrent laryngeal nerve preoperatively. We advise the routine application of this tool for all neck procedures in an effort to reduce the rate of damage to the inferior laryngeal nerve.

Abstract ID: 0321 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 162.04

The risks and adequacy of an optimized surgical approach to the primary surgical management of papillary thyroid carcinoma treated during 1999-2006

Introduction: Intense postoperative disease surveillance and frequent lymph node metastases (LNM) in papillary thyroid cancer (PTC) have resulted in increased recognition of postoperative locoregional recurrences. Traditional surgical practice has included removal of only palpable LNM in the central and lateral jugular compartments. Our goals were to examine the safety and efficacy of an optimized surgical approach: 1) preoperative ultrasound (US) focused on detecting lateral jugular LNM, 2) bilateral thyroidecetiomy, 3) routine compartment VI dissection, and 4) compartment-oriented lateral neck dissection for LNM.

Material and Methods: During 1999–2006, 774 patients underwent primary surgery for PTC; 421 met optimized criteria, (291(69%) females, median age of 46 yr, range 9–89; F/U 98%, median, 4.2 yrs). Total or near-total thyroidecetiomies were performed in 212 (51%) and 209 (49%) patients. Tumors were multicentric in 40%; averaged 1.7 cm; were bilateral in 30%; showed extrathyroidal extension in 17%. Overall, 223 (53%) patients had LNM; 214 (51%) central, 86 (20%) with lateral jugular LNM. Central and lateral node dissection yielded an average of 3 and 6 metastatic lymph nodes. Pathologic TNM (2002) disease stages were: 1, 258 (61%); II, 35 (8%); III, 89 (21%), IV, 39 (9%). AGES and MACIS prognostic scores were low-risk in 365 (87%) and 355 (84%).

Results: Relapse developed in 45 (11%) patients: LNM in 42, soft tissue local recurrence (LR) in 5, and distant in 8; several patients had > 1 type of relapse. Permanent hypoparathyroidism occurred in 3 (0.7%) patients; 0 suffered unintentional laryngeal nerve damage. Relapse was attributed to LNM in the previously operated field in 16 (4%) patients, 11(3%) from disease virulence (LR or distant metastases), preoperative false-negative US in 12(3%), and a combination of FN US and recurrence in the operated field in 6 (1%) patients.

Conclusions: LNM are common in compartment VI when routinely dissected, and 20% of patients have lateral jugular LNM, detected by palpation and US. Excluding disease relapse attributable to the innate virulence of the disease (LR and distant metastases), recurrence has been prevented in 95% of patients where the extent of disease was accurately defined. This optimized surgical strategy is relatively safe.
Abstract ID: 0322  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 162.05

18F-fluorodeoxyglucose positron emission tomography (FDG-PET) excludes malignancy in indeterminate thyroid nodules

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Introduction: Eighty percent of indeterminate thyroid nodules are found to be benign after thyroidectomy. Operations could be avoided in many of these patients if improved predictive testing were available. We report preliminary data on the largest prospective, federally funded trial to determine whether FDG-PET imaging can distinguish benign from malignant thyroid nodules, in patients with an indeterminate FNA.

Material and Methods: Eligible patients had a dominant thyroid nodule, palpable or 1 cm in greatest dimension by ultrasound or CT, and indeterminate follicular histology on FNA biopsy. Participants underwent preoperative neck FDG-PET or FDG-PET with computed tomodraphy (FDG-PET/CT). Images were evaluated qualitatively and semiquantitatively using maximum standardized uptake value (SUV_max). Final diagnosis was determined by histopathologic analysis after thyroidectomy. Descriptive statistical analysis was performed. Expected accrual will be 125 patients.

Results: Fifty-one patients have been enrolled. They underwent preoperative FDG-PET or FDG-PET/CT. Studies with focally increased uptake localized to the lesion were considered positive. For all lesions (10 malignant, 41 benign), sensitivity, specificity, positive-predictive value (PPV), and negative-predictive value (NPV) were 80%, 61%, 33%, and 93%, respectively. For sensitivity and specificity, the 95% confidence intervals were (44%, 97%) and (49%, 80%), respectively. Postoperatively, two malignant and six benign lesions were found to be < 1 cm by pathologic examination. When these lesions were excluded, sensitivity, specificity, PPV, and NPV were 100%, 57%, 35%, and 100%, respectively. For sensitivity and specificity in the > 1 cm lesions, the 95% confidence intervals were (69%, 100%) and (37%, 77%), respectively. For positive benign lesions, SUV_max ranged from 1.87 to 11.1. For positive malignant lesions, SUV_max ranged from 2 to 51.9.

Conclusions: A negative FDG-PET study correctly excluded malignancy 93% of the time. In larger nodules, no malignancies had negative FDG-PET studies. Because benign history is much more common than malignant, this test may be useful, and may allow many patients with benign nodules and indeterminate cytology to avoid surgery.

Abstract ID: 0323  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 168.01

A prospective diagnostic accuracy study of 18F-fluorodeoxyglucose positron emission tomography (FDG-PET/CT), multidetector row computed tomodraphy (MDCT) and magnetic resonance imaging (MRI) in primary diagnosis and staging of pancreatic cancer

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Introduction: FDG-PET/CT imaging is increasingly used for staging of pancreatic cancer. Preliminary data suggest a significant influence of FDG-PET/CT on treatment planning.

Material and Methods: 38 consecutive patients with suspicion of pancreatic malignancy were enrolled. Patients underwent a protocol including FDG-PET/CT, MDCT and MRI combined with MRCP, all of which were blindly evaluated. The findings were confirmed at operation and/or by histopathological analysis (n = 29) or follow-up (n = 9). Results of TNM classification of different imaging methods were compared to clinical TNM classification.

Results: Pancreatic adenocarcinoma was diagnosed in 17 patients, neuroendocrine tumor in three, mass-forming pancreatitis in four, cystic lesion in six and fibrosis in two. Six patients had a finding of a normal pancreas. The diagnostic accuracy of FDG-PET/CT for pancreatic malignancy was 89%, compared to 76% and 79% for MDCT and MRI, respectively. In the differential diagnosis of suspected malignant biliary stricture at endoscopic retrograde cholangiopancreatigraphy (n = 21), FDG-PET/CT had a PPV of 92%. In 17 patients with advanced pancreatic adenocarcinoma, FDG-PET/CT had a sensitivity of 30% for N- and 88% for M-staging. Both MDCT and MRI had sensitivities of 30% for N- and 38% for M-staging. Furthermore, the clinical management of 10 patients (26%) was altered after FDG-PET/CT.

Conclusions: FDG-PET/CT was more sensitive than conventional imaging in the diagnosis of both primary pancreatic adenocarcinoma and associated distant metastases. In contrast, the sensitivity of FDG-PET/CT was poor in detecting local lymph node metastasis. We recommend the use of FDG-PET/CT in the evaluation of diagnostically challenging cases, especially in patients with biliary strictures without evidence of malignancy in conventional imaging.
loco-regional disease such as radiotherapy may be beneficial in patients with close surgical margins. Stratification of patients for entry into future clinical trials based on this criterion may identify those patients who benefit from adjuvant radiotherapy.

Abstract ID: 0325  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 168.03

The effects of intra-abdominal complications on long-term survival of patients with pancreatic cancer
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Introduction: Several studies have recently emphasised the negative effects of intra-abdominal complications (ICACs) on long-term survival of patients with gastrointestinal malignancies. Data related to pancreatic resections due to pancreatic cancer are scarce.

Material and Methods: Medical records of 243 patients who underwent pancreatic resections due to pancreatic duct cell carcinoma between 1990 and 2005 were reviewed to evaluate the effects of ICACs on long-term survival.

Results: The overall morbidity rate was 41% and the incidence of surgical and medical complications was 28% and 23%, respectively. ICACs were diagnosed in 51 (21%) patients, including pancreatic fistula (18%), gastrointestinal fistula (2%), and intra-abdominal abscess (8%). In the univariate analysis, tumour differentiation, stage according to AJCC, radicality of resection, ratio of metastatic lymph nodes, and presence of ICACs significantly correlated with patient survival. Only the presence of ICACs (relative risk 2.66, 95% CI 1.98 to 3.34), tumour invasion of peripancreatic blood vessels (relative risk 5.00, 95% CI 1.20 to 20.92), and non-radical (R1 or R2) resections (relative risk 4.84, 95% CI 2.54–5.35) were the independent prognostic factors in the multivariate analysis.

Conclusions: Intra-abdominal complications may significantly affect long-term survival of patients with resectable pancreatic cancer.

Abstract ID: 0326  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 168.04

Clinicopathologic and immunohistochemical features of solid pseudopapillary tumors of the pancreas
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Introduction: Solid pseudopapillary tumors (SPT) are rare pancreatic neoplasms and as a consequence data concerning the clinicopathological characteristics and management are limited.

Material and Methods: We examined the clinico-pathological features, treatment and immunohistochemical characteristics of 34 patients treated for pancreatic SPT.

Results: Twenty-seven patients were symptomatic, predominantly with abdominal pain or discomfort. Most tumors were located in the pancreatic tail (tail:body:head = 23:3:8) with a median diameter of 60 mm (range: 20–220). All tumors were resected and all patients survived after a median follow up of 70 (IQR: 48–178) months. Two patients developed local recurrence with liver metastasis and were successfully managed with surgical resection. Immunohistochemically, the tumors were characterized and distinguished from neuroendocrine tumors by a negative chromogranin and synaptophysin stain, and an aberrant accumulation of the cytoplasmic domain of E-cadherin as well as a nuclear accumulation of beta Catentin. Staining for CD10, progesterone receptor, CD56, cytotkeratin was variable and was non-specific.

Conclusions: Pancreatic SPT is a relatively low-grade and indolent neoplasm predominantly occurring in young females. Complete resection of an SPT is usually curative and local and metastatic recurrences can be treated with re-operation and resection. Thus, the accurate diagnosis of this tumor type using morphological and immunohistochemical criteria, particularly differentiation from neuroendocrine tumors, is paramount in the management of SPT of the pancreas.

Abstract ID: 0327  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 168.05

Spot urinary IFABP on admission is superior to Apache II scores as a prognostic tool in acute pancreatitis
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Introduction: Intestinal fatty acid binding protein (IFABP) is a small protein located at the tip of microvilli, which assists in fatty acid absorption. Urinary iFABP excretion is an exquisitely sensitive marker of shock and intestinal ischaemia. Urinary 24 hour IFABP concentrations have been found to significantly correlate with outcome, but collections are cumbersome and spot analysis would be more clinically useful.

Material and Methods: Patients with acute pancreatitis were included only if a urinary catheter was required. Admission urine samples were collected after catheterisation and subsequent samples taken from the urometer 24, 48, and 72 hours later. IFABP concentrations were determined using ELSIA, APACHE II scores calculated daily, and severity and outcome determined by Atlanta criteria, admission to intensive care and length of hospital stay.

Results: Fifty-six patients were studied. Urinary iFABP on admission was a median 202 pg/m (interquartile range IQR 134) for mild attacks, median 395 pg/mL (IQR 825) for severe. There was a significant positive correlation with outcome (p 0.441, p < 0.01), with admission APACHE II scores (p 0.397, p < 0.01), Intensive Care admission (p 0.273, p < 0.05) and hospital stay (p 0.343, p < 0.05). Spot 24 hour iFABP was a median 206 pg/mL (IQR 126 pg/mL) for mild attacks, median 290 pg/mL (IQR 1217) for severe, 48 hour median was 204 pg/mL (IQR 156) in mild attacks, median 205 pg/mL (IQR 834) for severe. Spot 24 and 48 hour IFABP significantly correlated with APACHE-II scores (p < 0.05), but not outcome, ICU admission or length of hospital stay. Spot iFABP 72 hour levels bore no significant correlation with outcome.

Conclusions: Measurement of spot urinary iFABP on admission with acute pancreatitis may prove a useful prognostic tool. It offers greater accuracy than APACHE-II, and provides an earlier result than other
Pancreatic fistula rate (PFR) using the International Study Group on Pancreatic Fistula Definition (ISGPF)

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Introduction: In 2005, the ISGPF formulated a universally accepted definition for PFR. This study will document our institutions PFR using these new guidelines and demonstrate a model to guide intraoperative decision making to minimize the PFR.

Material and Methods: Patients who underwent a pancreatoduodenectomy from June 2003 to October 2008 at our institution were included. The study population was limited to the two most experienced pancreatic surgeons at our institution. Medical records from 75 consecutive patients were reviewed to identify patient comorbidities and perioperative data. Amylase levels were measured from an intraoperatively placed drain near the pancreatic anastomosis. The initial measurement was between post operative days 2 to 7 depending on operative findings, drain output and patient condition. The levels were periodically rechecked if the initial value was elevated, there was a change in the patient’s condition, or at the discretion of the operating surgeon. A post operative pancreatic fistula (POPF) was defined by the ISGPF as drainage output with amylase levels greater than 3 times the normal serum value. The POF that fulfilled this guideline were divided into 3 grades with respect to the patient’s clinical condition and need for interventions.

Results: The majority of patients had pancreatic head pathology (59%) while the remainder had common bile duct and duodenal pathology. Each patient underwent traditional pancreatoduodenectomy with 1 of 3 pancreatic anastomosis depending on intraoperative findings. A PFR of 28% was found using the ISGPF guidelines (21/75). However, 81% of these were grade A, and did not change patient management and were not clinically evident (17/21). The clinically significant PFR was 5.3% when using our intraoperative algorithm (4/75 grade B or C). Surprisingly, Seventy-five percent of grade B or C POPF had a pancreatic stent placed across the anastomosis intraoperatively (3/4).

Conclusions: ISGPF guidelines have set a standard for evaluating PFR, which will now help define acceptable standards in pancreatic surgery. This universal definition can help identify alterations in surgical technique which may minimize POPF. Our institution has defined an algorithm that has reduced the clinically significant PFR.

Abstract ID: 0328 Specific Field: Hepatobiliary and Pancreas Surgery

Abstract ID: 0329 Specific Field: Hepatobiliary and Pancreas Surgery

Intensive glucose control significantly reduced morbidity and mortality, whose mechanism is still unclear. The aim of this study is to elucidate the effect of perioperative hyperglycemia on cellular immunity.

Material and Methods: Twelve Japanese patients undergoing pylorus-preserving pancreatoduodenectomy are enrolled in this study. After surgery, blood glucose was controlled by insulin administration determined by sliding scale methods. During early postoperative periods (< 72 hours), patients with higher glucose level whose maximum blood glucose level exceeded 200 mg/dl at more than 2 days are classified as hyperglycemic group (n = 6) and remnant 6 patients as normal group. For the assessment of cellular immunity, blood sampling was performed at early in the morning before surgery, and 3 and 14 days postoperatively (POD). Interleukin-6 concentration, HLA-DR expression of monocyte, and Th1/Th2 ratio were measured. CD4 + T cells and their intracellular cytokines (interferon-gamma and interleukin-4) were measured by flow cytometer and CD4 and interferon-gamma positive cells were defined as Th1 cell, and CD4 and interleukin-4 as Th2 cell.

Results: Serum IL-6 concentrations transiently increased on 1 and 3POD, while there were no differences between 2 groups. HLA-DR expression rate of peripheral monocyte before surgery was almost same in 2 groups, 86.1 ± 4.0% in normal group and 86.5 ± 3.5% in hyperglycemic group, and at 3POD HLA-DR expression rate of hyperglycemic group was lower than that of normal group (80.7 ± 9.6% vs 90.6 ± 4.0%, p = 0.07). On 3POD, Th1/Th2 ratio was similarly depressed in hyperglycemic group (5.4 ± 1.4 vs 12.0 ± 7.1, p = 0.049).

Conclusions: Transient hyperglycemia decreased the HLA-DR expression of monocyte and Th1/Th2 ratio during early postoperative period, which may contribute to the susceptibility of infection.

Abstract ID: 0330 Specific Field: Hepatobiliary and Pancreas Surgery

Intensive glucose control significantly reduced morbidity and mortality, whose mechanism is still unclear. The aim of this study is to elucidate the effect of perioperative hyperglycemia on cellular immunity.

Material and Methods: Twelve Japanese patients undergoing pylorus-preserving pancreatoduodenectomy are enrolled in this study. After surgery, blood glucose was controlled by insulin administration determined by sliding scale methods. During early postoperative periods (< 72 hours), patients with higher glucose level whose maximum blood glucose level exceeded 200 mg/dl at more than 2 days are classified as hyperglycemic group (n = 6) and remnant 6 patients as normal group. For the assessment of cellular immunity, blood sampling was performed at early in the morning before surgery, and 3 and 14 days postoperatively (POD). Interleukin-6 concentration, HLA-DR expression of monocyte, and Th1/Th2 ratio were measured. CD4 + T cells and their intracellular cytokines (interferon-gamma and interleukin-4) were measured by flow cytometer and CD4 and interferon-gamma positive cells were defined as Th1 cell, and CD4 and interleukin-4 as Th2 cell.

Results: Serum IL-6 concentrations transiently increased on 1 and 3POD, while there were no differences between 2 groups. HLA-DR expression rate of peripheral monocyte before surgery was almost same in 2 groups, 86.1 ± 4.0% in normal group and 86.5 ± 3.5% in hyperglycemic group, and at 3POD HLA-DR expression rate of hyperglycemic group was lower than that of normal group (80.7 ± 9.6% vs 90.6 ± 4.0%, p = 0.07). On 3POD, Th1/Th2 ratio was similarly depressed in hyperglycemic group (5.4 ± 1.4 vs 12.0 ± 7.1, p = 0.049).

Conclusions: Transient hyperglycemia decreased the HLA-DR expression of monocyte and Th1/Th2 ratio during early postoperative period, which may contribute to the susceptibility of infection.
Surgical Procedure The first, a pancreatic drainage tube is inserted into the pancreatic duct. It is tied with 4-0 PDSII at the orifice of the pancreatic duct. The second, which is the unique aspect of our method, is an attachment of the jejunal wall and the cut surface of the pancreas using single-layer suture technique with 3-0 Nespilen. It allows us not only to reduce the number of sutures, but also to eliminate some of the complicated manipulations required by other methods. Sutures are inserted onto the anterior wall of the pancreas, at 10 mm from the cut end, and should penetrate the pancreatic parenchyma to the posterior wall. Jjejunal wall fully covers the cut surface of the pancreas, leaving no dead space between the wall and the pancreas.

Results: During the primary hospitalization, we observed surgical complications in 21 (6.12%). Of the 343 consecutive patients, the complication of pancreatic fistulae was observed in 5 patients No patient had major leakage of pancreaticojejunostomy. In all 5 patients with postoperative pancreatic fistulae, the leakage of pancreatic fluid was reduced by long-term indwelling of the drains, and recovery was achieved. Dehiscence of the hepaticojejunostomy with local peritonitis without necessitating surgical re-intervention in one patient. Bleeding from the anastomotic site necessitating re-intervention in three patients. Secondary wound healing was observed 5 patients. In addition, we detected subhepatic fluid collections with fever and leukocytosis in 5 patients. Stenosis of stomach developed in one patient.

Conclusions: The newly devised pancreaticojejunostomy in our department is simple, safe and reliable procedure with an excellent result; pancreatic fistula seen only in 1.46%, and no mortality rate out of 343 consecutive patients. Our method is simple and can be applied wherever an end-to-side pancreatojejunal anastomosis is required.

Abstract ID: 0331 Specific Field: Esophagus

Mode of pres.: Poster Discussion
ISW 2009 Session 169.01

Elevated preoperative neutrophil to lymphocyte ratio does not predict survival following surgery for oesophageal cancer
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Introduction: The presence of an elevated preoperative neutrophil-to-lymphocyte ratio (NLR) has been identified as predictor of outcome in patients undergoing surgery for hepatocellular carcinoma. This study was undertaken to evaluate the impact of an elevated preoperative NLR on outcome after resection for oesophageal carcinoma.

Material and Methods: Patients undergoing resection for oesophageal carcinoma from June 1997 to May 2008 were identified from the local cancer database. Demographics, standard prognostic factors, laboratory analyses, and histopathology data were collected.

Results: A total of 294 patients were identified with a median age at diagnosis of 65.20 (IQR 59–72) years. Among these patients, 235 were male and 59 female. Of these, 81% had adenocarcinoma, 17% had squamous cell cancer and 2% had other pathology. The median time for blood sample collection before the operation was three days (IQR 1–8 days). Median value of neutrophil count was 64.20 (10^9/litre), lymphocyte count was 23.90 (10^9/litre) and NLR was 2.69 (IQR 1.95–4.02). NLR was not identified as a significant risk factor of death following oesophageal cancer surgery (Cox Regression analysis, p-value = 0.374). NLR was not associated with lymph node yield and involved lymph node in oesophageal cancer specimen (p = 0.754 and 0.754 respectively). There was no relationship between the level of NLR and the probability of recurrence of the disease (p-value = 0.288). Moreover, the survival time was not statistically different between those with NLR 3.5 and those with < 3.5 (p-value = 0.49)

Conclusions: Preoperative NLR is not a significant prognostic predictor of disease-free and overall survival in oesophageal carcinoma.

Abstract ID: 0332 Specific Field: Esophagus

Mode of pres.: Poster Discussion
ISW 2009 Session 169.02

The lymph node metastasis in esophageal carcinoma: extent is more important than number in reflecting prognosis
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Introduction: The N-classification of current UICC-TNM staging system for esophageal carcinoma groups patients into N0 and N1 simply based on whether there is or not regional lymph node (LN) metastasis and is less optimal. This study evaluates a refined N-classification in esophageal carcinoma in order to better subgroup patients with different prognosis.

Material and Methods: A retrospective review of 236 patients with carcinoma of thoracic esophagus who underwent an esophagectomy with at least 6 LN removed between 1984 and 1989 was conducted. The proposed scheme for N-classification according to the number of LN removed between 1984 and 1989 was conducted.

Results: The overall survival rates were 80.2%, 43.1%, and 34.2% at 1, 5, and 10 years, respectively. The 10-year follow-up rate was 92.4%. LN metastases were identified in 112 (47.5%) patients. Cox regression analysis revealed that besides the location, depth of invasion, and differentiation of the tumor, the number of LN metastasis (RR = 1.27, 95% CL = 1.20–1.35) and the number of fields metastasis (RR = 2.43, 95% CL = 1.97–3.00) were factors significantly influencing survival. With further analysis by Log-rank test, although the number of LN metastasis influenced survival significantly ($x^2 = 96.00$, $P < 0.01$), no significant difference existed between N2 and N3 patients. When comparing patient with single field LN metastasis (thoracic versus abdomen), the survival was similar ($x^2 = 0.31$, $P = 0.56$). When patients were grouped according to the extent of LN metastasis (0, 1, and >=2 fields), the differences in survival were observed both in overall ($x^2 = 87.47$, $P < 0.01$) and between each subgroup.

Conclusions: Refining the current N-classification for esophageal cancer according to the extent of lymph node metastasis is more optimal and can better subgroup patients in survival after esophagectomy.

Abstract ID: 0333 Specific Field: Esophagus

Mode of pres.: Poster Discussion
ISW 2009 Session 169.03

MicroRNA expression in oesophageal adenocarcinoma and proximal gastric adenocarcinoma
C.M. Smith, M.Z. Michael, D.I. Watson, D.J. Hussey

Flinders Medical Centre, Adelaide, Australia
Introduction: Oesophageal adenocarcinoma and proximal gastric adenocarcinoma have similar pathology and clinical behaviour. microRNAs (miRNA) regulate cellular differentiation and growth, and their expression profiles can aid in tumour classifications. This study compared miRNA expression in oesophageal adenocarcinoma and proximal gastric adenocarcinoma. We hypothesised that these two cancers would have similar miRNA expression.

Material and Methods: miRNAs in proximal gastric adenocarcinoma and matched non-cancerous tissue from 5 patients were compared using microarray. miRNAs potentially deregulated in proximal gastric cancer, according to microarray results, were chosen for quantitative reverse-transcription polymerase chain reaction analysis (qRT-PCR). We also analysed miR-143 and miR-215, identified as downregulated in oesophageal adenocarcinoma in our previous study. We compared 7 subjects with proximal gastric adenocarcinoma to 7 subjects with oesophageal adenocarcinoma. Wilcoxon test was used to determine significant differences in expression.

Results: Microarray identified miR-141 and miR-200a as down regulated, and miR-223 as up regulated in proximal gastric adenocarcinoma compared with matched non-cancerous tissue. When oesophageal adenocarcinoma and proximal gastric adenocarcinoma were directly compared using qRT-PCR, we saw no significant difference in expression of any of the miRNAs assessed. However, there was a trend towards lower expression of miR-143 in oesophageal adenocarcinoma compared with proximal gastric adenocarcinoma (p = 0.1).

Conclusions: Oesophageal adenocarcinoma and proximal gastric adenocarcinoma appear to have very similar miRNA expression profiles. This result is consistent with their common pathology and clinical behaviour.

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Abstract ID: 0334  Specific Field: Stomach / Duodenum

Mode of pres.: Poster Discussion
ISW 2009 Session 169.04

Pattern of care analysis of gastro-oesophageal cancer

N. Merrett, D. Chang, A.V. Biankin
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Introduction: Upper GI tract cancers are aggressive with poor prognosis. Controversies remain, especially in peri-operative treatments and surgical techniques. This study aimed to analyse the outcome of UGIT oncology surgery in a single surgeon, single institution Australian setting.

Material and Methods: Data was obtained from a prospectively kept database on 263 consecutive patients undergoing gastric and oesophageal resection for malignancy between 1994 and 2007 at Bankstown Hospital.

Results: Of 263 resections, 29 were for GIST, 9 for lymphoma, 13 other non epithelial tumours. 212 resections were for epithelial cancers.

78 were gastro-oesophagectomies, with 58 for AC and 20 for SCC. 71 patients had Ifor-Lewis resection and 7 had McKeown resections. The R0/R1/R2 rates were 83%, 10% and 6%. 30-day mortality and morbidity rates were 4% and 41% respectively. 19% of patients had no adjuvant and 28% of patients had adjuvant therapy. The 3- and 5-year DSS rates were 46% and 38% respectively. The 3- and 5-year DFS rates were 43% and 37% respectively. Resection margin status, T staging and vascular invasion were independent prognostic factors in multivariate Cox regression analysis.

AC accounted for 134 gastrectomies. 78 patients had radical total gastrectomy, 53 had radical subtotal and 3 patients had proximal gastrectomy. D0/D1+/D2 resection rates were 2%, 73% and 25% and R0/R1/R2 rates were 84%, 6% and 10% respectively. 30-day mortality and morbidity rates were 5% and 33%, 7% of patients had no adjuvant and 37% had adjuvant therapy. The 3- and 5-year DSS rates were 61% and 59% respectively. The 3- and 5-year DFS rates were 60% and 58% respectively. Survival by disease stage were Stage1, 95% 3 & 5 year survival; Stage 2, 79% 3 & 5 year survival; Stage 3, 50% 3 year & 42% 5 year survival: Stage 4, 15% 3 & 5 year survival. Resection margin status, T staging, involved lymph node ratio and perineural invasion were independent prognostic factors in multivariate Cox regression analysis.

Conclusions: This large Australian observational study showed outcomes superior to many large western series. This may reflect meticulous preoperative staging, aggressive and adequate tumour resection and lymphadenectomy technique and selective use of peri-operative therapy.

Abstract ID: 0335  Specific Field: Oncology

Mode of pres.: Poster Discussion
ISW 2009 Session 169.05

Feasibility and efficacy of preoperative chemotherapy with docetaxel, cisplatin and S-1 for the patients with para-aortic lymph nodes involvement

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Introduction: The potential benefits of preoperative chemotherapy include increasing the likelihood of curative resection by downstaging the tumor, eliminating micro-metastases, and determining whether the tumor is sensitive to the chemotherapy. In the present study, we conducted a new regimen of triplet combination with docetaxel, cisplatin and S-1 (DCS therapy) for the treatment of highly advance gastric cancer with para-aortic lymph nodes involvement. The aim of this study was to evaluate the feasibility of DCS therapy as a preoperative setting, and also to examine the histological response.

Material and Methods: Twenty patients, who were diagnosed as gastric cancer pathologically and also diagnosed para-aortic lymph nodes involvement by computed tomography, received intravenous docetaxel and cisplatin (30, 35 or 40 mg/m2 depending DLT) on day 1, 15 and oral S-1 (40 mg/m2 bid) on days 1–14 every 4 weeks. After 1 course of chemotherapy, adverse events were evaluated and after 2 courses of chemotherapy, patients who were judged to be candidates for curative resection underwent salvage surgery. The salvage surgery consisted of gastrectomy, extended lymphadenectomy including para-aortic lymph nodes
Results: The MTD of this combination was presumed to be at dose level 3 (docetaxel 40 mg/m2and cisplatin 35 mg/m2). The dose-limiting toxicities (DLTs) were grade 4 neutropenia in one patient, grade 3 febrile neutropenia in two patients and grade 3 diarrhea in one patient. Fourteen of the 20 patients received complete resection and there was no operation-related death. The histological responder was found in 13 cases (CR6, PR 7) of the lymph nodes and 13 cases (CR3, PR 10) of the primary stomach lesions. All patients underwent gastrectomy are alive without recurrence (median 374 days).

Conclusions: This regimen can be considered feasible and well tolerated and results in high histological response in patients with paraaortic lymph nodes involvement of gastric cancer.

Abstract ID: 0337 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Discussion
ISW 2009 Session 169.07

Prognostic significance of metastatic lymph node ratio in gastric cancer
N. Fukuda, Y. Sugiyama
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Introduction: Lymph node metastasis is considered one of the most important prognostic factor in gastric cancer. However, classification of lymph node metastasis to be examined for accurate staging of patients with gastric cancer is still controversial. The aim of this study was to investigate the prognostic significance of metastatic lymph node ratio (MLR), calculated by dividing the number of metastatic lymph nodes by total number harvested in gastric cancer.

Material and Methods: Clinical data of 186 consecutive patients with non-stage IV gastric cancer who underwent curative gastrectomy at our hospital was analyzed retrospectively. The number of examined lymph nodes, the number of metastatic lymph nodes, and the MLR was determined for each patient. Survival was determined by the Kaplan-Meier method and differences were assessed by generalized Wilcoxon test.

Results: Mean age of entire population was 67.8. The 5-year overall survival (OS) by stage was 83%, 74%, 34% in stages I, II, and III, respectively. Mean number of examined lymph node was 33.7. The number of examined lymph node does not alter the 5-year OS significantly. At multivariate analysis only MLR was found to be independent prognostic factor among three factors in the lymph node category. The mean MLR for the combined population was 0.07 and it was identified as a breakpoint for predicting OS. OS was significantly lower in the group of patients with a MLR greater than 0.07 compared with the group with a MLR of 0.07 or lower. Subsequent analysis of Stage II and III patients revealed that a MLR of 0.2 was predictive of OS.

Conclusions: The metastatic lymph node ratio is a simple and useful prognostic factor and should be considered as an important component in the lymph node category in gastric cancer.

Abstract ID: 0338 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Discussion
ISW 2009 Session 169.08

Analysis of cases who underwent gastro-jejunosotomy for intestinal obstruction by malignant tumor
A. Umemura, M. Kitamura
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Introduction: Reports regarding results and prognosis of gastrojejunal bypass for constriction of the upper digestive tract associated with unrectactable malignant tumors are few. This report describes cases assessed following bypass surgery in this department.

Material and Methods: 33 cases that underwent bypass surgery from January 1999 to December 2007 were assessed for background factors, postoperative starting day of oral ingestion, duration of oral ingestion, postoperative survival period and factors affecting postoperative survival period.

Results: Average age was 69 years and the ratio of men to women was 19:14. The most common disease was gastric cancer in 16 cases. Average postoperative starting day of oral ingestion was 7.2 days,
median duration of oral ingestion was 127 days, and 32 cases were able to ingest semi-solid rice gruel after surgery. Discharge rate was 93.9% and 50% survival period was 149 days. Postoperative survival period decreased significantly in cases of preoperative systemic complications, anemia, malnutrition and the absence of postoperative chemotherapy (p < 0.05).

Conclusions: Bypass surgery permits oral ingestion soon after surgery and greatly contributes to improved QOL of patients with unresectable malignant tumors. However, it is necessary to carefully determine whether bypass surgery is indicated for such factors as systemic complications, anemia and malnutrition.

Abstract ID: 0339 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Discussion ISW 2009 Session 169.09

An evaluation of risk factors in determining the outcome of perforated peptic ulcers and determining the best surgical option for high risk patients

E. Lim, C.C. Nieh, T. Huey, K. Mak
Alexandra Hospital, Singapore, Singapore

Introduction: Mortality of surgery for perforated peptic ulcer has been correlated with risk factors as stated from Boey’s Score being presence of co-morbidities, perforation more than 24 hours and preoperative hypotension. However, other factors influencing outcome such as size of perforation, age and type of operation has not been well studied. We aimed to identify the risk factors that predispose to failure of surgical repair and mortality.

Material and Methods: Retrospective study based on 76 patients who were operated for perforated peptic ulcers in Alexandra Hospital from 2003 to 2007. Risk factors analyzed were Boey’s Score, age, size of perforation and type of operation. Boey’s score was calculated giving one point for each risk factor of 1) presence of co-morbidities, 2) perforation for more than 24 hours and 3) preoperative hypotension.

Results: There were 66 males and 10 females. Overall mortality rate was 10.5% (8/76). Mortality for Boey’s Score 0, 1, 2 and 3, were 0%, 8%, 25% and 50% respectively. Mortality for large ulcers (>1.5 cm) was 33% (3/9) compared to small ulcers (<=1.5 cm), which was 7% (5/67). Mean age for patients that died was 72 and those that survived was 53. Failure rate of surgical repair was 4% (3/76) involving large ulcers. Of the 3 patients that failed surgical repair, 2 were simple omental patch repairs and 1 was pyloroplasty with simple closure, 2 subsequently died.

Conclusions: Mortality rate for each category in Boey’s Score has been reduced compared to earlier studies. In addition, large ulcer, advanced age and high Boey’s Score are risk factors for mortality and failure of repair. Operations other than a simple patch repair, such as a gastrectomy or pyloric exclusion, may give better outcome in these patients.

Abstract ID: 0340 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Discussion ISW 2009 Session 169.10

Laser therapy of gastro-duodenal polyps in cirrhotic patients


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Introduction: Gastro-duodenal polyps in cirrhotic patients can represent a source of bleeding both acute and chronic. In these patients standard diathermic polypectomy presents a high risk of bleeding. For this reason we wanted to analyse the effects of laser-therapy for the treatment of gastro-duodenal polyps in cirrhotic patients.

Material and Methods: Laser-therapy was offered to all the patients with liver cirrhosis and hyperplastic polyps in the stomach and duodenum, found at gastroscopy and with histologically proven diagnosis. Patients were treated with Nd:YAG or Diode lasers under sedation with propofol. Sessions were scheduled every three months. Endoscopic follow-up was performed every six months.

Results: 23 patients (15 males and 8 females), mean age 58 years (range 40–73 years) were enrolled in this study. The number of treated polyps was 76, in mean 2.8 per patient. The polyps were: 43% in the antrum, 21% in the corpus, 18% in duodenum, 9% respectively in fundus and pylorus. Mean diameter of polyps was 12 mm (range 5–30 mm). After 194 sessions, in mean 7.2 per patient, no complications were reported. In 17/23 (74%) patients a complete ablation of the polyps was obtained, in the other 6 a reduction of 60% of polyps’ dimension was achieved. In all the cases a remission of gastrointestinal bleeding was observed. After a mean follow-up of 31 months, 3 recurrences were seen (18%) and treated again with laser therapy.

Conclusions: Laser therapy of hyperplastic gastro-duodenal polyps in cirrhotic patients is safe and effective. Endoscopic follow-up is suggested for the risk of recurrence.

Abstract ID: 0341 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Discussion ISW 2009 Session 169.11


A. Jay, D. Watson
Flinders University, Adelaide, Australia

Introduction: We determined trends in surgical case load for common benign biliary and upper gastrointestinal conditions in Australia over the last 15 years.

Material and Methods: Using the Medicare Australia website, the use of Medicare item numbers specific to biliary, bariatric and anti-reflux procedures were determined nationally and for each Australian state for each year from 1994 to 2007. Rates of operative cholangiography, laparoscopic to open cholecystectomy conversions and bile duct exploration were calculated. Per capita use of bariatric procedures were also determined. Anti-reflux surgery was analysed as total and specific anti reflux procedures.

Results: The use of intra-operative cholangiography has increased over time and the conversion to open cholecystectomy has decreased. Open common bile duct exploration has decreased with an equivalent increase in laparoscopic common bile duct exploration procedures while the overall application of common bile duct exploration in cholecystectomy has decreased. A rapid increase in restrictive bariatric procedures has occurred. Gastric bypass is being performed most often in NSW, whereas gastric reduction/plasty is performed, and reversed most often in Victoria. The application of anti reflux surgery has also increased significantly with the repair of large hiatus hernia accounting for most of the increase over the last 5 years. Whereas revision anti-reflux surgery remains uncommon.

Conclusions: This data demonstrates a stable workload for gallstone disease, an increasing workload for anti-reflux surgery and rapidly
increasing surgical rates for morbid obesity in Australia. It also demonstrates significant increases in the application of some laparoscopic surgical techniques, particularly for morbid obesity. Future health care planning would need to consider the impact of these changes.

Figure: Total number of bariatric surgery procedures undertaken in Australia.

Abstract ID: 0342  Specific Field: Stomach / Duodenum

Mode of pres.: Poster Discussion
ISW 2009 Session 169.12

Sleeve gastrectomy and antireflux surgery for moderate obese patients with GERD
Hospital Clínico Universidad of Chile, Santiago of Chile, Chile

Introduction: Obese patients are prone to develop GERD. Laparoscopic sleeve gastrectomy (LSG) is a common surgical procedure that is effective in achieving significant weight loss but tends to increase GERD symptoms postoperatively. The aim of this study was to show the results of a simultaneous LSG and Laparoscopic fundoplication (LF) in selected patients.

Material and Methods: Ten moderate obese patients that suffered GERD were prone to develop GERD. Laparoscopic sleeve gastrectomy (LSG) is a common surgical procedure that is effective in achieving significant weight loss but tends to increase GERD symptoms postoperatively. The aim of this study was to show the results of a simultaneous LSG and Laparoscopic fundoplication (LF) in selected patients.

Results: Operative time was 180 +/- 25 min. There were no intraoperative complications or conversion to open surgery. In-hospital stay was 5 +/- 1 day. During hospitalization, all patients were submitted for radiographic evaluation of the anastomosis showing no evidence of leakage (Figure 1 and 2). Follow-up at 18 months postoperatively was performed in four patients. BMI was 27.0 +/- 1.2 kg m^-2 and digestive endoscopy (Figure 3), manometry and ambulatory 24-hour pH monitoring showed no evidence of GERD (Table 1). Most of the comorbidities associated with obesity were solved after 18 months. Eight patients have not completed 12 months of follow-up but they are clinically without complications.

Conclusions: Laparoscopic sleeve gastrectomy combined with an antireflux surgery may be an acceptable surgery for moderate obese patients that suffer GERD. Preliminary early postoperative results regarding antireflux and weight-loss effects are promising. Further experience is necessary for more robust clinical conclusions.

Preoperative and postoperative anthropometric and functional studies in moderate obese patients with GERD. *na: not available (patients with less than 6 months postoperative follow-up)

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Figure: Early postoperative anastomosis radiographic control

Abstract ID: 0343  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 169.13

Treatment with Gemcitabin for advanced or recurrent extrahepatic bile duct cancer
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Introduction: Extrahepatic bile duct cancer has a bad prognosis and there was no standard chemotherapy for advanced and recurrence cases. We treated those cases to local treatment such as metallic stent,
intrabiliary irradiation and microwave coagulation. Recently, Gemcitabine (GEM) was applied for biliary tract cancer, so this study shows the effectiveness of GEM for extrahepatic bile duct cancer.

**Material and Methods:** Between 2003 to 2008, 16 patients were treated with GEM. These patients were 8 advanced cases (more than stage III by UICC criteria) and 8 recurrence cases. Effectiveness of GEM treatment was compared with nonrandomized 32 cases, treated with biliary drainage without any chemotherapy. Endpoint of this study was survival ratio which were compared using Kaplan-Meier survival curves. GEM (1,000 mg/m2) was administrated through a vein, within thirty minutes and once a week for three weeks in a row, followed by a week without treatment.

**Results:** There was no adverse event over Grade IV with GEM treatment. GEM treatment was one to 45 times, average 19 times/ case, administrated by case, and during 296 days by average. Main reason of change of the dosing regime was cholangitis. Response rate was 10%; NE 1 cases, CR 1, PR 1, SD 10, PD 3. Survival rates in without GEM at 6 and 12 months were 82% and 45%, survival rates in GEM therapy at 6, 12 were 94%, 94%.

**Conclusions:** GEM therapy was useful for advanced and recurrent extrahepatic bile duct cancer without any severe adverse events.

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**Abstract ID: 0344**  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion  
ISW 2009 Session 169.14

Early organ specific mitochondrial dysfunction seen during experimental acute pancreatitis  
A. Mittal, A. Phillips, A. Hickey, B. Loveday, J. Windsor  
University of Auckland, Auckland, New Zealand

**Introduction:** Multiple organ dysfunction syndrome (MODS) is the main cause of death in severe acute pancreatitis. Primary mitochondrial dysfunction is now thought to play a central role in the development and progression of organ failure in critical illness. The aim of this study was to investigate mitochondrial function in seven tissues during early acute pancreatitis in two experimental rodent models.

**Material and Methods:** Twenty-eight male Wistar rats (463 ± 2 g; mean ± SEM) were studied. Group 1 (n = 8), saline control; Group 2 (n = 6), caerulein induced acute pancreatitis; Group 3, (n = 7) sham surgical controls; Group 4 (n = 7), taurocholate induced acute pancreatitis. Animals were euthanased at 6 h from the start of the experimental protocol and mitochondrial function was assessed in the heart, lung, liver, kidney, pancreas, duodenum and jejunum. Mitochondrial function was assed using a substrate and inhibitor protocol on the Oroboros machine.

**Results:** Significant mitochondrial dysfunction was present in the pancreas, lung and jejunum in the models of acute pancreatitis compared to control groups. The heart, liver, kidney and duodenal mitochondria were unaffected.

**Conclusions:** This study found an early and unexpected inhibition of mitochondrial function present selectively in the lung and jejunum of rats with early pancreatitis. Subsequent failure of these two organ systems is implicated in the morbidity and mortality associated with severe acute pancreatitis and MODS. These findings suggest that early mitochondrial dysfunction occurs selectively in certain organs remote from the pancreas as a key event during early pancreatitis. Further research is now needed to evaluate the use of early mitochondrial specific therapies in early acute pancreatitis.

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**Abstract ID: 0345**  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion  
ISW 2009 Session 169.15

A systematic appraisal of the quality of clinical guidelines for acute pancreatitis  
B. Loveday [1], S. Srinivasa [1], R. Vather [2], A. Phillips [1], J. Windsor [1]


**Introduction:** Patient management decisions are increasingly based on clinical guidelines, and guideline quality influences patient outcome. Many guidelines for the management of acute pancreatitis exist, but their quality has not been formally evaluated. This study aimed to appraise the quality of acute pancreatitis guidelines.

**Material and Methods:** A literature search identified relevant guidelines using MEDLINE, EMBASE, CINAHL and National Guidelines Clearinghouse. Two reviewers independently appraised guideline quality using three validated instruments: Grilli, Shaneyfelt and AGREE, with maximum scores of 4, 25, and 92 respectively.

**Results:** Thirty-one guidelines from 1988–2008 were analysed, of which 22/31 (71%) were endorsed by official bodies and 9/31 (29%) did not have official endorsement. Twelve specialties were included in guideline development, and 21/31 (67%) guidelines involved multiple specialties. Only 8 (26%) guidelines included evidence grading. The median (range) quality scores were: Grilli, 2 (0–4); Shaneyfelt, 13 (5–23); AGREE, 59 (37–82). There was good correlation between instruments (r = 0.85–0.96, p < 0.001). Guideline quality did not increase with the year of publication (r² = 0.05, p = 0.3). Guidelines endorsed by official bodies scored more highly than those without endorsement (AGREE 62.5 vs. 45.0, p < 0.001), while those developed by multiple specialties did not score more.
highly than those developed by a single specialty (AGREE 59.0 vs. 50.0, p = 0.36).

Conclusions: Current acute pancreatitis guidelines range widely in quality, and have not improved over time. Their quality is generally higher if endorsed by official bodies. While higher quality guidelines do not ensure better patient outcome, there is room for improvement.

Abstract ID: 0346 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 169.16

Necrosectomy during first operation for severe pancreatitis: is it necessary?
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Introduction: Timing and technique of severe acute pancreatitis debridement is still controversial. Organ failure within the first week after disease onset is closely linked to infection making postponing of intervention dangerous. However, early necrosectomy usually associated with significant deterioration in postoperative vital organ functions and complications.

Material and Methods: Records of 42 patients who underwent early surgery for necrotizing pancreatitis from 2002 to 2009 were analyzed retrospectively. Surgical intervention included early open drainage of retroperitoneal spaces with further delayed necrosectomy (Table).

Results: The overall mortality was 38.1%. There was good correlation between APACHE II and Marshall scores (MODS) and patient survival. The average time of first operation and necrosectomy (from the first intervention) was 7.1 ± 1.0 and 11.3 ± 1.5 days respectively. There was no correlation between bacterial contamination of necrosis and MODS at admission or death. However, infected necrosis was associated with statistically significant exacerbation of organ function (Figure). Early surgery was accompanied with relatively small number of specific local complications: bleeding in 4.7%, intestinal fistulas in 2.3%, pancreatic fistulas in 14.3%.

Conclusions: Our data demonstrates that early drainage with late necrosectomy may be beneficial in selected cases. Possible hazard of infection hypodagnosis lies in significant deterioration of patient condition which may give unsatisfactory results of postponed surgery.

Factors associated with death and infection in patients underwent early drainage

<table>
<thead>
<tr>
<th></th>
<th>Survivor (n = 26)</th>
<th>Non-Survivor (n = 16)</th>
<th>P</th>
<th>Sterile (n = 25)</th>
<th>Infected (n = 18)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>47 ± 3.6</td>
<td>54 ± 2.8</td>
<td>NS</td>
<td>49 ± 3.3</td>
<td>52 ± 3.7</td>
<td>NS</td>
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<td>(mean undefined SD)</td>
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<tr>
<td>APACHE II (admission)</td>
<td>13.5 ± 1.3</td>
<td>20.0 ± 1.8</td>
<td>&lt;0.01</td>
<td>15.8 ± 1.5</td>
<td>16.8 ± 1.8</td>
<td>NS</td>
</tr>
<tr>
<td>(mean ± SD)</td>
<td></td>
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<td></td>
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<tr>
<td>MODS (admission)</td>
<td>3 (1–4)</td>
<td>4 (2–7)</td>
<td>&lt;0.05</td>
<td>3 (1–5)</td>
<td>3 (2–6)</td>
<td>NS</td>
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<tr>
<td>(median and IQR)</td>
<td></td>
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<tr>
<td>MODS (operative)</td>
<td>2.5 (1–4)</td>
<td>5 (4–7)</td>
<td>&lt;0.01</td>
<td>4 (1–5)</td>
<td>4 (2–7)</td>
<td>&lt;0.05</td>
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<tr>
<td>(median and IQR)</td>
<td></td>
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<tr>
<td>Infected necrosis (%)</td>
<td>30.8</td>
<td>56.3</td>
<td>NS</td>
<td></td>
<td></td>
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</tbody>
</table>

Figure: Preoperative MODS in sterile and infected pancreatitis

Abstract ID: 0347 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 169.17

Antioxidant treatment with desferrioxamine attenuates intestinal mucosa damage and gut barrier dysfunction after major hepatectomy: study in a porcine model
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[1] Experimental Research Laboratory, 2nd Department of Surgery, University of Athens School of Medicine, Aretaieion University Hospital, Athens, Greece, [2] 2nd Department of Anesthesiology, University of Athens School of Medicine, Attikon University Hospital, Chaidari, Greece, [3] Pathology Laboratory, University of Athens School of Medicine, Aretaieion University Hospital, Athens, Greece

Introduction: Postoperative liver failure and sepsis are serious complications of major hepatectomies performed under vascular control. Gut barrier dysfunction and bacterial translocation (BT) have been implicated in the pathogenesis of septic complications. This study aims to evaluate histological and functional alterations of the gut mucosa in a porcine model of post-hepatectomy liver failure and to assess the role of desferrioxamine in the protection of gut barrier.

Material and Methods: 12 Landrace pigs 35–45 kg were used. Post-hepatectomy liver failure was induced by a combination of major (70%) liver resection and hepatic ischemia/reperfusion injury by occluding the hepatoduodenal ligament. Ischemia was induced for 150 min and a 24-hour reperfusion period followed. A side to side porto-caval shunt was constructed prior to hepatectomy, to avoid portal congestion during ischemia. Animals were randomly divided into a control Group and a DFX Group equally. DFX animals were treated with continuous IV infusion of desferrioxamine 100 mg/Kg. Microscopy was used to evaluate intestinal mucosal injury (IMI). BT was assessed by quantitative blood cultures (CFUs/mL) and endotoxin concentration in the systemic and portal circulation. Portal pressure was monitored. Liver failure was assessed monitoring intracranial pressure (ICP) and serum ammonia (NH3), alanine aminotransferase (ALT) and total bilirubin (TBIL) levels.
Results: DFX animals had fewer CFUs/mL in the portal circulation (p = 0.04), significantly lower IMI score (p = 0.02), lower portal endotoxin levels at the 6 and 24 hour time points (p = 0.008 and 0.01 respectively) and decreased systemic endotoxin levels (p = 0.007) at 24 hours compared to controls. Portal pressure was similar in both groups. ICP, TBIL, and NH₃ were improved in DFX animals compared to controls at 24-hours (p = 0.028, p = 0.01 and p = 0.043 respectively). There was no difference in ALT.

Conclusions: Post-hepatectomy liver failure in pigs induces damage to the intestinal mucosa and gut barrier dysfunction as measured by endotoxin levels and BT. Desferrioxamine appears to attenuate tissue damage and protect gut barrier function possibly through blockage of iron-catalyzed oxidative reactions.

Abstract ID: 0348 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 169.18

Selective decongestive devascularization shunt of gastrosplenic region for treatment of portal hypertension: preliminary experience with 44 patients
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Introduction: Portal hypertension is constantly one of the biggest challenges faced by general surgeons up until the past five decades. The surgical management of portal hypertension has undergone ceaseless alterations and innovations, however, the complications including variceal bleeding, development of ascites, encephalopathy etc. are still a puzzle around the world. Aimed at devising a ideal surgical procedure, which could not only extract the advantages of distal splenorenal shunt and disconnection but also meet the surgical therapeutic principle of portal hypertension as far as possible, our unit from 2000 had conceptualized and developed a innovative surgical procedure, because of its special property of shunt, decongestive and devascularization of gastrosplenic region, it was named selective decongestive devascularization shunt of gastrosplenic region (SDDS-GSR).

Material and Methods: From September 2000 to June 2008, 44 patients with portal hypertension had underwent SDDS-GSR and 29 patients in the group had been followed up for 12 ~ 85 month-s (mean, 44 months). The main steps of the procedure SDDS-GSR were showed in Figure 1.

Results: (1) Operative mortality was 0%. Mesenteric area pressure (33.82 ± 5.12 cm H₂O) was higher than splenic area pressure (24.57 ± 4.63 cm H₂O) post operation (p < 0.01). (2) No rebleeding and 2.27% incidence of encephalopathy occurred in postoperative early stage. 3.45% rebleeding and 3.45% encephalopathy in long-term follow-up were noticed and Survival rate at 1-year, 3-years and 5-years was 100%, 95% and 95% respectively. (3) In the long-term follow-up, the platelet counts markedly increased from (49.2 ± 21.810³/μL) of preoperative value to (77.2 ± 29.510³/μL) (P < 0.01), while spleen size was significantly reduced.

Conclusions: SDDS-GSR is a reliable and reasonable surgical management for portal hypertension.

Figure 1 the illustration of SDDS-GSR
A: En bloc resection of coronary vein and its branches (clearance)
B: ligation of vena gastrica posterior
C: ligation of left gastric artery
D: splenic artery coarctation

Abstract ID: 0349 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Discussion
ISW 2009 Session 169.19

More GI cancer detected after cholecystectomy but age was only mortality factor
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Haraldsplass Deaconal Hospital/University of Bergen, Bergen, Norway

Introduction: It has been reported that cholecystitis carries an increased long-term mortality compared with uncomplicated gallstone disease. It has been suggested that removal of the gallbladder may induce gastrointestinal cancer. We wanted to examine these two reports.

Material and Methods: The study population consisted of 2059 subjects: 245 patients with asymptomatic gallstones and 1042 control persons from 1983, 254 patients operated for gallstone disease in 1983, and further from two RCTs from 1991 to 1994: 137 patients with symptomatic, uncomplicated gallstones (GBS), 64 patients with acute cholecystitis (AC), and 317 excluded patients from both RCTs (n = 201 GBS and n = 116 AC, respectively). Diagnosed cancer disease was recorded by the Cancer Registry of Norway and death certificates were obtained at the Norwegian Registry for Public Statistics. Data material was collected and patient follow-up done in 2008 for comparison between groups.

Results: In the population study, there were marked differences in mortality figures between subjects with incidentally proven gallstones and controls versus subjects operated for gallstones. This could be explained by age differences. No difference in cause of death could be shown. Cholecystectomy in 1983 for gallstone disease had a higher occurrence of GI-cancer (ICD-10-codes C15-C25) than the population cohort (16% vs. 4%) (colon and pancreas 13% each). Non-GI cancers occurred with similar frequency in all groups. There were no cases of gallbladder cancer. In the GBS-study, no difference in number of deceased patients, causes of death, or occurrence of cancer, could be shown between groups. In the AC-study, excluded patients had a higher mortality rate than patients.
Remote surgical education using a worldwide academic network


Kyushu University, Fukuoka, Japan

Abstract ID: 0351 Specific Field: Surgical Education

Mode of pres.: Free Paper (oral)
ISW 2009 Session 172.01

Introduction: With rapid changes in surgical techniques and patient care, education of young surgeons is of utmost importance in clinical practice. Because the number of experts is limited, the use of telecommunication is very helpful to continuously expose them to advanced skills and new knowledge in cost- and time-effective manner. Telemedicine in surgery, however, has not yet gained much popularity, one is because the transmitted image was always degraded and another is because expensive equipments must be prepared first. We have successfully established a new system that meets surgeons’ need by using worldwide academic network.

Material and Methods: Digital video transport system (DVTS), free but internationally authorized software which transforms digital video signals directly into Internet Protocol without any analog conversion, was installed in a regular personal computer with network as much as 30 Mbps per channel. Kyushu University Hospital in Japan was linked abroad over Asia-Pacific Advanced Network (APAN) and Trans-Eurasia Information Network 2 (TEIN2). Security software was used to protect patients’ privacy.

Results: Among 157 teleconferences performed from 2003 to 2008, 88 events were surgery-related; 44 were live surgeries and 44 were surgical teleconferences with real-time discussions, including the topics of laparoscopic gastroectomy, colorectal surgery, transplantation, and others. After having the first transmission in Feb 2003 between Japan and Korea, the activity was extended to China in Oct 2004, South-East Asia in Jan 2005, Australia in Nov 2005, India and the US in Jan 2007, and Europe in Aug 2007, currently connecting 90 hospitals and institutions in 20 countries and regions. The total number of connected stations reached to 486 with increasing number of multi-site connections. The frame rate of transmitted pictures was 30/sec and the time delay between remote sites was measured to be 0.3-1.0 sec from screen to screen.

Conclusions: This is the fist time to establish the advanced telesurgery system using academic high-volume network, which is funded by government and is now available all over the world. Because our system can avoid the loss of image quality and does not require any costly, special equipment, we believe our cutting-edge system will improve the quality of surgical education beyond geographic borders to finally provide patients with better healthcare.

Abstract ID: 0352 Specific Field: Oncology

Mode of pres.: Free Paper (oral)
ISW 2009 Session 172.02

Genome-wide identification of signaling pathways associated with resistance to anthracyclines and paclitaxel in breast cancer

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[1] Mount Sinai Hospital, University of Toronto, Toronto, Canada,
[2] Sunnybrook Health Science Centre, University of Toronto, Toronto, Canada

Introduction: Genetic variations discovered by genome-wide association (GWA) studies open new venues to address drug resistance in breast cancer patients. The aim of the study is to identify novel genetic targets associated with anthracyclines and paclitaxel resistance in breast cancer patients.

Material and Methods: The Affymetrix 125 K data and GI50 values for 58 NCI60 cell lines treated with doxorubicin and paclitaxel were obtained from DTP website and analyzed on SAS 9.1. The GWA single-marker and haplotypes analyses have been performed on the PLINK and Haploview software. An expression level of mRNA of genes has been compared in over 300 cancer cell lines from Affymetrix GeneChip U133 Plus 2.0 using CaARRAY microarray system. The biological interaction among the genes was performed on Ingenuity software.
Results: We designed a novel biostatistical approach to categorize genetic markers from the cancer cell lines treated with Doxorubicin and Paclitaxel into sensitive and resistant groups. GWA analyses discovered a total of 11 SNPs associated with Doxorubicin, and 36 and 16 SNPs in Paclitaxel treatment (at the lower and higher dose, respectively). 20 SNPs are shown to be rare polymorphisms (MAF < 20%), 14 SNPs that represent low to medium risk changes to protein function are located within genomic regions. In addition, 7 genes (DSG1, RORA, FRMD6, BTBD12, ZNF607, GRIK1, and CASP9) have significantly lower mRNA expression levels in 9 out of 45 breast cell lines. The biological analysis showed that both drugs act on the genes of the caspase cascade, p53, TNF, TGF-beta, TERT, BRC1, MYCN, IL1, IL6, and HIF1. Analysis of mRNA expression levels in these genes in MCF7-resistant breast cell lines is currently still being conducted.

Conclusions: Genome-wide approach allows us to reveal novel genetic variations associated with resistance to anthracyclines and paclitaxel. Anthracyclines and paclitaxel share the common intracellular targets that define the resistance to treatment. Discovered candidate genes can be potential predictive markers for resistance to these chemotherapeutic agents.

Abstract ID: 0354

Specific Field: Miscellaneous

Mode of pres.: Free Paper (oral)

ISW 2009 Session 172.04

High fascial closure-rate with VAC- and mesh mediated traction (VACM) after long-term treatment with open abdomen (OA)

S. Acosta

Vascular Centre, Malmo, Sweden

Introduction: The aim of the study was to study closure rate and complications with VACM after long-term treatment with open abdomen

Material and Methods: Patients were enrolled since March 2006 in a prospective multicenter study and included when the polypropylene mesh, used for medial traction of the midline, were sutured to the fascial edges, interposed between the inner and outer VAC sponges. The method was used when prolonged treatment with OA was anticipated. The dressings were changed every 2–3 days and the mesh tightened. In the end, the mesh was removed and primary delayed fascial closure was intended.

Results: Eighty-two patients (62 men) were treated with VACM until December 2008. Median age was 68 years (range 21–84). The underlying pathologies were vascular disease (n = 32), visceral pathologies (n = 44), and trauma (n = 6). The median maximum fascial diastasis was 17 cm after decompression. Fascial closure was achieved after median 15 days and four mesh-tightening procedures in 94% of patients, whereas four were reconstructed with mesh. Patients with vascular disease had a larger fascial diastasis (p < 0.001), were treated with a higher negative topical pressure (p = 0.016), but VAC treatment duration (p = 0.27) was similar to those with visceral pathologies. Five intestinal and two urinary tract fistulas and one abscess developed during VACM treatment. Three intra-abdominal abscesses and one intestinal fistula occurred after fascial closure. Median in-hospital stay was 45 days, in-hospital mortality was 21% (17/82). Six patients died after fascial closure. In-hospital mortality was higher among patients with intestinal ischemia (n = 16; p = 0.06) and bowel anastomosis (n = 18; p = 0.05) and lower in patients with stomas (n = 32; p = 0.042). Preoperative SOFA-score (p = 0.003), days on ventilator (p < 0.001), and days at the ICU (p = 0.001) were associated with in-hospital mortality, whereas age (p = 0.18) and intra-abdominal infection (n = 31; p = 0.17) were not.

Conclusions: VACM was feasible with a high fascial closure rate and low complication rate after long-term treatment with OA.

Abstract ID: 0355

Specific Field: Oncology

Mode of pres.: Free Paper (oral)

ISW 2009 Session 172.05

TN categorization for rectal and colon cancer based on national survival outcome data


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Introduction: The 6th edition of the AJCC Staging Manual subdivides Stage II into IIA (T3N0) and IIB (T4N0) and Stage III into IIA (T1-2N1M0), IIB (T3-4N1M0), and IIC (anyT2N2M0). Subsequent analyses supported revised sub-staging of Stage III due to improved survival with T1-2N2 cancers vs. T3-4N2 and survival in T4N1 lesions more similar to T3-4N2 than T3N1. The hypothesis is that depth of invasion interacts with nodal status to affect survival.

Material and Methods: SEER population-based data from Jan 1992-Dec 2004 for 35,829 rectal and 109,953 colon cancer pts were compared to Cooperative Group rectal data on 2,551 patients. Tumors were stratified by extent of disease and number of positive nodes. T4N0 cancers were stratified by tumors that perforate visceral peritoneum (T4a) vs. tumors that invade or are adherent to adjacent structures (T4b). N1 and N2 were stratified by number of N + : N1a/ N1b (1 vs. 2–3), N2a/N2b (4–6 vs. >7). 5-yr observed survival (OS) and relative survival were obtained for each TN category.

Results: Survival outcomes for rectal and colon cancer were very similar by TN category of disease. T1-2N2 cancers have better prognosis than T3-4N2 and T4bN1 lesions have prognosis more akin to T4N2 in rectal and colon datasets. Prognosis for T4a lesions is better than T4b by N category. The number of N + lymph nodes affects prognosis. N1a(1N+) has a 5–10% better 5-yr OS than N1b (2–3N+); N2a (4–6 N+) has a 12% better 5-yr OS than N2b (>7N+) by T category.

Conclusions: This analysis supports the shift of T1-2N2 cancers from IIC to IIA/IIB and T4bN1 from IIB to IIC and subdividing IIB into IIB (T4aN0) or IIC (T4bN0) and shifting more favorable TN2 categories from IIC to IIA (T1N2a) or IIB (T1N2b, T2N2a-b, T3N2a, T4aN2a). SEER data support sub-staging of N1 and N2 based on number of positive nodes (N1a, 1LN+; N1b, 2–3 LN+; N2a, 4–6 LN+; N2b, >7 LN+). Outcomes by TN category suggest a complex biological interaction between depth of primary invasion and nodal metastases. Survival outcomes for rectal and colon cancer by TN category of disease were more similar than expected. These features will be incorporated into the 7th edition of the AJCC Cancer Staging Manual and the UICC publications beginning January 1, 2010.

Abstract ID: 0356 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 172.06

A program of enhanced recovery after surgery (ERAS) is a cost-effective intervention in elective colorectal surgery

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Introduction: There have been very few published ERAS cost-analyses in colorectal surgery. The aim of this paper is to evaluate whether the costs saved by reduced post-operative resource utilization would offset the financial burden of setting up and maintaining an ERAS program in elective colorectal surgery.

Material and Methods: Adifferential cost comparison was performed. The study group consisted of consecutive patients enrolled in the ERAS program for elective colorectal surgery at Manukau Surgical Centre between December 2005 and March 2007. The control group consisted of a comparable, consecutive series of patients from September 2004 to September 2005 (before the start of the ERAS program). Patients from both groups were individually matched with respect to the operation performed, BMI, ASA score, and Cr-POS-SUM score. Data were collected from patient records including physical and electronic clinical, radiology, and laboratory records.

Results: Data were available for 50 patients in each group. There was a significant reduction in total hospital stay, intravenous fluid use (both intra-operative and post operative), and duration of epidural use in the ERAS group compared to the control group. There were significantly fewer urinary tract infections, cardio-pulmonary complications, and episodes of post-operative ileus in the ERAS group. Implementation of the ERAS program cost approximately $100,000NZD for the first 50 patients when one-off setup costs are included. This was more than offset by costs saved in reduced post-operative resource utilisation with an overall cost-saving of approximately $4000NZD per patient in the ERAS group compared to the control group.

Conclusions: Implementing an ERAS program in the setting of elective colorectal surgery is cost-effective in the medium term, with set-up and maintenance costs offset by costs recovered by reduced resource utilisation in the post-operative period.

Figure: Auckland ERAS Group

Abstract ID: 0357 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 173.01

Diagnostic utility of fine-needle aspiration cytology in pediatric differentiated thyroid cancer

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Introduction: Differentiated Thyroid Cancer (DTC) is the most common form of thyroid malignancy, occurring in 1–3% of the adult population. The cancer is often first detected by a palpable thyroid nodule, and diagnosed by fine-needle aspiration biopsy (FNA). This technique has been determined a safe, reliable and cost effective method among adult patients, but is more recently established as a diagnostic tool in children. Pediatric patients present with thyroid nodules less often than adults, but the rate of malignancy and lymph node metastasis is much higher. The objective was to determine the ability of FNA to accurately diagnose and facilitate management of thyroid neoplasms in pediatric patients.

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Material and Methods: A retrospective study revealed 110 children and adolescents who had a thyroid surgery and an FNA biopsy at two academic institutions over the last 28 years. The medical records of these patients were analyzed to investigate FNA sensitivity in diagnosing papillary thyroid cancer and follicular neoplasm. The positive predictive value of an “atypical” and “malignant” FNA cytology was also determined.

Results: Of 110 patients who presented for surgery, 27 (25%) had papillary thyroid cancer (PC) and 33 (31%) had a follicular neoplasm (FN). Of the PC patients, there were one (4%) non-diagnostic, 6 (22%) atypical, 2 (7%) benign, and 18 (67%) malignant FNA results. The overall FNA sensitivity for diagnosing PC was 90% (2/20). Nodule size, nodule number, age, and gender did not affect FNA sensitivity in PC pediatric patients. Of the 33 patients with FN, 4 had follicular carcinoma (FC) and 29 had follicular adenoma (FA). The overall sensitivity of a malignant FNA result to diagnose FC was 0%. Sensitivity of an atypical FNA was 75% for FC and 69% for FA, giving an overall sensitivity of 70% for FN. Of all atypical FNA readings, 64% had confirmed cases of atypical features, and 19% were malignant. In 95% of the malignant FNA reports, patients were diagnosed with PC upon final histology, resulting in a positive predictive value of 95%.

Conclusions: FNA biopsy can reliably diagnose malignancy in pediatric thyroid patients, and should be used as a standard technique to indicate surgical treatment. A typical or suspicious FNA results do not predict cancer effectively, indicating that surgery should be performed in all patients with this finding to rule out malignancy.

Abstract ID: 0358 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 173.02

Secondary and tertiary hyperparathyroidism: the utility of ioPTH monitoring
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Introduction: In patients with secondary (2) and tertiary (3) hyperparathyroidism (HPT), the value of intraoperative parathyroid hormone (ioPTH) monitoring remains controversial. Therefore, we aimed to examine the utility of ioPTH testing in patients with 2 and 3HPT.

Material and Methods: We identified 105 patients with 2HPT (n = 33) and 3HPT (n = 72) who underwent ioPTH monitoring during parathyroidectomy. Baseline ioPTH levels were drawn in the OR prior to incision. Data are reported as mean ± SEM.

Results: The 2HPT patients underwent 16 subtotal, 10 total parathyroidectomies, and 6 re-explorations for recurrence. Patients with 3HPT underwent 54 subtotal, 15 limited parathyroidectomies, and 3 re-explorations. Patients with 2HPT had heavier resected gland weights compared to 3HPT patients (1333 ± 187 mg vs 951 ± 95 mg, p = 0.03). The duration of surgery was similar in both groups (127 ± 4 minutes). The percent decrease from the baseline ioPTH level at 5, 10, and 15 minutes after parathyroid resection respectively were 72 ± 3%, 76 ± 3%, and 76 ± 3% in patients with 2HPT, and 52 ± 6%, 60 ± 4%, and 69 ± 4% in patients with 3HPT. A larger drop in ioPTH levels was observed in 2HPT patients at 5 and 10 minutes post-excision (p < 0.03 for both). Delayed PTH clearance (up to 25 minutes) was noted in 4 patients with 3HPT. ioPTH levels failed to drop > 50% from the baseline in 5 patients (2HPT: n = 2, 3HPT: n = 3) all of whom were normocalcemic last follow-up.

Conclusions: IoPTH did not alter the surgical approach in any patient with 2HPT, but did alter the approach in 24% of 3HPT patients, allowing for 15 limited resections and aiding in the identification of supernumerary glands in 3 cases. Normocalcemia was achieved in 95% of 2HPT and 99% of 3HPT patients, though iPTH levels exceeded the adjusted normal target iPTH range in 30% and 46% of 2HPT and 3HPT patients, respectively.

Abstract ID: 0359 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 173.03

Total thyroidectomy is superior to subtotal thyroidectomy for management of Graves’ disease in the United States
S.M. Wilhelm, C.R. McHenry
University Hospitals/Case Medical Center, Cleveland, United States

Introduction: In the United States, Graves’ disease is most commonly treated with radioiodine, yet thyroidectomy remains an important option for correcting hyperthyroidism. In many countries, limited access to thyroid hormone makes subtotal thyroidectomy the procedure of choice. In the U.S., where levothyroxine is inexpensive and widely available, we hypothesized that total (TT) or near-total thyroidectomy (NT) is superior to subtotal thyroidectomy (ST) for long-term control of Graves’ disease.

Material and Methods: We conducted a retrospective review of patients who underwent ST, NT, or TT for Graves’ disease between 1990 and 2008. Bilateral 3 gram remnants and a < 1 gram remnant remained following ST and NT, respectively. Differences in rates of recurrence were assessed using ANOVA. Rates of parathyroid autotransplantation, complications, gland weight and final pathology were also determined.

Results: 136 patients with Graves’ disease were treated with thyroidecmy. Average age was 36.4 ± 11.3yrs (range 16–81) and 88% were female. Between 1990 and April 1994, 10 pts underwent ST and 6 pts had NT. Since then, all patients underwent TT (n = 120). There was a significantly higher rate of recurrence for ST(30%) compared to NT (0%) (p = 0.15) and TT (0%) (p = 0.0000001). Parathyroid autotransplantation was performed in 36 (26.5%) patients, only 2 of whom underwent ST or NT. Temporary postoperative hypocalcemia was more common after TT (p = 0.04). However, no patient in any group had permanent hypoparathyroidism. Two TT pts had a temporary recurrent laryngeal nerve (RLN) paralysis. One patient in the TT group required re-exploration for postoperative neck hematoma. Final pathology revealed concomitant thyroid cancer in 3.6% of patients and thyroiditis in 26%. Average gland weight was 67.4 ± 57.3 grams.

Conclusions: ST resulted in a 30% long-term failure to correct Graves’ hyperthyroidism. We saw no increase in permanent RLN injury or hypoparathyroidism in the TT group despite the need for a more extensive surgical resection and higher rate of parathyroid autotransplantation. As thyroid hormone replacement is widely available, we feel that TT is safe and superior to ST for management of Graves’ disease in the United States.
Abstract ID: 0360  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 173.04

Vitamin D3 deficiency is associated with late onset hypocalcemia after minimally invasive parathyroidectomy in a vitamin D borderline area

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Introduction: Vitamin D₃ level is predominantly determined by amount of UV light exposure to skin. Its actions include increasing intestinal Ca absorption and bone reabsorption. Because of this, a low preoperative level may lead to late-onset hypocalcemia (LOH) after minimally invasive parathyroidectomy (MIP). We examined the impact of preoperative factors including vitamin D₃ on LOH after MIP.

Material and Methods: Preoperative 25-hydroxyvitamin D₃ (25OHD₃) was checked in 80 consecutive pHPT patients before MIP. Those with 25OHD₃ < 20 ng/mL were regarded as deficient. Intraoperative PTH assays (IOPTH) were done at pre-incision, 0 min and 10 min after excision of adenoma. Postoperative adjusted Ca was checked at 0, 6, 16 hr with intact PTH and 24 hr. Oral Ca and vitamin D were not given routinely unless symptomatic or adjusted Ca < 2.00 mmol/L. LOH was defined as presence of symptoms within a week after discharge.

Results: Both the deficient (n = 45) and sufficient (n = 35) groups had similar demographic data, bone density and BMI. The deficient group had significantly higher preoperative adjusted Ca (2.87 vs 2.80 mmol/L, p = 0.023) and PTH (190 vs 121 pg/mL, p = 0.015) but similar ALP (p = 0.959) and adenoma weight (p = 0.290). Although IOPTH were significantly higher in the deficient group at all time intervals, the percentage decline from pre-incision to 10 min after excision was not significant (p = 0.733). Postoperative adjusted Ca was similar at 6 hr and 16 hr in the 2 groups but significantly lower in the deficient group at 24 hr (2.10 vs 2.45 mmol/L, p = 0.033). At one week after MIP, the proportion of LOH reported was significantly higher in the deficient group (12/45 vs 3/35, p = 0.037) and in those with preoperative PTH > 100 pg/mL (15/60 vs 0/20, p = 0.017).

Conclusions: Vitamin D deficiency group had higher preoperative adjusted Ca and PTH levels and also a higher chance of LOH after MIP. Although vitamin D₃ deficiency may lead to a more severe form of pHPT, the issue of whether vitamin D₃ deficiency itself or a more severe form of pHPT results in LOH remains unclear.

Abstract ID: 0361  Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 173.05

Reevaluation of histopathological factors affecting prognosis of differentiated thyroid carcinoma in an iodine-sufficient country

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Introduction: Poorly differentiated carcinoma (PDC) was adopted as an independent clinico-histological entity of thyroid cancer in the 2004 WHO classifications, separated from papillary (PTC) and follicular carcinoma (FTC). The Turin proposal provides more specific criteria for the diagnosis of PDC. However, in an iodine-sufficient country such as Japan, PDC comprises < 1% of all thyroid cancers. Conversely, in 1983, Sakamoto analyzed pathological characteristics of PTC and FTC that recurred within 5 years after initial surgery and identified solid, trabecular, insular (STI) and scirrhous growth patterns as important predictors of poor prognosis. We reevaluated the impact of Sakamoto’s histopathological findings on the clinical course of PTC and FTC.

Material and Methods: We reviewed specimens from 376 consecutive cases formerly diagnosed as PTC (n = 351) or FTC (n = 25) between 1994 and 2001, excluding Turin’s PDC.

Results: STI components were seen in >50%, >30%, >10% and 0% of specimens for 9 (2%), 31 (8%), 19 (5%) and 317 cases (85%), respectively. As for cause-specific survival (CSS), a significant difference was apparent between >50% and >30% groups. Disease-free survival was identical between these groups and was significantly worse than in the >10% and 0% groups. Multivariate analysis identified histological features of STI >30% and squamoid dysplasia as significantly related to CSS, but scirrhous infiltration, necrosis, atypia, and vascular invasion showed no significant correlation. STI >30% was also a significant risk factor together with clinical risk factors including large tumor size, large nodal metastasis and distant metastasis. According to AMES risk-group definition, clinically high-risk patients with STI >30% showed the worst 10-year CSS, at 46%, irrespective of total thyroidectomy with radioactive iodine (RI). Among 25 PTC patients with STI >30%, 10 (40%) developed cervical recurrence, whereas 9 of 15 FTC patients (60%) with STI >30% had distant metastasis.

Conclusions: STI >30% represents a distinctly important risk factor for patient survival. In particular, clinically high-risk cases with STI >30% need further therapy beyond RI. Original histological pattern, namely papillary or follicular, affects the site of recurrence.

Abstract ID: 0362  Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 176.01

Axillary surgery not needed in low risk breast cancer patients

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Introduction: In 5 Swedish regions we included a cohort of low risk breast cancer patients in a study where no axillary surgery was performed. Study inclusion was from 1997 to mid 2002. The low risk group is defined as cancers ≤ T10 mm, grade 1 + 2 or low proliferation. We now evaluate a subgroup from 2 Swedish regions at 10 years follow up. At the same time evaluating low risk patients (the same criteria as above) not included in the study and who had axillary clearance performed during the same time period in these two areas. Reasons for not getting into the study group (no axillary surgery) are for instance: A few hospitals were not including patients, preoperative size 10 mm was taken from mammography pictures and final pathological size showed to be 10 mm or less when preoperatively larger size was told (ultrasound just started to be regular in use at the end of recruiting time and probably is more accurate for size) and in some patients extensive DCIS around the invasive part was seen.

Material and Methods: The study group show 606 patients with invasive cancer median size 8 mm and non-attendances are 1093 women, median size 9 mm (p < 0.05). Mean age is 61 in both groups. Breast preserving surgery was done in 94%. In the study group grade 1 was more common.
Results: 6 axillary relapses, 0.9%, are found in the study group and 0.55% had this event in the axillary cleared group. Local recurrences (breast and thoracic wall) are 6% respectively 5% and distant metastasis 3% and 6% respectively. Mortality is low at follow up of the study group total 9%, breast cancer related 0.5%, but significantly higher for the non-study group with 18% respectively 5% even if in both groups size is 10 mm.

Conclusions: Even if this not is a randomized study it is interesting to compare two low risk groups, with size 10 mm, operated at the same time period in two regions where mammography screening was ongoing as service screen in ages 40 – 75. Still the outcome after 10 year is good with low rate of recurrences. The difference in mortality can be explained by difference in grade values. In a final report from all participating Swedish regions we hope to show that not all axillas have to be operated even in the sentinel node era.

Abstract ID: 0363 Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 176.02

Ductal carcinoma in situ in Chinese women in the era of breast cancer screening

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Introduction: Before the introduction of breast cancer screening in 1990, ductal carcinoma in situ is a rare disease, representing less than 2% of all breast cancers in Chinese. Since 1993, breast cancer has become the commonest cancer in Hong Kong women. With the availability of screening mammography, ductal carcinoma in situ (DCIS), which is believed to be the precursor of invasive breast cancers, is diagnosed with increasing frequency. We evaluated the impact of breast cancer screening by comparing the clinicopathological differences between the screening-detected DCIS and symptomatic DCIS in the largest cohort of Chinese women.

Material and Methods: Between March 2003 and March 2008, 207 Chinese women with DCIS were treated in Hong Kong Sanatorium & Hospital Breast Care Centre. They were divided into two groups according to the mode of discovery; 87(42%) in screening-detected DCIS and 120(58%) in symptomatic DCIS. Clinical records and pathological reports were recorded prospectively at our Multidisciplinary Breast Conference and reviewed retrospectively. Differences in demographic information, clinical data, and breast cancer prognostic markers between the two groups were evaluated.

Results: Only 8.2% of screening-detected DCIS were under age of 40, but it was not uncommon in symptomatic DCIS (23.6%) (p = 0.003). Screening-detected DCIS also had stronger family history of breast cancer (21.8%), while only 8.3% of symptomatic DCIS had family history (p = 0.006). The tumor size of the screening-detected DCIS was smaller (mean and median: 22 mm and 15 mm) than the symptomatic DCIS (29 mm and 26 mm respectively) (p = 0.005). The tumor grade showed no difference (p = 0.691) between the two groups. The screening-detected DCIS were more likely to undergo breast conserving surgery (odds ratio = 2.22; 95% confidence interval 1.25–3.96; p = 0.007). There is no difference demonstrated in terms of estrogen receptor(p = 0.962) expression, progesterone receptor (p = 0.548) expression, C-erb B-2 score (p = 0.091), Ki-67 index (p = 0.271), and triple negative (ER/PR/C-erb B-2) (p = 0.718).

Conclusions: Breast cancer screening allows for early detection of high grade DCIS, which are considered more prone to develop into invasive cancer. Further studies are needed to review if mass screening will be translated into cost effectiveness and reduced mortality of breast cancer in Hong Kong.

Abstract ID: 0364 Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 176.03

Overcoming resource restrictions: intraoperative radiotherapy for breast cancer with existing infra-structure in a developing country

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Introduction: Radiation services are at a premium in developing countries and prolonged courses of radiation tax the compliance of a largely poor and rural population. Single fraction, definitive intraoperative radiation (IORT) for breast cancer is ideal for these circumstances but currently is reserved for resource-rich environments. From 2001 to 2003 a pilot series of IORT was conducted in an extremely resource-restricted environment with adaptation of existing infrastructure. We here present medium-term follow-up data.

Material and Methods: After clinically complete tumor excision a specially developed applicator was introduced into the tumor bed. An existing after loader with an Ir192 seed was used to deliver 21 Gy in a single fraction to the tumor bed. Then the applicator was removed and the wound closed. Further regional and systemic oncologic management followed established protocols. Data recorded were age, menstrual status, stage, complications, recurrence and survival.

Results: Thirty nine patients were treated; the average age was 55 years (range: 35–68 years); fourteen patients had TNM stage 1, 22 stage IIA and 2 stage IIB cancers; the majority were infiltrating ductal carcinomas; the mean tumor diameter was 19 mm, 3 patients were node-positive. After a mean follow-up of 66 months, one patient suffered a local recurrence, three regional recurrences and three have systemic metastases. One patient has died of disease; 2 of unrelated causes for an overall local control rate of 95%, an overall survival of 90% and a disease-specific survival of 95% at 5 years.

Conclusions: IORT using existing after loaders and a low cost, self-developed applicator has similar local control rates as external beam radiation (EBRT). Utilization of scarce health care resource in resource-restricted environments is greatly reduced. This extends breast conservation to indigent patients who cannot adhere to lengthy EBRT protocols.

Abstract ID: 0365 Specific Field: Breast Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 176.04

Genetic counseling in familial breast cancer predisposition testing in an underserved multiethnic population: a Malaysian pilot study


Introduction: Genetic counselling and testing for hereditary susceptibility to breast and ovarian cancer has largely been unavailable in most developing countries. This report analyses our first experiences with providing cancer genetic counselling and results disclosure

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to women with deleterious BRCA1 and BRCA2 mutations. To our knowledge, this is the first counselling service for hereditary breast and ovarian cancer in Malaysia, and first description of counselling in an Asian developing country.

**Material and Methods:** From Jan 2005 to Dec 2008, 231 breast cancer patients attending the University Malaya breast cancer follow-up clinic were recruited for a BRCA study. 36 patients were found to carry deleterious mutations in BRCA1 or BRCA2. A multi-disciplinary team comprising of a clinical geneticist, a genetic counsellor, a breast surgeon and a scientist were involved in counselling patients and their families in this pilot project.

**Results:** Of 36 patients with deleterious BRCA mutations, 28 patients (78%) wanted to be informed of their results, 5 patients (14%) declined and 3 (8%) were lost to follow-up. Of the 28 patients, 20 (71%) indicated that they intend to inform their families. Relatives from 12 families have come forward for pre-testcounselling. 37 individuals were counselled for predictive testing, 34 (92%) have proceeded with predictive testing.

**Conclusions:** We found that this multicultural and underserved population presents special challenges for genetic counsellors. Firstly, genetic counselling sessions needed to be sensitive to the multilingual and multi-ethnic setting. Secondly, risk assessment is challenging because of large, geographically dispersed, often polygamous or polyandrous families. Thirdly, cultural taboos about cancer diagnoses, social marginalisation and lack of regulatory control of genetic discrimination were significant concerns. Despite these complexities, the counselling service has been well accepted by patients and clinicians and serves as a model for other services in Asia and developing countries contemplating providing this service.

**Abstract ID: 0366**  
**Specific Field: Breast Surgery**

Mode of pres.: Free Paper (oral)  
ISW 2009 Session 176.05

Outcomes of breast conservation treatment for early breast cancer in Indian patients: single institutional experience

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**Introduction:** Breast conservation therapy (BCT) is standard for early breast cancers (EBC). Owing to various misconceptions, few Indian patients opt for BCT. This study was undertaken to evaluate outcomes of BCT in Indian EBC patients treated at a tertiary hospital in a cost-constrained environment.

**Material and Methods:** 332 consecutive EBC pts managed during 1998–2007 (31% of breast cancers managed over this period), were studied. BCT was offered to 288 who met criteria for BCT (single tumor < 5 cm, N0/N1). 112 (39%) accepted BCT; the rest underwent MRM. Following BCT all were treated with external radiation (EBRT) and interstitial brachytherapy or EBRT boost. Pts in either groups received adj. chemotherapy, and hormone Tt if ER/ PR +ve.

The outcomes in BCT group were compared with those of pts undergoing modified radical mastectomy (MRM).

**Results:** In the BCT group, median age was 44 +/-17 years (22–79), 51% were pre-menopausal. Majority had T2N1(n = 53) or T2N0(n = 27) disease. 23 had prior inadequate surgery elsewhere, needing re-operation. Wide-local excision was performed in 93, segmental mastectomy in 19. Revision excision was needed in 7 to attain clear margins. Oncoplastic procedures were done in 12. Sentinel LN biopsy (blue-dye and radiocolloid) was done in 64 clinically N0 pts. IDC was commonest histology (93%), 57% were ER/PR +ve, 23% were HER2neu +ve. 35 patients received interstitial brachytherapy, rest EBRT boost. Median follow-up was 4.8 +/- 3.3 years.

5 years DFS and OS were 69% and 77% respectively. Recurrence pattern was local-7%, regional-4%, distant-13%. Local recurrence free survival differed significantly (p < 0.05) but the OS & distant DFS rates did not, between the BCT and MRM groups.

**Conclusions:** Though fewer Indian EBC patients opt for it, BCT is a safe option with reasonable cosmesis and survival outcomes. It is associated with higher local recurrence rates, but overall survival in EBC patients undergoing BCT is similar to those treated with MRM.

**Comparison of outcomes of BCT and MRM in EBC (5 years survival rates)**

<table>
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<tr>
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<th>Overall survival</th>
<th>Disease free survival</th>
<th>Local recurrence</th>
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<tr>
<td>BCT(n = 112)</td>
<td>77%</td>
<td>69%</td>
<td>7%</td>
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<td>MRM(n = 176)</td>
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**Abstract ID: 0367**  
**Specific Field: Breast Surgery**

Mode of pres.: Free Paper (oral)  
ISW 2009 Session 176.06

Choice of management of Chinese women who carry the BRCA mutation

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**Introduction:** Mutations in the BRCA1 & BRCA2 genes confer risk in developing breast, ovarian and prostate cancer. Mutation carriers can be offered intensive surveillance and preventative measures. This study is the first to report the uptake of such measures in Chinese mutation carriers.

**Material and Methods:** Breast (BC) and or ovarian cancer (OC) patients were recruited for genetic counseling and testing in this multicenter study. Family members of positive probands were also tested.

**Results:** To date 28 index patients are found to carry the BRCA mutation: 25 females and 3 males. 24/25 (96%) females had BC and 1 had OC and family history (FH) of BC. All 3 males had BC, 23 family members were found to carry the mutation. 9/23 (39.1%) were males with no cancer. Of the females 8/14 (57.1%) had BC; 1/14 (7.1%) had
OC and FH of BC; 2/14 (14.3%) had both BC and OC; 3/14 (21.4%) have no history of cancer. Excluding 7/25 (28%) who underwent bilateral mastectomy for bilateral BC, 4/18 (22.2%) had prophylactic mastectomy, 14/18 (77.8%) women agreed for breast surveillance including MRI breast except for 1 who did not agree for MRI scan. 5/25 (20%) probands had OC or ovariative cysts with bilateral oophorectomy performed. Of the remaining, 3/20 (15%) agreed for prophylactic oophorectomy, 17/20 (85%) for ovarian screening including pelvic examination, ultrasound and CA125 except 2 who did not agree for CA125. All 3 male index cases agreed for prostate and breast screening, 3/14 (21.4%) female family members had mastectomy performed for bilateral BC. 2/11(13.6%) of the remaining had prophylactic mastectomy, 9/11 (81.8%) agreed for clinical, radiological screening of which 6/9 (66.7%) included MRI screening. 2/14 (14.3%) family members already had oophorectomy performed for OC or cysts. 1/12 (8.3%) of the remaining had prophylactic oophorectomy and 9/12 (75%) agreed for ovarian surveillance including CA125 except 1 who did not have CA125. All 9 male family members agreed for breast examination and 5/9 (55.6%) for prostate screening. No BRCA mutation carriers without history of breast cancer agreed for chemopreventive drugs.

Conclusions: Chinese BRCA mutation carriers have a higher uptake of intensive surveillance compared to prophylactic surgery for prevention. The use of chemopreventive drugs is not favoured.

Abstract ID: 0368 Specific Field: Military Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 179.01

Trans-pelvic gunshot wounds: potential multidisciplinary mayhem!
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Introduction: Penetrating injuries to the pelvis are associated with abdomino-pelvic organ injury and exsanguinating haemorrhage. This paper looks at the decision-making processes in the management of such injuries.

Material and Methods: Patients presenting with pelvic gunshot wounds (GSWs) at a military role 2 (enhanced) hospital facility, during a seven week period of Operation HERRICK 9 (Afghanistan, October to November 2008), are reported. The decision to proceed to laparotomy and the timing of cross-sectional imaging is discussed and the organ injuries described.

Results: Four patients presented during the study period. Two were haemodynamically unstable and were undergoing resuscitative laparotomy within 20 minutes of arrival at the facility with surgical control of the common iliac and common femoral arteries and pelvic packing. The two stable patients had an initial CT scan and both avoided a laparotomy as a result. All four patients had pelvic fractures and one had an associated femoral neck fracture. Three patients had disruption of the bladder and prostate gland, with urethral transection, requiring long-term supra-pubic catheterisation. One had a major rectal injury and underwent a Hartmann’s procedure, another an orchidectomy for transection of the spermatic cord. In one patient, the ballistic projectiles remained outside the bony pelvis. All four patients had repeated visits to the operating theatre. All survived.

Conclusions: The management of pelvic GSWs is complex. Resuscitative laparotomy is indicated in the haemodynamically unstable patient but appropriate imaging may influence surgical decision-making and prevent unnecessary laparotomy. The injury patterns cross artificial sub-speciality boundaries.

Abstract ID: 0369 Specific Field: Military Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 179.02

Military torso trauma: which, or how many, surgeons deploy?
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Introduction: Military-style injuries have no respect for anatomical or sub-speciality boundaries. This paper looks at the variety of intra-cavity surgery being undertaken by a deployed military general surgeon.

Material and Methods: Patients who underwent thoracotomy or laparotomy in a military role 2 (enhanced) hospital facility by the deployed military general surgeon during a seven week period of Operation HERRICK 9 (Afghanistan, October to November 2008) were included.

The body cavity accessed and the specific procedures performed are reported.

Results: Three patients had a thoracotomy; antero-lateral emergency department thoracotomy (n = 1), clamshell thoracotomy (n = 2). Eleven patients had a laparotomy, one of which was extended into the right chest. Major procedures undertaken included major vessel control/repair (n = 5), small bowel resection (n = 5), nephrectomy (n = 4), non-anatomical lung resection (n = 3), non-anatomical liver resection (n = 3), colonic resection (n = 3), bladder/prostate ‘reconstruction’ (n = 3), gastric repair (n = 2), Hartmann’s procedure (n = 1), excision of the duodenum (n = 1) and partial pancreatectomy (n = 1).

The most complex injury combination was a high velocity gunshot wound (HVGSW) to the hand, liver, stomach, duodenum, renal vessels, inferior vena cava, portal vein, vertebral body and spinal cord with the patient undergoing non-anatomical liver resection, nephrectomy and ‘Whipple’s-type’ procedure.

All patients survived their surgery. There were two post-operative deaths from respiratory complications following HVGSWs, one trans mediastinal and the other trans-abdominal on the twelfth and eighth post-operative days respectively.

Conclusions: Military torso trauma is diverse and complex. In the absence of suitably trained military general surgeons, a surgical cadre representing all general surgical sub-specialities would be required.

Abstract ID: 0370 Specific Field: Military Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 179.03

Reconstruction of major arteries of lower extremities in war wound: long-term follow-up
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Introduction: Acute arterial injury in war is war surgical problem, especially when a great number of injured admitted. The reconstruction is mandatory in lieu of limb salvage.
**Material and Methods:** During 18 month’s period of war in north-eastern Croatia 4, 545 war victims were surgically managed in the Clinical Hospital Osijek. Among them 53 (1.2%) sustained injuries of the majorarteries of lower extremities from the level of external iliac to popliteal artery, while 38 (71.7%) had arterial trauma in extensive which demanded the use of vascular conduit for reconstruction. 26 synthetic prosthesis and 12 autologous vein grafts were applied. Due to poor possibility of first aid administration at the site of injury, 76% of wounded were in hemorrhagic shock admission. In group of wounded where synthetic graft was used (26) concomitant vein, nerve or bone injuries were found in 50%, whereas 75% of wounded in the vein graft group had concomitant injuries.

**Results:** Ankle-brachial index and life-table method were used for evaluation of limb salvage rate at 17 years, as well as cumulative graft patency and limb salvage rates for synthetic grafts and for vein grafts. Data did not differ significantly for both synthetic and autologous vein grafts.

**Conclusions:** Long-term results indicate that one should not resist using synthetics for reconstruction of arterial injuries of lower extremities in a highly contaminated area of a war wound.

**Abstract ID: 0371**  Specific Field: Military Surgery

**Mode of pres.: Free Paper (oral)**  
**ISW 2009 Session 179.04**

**Naval Rescue Center: Germany’s successful joint medical facility afloat**

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**Introduction:** The Naval Rescue Center (NRC) onboard the Combat Supply Ships represent a pre-clinical medical treatment facility according to NATO Role 2 standards. The NRC is designed to provide initial surgical treatment of casualties and has an extended capacity for intensive care patients. It closes the gap between initial medical treatment onboard the combat vessels and the final clinical treatment ashore.

**Material and Methods:** The NRC is a double deck container system composed of 26 20’ by 30’ containers. The lower deck consists of two operating rooms within a clean zone, a pre-surgical treatment unit, X-ray with digital processing, dento-surgery and a storage for sterilized surgical equipment. The upper deck is the support level with clinical chemical laboratory and blood bank, microbiology lab, dental storage, conditioning of sterile articles, pharmaceutical storage and management of medical supplies. A sterilization unit converts all infectious waste into harmless domestic refuse. The NRC supplies own oxygen and compressed air production. Additionally to combat support, the ship provides an inpatient ward with 24 hospital beds with additional 10 double bunk type beds and 10 intensive care patients. The medical team of the Combat Support Ship is completes by 54 specialists of all fields.

**Results:** Since commission in 2002 the German Navy performed seven deployments with activated CSS and NRC: 3 activities within OEF at the Horn of Africa, one humanitarian relief operation after Tsunami Disaster 2004/2005; military evacuation operation in West Africa 2005, during the UNIFIL mission as part of the first United Nation Maritime Force. From September 2006 to February 2007 CSS provided with the NRC an embarked role 2 hospital for UNIFIL international Maritime Task Force. Further potential deployments are a humanitarian relief operation offshore Gaza as well as support to the European Community anti-piracy operation offshore Somalia.

**Conclusions:** The German Navy Medical Corps encourages the combination of medical treatment with ship-side support in mobility and flexibility, the command and control system on board with the embarked helicopters, using the whole range of naval logistic structures to validate impressive medical and surgical performance.

**Abstract ID: 0372**  Specific Field: Endoscopic Surgery

**Mode of pres.: Free Paper (oral)**  
**ISW 2009 Session 180.01**

**The clinical outcome of laparoscopic surgery for rectal cancer**

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**Introduction:** Although laparoscopic surgery for colorectal cancer improves post operative recovery, its use for curative treatment especially for rectal cancer is still controversial. The present study is an attempt to confirm the results of the safety and feasibility of laparoscopic surgery with our procedure for rectal cancer.
Material and Methods: A limiting factor in laparoscopic low rectal transection is the fulcrum effect of operating a stapler through a port. Another limitation is the degree of angulation of the currently available staplers. In order to avoid multiple firing, a conventional stapler which was inserted through a supra-pubic incision enabled single stapler firing during rectal division. In addition, an appropriate en bloc lymph node resection should extend to the level of the origin of the primary feeding vessels. Radical lymph node excision around the inferior mesenteric artery was performed with preservation of left colic artery (LCA). LCA preservation results in more blood supply for anastomosis and may contribute lower anastomotic leakage. [Patients and methods] Since May 1998 through December 2008 as many as 76 patients underwent laparoscopic resection for rectal cancer. Patients with rectosigmoid colon cancer were excluded from this study. Anterior resection was performed in 6, low anterior resection in 62 (including 14 super-low anterior resection; anastomosis located within 20 mm from the dentate line), intersphincteric resection in 4 and abdomino-perineal resection in 4. Patients’ data, perioperative data including morbidity and mortality, surgical data were analyzed, and the 5-year overall survival data were calculated by Kaplan-Meier method.

Results: There were 46 males and 30 females who underwent laparoscopic surgery for rectal cancer. Mean age of them was 61.2 years. The operation time was 352 minutes. Blood loss was 227 g. The postoperative morbidity was 13.2%, including 6.6% anastomotic leakage. The postoperative mortality within 30 days after surgery was not experienced. Survival analysis includes 43 patients who underwent laparoscopic surgery since May 1998 through March 2006. The 5-year overall survival rate was 86.6%.

Conclusions: Laparoscopic surgery for rectal cancer with our procedure was safe and feasible including postoperative morbidity, mortality and postoperative short and long-term results.

Abstract ID: 0375  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 180.03

Intersphincteric resection for very low rectal cancer
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Introduction: Intersphincteric resection (ISR) has become an anus-preserving option for very low rectal cancer which has been indicated for Miles operation. Outcomes of ISR for very low rectal cancer located 5 cm from the anal verge are studied.

Material and Methods: Forty-three patients (28 males, mean age 57.1 years) undergoing ISR between 2001 and 2007 were enrolled in this study. All the tumors were located below 5 cm from the anal verge. Lateral node dissection (LND) was added for T2 or more advanced tumor. Covering stoma was constructed in all the cases.

Results: Partial ISR was performed in 10 cases, subtotal ISR in 32 cases and total ISR with partial resection of external anal sphincter in 1 case. Mean bleeding volume was 246 (range 30–640) g in cases without LND and 419 (120–802) g in cases with LND. Mean operative time was 286 (range 140–410) min in cases without LND and 327 (range 240–509) min in cases with LND. Thirteen cases were early cancer (T1 and Tis, FPC case) and 13 cases was T2 tumor. No mortality was observed. Leakage occurred in 8 cases (19%) but all the cases were treated conservatively. Recurrence occurred in 10 cases (26%) in a median follow-up of 39 (1–76) months, however no suture line recurrence were confirmed. Median bowel movement in cases, who passed one year after stoma was 3.7 times per day in a median follow up of 32 months. Perfect continence was confirmed in 53 percent of cases and gas or slight stool soiling was observed in the rest of the cases. However only 26 percent of the cases used pad for incontinence.

Conclusions: ISR can be an option for very low recta cancer from the point of radicality and ano-rectal function.

Abstract ID: 0376  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 180.04

Transanal endoscopic microsurgery combined with endoscopic posterior mesorectum excision in the treatment of patients with T1 rectal cancer
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Introduction: The rectum-sparing TEM (transanal endoscopic microsurgery) is a well-established treatment of T1 “low risk” carcinomas of the rectum. However, the local recurrence risk increases significantly in case of T1 “high risk” cancer. EPMR (endoscopic posterior mesorectal resection) makes it possible to remove the relevant lymphatic drainage of the lower third of the rectum minimally invasively. It allows for local radicality and an adequate tumor staging. Aim: To determine safety and efficacy of combined treatment TEM and EPMR in patients with T1 low rectal cancer.

Material and Methods: 5 consecutive patients (3 female and 2 male, mean age 70.5 years) with T1 carcinomas of the lower third of the rectum were operated using TEM in combination with EPMR as two-stage procedure in the period from 2007 to 2008

Results: It was possible to perform a complete excision of the tumor and the mesorectum in all cases. There was no intraoperative complication apart from one small rectum perforation during EPMR treated with two additional sutures. Postoperative morbidity consisted of one hematoma formation which resolved without any additional treatment. There was no mortality. Histological analysis revealed a median of eight (range, 5–11) lymph nodes. After median follow-up of 14 (range, 426) months, there was no evidence of locoregional recurrence.

Conclusions: EPMR in combination with TEM allows for local radicality and an adequate tumor staging in T1 carcinomas of the lower third of the rectum. However, further studies on a larger group with longer follow-up are needed.

Abstract ID: 0377  Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 180.05

Transanal mucosal resection and transanal endoscopic microsurgery for rectal tumors
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Introduction: Transanal mucosal resection (TAR) and transanal endoscopic microsurgery (TEM) are minimally invasive procedures for the excision of rectal tumors. These procedures avoid open surgery for rectal tumors difficult to remove with endoscopic mucosal resection. Generally, the indications of TAR and TEM are for rectal intramusosal tumors located 5 and 510 cm from the anal verge, respectively. Here we clarify the efficacy and safety of TAR and TEM.
Material and Methods: There were 29 patients who underwent TAR from January 2004 to December 2008 and 101 patients who underwent TEM from January 1995 to December 2004. We examined the sizes of the tumors, operative times, postoperative courses, and complications.

Results: The average operative time for TAR (56.9 ± 6.5 min) was significantly shorter than that for TEM (80.7 ± 47.6 min). Regarding the relationship between the tumor diameter and operative time, the time required for TAR for tumors 50 mm was significantly longer (94.8 ± 17.0 min) than that for tumors <50 mm (50.9 ± 6.3 min). For TEM, the operative time for tumors 30 mm was longer (108.1 ± 49.6 min) than that for tumors <30 mm (63.8 ± 37.7 min). Postoperative recurrence occurred in 1 patient with TAR and in 2 patients with TEM. Follow-up surgery was required in 2 patients with TAR and in 7 patients with TEM. With TAR there were 2 cases with complications, one of sepsis and the other of intrapelvic abscess, although there were no complications with TEM. For those 2 patients with complications (1 had an 87 mm tumor and the other a 59 mm tumor), histopathology revealed that extensive resection was performed reaching to the muscle layer. There were no intraoperative deaths or deaths in recurrence.

Conclusions: TAR and TEM are minimally invasive and effective procedures. Moreover they are safe as evidenced when they were performed according to surgical indications, there were no intraoperative deaths or deaths due to recurrence. There are demerits, however, such as the skillful surgical technique required for the long operations and the possibility of serious complications for large tumors, such as the skillful surgical technique required for the long operations and the possibility of serious complications for large tumors, >50 mm with TAR and >30 mm with TEM. Thus, although relatively safe, TAR and TEM should be performed with great caution.

Abstract ID: 0378 Specific Field: Colon and Rectum

Mode of pres.: Free Paper (oral)
ISW 2009 Session 180.06

The results of additional surgery for colorectal cancer following endoscopic resection
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Introduction: Developments in colonoscopic equipment and methods have made the procedure of endoscopic treatment for colorectal tumors progress. Particularly in Japan, endoscopic polypectomy and mucosal resection had been positively applied and gradually standardized for some early colon cancers, and endoscopic submucosal dissection is performed in some hospitals. Japanese treatment guideline for patients with colorectal cancer defines the indications of endoscopic treatment as the neoplasms hardly having the possibility of lymph node metastasis, and performed en bloc resection: actually carcinoma in situ, or slightly invading to submucosal layer, and which diameter is within 2 cm. That guideline recommends additional surgery after endoscopic resection is considered in case of submucosal cut end is positive for cancer, the cancer depth of submucosal layer is beyond 1,000um, or vascular invasion is positive. The purpose of this study is to evaluate the outcomes of additional surgery following endoscopic resection for colorectal cancer.

Material and Methods: The medical records of 70 consecutive patients with colorectal cancer excluded Tis who underwent additional surgery following endoscopic resection between 1990 and 2008, were reviewed. The clinical and pathological finding were analyzed. Overall survival rates were analyzed according to the method of Kaplan and Meier using SPSS 11.4 J software.

Results: The indication of additional surgery are massive cancer invasion to submucosal layer in 63 patients (90%), cancer positive or undefined cut end in 26 patients (37%), positive vascular invasion in 16 patients (23%), and others. Two patients had liver metastasis before surgery. Pathological examination confirmed 14 surgical specimens (20%) discovered residual cancer, and 3 patients (4%) having lymph node metastasis. Final pathological findings revealed 61 stage I patients, 2 stage II, 2 stage III, 2 stage IV, and 3 undefined. Two (3%) mortality in no cancer residual stage I patients, and 1 recurrent malignancy were found in stage III patients after 3–192 months follow-up. The cumulative 5-year overall survival rate is 89.8% in all patients.

Conclusions: The cumulative 5-year survival rate is 89.8% after additional surgery following endoscopic resection for colorectal cancer. Two (3%) mortality were found.

Abstract ID: 0379 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 194.01

An international perspective on ultrasound training and use for thyroid and parathyroid disease
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Introduction: Use of ultrasound (USN) by endocrine surgeons has dramatically increased. Presently, optimal training and certification requirements have not been standardized for any level of practice. The sensitivity and specificity of USN varies widely depending on the skill and experience of the sonographer. We carried out an international survey to learn more about what types of USN training endocrine surgeons have received and how they employ USN in practice.

Material and Methods: We sent a questionnaire via email to all members of the IAES and AAES asking about the settings in which they received USN training, the type of instruction received, current use of USN, billing, and reimbursement. We also asked questions related to specific scenarios for USN use in patients with thyroid and parathyroid use. After 6 weeks, responses were collected and analyzed. Results are reported using descriptive methods and chi square analysis. P < 0.05 was considered significant.

Results: 127 responses were collected from IAES and AAES members in 27 countries. Median time from completion of residency to the present was 17 years (range 2–49). 59% of both fellowship and non-fellowship trained endocrine surgeons currently use USN in their practice. Of those currently performing USN in their practice, 38% reported no USN training of any kind (47% International vs. 23% United States). 53% of respondents perform their own USN in >75% of new patients. International respondents had more experience with USN as medical students (p = 0.037). USN experience among residents was not different (p = 0.27). 59% of respondents reported completing an endocrine surgery fellowship; of those, 85% reported no formal USN training. 41% reported having had no comfort performing USN at the completion of their fellowships, requiring the presence of someone else to assist with the exam. 34% took head/neck specific USN courses after fellowship training.

Conclusions: USN training among endocrine surgeons is widely varied, and formal certification is achieved in a minority of cases. Standards should be developed to narrow the gap between training and application to assure best practice. A plan should be developed and instituted to the incorporation of formal USN course work and certification at the fellowship level for endocrine surgery trainees.
Abstract ID: 0380 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 194.02

Surgeon-performed ultrasound in patients referred for thyroid disease improves patient care by minimizing performance of unnecessary procedures, and optimizing surgical treatment

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Introduction: Ultrasonography has become an indispensable tool in the evaluation of thyroid nodular disease, and most patients will have had a thyroid ultrasound prior to initial surgical evaluation. This study examines the added benefit of office-based, surgeon-performed ultrasonography in patients referred for thyroid disease.

Material and Methods: All patients referred to a single endocrine surgeon for evaluation of thyroid disease over a two-year period were reviewed. Outside ultrasonographic findings were compared to the surgeon-performed ultrasound that was used to formulate treatment decisions.

Results: Of 286 consecutive patients referred for surgical evaluation of thyroid disease, 261 had an outside ultrasound available for comparison. There were 239 women and 47 men. Mean age was 54.7 ± 16.6. In 46 patients (17.6%), differences between the two ultrasounds were significant enough to alter treatment plans. For 18 patients no distinct nodule was identified and biopsy was avoided. Nine of these patients had ultrasound characteristics of Hashimoto’s disease. In 5 patients, the nodule was significantly smaller than reported, and biopsy was not warranted. Twelve patients had non-palpable, enlarged lymph nodes not previously identified, and these were biopsied. Three were positive for metastatic thyroid cancer, which prompted the addition of neck dissection to the operative procedure. In 8 of 132 patients undergoing thyroidectomy, the surgical procedure was significantly altered by the ultrasound findings.

Conclusions: This study demonstrates a clear advantage for patients who undergo a surgeon-performed ultrasound. For many, unnecessary procedures were prevented. For others, substantial modifications to the extent of surgery were made when new ultrasonographic findings were identified during the preoperative investigation.

Abstract ID: 0381 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 194.03

Impact of intraoperative neuromonitoring (IONM) on surgical strategy in benign thyroid diseases

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Introduction: Intraoperative neuromonitoring (IONM) has reached wide acceptance, despite the fact that it still lacks evidence on decreasing postoperative recurrent laryngeal nerve paralysis in primary thyroid surgery. We questioned, whether IONM may help our surgical strategy in benign thyroid diseases.

Material and Methods: From 1.1.2005 to 31.12.2008 all 1757 patients with intended bilateral thyroid operations for benign diseases were investigated on the influence of intraoperative neuromonitoring (tube electrodes; indirect + direct stimulation) on operative strategy. Surgery always started with the predominantly enlarged goiter side.

Results: Of 4 visible nerve injuries (0.2%) 3 were detected at first operated side and all had a negative IONM. For dissecting the second side the surgeon was changed in 2 of 3 cases. In 56 pat. (3.2%) with postoperative recurrent laryngeal nerve paralysis (RLNP) IONM detected 50 (89%). All with normal appearing nerves but declined to vanished IONM response. In 41 (80%) pat. problems occurred after dissection of the first side.

In 17 of 41 patients (41%) further surgery was postponed. In 10 contralateral resection was performed 1–6 months afterwards. In 5 no further surgery is intended and 2 are waiting for 2. op. In 7 cases (17%) surgery was changed and second side was dissected, directly. In 17 patients (41%) surgeon continued as intended. In 6/41 (2/17; 27; 4/17) pat. (15%) postop. laryngoscopy was normal, in 34 RLNP recovered after 2 days to 4 months. One patient of group 3 suffered from bilateral RLNP for 4 days and unilateral RLNP persisted. In 9 pat. IONM response vanished after second side dissection and had no impact on surgical strategy.

Conclusions: Early postoperative RLNP is not infrequent (3.2%) and occurs more often at the predominant goiter side (80%). IONM detected transient RLNP in 89% and permanent in 100%. Altogether IONM changed our surgical strategy in 24 of 1757 patients (1.4%) to a more secure further treatment.

Abstract ID: 0382 Specific Field: Endocrine Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 194.04

Stenting of the superior mesenteric vein in midgut carcinoid disease with large mesenteric masses

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Introduction: Midgut carcinoid tumours generally develop in the small intestine and in >50% of cases also present with lymph node metastases in the mesentry. The majority of these metastases are surgically resectable, but in the remainder an inoperable and widespread fibrotic reaction develops causing obstruction of the superior mesenteric vein. While the arterial supply to the intestines usually is intact, the venous obstruction may cause stasis of the intestinal wall with worsening of symptoms. In many patients collateral venous drainage develops minimizing the problem, but in a small proportion the symptoms remains at a severe level. These symptoms include severe abdominal pain, attacks of diarrhea leading to a social handicap and malnutrition. We evaluated our first patients who were treated with stenting of the superior mesenteric vein.

Material and Methods: Seven patients with severe midgut carcinoid disease, severe symptoms, presenting with liver metastases and in 4 cases also peritoneal spread of tumour, and who had a large fibrotic inoperable mesenteric mass were studied. After demonstrating an obstructed superior mesenteric vein and signs of venous stasis in the small intestine an expandable stent was inserted after puncturing an obstructed superior mesenteric vein. While the arterial supply to the intestines usually is intact, the venous obstruction may cause stasis of the intestinal wall with worsening of symptoms. In many patients collateral venous drainage develops minimizing the problem, but in a small proportion the symptoms remains at a severe level. These symptoms include severe abdominal pain, attacks of diarrhea leading to a social handicap and malnutrition. We evaluated our first patients who were treated with stenting of the superior mesenteric vein.

Results: Four patients demonstrated resolution of their symptoms. In one case who presented with intraabdominal lymph leakage/choyloabdomen due to the stasis a complete normalization of the circulation followed and the intraabdominal lymph leakage stalled. In these 4 patients, the angiography demonstrated normalization of the venous
blood flow through the superior mesenteric vein and on a CT reduction of thickness on the intestinal wall was demonstrated. In one case no change of symptoms followed stenting, and in 2 cases a slight worsening of the symptoms pursued. In general reduction of symptoms were associated with the degree of normalization of venous blood flow.

Conclusions: We conclude that in selected cases stenting of the superior mesenteric vein may improve carcinoid symptoms when this vein is obstructed by a large and fibrotic mesenteric mass. In some patients dramatic improvement occurs.

Abstract ID: 0384 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 199.02

Introduction: Patients with Gallstone Pancreatitis (GP) have a high risk of choledocholithiasis. MRCP has been recommended by some as the investigation of choice to diagnose choledocholithiasis. This study examines the diagnostic value of selective MRCP in GP.

Material and Methods: Retrospective audit of all presentations of GP between Jan 2001- December 2007 at Middlemore Hospital.

Results: There were 339 cases of gallstone pancreatitis with 243 females and a mean age of 52 years. Overall, 95 cases of choledocholithiasis- as confirmed by ERCP/Intra-Operative Cholangiogram (IOC) - were diagnosed. The indications for MRCP in this study were heterogeneous. 117 patients underwent MRCP within a median of 4 days of admission with 15 (13.7%) showing choledocholithiasis. There was no significant difference in time to MRCP between positive and negative groups. ERCP/IOC confirmed 13/15 stones within a median of 2.5 days. MRCPs, however, missed 8 cases of choledocholithiasis subsequently demonstrated on ERCP/IOC where clinical suspicion remained after a negative MRCP. MRCP sensitivity was 62.0, specificity 97.9. The Positive Likelihood Ratio was 6.5, Negative Likelihood Ratio was 0.1.222 patients followed different clinical pathways with 82 Common Bile Duct (CBD) stones diagnosed by ERCP/IOC.

Conclusions: Choledocholithiasis is common in GP. Selective MRCP is highly specific in GP but may not be sensitive enough to exclude choledocholithiasis in this context.

Abstract ID: 0383 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 199.01

Selective magnetic resonance cholangio-pancreatography (MRCP) may miss choledocholithiasis in gallstone pancreatitis

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Introduction: Patients with Gallstone Pancreatitis (GP) have a high risk of choledocholithiasis. MRCP has been recommended by some as the investigation of choice to diagnose choledocholithiasis. This study examines the diagnostic value of selective MRCP in GP.

Material and Methods: Retrospective audit of all presentations of GP between Jan 2001- December 2007 at Middlemore Hospital. Demographic data, clinical presentation, biochemical, radiological findings and outcomes were reviewed. Data were analysed using Microsoft Excel and SPSS software.

Results: During 2008 9909 gallstone operations were reported to the register which is 86% of all cholecystectomies performed in the country. 6629 operations were done in women and 3280 in men; 30% as acute procedures and 70% as elective. In 5514 (59%) patients indication for surgery was gallstone pain and in 3437 (36%) gallstone complications. The following procedures were performed: Laparoscopic cholecystectomy n = 8100 (82%), Cholecystectomy n = 923 (9%), Mino-cholecystectomy n = 266 (3%) and Other procedures n = 613 (6%). Serious peroperative complications were: Perioperative/postoperative bleeding n = 93; gut perforation, n = 16; bile duct injury n = 33.

Conclusions: Although the register is voluntary compliance from Swedish surgeons is almost unanimous. The register has contributed to an increased local and national discussion about quality issues in the treatment of gallstones. A continuous validation of register date will be a future challenge.

Abstract ID: 0385 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Free Paper (oral)
ISW 2009 Session 199.03

Xanthogranulomatous cholecystitis masquerading as gallbladder cancer: an experience from a tertiary referral center

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Introduction: Xanthogranulomatous cholecystitis (XGC) is a rare variant of chronic cholecystitis. It presents a diagnostic dilemma by mimicking gallbladder cancer (GBC). We commonly encounter both entities at our tertiary referral center in North India. We report the largest series of XGC to date with the aim to describe its varied characteristics.

Material and Methods: Prospectively managed data of 677 patients (1991–2007) with XGC were analyzed, including clinical presentation, radiology and other investigations, operative findings, and histopathology.

Results: Mean age was 48 years, with a male-female ratio of 1.1:1. Symptom duration averaged 20 months (primarily pain, jaundice, and fever). Patients were evaluated by ultrasound and/or computed tomography (cholelithiasis 93%, gallbladder wall thickening 73%, choledocholithiasis 20%, mass 63%, liver infiltration 23%). Preoperative fine-needle aspiration cytology (FNAC) was performed in 83 patients, showing XGC in 30%. Intraoperative findings included gallbladder wall thickening (80%), and mass (10%), Mirizzi’s Syndrome (5.3%), cholecystoenteric fistula (7%), and gallbladder perforation
Postoperative acute acalculous cholecystitis: diagnostic and treatment methods in the laparoscopic era

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Introduction: Acute acalculous cholecystitis developing in the postoperative period of unrelated diseases, after any kind of operations (PAAC) and in post stress situations - after burns, trauma, etc. - the difficulties of diagnosis and treatment are increasing. Effective treatment needs quick diagnosis; mortality rate very high: 10 - 46%.

Material and Methods: Possible etiologic factors, diagnostic methods and treatment modalities of PAAC patients treated during 1968–2008 at our department were analyzed.

Results: Total parenteral nutrition, impairment of gallbladder circulation and the immune system, biliary stasis, were important etiologic factors. Complaints started 2–42 days after the primary operation, followed by a very rapid progress. Ultrasonography was especially useful in diagnosis. During this 40 years period 28 patients (19 men, 9 women, mean age: 40.2 years), 3,01% of all operated acute cholecystitis cases were treated for PAAC which developed after16 abdominal and after 12 cardiac operations. 4 patients were treated by conservative means (no death) and 24 patients by surgery: 17 open- (4 death) and without mortality 5 laparoscopic cholecystectomy and 2 percutaneous cholecystostomy. By surgical intervention both open and laparoscopic cholecystectomy meant a special procedure: patients underwent some days earlier a primary operation, consequently dissection was difficult. Percutaneous, ultrasound guided transhepatic cholecystostomy: less invasive procedure to decompress the gallbladder. Some surgeons add chemical cholecystectomy to cholecystostomy to prevent recurrent cholecystitis. Transpapillary-transcystic endoscopic drainage of the gallbladder with a nasa-cholecystobiliary tube and irrigation of the gallbladder with 1% N-acetyl cystein solution is a promising procedure.

Conclusions: Prevention of PAAC: avoid major analgetics, starvation after operations. Early start of oral feeding, early mobilisation are recommended to shorten postoperative paralytic state. Continuous monitoring by repeated ultrasound examination can help to make a quick diagnosis. Minimal access procedures mean promising alternative treatment modalities.
Presentation and outcome of post-cholecystectomy acute bile duct injuries: a large experience
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Introduction: Management of post-cholecystectomy acute bile duct injuries (BDI) has been addressed in the literature less frequently than the management of established benign biliary strictures (BBS). We have reviewed our experience with management of acute BDI and report the short term and long term outcome of the patients with acute BDI.

Material and Methods: Retrospective analysis of 146 patients with post cholecystectomy acute BDI which were managed in our institute from January 1989 to June 2006 and in whom follow up information was available. Patients who presented with BBS and BDI due to non-cholecystectomy procedures were excluded from analysis.

Results: There were 47 males and 99 female patients with a mean age of 40 (range 12–71) years. The index surgery was open cholecystectomy in 103, open cholecystectomy with CBD exploration in 9 and laparoscopic cholecystectomy in 34 patients. Patients were referred to us at a median of 20 days after cholecystectomy (range 0–730 days). 51 out of 146 (35%) patients had single or multiple pre-referral interventions. BDI could be classified as partial or complete in 126/146 patients. Based on the clinical presentation, the patients with BDI were classified into EBF (n = 69), biloma (n = 49), bile peritonitis (n = 21) and bile ascites (n = 7). 52 patients were managed conservatively, 41 had percutaneous intervention, 7 had endoscopic intervention, 26 were operated, and 20 had combination of these procedures. 8 patients died due to the complications of BDI. Open cholecystectomy as the index procedure, jaundice at presentation, complete injury, delayed (>20 days) referral and high (>350 ml) fistula output were predictors for persistence of fistula and development of biliary stricture. If more than 3 adverse factors were present, the biliary fistula persisted in more than half of the cases and biliary stricture developed in almost all cases.

Conclusions: Post-cholecystectomy BDI presents as either EBF, biloma, bile peritonitis or bile ascites and management differs in each of these presentations. Majority of patients with post-cholecystectomy BDI referred to surgical units have ‘complete’ injury. The short term and long term outcome of the acute BDI could be predicted based on the clinical presentation of the patients.

Abstract ID: 0389 Specific Field: Hepatobiliary and Pancreas Surgery

Curative treatment of malignant periampullary tumors
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Introduction: Resection of the tumor with lymphadenectomy is currently the most effective method of treatment of malignant periampullary tumors, that make it possible to increase survival of patients.

Material and Methods: We investigated the results of surgical resections of malignant periampullary tumors in 327 patients, treated in our clinic in the period of 1998–2007 years. Tumors localized in the head of the pancreas in 134 patients, in 128 patients- in papilla of Vater, in 62 patients- in distal bile ducts and in 3 patients- in duodenum. Resectability criteria were: absence of distant metastases, main arteries and inferior cava venal. Standard Whipple procedure was performed in 167 patients. In patients with malignant tumors of duodenum, papilla of Vater and distal bile duct pylorus-preserving pancreaticoduodenal resection is preferable (160 patients). In 26 patients pancreaticoduodenal resection with en-bloc resection of the affected venous segment (portal and/or superior mesenteric vena) was performed. Resection of affected part of common hepatic artery was performed in 2 patients. Extended lymphadenectomy was performed in 6 patients with affected nodes near superior mesenteric artery. In other patients we performed lymphadenectomy without clearance of tissue left to superior mesenteric artery that made it possible to avoid postoperative diarrhea due to extended lymphadenectomy.

Results: Early postoperative morbidity was 20, 8% (68 patients). Postoperative mortality was 3, 4% (11 patients). Actuarial 5-year survival was 8, 6%, 48, 0% and 32, 2% in patients with pancreatic tumors, tumors of papilla of Vater and bile duct correspondingly.

Conclusions: Pancreaticoduodenal resection is safe procedure that could provide satisfactory long-term results.

Abstract ID: 0390 Specific Field: Esophagus

Esophageal carcinoma at Beira Central Hospital
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Introduction: Background: Esophageal Carcinoma ranks 9th place in the world and 5th place in developing countries. In the year 2002, world figures say that, there were, 462,000 new patients, with 386,000 deaths which accounts 83% of mortality. It has a unique epidemiologic characteristic: Irregular geographic distribution with high incidence in well delimited areas. The histologic prevalent type in the western countries is the adenocarcinoma with a low incidence. In Africa and Asia with high incidence, the prevalent type is the epidermoid carcinoma.

Material and Methods: This is a prospective study that is being conducted at Beira Central Hospital, for all patients with symptoms of dysphagia. Data was collected from a written inquiry, which is being used for all patients with that symptom. All patients were submitted to esophagoscopy and biopsy. The collected data is provisional as the the study is still going on.

Results: From April 08 to January 2009, 27 cases of esophageal cancer were admitted to the surgical ward at Beira Central Hospital. Five were female and 22 male. Eight patients were between 20 and 39 years, ten patients were between 40 e 59 years and 9 patients had more than 60 years. From these 20 came from the rural areas and 7 from the urban areas. Six patients smoked in the past, 5 smoke at the present time and 16 never smoked. 15 used to drink alcohol, from these most used beer (11), only 4 used also brandy or spirit. Twelve do not refer alcohol intake. Diet for all were based on maize, rice and vegetables. Most of them cook outside the house using firewood or charcoal. The most prevalent histologic type was squamous cell carcinoma. The clinical presentation usually is in the late stages, in most of the cases.

Conclusions: Epidermoid carcinoma of the esophagus is a real problem in our region. Risk factors were detected, as well as, the provenience of the patients. Introduction of screening methods and recommendation in changing dietary habits, may contribute to change the pattern of the disease.
Abstract ID: 0391  Specific Field: Esophagus

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 2

Less toxic and more effective treatment using with low dose CDDP/5FU and radiation therapy for esophageal cancer

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Introduction: Recently esophageal cancer trend to be treated with chemotherapy, radiotherapy and surgery. It is vital to reduce adverse effects and increase therapeutic effects at chemoradiotherapy for esophageal cancer. The purpose of this study was an assessment of low dose CDDP/5FU and radiotherapy for esophageal cancer.

Material and Methods: Forty-two patients (stage I 19, stage II 5, stage III 11, stage IVa 12, stage IVb 5; male 39, female 3; mean age 68.3 y.o.) from September 2001 to June 2008 with esophageal cancer were retrospectively analyzed. Chemotherapy regimen is mentioned as follow; 5-Fluouracil (400 mg/m²/day, everyday) and cisplatin (7 mg/m²/day, weekday) used for chemotherapy, 60 GY was used as radiation therapy. From 2006 chemotherapy regimen has taken an intermission every 2 weeks to decrease adverse effects. Twenty one patients were treated before 2006 and the same number after 2006.

Results: The completion rate of chemoradiotherapy was 76.2% (32/42) and the response rate was 73.8% (31/42) (CR 9, PR 17, SD 5). Six cases were treated with salvage surgery. Twelve patients were eliminated due to adverse effects and two patients died of esophageal cancer. The completion rate were 80% and the response rate were 81% (CR 6, PR 9, SD 2) after 2006, higher than those (70%, 70%) before 2006. Only two patients ceased chemotherapy from adverse effects. After 2006 the response rate increased and toxic rates decreased much more than before 2006.

Conclusions: Low dose CDDP/5FU and radiation therapy was more effective and less toxic regimen for esophageal carcinoma, especially intermission of chemotherapy every 2 week may be significant.

Abstract ID: 0393  Specific Field: Esophagus

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 4

Physical distribution of platinum monitoring using PIXE in esophageal cancer patients after cisplatin administration

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Introduction: Cisplatin (CDDP), a standard chemotherapeutic agent for esophageal cancer is classified as platinum complex known to inhibit DNA replication as well as prevent cancer cells from dividing. Many studies focused on the anticancer effects of CDDP have been reported, but there have been few reports in which physical distribution of platinum were monitored in tumors, lymph nodes, blood, or other tissues after administration of CDDP. However, it is believed that an analysis of concentration of platinum in tumor and other organs can be a useful index in predicting the anticancer and adverse effects of CDDP.

Material and Methods: Particle-induced X-ray emission (PIXE) has been used, which can measure multi-elements simultaneously from a miniscule sample. We attempted to measure platinum level of primary tumors, as well as in isolated lymph nodes and blood extracted during surgery of esophageal cancer patients who have taken preoperative chemotherapy including CDDP.

Results: It was possible to measure platinum in miniscule samples using primary tumors, lymph nodes, and peripheral blood. The platinum level of each tissue was as follows: primary tumor, 5.93 ppm±1.7; non-tumor (esophagus), 9.61 ppm±2.4; non-tumor (stomach), 9.23 ppm±0.9; lymph node, 2.44 ppm±2.8; and blood, 1.18 ppm±1.8.

Conclusions: We were able to measure platinum concentration from surgically removed miniscule samples. Analysis of physical distribution of platinum using PIXE provides new type of information to evaluate CDDP-based chemotherapeutic efficacy. Although it is tentative, difference in platinum concentrations between tumor/non-tumor sites of esophagus may indicate a possible association with the anticancer effects of CDDP. It is still necessary to examine further possibility of PIXE in evaluation of CDDP-based chemotherapy in clinical setting.

Abstract ID: 0392  Specific Field: Esophagus

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 3

Pericardial effusion after salvage esophagectomy after definitive chemoradiotherapy successfully treated with thoracoscopic pericardial fenestration

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Introduction: Background: Pericardial effusion is one of severe late complications after chemoradiotherapy for esophageal carcinoma. Thoracoscopic approach is safe, minimally invasive treatment and possible even if the gastric tube is located in sub-sternal root.

Material and Methods: We performed 10 salvage esophagectomy after definitive chemoradiotherapy from 2001 to 2007. Three cases revealed cardiac tamponade. Pericardial windows were created under general anesthesia and single-lung ventilation using 2 or 3 trocars by left thoracic approach.

Results: Symptoms were alleviated in all patients. One patient needed re-fenestration after 4 months. There were no complication of the thoracoscopic technique. All patients were discharged without drainage tube.

Conclusions: Video-assisted thoracoscopic fenestration is an effective technique for pericardial drainage after salvage esophagectomy.

Abstract ID: 0394  Specific Field: Esophagus

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 5

Risk factors involved in recurrence after surgery of patients with resectable esophageal cancer

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Introduction: Esophageal cancer is one of the most lethal malignancies, with reported five-year survival rate 16–30%. The prognosis after surgery is depending on the recurrence in patients with respectable clinical Stage II/III (T2–3, N0-1 in UICC TNM classification). Traditionally, primary surgical operation has been chosen as a treatment for these patients in Japan. In this study, we evaluated the clinicopathological features of clinical Stage II/III esophageal carcinomas with an impact on the risk factors of recurrence after surgery in order to help determine the most suitable management.

Material and Methods: We evaluated clinicopathological characteristics of a total of 91 patients with clinical stage II/III esophageal carcinoma.
who underwent potentially curable resection from 2000 to 2007 at Department of Surgical Oncology, Osaka City University Hospital.

Results: Recurrence disease after surgery developed in 50 (55%) of 91 patients by September 2008. In univariate analysis, pathological tumor infiltration (pT), pathological lymph node metastasis (pN), pathological Stage (pS), number of metastatic lymph nodes, infiltration into vessels, and intramural metastasis were risk factors for recurrence after surgery. Tumor size, location, and histological type were not risk factors. In multivariate analysis, pT and number of metastatic lymph nodes were significant independent risk for recurrence after surgery.

Conclusions: These results suggested that invasion of primary tumor and numbers of metastatic lymph nodes play an important role for recurrence after surgery of potentially resectable esophageal carcinoma. Also our findings might prove validity of Japanese Classification of Esophageal Cancer in which pN is adjusted by number of metastatic lymph nodes.

Abstract ID: 0395 Specific Field: Esophagus
Mode of pres.: Poster Exhibition
ISW 2009 Session PE 6

Laparoscopic Heller - Dor surgery with intraoperative manometry for esophageal achalasia
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Introduction: Laparoscopic Heller myotomy with Dor fundoplication (LHD) is one of the most established surgical procedures for esophageal achalasia. Esophageal manometry has been known as a useful preoperative and/or postoperative examination to evaluate lower esophageal sphincter (LES) pressure. However, the feasibility, safety, and impact of its intraoperative use on postoperative outcomes, have not been fully evaluated, especially when enhanced with real-time three-dimensional (3-D) pressure imaging.

Material and Methods: LHD was attempted on 24 consecutive patients with esophageal achalasia. Manometry with computerized 3-D pressure imaging was performed at 3 time points during LHD: before myotomy, after myotomy, and after fundoplication. Investigations included barium esophagography, manometry, and 24-hour esophageal pH monitoring in the preoperative, short-term (0–5 months) and long-term (1–3 years) follow-up periods.

Results: Twenty-three cases were completed laparoscopically (completion = 96%). The 3-D intraoperative manometric images were successfully obtained in all attempted cases (n = 13). Those images were presented to the surgical crew on a monitor screen immediately after each measurement. Any residual high pressure zone of the LES was easily recognized and resolved with additional myotomy. Serial postoperative esophagographies showed resolution of esophageal dilatation. Manometric examination revealed significant reduction of LES pressure in the short/long term follow-up periods. PH monitoring showed no increase of acid reflux. Overall outcomes were satisfactory (symptom relief = 95%).

Conclusions: Intraoperative manometry with real-time pressure feedback is a feasible, safe, and useful adjunct in LHD. It can improve postoperative outcomes by controlling quality of laparoscopic functional gastrointestinal surgery, where physiological data becomes more significant under blunted tactile feedback.

Abstract ID: 0396 Specific Field: Esophagus
Mode of pres.: Poster Exhibition
ISW 2009 Session PE 7

A comparison between finger bouginage of the pylorus with pyloroplasty or pyloromyotomy in gastric pull-up esophageal surgery
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Introduction: Functional obstruction of the pylorus is occurred in almost 20% of patients underwent gastric pull-up esophageal surgery. The main purpose of the study is launching finger bouginage of the pylorus instead of the traditional pyloroplasty or pyloromyotomy.

Material and Methods: This is a descriptive study which was performed between 2002–2004 on patients with gastric pull-up esophageal surgery. Participants were randomly divided into two groups; those underwent pyloroplasty or pyloromyotomy (group A) and patients with finger bouginage of the pylorus (group B). On the 9th postoperative day, performing a gastric emptying TC99 scan, patency of the pylorus was evaluated. Then, according to emptying time of the stomach, patients included into 3 groups of normal or delayed drainage and complete obstruction.

Results: Participants included 58 patients. The pylorus sphincter underwent finger bouginage in 31 patients (53.4%), pyloromyotomy in 24 patients (42.4%) and pyloroplasty in 2 patients (3.4%), while the pylorus was left intact in 1 patient (1.7%). Using TC99 scanning gastric emptying times were investigated. Results of scanning were as the followings: normal drainage in 44 cases (75.9%), delayed drainage in 8 cases (13.8%) and gastric outlet obstruction in 1 case (1.7%). Five cases expired and were thus excluded from the study.

Conclusions: This study demonstrated that there was no statistically significant correlation between types of the pyloric operation and results of gastric emptying scan. However, because of lengthening of the stomach for cervical anastomosis, favorable patency of the pylorus, decreased suture line on the pylorus, as well as decreased operating time, finger bouginage of the pylorus is recommended in gastric pull-up surgery.

Abstract ID: 0397 Specific Field: Esophagus
Mode of pres.: Poster Exhibition
ISW 2009 Session PE 8

Dilation technique by using ethylene-chloride bougie for postoperative anastomotic stenosis in the patients with esophageal cancer

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Introduction: Anastomotic stenosis is one of common complications after the surgical operation for esophageal cancer. Especially, stenosis after ruptured suture often becomes very severe. Endoscopic balloon bougie is only useful for membranous mild stenosis and is most likely
The procedures of this dilation technique are readiness, safe enough and can be regarded as potential remedy for this postoperative complication.

Conclusions: None of the scores can be applied generally. A better overall predictive score or specific prediction scores for each country should be developed.

Abstract ID: 0399  Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 10

Surgical management of adenocarcinoma of the esophagogastric junction and non-junctional gastric adenocarcinoma: a retrospective comparison of case series

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Introduction: Epidemiology and surgical management of AEGs is far different from non-junctional gastric adenocarcinomas. The purpose of our study is to review the profile and surgical management of patients presented to a district hospital in Northern Greece, with gastric adenocarcinomas.

Material and Methods: One hundred and thirty-four patients underwent curative surgery for gastric adenocarcinoma in our department, between January 1992 and January 2009. Demographic data of our patients, stage of the disease at presentation, histopathology of the tumour and disease free survival were the primary endpoints of our study.

Results: There were 19 cases of AEG II and III (according to Siewert classification) and 115 cases of non-junctional gastric adenocarcinoma during this time period. The mean age of presentation was similar for both groups. However, AEGs showed strong predilection for males (M:F = 16:3) as compared with non-junctional carcinomas (1:61:1). Patients with AEG type II or III underwent gastrectomy with or without limited esophagectomy. In contrast, patient with non-junctional gastric adenocarcinoma underwent subtotal or total gastrectomy. As compared with non-junctional gastric adenocarcinoma, AEGs have a higher incidence of advanced stage disease at presentation, intestinal growth pattern, coexisting intestinal metaplasia, shorter disease free survival. However, AEGs also tend to have similar postoperative morbidity - mortality and survival compared with non-junctional adenocarcinoma at 12, 24 and 36 months.

Conclusions: Our data demonstrate that AEG has a strong predilection for males, late stage at presentation, intestinal growth pattern, coexisting intestinal metaplasia and shorter disease free survival as compared with non-junctional gastric adenocarcinoma. However, postoperative morbidity and mortality and short-term survival appears to be similar for both group of patients.

Abstract ID: 0400  Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 11

Open repair of giant hiatus hernia

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Introduction: Laparoscopic repair of `giant' hiatus hernias has recently been reported to have a high recurrence rate. The aim of this study was to
A retrospective analysis was performed on the outcome of a series of patients who underwent open repair of ‘giant’ hiatus hernia, particularly looking at resolution of symptoms and recurrence rates. A ‘giant’ hiatus hernia is defined by 90% of the stomach herniating out of the abdomen and into the thorax.

**Material and Methods:** A retrospective analysis was performed on all the patients who underwent an open hiatus hernia repair for ‘giant’ hiatus hernia between 2004–2008 in Epsom and St Helier University Trust. There were 8 patients in total, 6 male, 2 female. The mean age was 68 years with a range from 57–86 years. Data was collected from clinical notes and radiological images. Each patient was seen pre-operatively in outpatient, imaged both radiologically and endoscopically and followed up in outpatient post-operatively in 2 weeks, 6 weeks, 6 months and 12 months. The success of the operation was measured by the patients’ perception of resolution of symptoms (including dysphagia, dyspnœa and early satiety).

**Results:** Intraoperatively the size of the crural defect varied from 6 cm to 10 cm. The crural defect was repaired and in several cases reinforced with mesh. If possible a gastropy was performed. All patients reported an “excellent” outcome of the operation with complete resolution of the symptoms. There were no recurrences during the period of follow up (12 months).

**Conclusions:** In our group of patients, open repair of ‘giant’ hiatus hernias has an excellent outcome with complete resolution of symptoms and no recurrences.

**Abstract ID: 0401** Specific Field: Stomach / Duodenum

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 12**

**Assessment of gastric motility and emptying using cine magnetic resonance imaging**

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**Introduction:** The aim of this study was to evaluate the gastric motor function by cine-magnetic resonance imaging (MRI), and it investigated whether this examination is a useful tool for therapeutic efficacy or postoperative gastric motor function.

**Material and Methods:** Twenty-five healthy volunteers, 10 pylorus-preserving gastrectomy (PPG) patients, two pylorus-preserving pancreaticoduodenectomy (PPPD) patients, and a hepatic resection patient with anorexia were examined by cine-MRI. Immediately, and at 15, 30, 45, and 60 minutes after the intake of jelly (360 ml), imaging was performed with the subject in a supine position for measurement of intragastric volume and then gastric motility scans. Intragastric volume was determined by 3D-volumetry. Gastric motility was quantified by calculating gastric motility index (GMI).

**Results:** In healthy volunteers, mean frequency (3/min), amplitude (8.8 mm), velocity of gastric peristaltic waves (2.2 mm/s), and GMI (19.6 mm²/s) at 30 minutes after the intake of jelly. Mean amplitude (8.8 vs. 10.4 mm, p = 0.027), velocity (2.2 vs. 2.6 mm/s, p < 0.001) of peristaltic waves, and GMI (19.6 vs. 26.7 mm²/s, p < 0.001) significantly increased at 30 minutes after mosapride citrate administration. Antiperistalsis-like contractions and reflux of gastric contents from the pyloric region into the upper part of the stomach were observed in PPG patients with postprandial symptoms. Mean intragastric volume at 30 minutes after the intake of jelly in PPG patients with postprandial symptoms tended to be greater than in those without the symptoms. The peristaltic wave was difficult to rebuild images of the stomach from a cross-section in PPPD patients.

**Abstract ID: 0402** Specific Field: Stomach / Duodenum

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 13**

**Modified devine exclusion with vertical stomach reconstruction for gastric outlet obstruction: a novel technique**

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**Introduction:** A gastroenterostomy is the most commonly performed palliative procedure in patients with gastroduodenal outflow obstruction (GOO) caused by unresectable advanced gastric and pancreatic cancer. We developed a new technique-modified Devine exclusion with vertical stomach reconstruction-and evaluated the efficacy of this procedure.

**Material and Methods:** We retrospectively studied 60 patients who underwent gastrojejunostomy for GOO caused by unresectable advanced gastric and pancreatic cancer. These patients were divided into 2 groups, the conventional gastrojejunostomy group (CJG group), and the modified Devine exclusion with vertical stomach reconstruction group (MDVSR group).

**Results:** The mean duration of the required nasogastric suction; the number of days after which diet could be initiated, and after which oral ingestion of solid food could be safely resumed; and the duration of hospitalization after the surgery were significantly shorter in the MDVSR group. The patients in the MDVSR group had a significantly longer duration of stay at home and survival after the surgery. Moreover, in the MDVSR group, GOO did not recur in any of the patients until the time of death.

**Conclusions:** We consider that our procedure of modified Devine exclusion with vertical stomach reconstruction is an easy and feasible technique for GOO.

**Abstract ID: 0403** Specific Field: Stomach / Duodenum

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 14**

**Laparoscopic gastrectomy with regional lymph node dissection for gastric cancer**


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**Introduction:** As less-invasive operations have been noted in recent years, laparoscopic gastrectomy for gastric cancer has become popular because of advances in surgical techniques. We have performed laparoscopic gastrectomy with regional lymph node dissection on 825
cases of gastric malignancies between March 1998 and July 2008. Here we present the technique and results of laparoscopic gastrectomy for gastric cancer. Of all 825 cases, distal gastrectomy was performed on 630 cases, proximal gastrectomy on 51 cases, and total gastrectomy on 144 cases, respectively. For all cases, D1 or D2 lymph node dissection was carried out according to the general rule of Japanese Gastric Cancer Association.

The average duration of operation and the amount of blood loss were 243 minutes (distal: 237, proximal: 246, total: 270) and 188 mL (distal: 158, proximal: 240, total: 295). The postoperative days of flatus, oral feeding and hospital stay were 2.6 (distal: 2.6, proximal: 2.8, total: 2.9), 3.6 (distal: 3.4, proximal: 4.2, total: 4.4) and 12.3 days (distal: 11.8, proximal: 13.7, total: 14.5), respectively. The average of tumor diameter was 33.8 mm (distal: 32.4, proximal: 26.7, total: 42.2) and the number of harvested lymph nodes per patient was 30.1 (distal: 29.8, proximal: 22.7, total: 34.0), respectively. Recurrence was recognized in 22 (sixT1 and 16 over T2 cases) of all patients so far. The cumulative 5 year survival rate was 96.3% (average follow up period: 3.9 years).

In conclusion, laparoscopic gastrectomy for gastric cancer is considered less-invasive and as curative as the conventional open gastrectomy.

**Abstract ID: 0404**

**Specific Field: Stomach / Duodenum**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 15**

**Tissue microarray protein expression profiling of advanced gastric cancer treated by preoperative chemotherapy**

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**Introduction:** Among advanced gastric cancer patients, recent progress of anti-cancer chemotherapy has increased the number of patients who may be treated by operation after the chemotherapy. To evaluate chemotherapeutic responses of target tissues at molecular level, we prepared tissue microarrays (TMAs) using specimens from operations after chemotherapy.

**Material and Methods:** Between 2000 and 2007, 30 advanced gastric cancer patients underwent gastrectomy after chemotherapy including S-1, CDDP, irinotecan, and docetaxel. Chemotherapeutic regimens were grouped as follows (the number of cases): S-1 alone (5); S-1 + cisplatin (17); S-1 + irinotecan (4); S-1 + docetaxel (3); and S-1 + cisplatin + irinotecan (1). Pathological examinations were performed on TMA for pre-treatment biopsies and post-operative specimens. Immunohistochemical (IHC) examinations were also performed with primary antibodies against proteins including p53, MIB-1, and pancytokeratin. Correlations between either pathological or IHC effect, and RECIST criteria were evaluated.

**Results:** Correlation between clinical (quotation marks) and histological (Grades) responses were: “Partial Response”, Grades 0(4), 1a(5), 1b(1), 2(2); “Stable Disease”, Grades 0(2), 1a(4), 1b(1), 2(3); and “Progressive Disease”, Grades 0(0), 1a(4), 1b(0), 2(0). We did not judge “Complete Response” or Grade 3. Comparison of IHC between pre and post chemotherapy, protein expression was decreased by 36.7% in p53, 76.7% in MIB-1, 63.3% in pancytokeratin.

**Conclusions:** TMAs are a useful technology that can observe protein expression of large numbers of specimens simultaneously without losing tissue morphological information. Proteins stained by IHC tend to decrease the staining intensity in samples after chemotherapy although it was not clearly correlated with tissue type or the treatment effect. No significant correlation was seen between RECIST criteria and histological effect of the treatment. Although it is necessary to review more cases using pre- and post-chemotherapeutic specimens from clinical and pathological point of views, these results may also suggest that other chemotherapeutic evaluation criteria that reflect biological as well as clinical responses should be discussed.

**Abstract ID: 0405**

**Specific Field: Stomach / Duodenum**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 16**

**Prognostic value of hCGβ tissue expression in gastric carcinoma**


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**Introduction:** We have previously shown that tissue specimens from gastric carcinoma express free p-subunit of human chorionic gonadotropin (hCGβ), and that serum expression of hCGβ is an independent prognostic factor correlating with poor outcome in gastric cancer. The aim of this study was to investigate the histological expression of hCGβ and to evaluate its prognostic significance in gastric carcinoma.

**Material and Methods:** Surgical specimens of the primary tumours were obtained from 330 patients (52% males; age range 30.6–87.4 years, median 66.3 years) with gastric carcinoma. Samples included 90 stage I, 40 stage II, 97 stage III, and 103 stage IV tumours. According to Lauren classification 42.4% of the tumours were intestinal type and 57.6% diffuse type. Standard immunohistochemical techniques were applied with the use of an in-house monoclonal antibody specific for the free β subunit of hCG. Clinical data was obtained with a minimum of 10 year follow-up period. Survival analyses was performed with univariate Kaplan-Meier life-table analysis and log-rank test, and with multivariate Cox regression analysis.

**Results:** We observed positive immunohistochemical staining of hCGβ in 42.1% of the tumours. Tissue expression of hCGβ was observed to correlate with gender (p = 0.04), with the tendency of more males lacking positivity. Tissue expression of hCGβ had no correlation with histological type (p = 0.07) nor stage of the tumour (p = 0.42). Median survival was 1.66 years, and cumulative disease-specific five-year survival rate was 38.8%. HCGβ positivity lacked correlation with survival in gastric carcinoma with univariate analysis (p = 0.383), with five-year survival rates of 30.6% in hCGβ positive and 36.1% in hCGβ negative group. Furthermore, with multivariate model adjusted for gender, histology and stage, hCGβ tissue expression remained to lack prognostic significance (p = 0.365).

**Conclusions:** We suggest that hCGβ is frequently expressed in gastric carcinoma, but in contrast with our results with serum hCGβ, the tissue expression of hCGβ has no correlation with outcome in gastric cancer.

**Abstract ID: 0406**

**Specific Field: Stomach / Duodenum**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 17**

**Strategy of chemotherapy for advanced gastric cancer**


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Introduction: Regimens containing S-1 have been considered as the standard for chemotherapy (CT) in patients with advanced gastric cancer (AGC) in Japan. Second or subsequent lines of treatment have been established as contributing to improved survival, and PTX and CPT are regarded as key drugs. We investigated the outcomes of 2nd or further lines of CT for AGC after failure of 1st line treatment with a drug regimen including S-1, and discuss the therapeutic strategies.

Material and Methods: The subjects were 95 of 176 patients with AGC who had undergone 1st line treatment with an S-1-based regimen, and received treatment with PTX or CPT. The 39 patients who had received PTX alone after treatment with S-1 or S-1/CDDP were assigned to the PTX group, and 11 who had received a CPT-containing regimen alone were assigned to the CPT group. A total of 20 patients consisting of 6 patients in whom CPT was added to the treatment after PTX, and 14 in whom PTX was added to the treatment after CPT were assigned to the 3rd-line group. The 10 patients who had received S-1/CPT or S-1/PTX alone as 1st-line treatment were assigned to the 2-drug group. The 15 patients in whom PTX or CPT was added to a 2-drug regimen were assigned to the 3-drug group. We investigated the clinical background of each group, the rate of progression to the point of requiring the next line of treatment, the 1-year survival rate (1YSR) (%), and the mean survival period (MST) (day).

Results: The 1YSR and MST were 50% and 363 days in the PTX group, 80% and 491 days in the CPT group, and 90% and 736 days in the 3rd-line group. The corresponding values were 41% and 283 days, respectively, in the 2-drug group and 71% and 571 days, respectively, in the 3-drug group. The rate of progression from the 2nd line treatment to the stage of needing 3rd line treatment was 13% when PTX preceded CPT and 56% when CPT preceded PTX. The rate of progression from 1st line treatment to the stage of needing 2nd line treatment was 31% when PTX preceded CPT and 92% when CPT preceded PTX.

Conclusions: In 2nd or further lines of treatment after failure of 1st line treatment with an S-1-containing regimen, PTX and CPT should be used effectively, and if possible, CPT treatment should precede PTX administration. Conclusions concerning the final therapeutic strategy shall be drawn from the results of multiple 2nd line clinical trials that are currently in progress.

Abstract ID: 0407 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 18

Non-curative surgery for the treatment of anticancer drug TS-1 in patients with unresectable gastric cancer

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Introduction: Unresectable gastric cancers often demonstrate severe gastrointestinal stenosis. Most of these patients were not treated surgically and can not take advantage of oral chemotherapy. We studied efficacy of TS-1 as adjuvant chemotherapy after non-curative surgery in patients with advanced gastric cancer.

Material and Methods: A total of five patients with severe gastrointestinal stenosis were treated surgically for the purpose of drug delivery and oral ingestion. TS-1 was given in a dose between 80 and 100 mg/body bid orally for 28 days followed by a 14 days rest as one course. A total of 6 courses of treatment were delivered for 5 patients.

Results: There was no surgical complication. Surgical margin was histologically positive in all patients. Response rate of TS-1 was 40%.

The toxic adverse reactions occurred in three patients; including anorexia (60%), leukopenia (60%), and cutaneous syndrome (20%). The patient’s performance status (PS) had recovered in four out of five patients because they were treated as outpatients without requiring hospitalization for adverse reactions. One patient died of the progressive liver metastasis. Four of them lived longer than 12 months so far with stable disease.

Conclusions: Non-curative surgery followed by taking TS-1 as oral chemotherapy is one of the treatment strategies for unresectable gastric cancer. It was considered that TS-1 was effective even to remnant gastric cancer after the surgery and had prolonged disease control for advanced gastric cancer.

Abstract ID: 0408 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 19

Assessment of quality of life after gastrectomy using EORTC QLQ-C30 and STO22


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Introduction: EORTC QLQ-C30 and STO22 have seldom been used to measure the postoperative health related quality of life (HRQOL) in gastric cancer patients in Japan. The aim of this study is to evaluate the HRQOL after gastrectomy using these instruments, and to see whether the differences in each item between various surgical procedures and approaches can be detected.

Material and Methods: One hundred and five patients operated between 05/2005 and 11/2007 and had no recurrence were evaluated. EORTC QLQ-C30 and STO22 were completed at baseline and 1, 3, 6, 12 and 18 months postoperatively.

Results: Surgery consisted of open total gastrectomy (TG, n = 9), open distal gastrectomy (DG, n = 29), laparoscopy-assisted distal gastrectomy (LADG, n = 49) and laparoscopy-assisted pylorus preserving gastrectomy (LAPPG, n = 9). For almost all functional and symptom scales, the score was worst at one month after surgery and generally improved during the course of follow up. Scores of patients treated with TG tended to be the worst of all surgical procedures in many scales throughout the 18-months period. Scores after LADG were superior to those after DG regarding several scales at 1 and 3 postoperative months. More than half of all scales were equivalent between LADG and LAPPG. LADG was superior in global health status and dysphagia, while LAPPG was better in the items such as diarrhea, stomach pain and body image.

Conclusions: QLQ-C30 and STO22 seemed to reasonably detect the well-conceived differences in HRQOL after various surgical procedures. A prospective study can be considered to evaluate the impact of laparoscopy-assisted surgery with HRQOL as an endpoint.

Abstract ID: 0409 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 20

Uncut roux-en-y esophagojejunostomy: a new reconstruction technique after total gastrectomy

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Uncut Roux-en-y is a new reconstruction method with a main purpose of diminishing Roux stasis syndrome by preserving the myoelectric continuity of the jejunum after total gastrectomy. Whereupon this study was performed to evaluate functions and complications of this technique, as well as its effect on Roux stasis syndrome.

Material and Methods: Total gastrectomy with “Uncut Roux-en-y” esophagojejunostomy was performed on 94 patients (73 male and 21 female). This technique consists of an artificial jejunal occlusion 5 cm proximal to anastomosis, and a jejunojejunostomy between afferent and efferent loops, 40 to 50 cm distal to it. "Roux stasis syndrome" would be a definite diagnosis in those patients who have at least one of the following criteria: chronic abdominal pain, postprandial fullness, persistent nausea and intermittent vomiting all worsened by eating.

Results: According to the mentioned criteria, the “Roux stasis syndrome” occurred in 21.2% of the patients. Whereas occurrence rate of other complications were as the followings: dysphagia (13.8%), benign stricture in anastomosis (9.6%), and fistula (4.2%).

Conclusions: Comparing the results of our study to other related studies indicates that this type of operation could not only alleviate “Roux stasis syndrome”, but it makes a low rate of postoperative stricture of the anastomosis.

Abstract ID: 0410 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 21

The management of small bowel obstruction in a busy District General Hospital
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Introduction: Small bowel obstruction is a very common surgical problem and accounts for approximately 5% of acute surgical admissions in the UK. The management decisions, including use of imaging techniques and when to operate remains contentious. The aim of this research was to examine the management of small bowel obstruction to a busy district general hospital and re evaluate the use of imaging techniques.

Material and Methods: A retrospective analysis of all the patients coded with the diagnosis of small bowel obstruction in 2007 was performed. The medical notes, pathology results and radiology were scrutinised and incorrectly coded patients were excluded. The data was analysed for demographics, clinical information, imaging techniques, management and the outcome.

Results: There were 51 admissions with small bowel obstruction in the time period. 23 male and 28 female. Average age 65.20 patients were managed conservatively (39%) and 31 were managed operatively (61%). All patients had an abdominal x-ray and routine blood tests on admission. Further imaging (CT or gastrografin follow through) was used in 40% of the conservative group and 65% of the operated group. Overall there was a mortality of 0.12 (0.1 in conservative group, 0.13 in operative group).

Conclusions: Conservative management is successful in patients who had either an inflammatory cause for the obstruction or who had had multiple episodes of obstruction in the past. The remaining patients who have obstruction clinically and on abdominal x-ray should proceed to operation without further imaging as additional imaging did not alter decision to operate. The patients who are clinically obstructed with a normal abdominal x-ray benefit from further imaging as soon as possible to aid decision about management.

Abstract ID: 0411 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 22

Primary lymphoma of the gastrointestinal tract causing adult intussusception: two cases report
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Introduction: Adult intussusceptions were frequently associated with pathological leading points. Herein, we reported two cases of adult intussusception caused by primary lymphomas of the gastrointestinal (GI) tract.

Material and Methods: Case 1 was a 63-year-old female with urinary bladder carcinoma and received TURB and systemic chemotherapy in 2006. Abdominal computed tomography (CT) showed ileocecal intussusception. Right hemicolectomy was performed. Pathological examination reported follicular lymphoma of terminal ileum. Case 2 was a 20-year-old male suffered from nausea, vomiting, intermittent periumbilical pain and progressive abdominal distention for about 3 days in Feb 2008. Abdominal CT showed intussusception at distal jejunum and an infiltrative mass involving left renal pelvis to upper pole of parenchyma. During the operation, multifocal lymphomas were noted in the jejunum, duodenal and stomach. We performed resection of the intussuscepted segment of the jejunum. Pathological examination reported Burkitt’s lymphoma of GI tract.

Results: Post-operative positron emission tomography/computed tomography (PET/CT) was done in both cases. Case 1 was stage IE and was doing well in outpatient follow-up after 16 months. Case 2 was stage IV. The post-operative adjuvant chemotherapy of CHOP was administrated, but the response was poor.

Conclusions: Stage is the most important prognostic factor. There are still controversies about appropriate management of primary GI tract lymphoma. Completely surgical resection may be of advantage for early stage (stage I and II) GI lymphomas. By contrast, surgery had no advantage for advanced stage (stage IV).

Abstract ID: 0412 Specific Field: Stomach / Duodenum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 23

Periampullary gangliocytic paraganglioma: the case report
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Introduction: Gangliocytic paraganglioma is extremely rare duodenal tumor belonging to neuroendocrine duodenal tumors. It is mostly located in the periampullary area and in the literature has been presented only in few cases. Usually it has benign character but there are reports of the regional lymph nodes in volvment and the recurrence after simple excision. In their therapy has been reported ampulecetomy od duodenopancreatectomy.
We present the case of periampullary gangliocytic paraganglioma in 27 years old woman which made obstructive jaundice. Preoperative histology was not exact. We performed ampulectomy and perioperative histology which was suspicious of malignant carcinoid. Therefore we extended the surgery to the right duodenohepatico-pancreatectomy. Definitive histopathology and immunohistochemistry confirmed periampullary gangliocytic paraganglioma without the lymph node involvement.

**Results:** Three years after the surgery the patient does not have any oncologic or digestive complications.

**Conclusions:** Considering our difficulties with the preoperative diagnosis our procedure may be reasonable regardless the benign definite histopathology.

**Abstract ID:** 0413

**Specific Field:** Stomach / Duodenum

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 24**

**Congenital internal hernia: a case report**

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**Introduction:** Internal hernia is a rare cause of small bowel obstruction and the reported incidence was 0.2–0.9%. It may be congenital or acquired. Herein, we reported a case of congenital transmesenteric internal hernia with strangulation of small bowel.

**Material and Methods:** A 70-year-old man suffered from periumbilical colicky pain, nausea and vomiting 5 hours before he was sent to our emergent department. Similar symptoms were noted twice 2 years and 3 years ago, respectively. He did not have any history of abdominal surgery. Physical examination revealed diffuse abdominal tenderness, rebound pain, and muscle guarding. Leukocytosis was also noted. Abdominal CT revealed dilatation of small intestine loop with thickening bowel wall. Volvulus with strangulation of the small bowel was suspected. Emergent operation was performed.

**Results:** At laparotomy, a large segment of gangrened small bowel was trapped into a hernia sac. Segmental resection with end-to-end anastomosis of the small bowel was performed. Transmesenteric internal hernia with strangulation of small bowels was diagnosed. Post-operative course of the patient was uneventful. The patient was discharged on 11th day of hospitalization.

**Conclusions:** Internal hernias are uncommon and rarely diagnosed preoperatively. Most of the reported cases had undergone previous abdominal surgery, but our case did not have a history of previous abdominal surgery. Due to the risk of strangulation of hernia contents, even small internal hernia is dangerous and may be lethal. Therefore, early detection is very important. Abdominal CT seems to offer the most potential for use in the diagnosis of internal hernia.

**Abstract ID:** 0414

**Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 25**

**Risk factors for mortality following pancreatico-duodenectomy**


**Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India**

**Introduction:** To look for factors that are associated with a higher risk of mortality following pancreatico-duodenectomy (PD).

**Material and Methods:** We have performed 425 pancreati-coduodenectomies over the last 20 years. Data of these patients was analyzed for a prospectively maintained database. The 30-day post-operative mortality was 9% (39 patients).

Retrospective analysis of 39 patients who died after PD (group A) were compared with 386 who survived between 1989 to 2008.

**Results:** On univariate analysis, age (57 Vs 50 years, p = 0.001), jaundice at the time of surgery (72% Vs 50%, p = 0.009) intraoperative blood loss (943 Vs 686 ml, p = 0.027), subsequent need of blood transfusion (72% Vs 55%, p = 0.04), duration of surgery (7.9 Vs 7.0 hours, p = 0.004) and presence of post-operative complications (96% Vs 60%, p = 0.00) were predictors of mortality.

The following complications were associated with higher post-operative mortality-anastomotic leak: pancreatic (39% Vs 14%, p = 0.00), duodenal (8% Vs 2%, p = 0.03) and subsequent bleeding complications - overall: (51% Vs 14%, p = 0.00), intra-abdominal bleeding (33% Vs 10%, p = 0.00), gastro-intestinal bleeding (28% Vs 6%, p = 0.00), intra-abdominal abscess (39% Vs 15%, p = 0.00), post-operative pancreatitis (31% Vs 5%, p = 0.00) and requirement of re-surgery (67% Vs 12%, p = 0.00) for management of these complications.

**Conclusions:** Proper selection of patients, meticulous technique to minimize intra-operative blood loss may decrease the post-operative mortality. A high index of suspicion should be kept for anastomotic complications in order to improve outcome.

**Abstract ID:** 0415

**Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 26**

**A new surgical technique of transduodenal pancreatic juice drainage prevents pancreatic fistula following distal pancreatectomy**

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**Introduction:** Postoperative pancreatic fistula (POPF) is the most common complication after distal pancreatectomy (DP). Here, we describe our technique of transduodenal pancreatic juice drainage to prevent POPF after DP.

**Material and Methods:** Ten patients underwent DP. In 6 patients with gastric cancer, total gastrectomy was performed with DP to resect lymph nodes or tumor invasion of the pancreas. Four patients had DP for pancreatic cancer. Their mean age was 65 years. The procedure involves a transduodenal approach via a longitudinal duodenotomy along the second portion of the duodenum, opposite the ampulla of Vater. A pancreatic stent was inserted into the main pancreatic duct from the papilla of Vater to its distal side and fixed to the main duct at the bottom of its opening in the papilla of Vater via the duodenotomy. The pancreatic parenchyma was divided using a knife. The main pancreatic duct was ligated, the cut surface of the remaining pancreas was closed with interrupted nonabsorbable monofilament sutures. The pancreatic stent was connected to a 200-cc...
Silicone Bulb Evacuator®, The duodenotomy was closed longitudinally, using 2 layered of interrupted sutures. We did not use prophylactic ocreotide or fibrin glue.

Results: No cases of hospital mortality or pancreatic leakage occurred. The mean amylase contents of drainage fluid of these patients on postoperative days 1 and 3 were 1095 IU/Land 226 IU/L, respectively. The mean serum amylase levels of these patients on postoperative days 1 and 3 were 127 IU/Land 103 IU/L, respectively. Of the 10 patients, 9 had a drain amylase level below the definition of pancreatic fistula, and the drain was removed on postoperative day 5. Only the status of 1 patient was classified as having grade A POPF. In this patient, the drain amylase level reduced to below the definition of POPF on postoperative day 5, and the drain was removed on postoperative day 7. The transduodenal pancreatic tube was removed on postoperative day 11. The mean duration of postoperative hospitalization was 13 days.

Conclusions: We consider that our procedure is effective for preventing POPF without the requirement of special stapler devices and applications of fibrin glue sealant and ocreotide in patients who have undergone DP.

Abstract ID: 0416 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 27

Our nonstented technique for pancreaticojejunostomy: the operative procedure and results

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Introduction: Generally most surgeons prefer to perform pancreaticojejunostomy using a stenting tube because they believe it is safer. Recently in some literature, there were no significant differences of the morbidity rate including of the leakage of the anastomosis whether using a stenting tube or not. We have performed pancreaticojejunostomy with two layer anastomosis without a stenting tube since 2007. We presented our technique for pancreaticojejunostomy without a stenting tube and results.

Material and Methods: Nineteen patients (pancreas head cancer 10; bile duct cancer 4; IPMN 2; cancer of the papilla Vater 2; chronic pancreatitis 1) underwent pancreaticojejunostomy without stenting tube at our institute. We retrospectively reviewed hospital charts for the morbidity, the AMY level of the drainage fluid, and the postoperative hospital stay of these patients.

Results: Operative technique: The pancreas is sharply transected with a scalpel. A small hole compatible with the caliber of the main pancreatic duct is made in the jejunal wall. First at the posterior row between the pancreas parenchyma and the jejunal seromuscular layer, interrupted sutures using 4-0 vicryl are placed. These sutures are not tied until the first inner layer suture of the posterior site is placed. Before the inner layer anastomosis is started, a stay suture with 5-0 PDS is placed to prevent the pancreas fistula. A stenting tube for pancreaticojejunostomy is not always necessary.

Abstract ID: 0417 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 28

Usefulness of vessel sealing system and endoscopic linear stapler for laparoscopic distal pancreatectomy

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Introduction: Laparoscopic distal pancreatectomy is indicated for benign tumor or low grade neoplasm of the distal pancreas and its procedure can be performed with or without splenectomy. We present a usefulness of vessel sealing system and endoscopic linear stapler for a laparoscopic distal pancreatectomy preserving the spleen and splenic vessels.

Material and Methods: A 42-year-old female had a cystic tumor 4.0 cm in diameter in the distal pancreas. Four ports were placed, the first one was 12 mm above the umbilicus, and other three working ports were 5 mm on left upper quadrant. The spleno-colic and gastro-colic ligaments were dissected and pancreatic tail was mobilized. Retro-peritoneum around the pancreatic body and tail was dissected. Dissection line of the pancreas was decided by intra-operative ultrasound examination. Splenic vessels were mobilized from the pancreas then pancreas was dissected with an endoscopic linear stapler. After dissection of the pancreas, branches of splenic vessels were dissected from the distal pancreas by using a vessel sealing system and eventually the pancreas was completely mobilized.

Results: Operation time was 4 and half hours, blood loss was 210 gram. Postoperative course was uneventful.

Conclusions: A vessel sealing system and an endoscopic linear stapler are to be useful for laparoscopic distal pancreatectomy preserving the spleen and splenic vessels.

Abstract ID: 0418 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 29

Efficacy of continuous external drainage of pancreatic juice in soft pancreas after pancreategastrectomy

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Introduction: A leakage of pancreatic juice at the anastomotic site of pancreaticojejunostomy or pancreatiecogastrectomy (PG) is a major cause of morbidity in patients undergoing pancreaticoduodenectomy. A pancreatic fistula may expose skeletonized vessels directly to
pancreatic juice, causing delayed intra-abdominal bleeding. Also, it may cause to the intra-abdominal abscess due to melting tissue around surgical site by pancreatic juice. With the aim of preventing pancreatic leakage, we have adopted pancreaticogastrostomy (PG) using with continuous suction externally pancreatic drainage in soft pancreas after pancreatoduodenectomy (PD).

**Material and Methods:** After PD with lymph node dissection, Child Of the 20 patients, two were converted to an open procedure. This procedure may prevent of pancreatic leakage of HPD is a viable option for locally advanced hepatobiliary malignancies during the period of June1998-June2008. Cases included carcinoma of GB infiltrating CBD, duodenum and colon (n = 2), diffuse type cholangiocarcinoma (n = 2), neuroendocrine tumors infiltrating L lobe and colon (n = 1), HCC infiltrating duodenum and pancreas (n = 3).

**Results:** 8 patients (6 male: 2 female) underwent Hepatopancreaticoduodenectomy. Follow up period ranged from 6 months to 42 months. The mean operating time was 310 mins. The average blood loss was 420 ml. No immediate post operative mortality occurred. Morbidity was reported in 5 pts. Ascites (n = 2), intra-abdominal collection (n = 2) and wound dehiscence (n = 1). Mean survival about 38 months with longest survival of 42 months

**Conclusions:** HPD is a viable option for locally advanced hepatobiliary malignancies despite its radicalism and associated morbidities. Outcomes in terms of low mortality and acceptable morbidity justify this procedure.

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**Abstract ID:** 0419  **Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 30**

**Laparoscopic distal pancreatectomy**  
M. Kitamura, K. Furuta, M. Watanabe  
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**Introduction:** A laparoscopic approach to pancreatic disease is increasingly performed although its ultimate benefit is yet to be confirmed. Laparoscopic distal pancreatectomy with or without splenectomy is gradually gaining acceptance as an alternative to open resection in selected patients. The aim of this study is to report our initial institution experience with laparoscopic distal pancreatectomy.

**Material and Methods:** We performed 20 distal pancreatectomies by the laparoscopic approach. These 20 patients were included in the study with varyingly pre-operative diagnosis such as endocrine tumors (5 patients), cystic lesions (8 patients), IPMN (7 patient). The median age was 55.5 years (31–74) with a female to male ratio of 11:9.

**Results:** Of the 20 patients, two were converted to an open procedure due to an uncertain adhesion and inadequate exposure. The median operating time was 194 minutes (120–600) with a tumor size of 3.96 cm (0.5–10). The length of stay was 10.1 days (5–17). These were no mortalities. Of the 18 patients that successfully underwent the procedure laparoscopically, and these were no morbidities. With a median follow up of 34.6 months (1–53), 4 patients with a diagnosis of malignancy have no evidence of recurrent disease.

**Conclusions:** A minimally invasive approach to pancreatic disease is safe and technically feasible with acceptable morbidity. Laparoscopic surgery for pancreatic tumor is an available treatment, though the number of patients with indications is considered to be limited. Laparoscopic surgery for pancreatic diseases is a developing field, and the establishment of safer surgical procedures and improvement and development of medical instruments and devices are still necessary. Long-term postoperative follow-up is also needed.

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**Abstract ID:** 0420  **Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 31**

**Hepatopancreato duodenectomy in clinical practice**  
Government Stanley Medical College Hospital, Chennai, India

**Introduction:** The benefits of extended surgical resection for locally advanced hepatobiliary malignancies though carries a significant morbidity and mortality often overweigh the non surgical palliative treatment in terms of overall survival and disease free survival.

**Material and Methods:** Hepatotomy with pancreatoduodenectomy (HPD) was done for eight patients with locally advanced malignancies during the period of June1998-June2008. Cases included carcinoma of GB infiltrating CBD, duodenum and colon (n = 2), diffuse type cholangiocarcinoma (n = 2), neuroendocrine tumors infiltrating L lobe and colon (n = 1), HCC infiltrating duodenum and pancreas (n = 3).

**Results:** 8 patients (6 male: 2 female) underwent Hepatopancreaticoduodenectomy. Follow up period ranged from 6 months to 42 months. The mean operating time was 310 mins. The average blood loss was 420 ml. No immediate post operative mortality occurred. Morbidity was reported in 5 pts. Ascites (n = 2), intra-abdominal collection (n = 2) and wound dehiscence (n = 1). Mean survival about 38 months with longest survival of 42 months

**Conclusions:** HPD is a viable option for locally advanced hepatobiliary malignancies despite its radicalism and associated morbidities. Outcomes in terms of low mortality and acceptable morbidity justify this procedure.

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**Abstract ID:** 0421  **Specific Field:** Hepatobiliary and Pancreas Surgery

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 32**

**Outcomes of endoscopic ampullectomy in the elderly with ampullary tumours**  
N. Nguyen [1], A. Biankin [2], N. Merrett [1], K. Binmoeller [3]  

**Introduction:** Endoscopic ampullectomy is a preferred treatment for elderly patients with localized ampullary tumor as surgical resection (Whipple’s procedure) is associated with significant morbidity and mortality in this group of patients. Data regarding the outcomes of endoscopic ampullectomy in the elderly, however, are lacking.
Material and Methods: Aim: To examine the outcomes of endoscopic ampullectomy for localized ampullary tumor in elderly patients (defined as age 70 yrs). Methods: The database of all patients who referred for endoscopic snare ampullectomy for ampullary tumors from 2004 to 2007 were reviewed. Immediate complications, short and long-term outcomes of 22 patients younger than 70 yrs were compared to those of 14 patients who were 70 yrs.

Results: There was no difference in tumor size (2.3 ± 0.2 vs. 2.5 ± 0.2 cm, P > 0.05), pre-ampullectomy staging by endoscopic ultrasound (T1/T2 stage: 21/2 vs. 12/2, P > 0.05), and length of follow up (26.4 ± 2.8 vs. 27.5 ± 2.8 yr, P > 0.05) between the groups. All endoscopic ampullectomy was successfully performed without any immediately complication. Haemostasis was achieved in all patients at the end of the procedure. In the younger group, 2 (10%) patients developed local recurrent adenoma and were treated successfully with repeated endoscopic resection. Two (10%) patients <70 yrs had evidence of adenocarcinoma beyond resected margin on histology and subsequently, underwent Whipple’s resection. In contrast, although no patients 70 yrs of age developed recurrent adenoma, 4 (30%) patients had adenocarcinoma beyond resected margin on histology. These patients, however, did not have surgery and were palliated successfully by further endoscopic resection and stenting. Compared to the 100% survival rate in younger age group, 3 (23%) patients over 70 yrs died, but 2 were not related to cancer. Overall, the median survival after ampullectomy was similar between the groups.

Conclusions: Endoscopic ampullectomy was feasible and satisfactory for a large majority of patients with ampullary tumors. Advanced age did not adversely influence either short-term or long-term outcomes of the procedure. Thus, endoscopic ampullectomy appears to be the treatment of choice for elderly patients with ampullary tumors, especially for patients who are unfit for surgery.

Abstract ID: 0422 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 33

Nonfunctioning neuroendocrine pancreatic tumors: our experience and strategy

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Introduction: Neuroendocrine pancreatic tumors (NPTs) are rare, accounting for only 1% to 5% of pancreatic tumors. Nonfunctioning neuroendocrine pancreatic tumors (NFNPTs) account for 15% to 52% of NPTs, and are not associated with specific clinical symptoms. We present our experience in the treatment of NFNPTs to define the clinical and pathological characteristics and to suggest proper management.

Material and Methods: The records of 17 patients with NFNPTs operated on between 1998 and 2008 were retrospectively reviewed, and all tumors were classified clinico-pathologically as “benign”, “uncertain”, and “malignant”, based on the World Health Organization classification of neuroendocrine tumors.

Results: There were 4 “benign”, 6 “uncertain”, and 7 “malignant” NFNPTs. Most of symptomatic patients had “malignant” tumors. Mean tumor size of “benign”, “uncertain”, and “malignant” tumors were 1.0 ± 0.3 cm, 3.2 ± 1.6 cm, and 5.3 ± 2.4 cm, respectively. Metastatic lesions of malignant tumors were lymph node (6), liver (4), and adrenal gland (1). Six of 7 patients with “malignant” tumors underwent curative resection. There were recurrences in 4 of 6 patients with curatively rejected “malignant” tumors. Two patients underwent more rejection, 3 patients received systemic chemotherapy and 2 patients underwent radiofrequency ablation and transcatheter arterial chemembolization for liver metastases. Survival of patients with “malignant” tumors was significantly shorter than that of patients with “benign” and “uncertain” tumors. However, 3 patients with “malignant” tumors had long survival of more than 3 years even with metastases or recurrences.

Conclusions: The aggressive surgical approach should be considered even in the case of metastases. With recurrences, repeated resection, if possible, can be indicated to improve survival. Even when a tumor is unresectable, multidisciplinary approaches should be considered to prolong survival and improve the quality of life. In cases of non-malignant tumors, an operation that preserves pancreatic and digestive function, such as pancreatic head resection with segmental duodenectomy (PHRSD) and spleen-preserving distal pancreatectomy (SPDP), might be recommended.

Abstract ID: 0423 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 34

Long term survival of pancreatic cancer is determined by preoperative serum CA19–9 and dissected peripancreatic tissue margin

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Introduction: Surgical resection has provided the only chance for cure or long-term survival despite the development of multi-disciplinary treatments in pancreatic cancer. It is important to be able to predict the prognosis precisely after pancreatectomy, for the assessment of therapeutic effect, for consideration of administering adjuvant therapy and for providing information to the patient. The most common staging system used for pancreatic cancer is the TNM classification. But, TNM staging does not offer adequately a broad picture of a patient’s prognosis. The aim of this study was to determine which characteristics or clinico-pathological factors point to an increased possibility of a long-term survival prognosis.

Material and Methods: 117 patients with pancreatic ductal carcinoma, including 89 with invasive tubular adenocarcinoma of the pancreas, JPS (Japan Pancreas Society) stage III to IVb patients, who underwent tumor resection between 1986 and 2006.

Results: Univariate prognostic analyses of the 5-year disease-specific survival (DSS) revealed that: JPS stage (p < 0.0001); pre operative serum CA19-9, preCA19-9 (p < 0.0001); DPM (p < 0.0001); residual tumor, R factor (p = 0.0007); lymph node metastasis density over 10%, ND10 (p = 0.006); volume of the stromal connective tissue, stroma factor (p = 0.008); growth pattern (p = 0.01); and histology (p = 0.03), were all significantly associated with poor outcomes in advanced pancreatic cancer. Multivariate analysis confirmed that preCA19–9 (p = 0.0006, HR = 2.16) and DPM (p = 0.04, HR = 1.62) were prognostic factors that remained independent of JPS stage (p = 0.001). Astonishingly, among JPS stage III cases, 76.9% of the patients with preCA19–9 below 37 U/ml survived more than 5 years. This, combined with an analysis of DPM, allowed us to identify those with the potentiality for long-term survival.

Conclusions: Our results revealed that it is possible with JPS stage III to IVb invasive tubular adenocarcinomas of the pancreas to differentiate prognostic groups and potential survival rates, like with other cancers.
Abstract ID: 0424 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 35

The advantage of adjuvant chemotherapy with gemcitabine hydrochloride for the advanced pancreatic carcinoma (Stage III&Iva)

K. Ishii
ISW, Adelaide, Australia

Introduction: We examined the advantage of adjuvant chemotherapy with gemcitabine hydrochloride for the advanced pancreatic carcinoma.

Material and Methods: Between 1986 and 2008, 76advanced pancreatic carcinoma (Stage III&Iva) cases were operated. We classified two groups: 1) the adjuvant chemotherapy with gemcitabine hydrochloride (G 21cases), 2) untreated control (C 45cases). We compared two groups about survival rate and side effects in retrospective study.

Results: The 50% survival period of the G-group was 42.5 months and of the C-group without adjuvant chemotherapy by gemcitabine hydrochloride was 11.7 months. The advantage of G-group was significant compare with C-group in the both overall survival rate (p value 0.0007) and disease-free survival rate (p value 0.0005). Adjuvant chemotherapy with gemcitabine hydrochloride was performed safely.

Conclusions: This study suggested that adjuvant chemotherapy by gemcitabine hydrochloride for the advanced pancreatic carcinoma may be prolonged a survival period.

Abstract ID: 0425 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 36

Indications, results and long-term “follow up” of endoscopic papillectomy in daily surgical practice: progression report in a subsequent case series

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Introduction: The aim of the study was to investigate feasibility, treatment results & outcome of endoscopic papillectomy in tumor lesions of the papilla of Vater (papilla).

Material and Methods: Through a defined time period, all consecutive patients with tumor-like lesions of the papilla, who underwent endoscopic papillectomy, were enrolled in this bicenter prospective observational study. Treatment results & outcome were characterized by R0 resection, complication & recurrence rate as well as tumor-free survival.

Results: From 1996–2003, 58 patients underwent endoscopic papillectomy. Main symptoms were unclear abdominal pain in 50% & cholestasis with/without pain in 44%. Overall, 54/58 patients (inclusion rate, 93.1%; sex ratio, males: females = 25:29 [1:1.16]; mean age, 65 [range, 22–88] years) were enrolled in the study. Priorto papillectomy, EUS was performed in 79.6% (n = 43/54). Group(Gr.)1 (adenoma, n = 24/54; 44.4%): 91.6% (n = 22/24) with R0 resection; tumor-free survival after a mean of 18.5 months, 86.4% (n = 19/22); recurrence, 13.6% (n = 3/22); minor complications, 12.5% (n = 3/24). Gr. 2 (carcinoma/neuroendocrine tumor [NET]/lymphoma, n = 18/54; 33.3%): 75.0% (n = 10/18) with R0 resection; tumor-free survival after a mean of 18.5 (range, 1–84) months, 88.9% (n = 8/9); recurrence, 11.1% (n = 1/9). Gr. 3 (adenomyomatosis, n = 4/54; 7.4%). Gr. 4 (primarily no introducible catheter into the papilla, n = 8; 14.8%). The overall complication rate was 18.5% (n = 10/54; 1 subject with 2 complications): Bleeding, n = 3; pancreatitis, n = 7; perforation, n = 1 (intervention-related mortality, 0%).

Conclusions: Complete pancreatic resection is a feasible & safe approach to treat adenomas of the papilla. In high-risk patients with carcinoma of the papilla with no hints of deep infiltrating tumor growth, it can be considered a reasonable treatment option with low risk & an approximately 80-% probability of no recurrence if an R0 resection can be achieved. In patients with jaundice & in case the catheter can not be introduced into the papilla, papillectomy may help to get access to the bile duct.

Abstract ID: 0426 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 37

Eight cases of solid-pseudopapillary neolasm(SPT) of the pancreas

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Introduction: Solid-pseudopapillary neoplasm(SPN) of the pancreas have been reported as rare type of neoplasm found mainly in young women. Almost cases with pancreatic SPN behave as benign. However some cases have low malignant potential.

Material and Methods: We examined the clinical characteristics in 8 cases of pancreatic SPN that were resected in our hospital between 1990 and 2008 to evaluate the role of resection in treatment of pancreatic SPN.

Results: The clinical data of 8 patients with pancreatic SPN, 3 males and 5 females, aged 38 (19–68), who underwent surgical resection for the tumor. Distal pancreatectomy(DP) was performed in 5 patients; enucleation, in 2 patients; central resection, in 1 patient. 2 patients had malignant SPN. However there were no tumor-related death and all of patients are still living.

Conclusions: Complete pancreatic resection is considered a reasonable treatment for SPN of the pancreas, including laparoscopic resection.

Abstract ID: 0427 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 38

Analysis of intraductal papillary mucinous neoplasms with a history of pancreatitis

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Introduction: Intraductal papillary mucinous neoplasms (IPMNs) have a broad spectrum of dysplasia ranging from adenoma to borderline, carcinoma in situ (CIS), and further to invasive carcinoma. In some cases, it is difficult to make an accurate preoperative diagnosis and
During a 21-year period (1987–2008), 130 Malignancy was more frequent in IPMNs with hepatobiliary and specific field: Fifty-seven-years old female with the complaints attributable to pancreatic distress. Analysis of two clinical histories with an emphasis on clinical course, surgical treatment and extended immunophenotype is provided. Results: Fifteen of the 57 patients had a history of pancreatitis. The mean age at operation was 70.3 (59–79). Seven were males and 6 females. They consisted of 5 main duct type and 8 branch duct type. Mean size of branch duct type was 34.8 mm (18–46 mm). Grade of dysplasia was adenoma in 2, borderline in 3, carcinoma in situ in 3, and invasive carcinoma in 5. Overall, 8 cases (61.5%) were malignant in IPMNs with a history of pancreatitis. On the other hand, 44 asymptomatic IPMNs without a history of pancreatitis resected during the same period included 17 adenomas, 15 borderlines, 2 carcinomas in situ, and 10 invasive carcinomas. Twelve (27.2%) of them were malignant. The history of pancreatitis was a significant factor to predict malignant IPMN (p = 0.028).

Conclusions: Malignancy was more frequent in IPMNs with pancreatitis. A history of pancreatitis in IPMNs is an appropriate indicator for surgical resection.

The number of each dysplastic grade and the incidence of malignant IPMNs in both groups

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<tr>
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<th>All</th>
<th>Adenoma</th>
<th>Borderline</th>
<th>Carcinoma in situ</th>
<th>Invasive carcinoma</th>
<th>Incidence of malignant IPMNs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pancreatitis group</td>
<td>13</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>61.5%</td>
</tr>
<tr>
<td>Non-pancreatitis group</td>
<td>44</td>
<td>17</td>
<td>15</td>
<td>2</td>
<td>10</td>
<td>27.2%</td>
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</tbody>
</table>

Abstract ID: 0428  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 39

A cystic tumor of the pancreas which was resected by laparoscopic distal pancreaticectomy

Nippon Medical School, Tokyo, Japan

Introduction: Since the approval of laparoscopic pancreatic resection in January 2004 by the Ethics Committee of Nippon Medical School, the use of this procedure has been introduced in our department, and to date we have conducted a total of more than 40 procedures for laparoscopic distal pancreatectomy (Lap-DP) including 15 spleen preserving cases. In this meeting we would like to describe a case with a cystic tumor of the pancreas which was performed Lap-DP. The patient was 67-years-old man. He had suffered left upper abdominal pain and back tenderness for 6 months. Although no abnormalities were seen in laboratory data, the images revealed a tumor of the pancreas. Computed tomography revealed a hyper vascular tumor which was 6 cm in diameter with tiny carciifications and was located in the tail of pancreas. Magnetic resonance image revealed that the tumor was multilocular lesion and practically cellule high intensity in T2 and showed the dilatation of the main pancreatic duct in peripheral side of the tumor. We preoperatively diagnosed the tumor as serous cystadenoma of the pancreas which was often associated with pancreatitis. The patient was immobilized in spine position. Four trocars were inserted into the abdominal cavity and abdominal air pressure was set at 7–10 mmHg. Laparoscopic distal spleno-pancreatectomy was performed. Pancreas was cut using an endoscopic linear stapler. The operating time was 210 minutes and blood loss was 180 ml. The postoperative course was uneventful with the patient beginning oral intake on the third postoperative day and being discharged on the seventh postoperative day. Lap-DP might be useful procedure for the patient with symptomatic cystic tumor of the pancreas.

Abstract ID: 0429  Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 40

Prolonged clinical course of two surgically treated cystic pancreaticobiliary tumours with mesenchymal stroma

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Introduction: Cystic pancreaticobiliary tumours with mesenchymal stroma are rare neoplasms. We report two well-documented cases in order to add our experience in the diagnostics and treatment of these tumours.

Material and Methods: Analysis of two clinical histories with an emphasis on clinical course, surgical treatment and extended immunophenotype is provided.

Results: Fifty-seven-years old female with the complaints attributable to gastrointestinal bleeding as well as weight loss. She had anamnesis of pancreatic cystoenterostomy on 2001, repeated operation on 2004. Large cystic mass was found in the distal part of pancreas. After embolization of a. lienalis, en bloc resection of pancreatic corpus and cauda, gastrectomy and splenectomy was performed. The mass was mucinous cystadenocarcinoma of pancreas, measuring 12×9×9 cm and invading gastric corpus with fistula formation, T4N0M0G2R0. Another patient, a sixty-four-years old female complained about abdominal pain. She had anamnesis of hepatic cyst for several years. A cystic intrahepatic mass measuring 17 cm in diameter was revealed by computed tomography (CT). Peritumourous resection of the cyst was performed. Histological examination yielded diagnosis of biliary cystadenocarcinoma, T4N0M0G3R0. Chemotherapy was offered. Six months after the operation the patient is alive without signs of tumour recurrence. In both cases, invasive growth and nuclear atypia confirmed the diagnosis of malignancy. Cytokeratin profile corresponded to the primary location. Progesterone receptors and calretinin were present in the stromal component. Highly variable proliferative activity was detected. No aberrant p53 expression was present.

Conclusions: Prolonged clinical course is typical of cystic pancreaticobiliary tumours with mesenchymal stroma. Despite significant size of tumours, radical operation can still be successfully performed. Although slowly growing, cystic pancreaticobiliary tumours with mesenchymal stroma are true malignant neoplasms as evidenced by invasive growth. Lack of aberrant p53 protein by immunohistochemistry hypothetically can explain the better prognosis of tumours possessing ovarian-type stroma in comparison with neoplasms lacking this trait.
Abstract ID: 0430 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 41

Pulmonary complications in acute pancreatitis: pathogenesis and prophylaxis
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Introduction: Acute lung injury or acute respiratory distress syndrome is a common early complication of acute pancreatitis (AP) that leads to significant complications or death of patients with severe forms.

We studied 267 patients with acute pancreatitis. In 63 patients we diagnosed the respiratory complications. Levels of cytokines, adhesion molecules, MPO were studied in serum and bronchoalveolar fluid patients with acute pancreatitis.

Material and Methods: It has been proved that cytokines, chemokines and adhesion molecules play a major role in the origin of breathing dysfunctions. For the purpose of preventing pulmonary complications we seem it advisable to prescribe AP patients dexamethazone and N-acetylcycteine and remove pancreatic ascites fluid collections. Injection of β-agonists is important for patients with reversible obstructive dysfunctions as prophylaxis of postoperative pulmonary pathology. Cytological of bronchoalveolar lavage liquid should be conducted for the diagnostics of postoperative pulmonary complications. According to the mechanism of its effects, levofloxacine is the best antibiotic for the treatment of pneumonia in AP patients.

Results: The introduction of pathogeneticaly grounded treatment allowed to decrease the number of pulmonary complications among AP patients.

Abstract ID: 0431 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 42

Synoptic reporting improves histopathological assessment of pancreatic resection specimens
A. Gill [1], A. Johns [2], J. Samra [1], D. Chang [2], N. Merrett [3], R. Smith [1], A. Biankin [2], J. Kench [2]

Introduction: Synoptic or structured reporting of surgical pathology specimens and/or the use of minimum data sets is thought to facilitate data collection from large cohorts and increase the accuracy, accessibility, completeness and uniformity of surgical pathology diagnosis. Despite widespread acceptance and endorsement of synoptic histopathology reports, their impact has not been widely assessed.

Material and Methods: We examined whether introduction of a standardised pancreatic resection minimum data set improved the reporting of key pathological features across multiple institutions. 109 free text reports and 68 synoptic reports from 7 different pathology departments that are members of the New South Wales Pancreatic Cancer Network were compared.

Results: AJCC stage could not be inferred from 44% of free text reports, whereas stage was reported in all 68 synoptic reports. In the free text reports 28 different names were used to designate margins. All margins were reported in only 12 (11%) of the free text reports compared to 64 (94%) of the synoptic reports (p = 0.0011). The presence or absence of lymphovascular or perineural invasion was reported in 72 (66%) and 92 (84%) of free text reports respectively. In contrast lymphovascular space and perineural invasion were reported in all synoptic reports (p = 0.0011 and p = 0.0058).

Conclusions: We conclude that synoptic reporting of pancreatic resections without any other intervention increases the information contained within histopathology reports. The introduction of minimal data set synoptic reports is therefore a simple and feasible mechanism to immediately improve reporting for pancreatectomy specimens.

Abstract ID: 0432 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 43

Changing spectrum of gallstone disease: an experience of 23 cases less than 10 years of age
A. Malik
LUMHS, Jamshoro, Pak stan

Introduction: Gallstone disease is a common problem in elderly women and there has been a very well known association of this disease with obesity and multiparity. The disease has been found very infrequently in children. There is a dramatic change in the overall spectrum of this disease and a global increase in the incidence in young children. This study documents an alarming increase in the incidence of cholelithiasis in children.

Material and Methods: Its a retrospective observational study including 23 patients of gallstones admitted and operated during June 2006-June 2008 in surgical department of a teaching hospital. all the patients with sonological evidence of gallstones, less than 10 years of age with history of acute or chronic abdominal symptoms are included in the study population. After admission all the study subjects were investigated and finally operated by open approach (21 patients) during the same admission. The details of all the patients were recorded on a proforma and statistic analysis of data done on SPSS version 12.

Results: Of the total study population, there were 19(82.6%) males and 4 (17.39%) females with a mean age of 7 years and a range of 6(10–4). Ultrasound revealed gallstones in all the subjects with a varying proportion of gall bladder wall thickness. The commonest presentation was pain in right upper quadrant which was vague and of mild to moderate severity. In 21(91.30%) patients no specific underlying cause was found while 2(8.6%) patients had hematological disorders as the underlying cause of gallstones.

Conclusions: This study indicates an alarming increase in the incidence of idiopathic gallstones in children less than 10 years of age with a distinct male predominance.

Abstract ID: 0433 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 44

Role of mini-invasive techniques in management of complicated forms of gallstone disease
A. Yakubu, V.N. Chernov, R. Sh. Tencherrin
Rostov State Medical University, Rostov On Don, Russian Federation
Introduction: There is no definitive combination and sequence of mini-invasive techniques in management of all complicated forms of gallbladder disease, in trying to solve this problem an algorithm is designed and adapted at Department of Surgery, Rostov State Medical University, Russia.

Material and Methods: In a period of five years (2004–2008) 412 patients with complicated forms of gallbladder stones disease were evaluated retrospectively. Following evaluation the subjects were divided into two groups depending on the management protocol used. Group 1, consisting of 208 patients (49.5%), managed depending on the skills and decision made by the operating surgical team. Group 2, consisting of 208 patients (50.1%), managed based on a designed diagnostic-therapeutic algorithm. Cholecystectomy (CE) was performed on all patients. Demographic information, operation time, hospital stay, complications, associated surgical injuries and hospital mortality were analysed in both groups.

Results: Patients' age ranged from 15 to 88 years, average age of 57.3 ± 1.8 years. Male female ratio was 1:3.3 (95:317). Two hundred fifty two patients (67.5%) presented with concomitant medical cases. The average cholecystectomy time for patients in group 1 and 2 was: laparoscopy CE (85.0 ± 5.1 and 71.7 ± 4.5 min.), minilaparotomy CE (91.3 ± 14.6 and 68.9 ± 1.0 min), opened CE (121.8 ± 11, 71.9 ± 32.0 min) respectively. There were 6 (2.9%) and 1 (0.6%) postoperative complications in group 1 and 2 respectively. Conversion rate to laparotomy, postoperative complications and mortality in group 2 was reduced to 80%, 85% and 33% respectively. There was no significant difference in both groups.

Conclusions: The designed algorithm had resulted in better quality management in patients with complicated forms of gallbladder stones disease.

Abstract ID: 0434 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 45

Long-term consequence of endoscopic sphincterotomy for patients with common bile duct stones
T. Yasui, S. Takahata, M. Tanaka
Kyushu university, Fukuoka city, Japan

Introduction: We reviewed long-term results of endoscopic sphincterotomy (ES) for common bile duct stones especially from the viewpoint of the type of initial stones treated.

Material and Methods: One thousand, seven hundred and twenty-eight patients who received ES for CBD stone removal from 1974 to May, 2008 were included in this study. Long term follow-up data of more than ten years were obtained from 1075 patients. Late complications including stone recurrence were evaluated with reference to the state of gallbladder and types of the stones. Patient with hepatolithiasis, malignant diseases, or history of biliary tract surgery were excluded.

Results: The cumulative stone recurrence rate of all patients was 10.6% at 10 years and 13.8% at 20 years. Patients were divided into two groups, namely, bilirubinate stone group and cholesterol stone group. The cumulative recurrence rate was significantly higher in bilirubinate stone group (13.5%) than in cholesterol stone group (4.6%) (p = 0.006). Stones recurred more than three times in seven patients. All these frequently recurrent stones were bilirubinate type. We studied the risk factors of recurrence in bilirubinate stone group, yielding the state of gallbladder (intact 9.1%, resected 16.4%, p = 0.012) was the only significant risk factor. However, in cholesterol stone group, gender (male 1.4%, female 9.1%, p = 0.036), and age (above 65 10.9%, under 65 2.4%, p = 0.039) were significant risk factors.

Conclusions: Tendency toward recurrence of common bile duct stones after ES depends on composition of the initial stones. The mechanism of recurrence may be different between patients with bilirubinate stones and cholesterol stones.

Abstract ID: 0435 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 46

Gallbladder hemorrhage controlled by transarterial embolization: which elective operation was performed for review of Japanese literature
Teikyo University Chiba Medical Center, Ichihara, Chiba, Japan

Introduction: Gallbladder hemorrhages controlled by transarterial embolization and treated by elective operation are rare. We herein report a case with gallbladder hemorrhage and with Japanese literature review.

Material and Methods: A 60-year-old man was admitted to our hospital because of epigastralgia at the end of April, 2008. Blood tests revealed liver dysfunction and inflammation. Enhanced CT scan showed the presence of gas inside the gallbladder and thickening of the wall of the gallbladder and bile duct. A diagnosis was made of acute cholangitis and cholecystitis.

Results: He underwent endoscopic nasobiliary drainage (ENBD), after which his physical status gradually improved. However, hemobilia from the ENBD tube and progressive anemia developed in the middle of May. Enhanced CT showed hemorrhage inside the gallbladder. Angiography showed extravasation from the cystic artery, and we successfully performed transcatheter arterial embolization (TAE) using a microcoil. Cholangiography showed a stenosis of the hilar bile duct and a diagnosis was made of Mirizzi syndrome. He underwent elective cholecystectomy. Atrophy of the gallbladder and strong adhesion of the tissues surrounding the gallbladder were seen. A hematoma approximately 1 cm in diameter was seen on the hepatic side of the neck of the gallbladder, but no communication to the bile duct or hemorrhage inside the gallbladder were found. In Japanese literature review, the incidence of gallbladder hemorrhages is reported less than 1% in digestive tract and 27 cases has been reported in Japan. Moreover, only 1 cases who underwent a transarterial embolization for gallbladder hemorrhage without emergency operation has been reported.

Conclusions: We suggest that transarterial embolization is an effective treatment and enable to prevent emergency operation for the patients with gallbladder hemorrhage.

Abstract ID: 0436 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 47

Repair of a mal-repaired biliary injury: report of a case
A. Al-Domour [1], A. Breizat [1], Q. Al-Ani [2], O. Sadieh [2], A. Ghannam [2]

Introduction: Iatrogenic bile-duct injury post-laparoscopic cholecystectomy remains the main serious complication with unpredictable long term results.

Material and Methods: We present a patient who underwent laparoscopic cholecystectomy for gallstones, in which the biliary injury was recognized intra-operatively. The surgical procedure was converted to an open one. The first surgeon repaired the injury over a T-tube without recognizing the anatomy and the type of the biliary lesion, which led to an unusual biliary mal-repair. Immediately post-operatively the abdominal drain brought a large amount of bile. A T-tube cholangiogram was performed. Despite the contrast medium leaked through the abdominal drain, the mis-repair was unrecognized. The patient was referred to our hospital for biliary leak. Ultrasound (U.S) and cholangiogram was repeated which showed an unanatomical repair (right to left hepatic duct anastomosis over the T-tube), with evidence of contrast medium coming out through the abdominal drain.

Results: The patient was submitted to a definitive surgical treatment. The biliary continuity was re-established by a Roux-en-Y hepatocjejunostomy, over a transanastomotic external biliary stents.

The patient is now doing well four years after the second surgical procedure.

Conclusions: Biliary tract injuries are sometimes difficult to recognize even by experienced surgeons. In the absence of an experience surgeon, it is mandatory to limit the surgical manipulation to a simple drainage, and to refer the patient to a more specialized hepatobiliary centre in order to give him the best chance of definitive management.

Figure: Grade 4 Bismuth injury with a surgical repair over a T tube misplaced both into the right and left hepatic ducts.

Abstract ID: 0437 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 48

Significance of hepatic resection in surgical treatment of gallbladder carcinoma (CG) in achieving long term survival

[1] University of cologne, Department of Surgery, Cologne, Germany, [2] Werlich-Barie, Bad Kissingen, Germany

Introduction: CG is an uncommon, highly malignant disease. R0-Resection is the only chance for long time prognosis. There still remains uncertainty regarding management of advanced tumor stages. Only a few studies attend to the question of indication, type and extension of hepatic resection as a prognostic criteria for long term prognosis. The liver plays central role in spread of CG, either by direct extension, or by venous and/or lymphatic dissemination which causes occult, later solid liver metastasis.

Material and Methods: Retrospective analysis was based on 54 patients with follow-up from 1978 up to 2003. Curative resection rate was 41%. In majority of cases extended liver resections have been done. Standard procedures were extended cholecystectomy (cholecystectomy with lymphadenectomy), 3 cm non-anatomical-wedge resection of the liver bed, bisegmentectomy of Couinaud’s segments IV a and V, right hepatectomy and extended right hepatectomy (f.e. in case of growth to the hepatic hilum, high T-Status).

Results: 5-year-survival rate was 54, 5%, ten-and 15-year-survival was 36%. A significant difference (p < 0, 01) in long-term-survival was recognized between stage III and stage IV disease and between stage N1a and N1b (N1, M1) patients. High T-Status or extensive liver resection was generally not associated with poor outcome. 50% of long-term-survivors died of other causes than tumour recurrence. Including all stages 5-year survival rate of 22% could be reached.

Conclusions: Even extended liver resections- done by specialized surgeons - cause low morbidity and mortality. If an extended resection is indicated, prognosis depends on local tumour growth (size, direction), infiltration of neighbor organs (big vessels, D. cysticus, pancreas, GI-tract, omentum a.s.o.), grade of lymph node involvement, preoperative liver function, comorbidity and the age of patients. Subtile patient selection, radical R0 resection with special consideration of adequate, even extended liver resection orientated on the recent knowledge on spread of CG can significantly prolong survival even in advanced tumor stages of CG.

Abstract ID: 0438 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 49

A case of long-term survival of hepatocellular carcinoma with adrenal metastasis

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Department of Digestive surgery, Nihon University School of Medicine, Japan

Introduction: Clinically, metastasis of hepatocellular carcinoma (HCC) to the adrenal gland is considered to be terminal stage of the disease and surgical resection of the metastasis is supposed to be insignificant for survival. We report on a patient on whom we performed hepatectomy 3 times, left adrenalectomy once, and transarterial chemoembolization (TACE) 7 times for HCC with adrenal metastasis.

Material and Methods: Case: The subject was a 62 year old male with hepatitis C, in whom a hepatic tumor was found in February 2001. The patient was diagnosed with HCC and underwent lateral segmentectomy. Recurrence of the carcinoma was observed in the residual liver...
and partial resection of segment 4 was carried out in December 2001. The patient had a second recurrence in the residual liver in November 2003, at which time partial resection of the liver in segments 5 and 6 was performed. Subsequently, metastasis to the left adrenal gland was observed, and the left adrenal gland was resected in February 2005. TACE was carried out 7 times in total for recurrence of carcinoma in the liver during his course of treatments. No serious complications were observed after any of the operations. Although it has been 7 years since the first surgical procedure, the patient still survives today.

**Conclusions:** Concomitant therapy of aggressive surgery for primary and metastatic lesions and TACE might be an effective treatment for HCC with adrenal metastasis.

**Abstract ID: 0439  Specific Field: Hepatobiliary and Pancreas Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 50**

**Liver resection of segments 7 + 8 with preservation of the middle and inferior right hepatic veins**

H. Nakayama, T. Takayama, K. Inoue, T. Okubo, T. Higaki, T. Mamiya

Department of Digestive surgery, Nihon University School of Medicine, Japan

**Introduction:** A large hepatocellular carcinoma (HCC) involving the right hepatic vein (RHV) requires hepatectomy with preservation of a drainage vein and hepatic function. A case that underwent resection of segments 7 and 8 with preservation of the middle right hepatic vein (MRHV) and inferior right hepatic vein (IRHV) is reported. Case: The patient was a 76 year old male. Hematobiochemical findings were as follows: albumin, 3.9 g/dl; total bilirubin, 0.6 mg/dl; prothrombin activity, 100%; indocyanine green retention rate at 15 minutes, 7.4%. Tumors of 12 cm in segment 8 and 7 cm in segment 7 were diagnosed as HCC. Thoracolaparotomy was useful for the procedure and the severe liver cirrhosis was confirmed. The RHV located on the dorsal side of the tumors and the RHV root requires hepatectomy with preservation of a drainage vein and hepatic function. A clamp-crushing procedure was carried out to allow liver resection. The Glisson’s pedicles of segments 8 and 7 were ligated and cut. The right wall of the MHV was separated to the cranial side to reach the anterior IVC. For the final step, the area surrounding the root of the RHV was divided and the RHV was cut and closed. No postoperative complications were observed.

**Conclusion:** This procedure allowed anatomical resection while minimizing the amount of liver removed.

**Abstract ID: 0440  Specific Field: Hepatobiliary and Pancreas Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 51**

**Development of hepatic adenoma and focal nodular hyperplasia in patient with lymphangioleiomyomatosis (LAM) treated with long term high dose medroxyprogesterone: a case report and literature review**

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**Introduction:** Lymphangioleiomyomatosis (LAM) is a rare idiopathic disease characterized by hamartomatous smooth muscle proliferation in the lymph node, lymphatics, blood vessels and airway within the lungs, mediastinum and abdomen. A Chinese lady who first presented at the age of 40, had recurrent pneumothorax and chylous pleural effusion bilaterally. She was diagnosed with LAM based on history, features in computed tomography (CT) scan of thorax (diffused scattered thin-walled cyst) and lung function test results (reduced forced expiratory volume in the 1st second and carbon monoxide diffusion capacity). Bilateral talc pleurodesis was done and she was started with medroxyprogesterone which was complicated with menorrhagia (treated with norethisterone). Following 15 months of daily 10 mg medroxyprogesterone and 30 mg norethisterone, she still had 2 episodes of spontaneous pneumothorax in addition to deteriorating lung function. She was incidentally found to have 3 hypervascular hepatic lesions which were resected and shown to be hepatic adenomas and focal nodular hyperplasia. All the hormone therapy was stopped and repeated CT liver triphasic scan(6 months after resection) showed no new hepatic lesion. This paper aimed to discuss the probable development of multiple different benign liver tumours in LAM patient on long term high dose medroxyprogesterone. This was supported by the fact that progesterone receptor is found on hepatic adenoma and surrounding normal hepatocytes. This raised the question on the benefit of medroxyprogesterone treatment in LAM patients without evidence of progesterone receptor on the proliferating smooth muscle cell since hepatic adenoma has malignant potential and risk of bleeding.

**Abstract ID: 0441  Specific Field: Hepatobiliary and Pancreas Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 52**

**Surgical treatment of hepatocellular carcinoma in elderly: comparison of outcome between younger and older than 75 years patients**


Department of Surgery, Kurashiki Central Hospital, Japan
Introduction: AIMS: The aims of this study were to assess the safety and efficacy of surgical resection of HCC in patients over 75 years of age by comparing outcomes with those of a younger cohort of patients.

Material and Methods: Seventeen patients over 75 years of age who underwent hepatic resection of HCC were compared to 127 patients less than 75 years of age in terms of peri-, and post-operative result as well as long term survival.

Results: One hundred and forty liver resections were performed for HCC in seven year period in a single institution. Of these, 17 patients were over 75 years (Group A) and 127 patients were less than 75 years (Group B). The two groups were comparable in terms of operative time, blood loss, perioperative mortality and morbidity and duration of postoperative hospital stay. No operative mortality was recorded in either group. The 30-day and 90-day mortality rate were similar between the two groups. (Group A: 0% and 0.07%; Group B: 0.01% and 0.02%). The elderly group had a non-significant increase in postoperative morbidity. Length of hospitalization was 17.6 days for Group A and 21.1 days for Group B. 3-year overall survival were 72.2% for Group A and 86.8% for Group B. These differences were not statistically significant

Conclusions: Surgical resection for HCC in patients older than 75 years of age can be performed with low perioperative morbidity and mortality, as well as favorable long term result.

Abstract ID: 0442 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 53

Is the presence of preoperative esophageal varices a prognostic factor in hepatocellular carcinoma?

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Department of Digestive surgery, Nihon University School of Medicine, Japan

Introduction: Hepatocellular carcinoma (HCC) often develops following cirrhosis and is often accompanied by esophageal varices (EV). We investigated whether the presence of EV might be a post-operative prognostic factor for HCC.

Material and Methods: A total of 505 patients with HCC who underwent hepatectomy from 1990 to 2006 were enrolled in this study. Preoperative endoscopic examination was performed in all cases. Preoperative functions, the preoperative presence or absence of EV, operation factors, and tumor factors were evaluated. Prognostic factors were investigated in all patients.

Results: There were thirteen 10-year survivors. The median age of the 10-year survivors was 62 years and no EV were observed in any of them before hepatectomy. Among the 10-year survivors, 3 were HBs-Ag (+) and 8 were HCV-Ab (+). The median platelet count was 126, 000/micro l, median albumin and total bilirubin concentrations were 4.2 g/dl and 0.5 mg/dl, respectively, the indocyanine green retention rate at 15 minutes was 10%, and all cases were categorized as the Child A classification before hepatectomy. All cases were single occurrence and the median maximum tumor diameter was 2.5 cm. Chronic hepatitis and liver cirrhosis were observed in 6 cases each. Portal vein invasion was apparent in 3 cases. Among the 10-year survivors, there was no recurrence in 1, recurrence in 8, and 4 died following recurrence. Multivariate analysis of all 505 cases determined prognostic factors to be alpha-fetoprotein, the presence of preoperative EV, portal vein invasion, and tumor number and diameter.

Conclusions: The presence of preoperative EV may be a postoperative prognostic factor in HCC.

Abstract ID: 0443 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 54

Fixation of the round ligament to the peritoneum and wrapping of the cut surface of the liver for prevention of early delayed gastric emptying after hepatic lateral segmentectomy

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[3] Nihon University School of Medicine, Tokyo, Japan

Introduction: Left-sided hepatectomy occasionally leads to early delayed gastric emptying (EDGE). We developed a new fixation procedure of the round ligament to the peritoneum to prevent EDGE after hepatic lateral segmentectomy and evaluated its efficacy.

Material and Methods: We retrospectively studied 42 patients who underwent hepatic lateral segmentectomy. They were divided into 2 groups: a fixation group (N = 15) and a non-fixation group (N = 27). The round ligament of the liver was divided at the umbilicus and detached from the abdominal wall from the umbilicus to the liver. The cut surface of the liver was wrapped by the round ligament, and the distal part of the round ligament was then fixated to the peritoneum.

Results: The mean duration of the required naso- gastric suction was one day in the fixation group and 1.6 ± 1.0 days in the non-fixation group: the patients of the former required naso-gastric suction for a significantly shorter duration (P = 0.029). The mean time of initiating the diet after surgery was 1.4 ± 0.5 days in the fixation group and 2.2 ± 1.5 days in the non-fixation group: the patients of the former initiating the diet significantly faster (p = 0.030) than those of the latter. Moreover, oral ingestion of solid food could be safely resumed at a significantly earlier time (p = 0.032) in the fixation group as compared to the non-fixation group. The duration of hospitalization after surgery was 8.5 ± 0.5 days in the fixation group and 9.5 ± 1.9 days in the non-fixation group, and the patients in the fixation group showed a significant shorter duration than those of the non-fixation group (p = 0.00054). EDGE was 15% in the non-fixation group, and was absent (0%) in the fixation group.

Conclusions: Fixation of the round ligament to the peritoneum is a useful technique to prevent EDGE after hepatic lateral segmentectomy.

Abstract ID: 0444 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 55

Bone marrow-derived cells contribute to extrahepatic bile duct regeneration

M. Miyazawa, M. Aiikawa, Y. Toshimitsu, K. Okada, K. Okamoto, I. Koyama
Saitama Medical University InternationalMedicalCencer, Department of Surgery, Saitama, Japan

Introduction: We implanted a bioabsorbable polymertube (artificial bile duct: ABD) to replace a portion of the extrahepatic bile duct and found that the tube had been absorbed and a neo-bile duct developed there (Am J Transplant 2005). Whether bone marrow-derived cells contributed to extrahepatic bile duct regeneration was investigated using this model.

Abstract ID: 0445 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 56

Bone marrow-derived cells contribute to extrahepatic bile duct regeneration

M. Miyazawa, M. Aiikawa, Y. Toshimitsu, K. Okada, K. Okamoto, I. Koyama
Saitama Medical University InternationalMedicalCencer, Department of Surgery, Saitama, Japan

Introduction: We implanted a bioabsorbable polymertube (artificial bile duct: ABD) to replace a portion of the extrahepatic bile duct and found that the tube had been absorbed and a neo-bile duct developed there (Am J Transplant 2005). Whether bone marrow-derived cells contributed to extrahepatic bile duct regeneration was investigated using this model.
Material and Methods: Hybrid pigs were laparotomized and the extrahepatic bile duct identified. After cutting the common bile duct around the confluence with the cystic duct, the duodenal end of the common bile duct was ligated. The hepatic end was anastomosed to the ABD. Then, a hole was made in the descending duodenum, to which was sutured the remaining end of the ABD. The bile duct thus reconstructed with the ABD was about 3 cm long. Bone marrow cells were collected from the pig femur at the time of ABD implantation and two weeks later, 1.5N 106 cells labeled with PKH2 sixth were infused into the auricular vein. The graft site was taken five weeks after ABD implantation (three weeks after infusion of bone marrow cells) and whether bone marrow-derived cells contributed to extrahepatic bile duct regeneration was investigated by histology.

Results: Not a trace of the polymer implanted was found at five weeks post-ABD. Accessory glandular structures began to develop in the graft site. A portion of these structures stained positive for CK19 or c-kit. Fluorescence microscopy revealed a number of CK19/PKH2 double-positive areas in the accessory glandular structures.

Conclusions: These findings suggest that bone marrow-derived cells contribute to biliary epithelial regeneration.

Abstract ID: 0445 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 56

Study of treatment results and early complications of tube-drainage versus capitonage after liver hydatid cyst excision

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Introduction: The liver hydatid cyst is usually caused by echinococcosis granulosus. Surgical operation is the treatment of choice for the liver hydatid cyst. We decided to compare the results and complications of the two surgical methods of Capitonage versus Tube-drainage of the remaining cavity after evacuation of the cyst in patients with liver hydatid cyst referred to our institution.

Material and Methods: All patients with the liver hydatid cyst were enrolled in the study and randomly divided into two groups during the period of September 2004 to September 2007. After evacuation of the cystic material, patients of the two groups respectively underwent Capitonage and Tube-drainage of the remaining cavity. Patients were followed for two months. The collected data of age, sex, involved liver lobe, size of the cyst, complications, drain duration, and hospital stay were analyzed.

Results: Participants included 43 (57.3%) female and 32 (42.6%) male. The right lobe of the liver was the most common anatomic zone. 42.6% of patients had a cyst with a diameter 10 cm in the greatest dimension. The Capitonage was performed on 41 patients and the rest 34 had the Tube-drainage procedure. In Tube-drainage and Capitonage groups, hospital stay were 5.7 ± 2.4 and 4.3 ± 1.5 days, drain duration 9.2 ± 1.7 and 2.1 ± 0.4, time to return to work 14.7 ± 2.3 and 8.3 ± 104 days, respectively. These parameters were statistically significant. Cavity infection has shown up only in two patients who managed with Tube-drainage.

Conclusions: This study demonstrated that the Capitonage when compared with Tube-drainage method, results in shorter hospital stay, decreased time to return to work, as well as low rate of morbidity and complications.

Abstract ID: 0446 Specific Field: Hepatobiliary and Pancreas Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 57

Analysis of hepatectomy for malignant liver tumors that have invaded the inferior vena cava

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Introduction: Hepatectomy for malignant liver tumors that have invaded the inferior vena cava (IVC) can be the only way to achieve long-term survival. However, the prognostic benefits of hepatectomy combined with resection of the caudate lobe and IVC wall for malignant liver tumors with IVC involvement have been unclear.

Material and Methods: We examined the six cases of hepatectomy combined with caudate lobe and IVC wall resection between July 2004 and January 2009. The numbers of patients with HCC, CCC, and liver metastasis were 1, 1, and 4, respectively. Baseline characteristics of patients are shown in the table. After hepatectomy, we performed partial IVC wall reconstruction using a polyester vascular prosthesis in three cases. In the HCC patient, there was the liver tumor progression to the right atrium of the heart via the hepatic vein. The tumor was extirpated under extracorporeal circulation. After the tumor extirpation, the patient underwent simple closure of the IVC wall. Two patients underwent total reconstruction of the IVC using a polyester vascular prosthesis (Figure).

Results: Postoperative complications occurred in two cases, one with bile leakage and one with obstruction of the IVC reconstructed using a polyester vascular prosthesis. The mean postoperative disease-free survival time was 20.3 ± 19.0 months.

Conclusions: IVC wall resection and its reconstruction for treatment of malignant liver tumors must be aggressively performed when operable because it can lead to long-term survival.

Figure: IVC reconstruction using a polyester vascular prosthesis
Recent decades have seen a constant rise in the incidence of IBD even in our country. Despite considerable progress in the pharmacological treatment of this disease, surgery has become the more frequently used treatment modality. In the presence of ulcerative colitis (UC) presenting like massive hemorrhage, toxic megacolon (TM), free perforation, fulminate colitis, only surgical intervention has a chance of saving the patient’s life.

Material and Methods: The authors report the case of a 35-year-old woman who has been transferred to the surgical ward after strong abdominal pain, and clinical signs of acute abdomen after hospitalization for acute episode of ulcerative colitis. On the acceptance, febrile 38.6 °C, blood pressure 120 mm/Hg, pulse 110, 54.4 g/l WBC, diffuse rigidity of abdominal wall. Native X-ray shows extensive pneumoperitoneum. Emergency laparotomy shows toxic megacolon (transverse colon >5 cm) with numerous perforation on caecum, transverse and descending colon with signs of peritoneal peritonitis. Total colectomy with closing of rectal stump following ileostomy has been performed. Generous wash of abdominal cavity followed by drainage has been closing procedures. Inspection of specimen shows ulcerative changes and perforation of the entire colon. Postoperative course was uneventful both in ICU and department.

Results: Surgical management of severe life-threatening UC i.e. fulminant colitis, toxic megacolon and, rarely, massive hemorrhage, has changed since Goligher et al recommend earlier aggressive operative intervention. Surgical trends varied from proression ileostomy, to either subtotal colectomy or total proctocolectomy. Both subtotal colectomy with ileorectostomy and total proctocolectomy are contraindicated in the acutely ill patient with unprepared bowel and proctocolectomy in the urgent setting carries a prohibitively high mortality rate. Recently reviewed options in emergency surgery for UC and recommended colectomy with ileostomy as the option of choice, thus preserving the reconstructive option for the future.

Conclusions: The goal in an urgency for severe UC with TM is not to eradicate the fulminant mucosa but to extricate the patient from a life-threatening situation.

Abstract ID: 0447 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 58

Total laparoscopic abdominoperineal resection of anorectal melanoma: a case report and review of the literature
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Introduction: Aim: To describe a case of Total Laparoscopic Abdominoperineal Resection for Anorectal Melanoma in a 48 year old Indonesian gentleman and to review available literature on anal melanoma.

Material and Methods: Total Laparoscopic Abdominoperineal resection was performed for our 48 year old Indonesian patient with anorectal melanoma.

A literature review was conducted using PubMed, with analysis of papers on the diagnosis, treatment and prognosis of anorectal melanomas.

Results: Histological examination showed a malignant melanoma, 3.5 cm in maximal dimension, 2 cm deep involving the internal anal sphincter. Radial, proximal and distal margins and apical vessel were free of tumour. Four of 11 peri-rectal lymph nodes were involved by tumour including the apical node. It was staged as T2N1M0. Postoperatively, our patient recovered without complications. Surveillance colonoscopy 1 year later showed no recurrence and he is now on 6-monthly follow-up. A thorough review of the literature did not yield any case report of this disease treated laparoscopically. Traditionally, the surgical options for non-metastatic melanoma of the anus include wide local excision (WLE) or abdominoperineal resection (APR). A recent systematic review showed no difference in overall survival between both groups. Anal melanomas generally have a poor prognosis, with a 5-year survival of 19.8% and mortality of a laparoscopic procedure as compared to an open one, and a possible on colonic clearance (after one year), allows it to be a viable addition to the surgical options of management of this disease.

Conclusions: Laparoscopic resection has a role in treatment of anorectal melanomas. The obvious benefits of reduced morbidity.

Abstract ID: 0449 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 60

Usefulness of contrast enhanced ultrasonography in the diagnosis of strangulation in patients with small bowel obstruction
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Introduction: In the management of small bowel obstruction (SBO), patients with strangulation or bowel necrosis need to be diagnosed and treated urgently. Because those conditions easily progress to peritonitis, sepsis, multi organ failure and death. Early and accurate detection of strangulation with SBO should improve the outcomes of these sequelae. The diagnosis of strangulation in SBO using clinical evaluation, laboratory test, and plain radiography is not reliable. Recently, only, multidetector computed tomography (MDCT) is reported to be useful in the diagnosis of SBO. Contrast enhanced ultrasonography (CE-US) is a new modality to visualize small focal lesions and perfusion in solid organs, especially liver. The purpose of this study was to assess the accuracy of CE-US in the diagnosis of strangulation in SBO.

Material and Methods: We reviewed the medical records of 16 patients with surgically treated strangulation in SBO between 2006 and 2008. In those 16 patients, 11 were performed CE-US
In preoperative CE-US, 5 patients were diagnosed as no blood flow (45.5%), 4 were decreased blood flow (36.4%), and 2 were positive blood flow (18.2%). In operative findings, 9 patients were performed small bowel resection of ischemic or necrosed segment. One patient was performed only separation of adhesion, which resulted to be reperfusion. In 2 patients, who were diagnosed positive blood flow, ischemic or necrosed intestine was found and small bowel resection was done. The cause of misdiagnosis was that ischemic segment could not be detected in CE-US.

Conclusions: In our experience, CE-US shows promising diagnostic value for the strangulation in patients with SBO.

Abstract ID: 0450 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 61

Surgical treatment for patients with small bowel obstruction caused by Persimmon Bezoars

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Introduction: Small bowel obstructions caused by bezoars are relatively rare. In Japan, most of the bezoars are persimmon phytobezoars, which consist of mostly tannin contained by persimmon or green tea.

Material and Methods: We reviewed clinical charts for surgically treated patients with small bowel obstructions caused by persimmon bezoars from January 1994 to December 2008.

Results: There were 4 patients (1 male and 3 females) with ages ranging from 70 to 95 years (mean 83.8 years). Complaints were vomiting in 3 patients, abdominal pain, loss of appetite, and epigastralgia and dyspnea in each patient. All patients had preferences for persimmon or green tea. In all patients, computed tomography (CT) revealed foreign bodies in the small bowel, and all of them underwent surgical treatments (three open surgery and one laparoscopic surgery) because conservative treatments were ineffective. At surgery, the numbers of the bezoars were six in 1 patient, three in 1 patient and one in 2 patients. The mean diameter of the bezoars was 4.6 cm (range, 4.0–6.5 cm). In 3 cases, the bezoars consisted of more than 98% tannin, but in one case, the bezoar consisted of several ingredients including tannin. The average post-operative hospital stays was 20 days, and no recurrence was observed for the follow up periods ranging 1 to 115 months (mean 47 months).

Conclusions: Although persimmon bezoar is an infrequent entity, it should be included in the differential diagnosis of small bowel obstructions. Surgical treatment should be considered as a therapeutic option, which may contribute to early recovery and preventing complications.

Abstract ID: 0451 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 62

Sentinel hernia

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Introduction: The most common cause of pneumoperitoneum (or intra-abdominal free gas) is iatrogenic following laparotomy or laparoscopic procedures. Non-iatrogenic pneumoperitoneum usually indicates a perforated hollow viscus in 90% of cases; the 10% of cases of non-iatrogenic pneumoperitoneum without any perforation of hollow viscus are termed spontaneous pneumoperitoneum. The diagnosis is usually suspected following anamnesis and physical examination, and confirmed imagiologically (abdominal X-Ray or CT scan).

Material and Methods: Case report by review of the clinical files; review of the literature.

Results: 82-year-old man admitted to our hospital with fracture of the left femur, submitted to hip arthroplasty*. In the seventh post operative day the patient started complaining of sudden intense generalized abdominal pain and distension and absence of flatus or fecal emission. On the physical exam, he had generalized abdominal pain and para-umbilical hernia wall «distension» without any visceral content, containing just air, highly suspicious of pneumoperitoneum/ perforated hollow viscus, confirmed posteriorly by CT scan. He was submitted to exploratory laparotomy that disclosed spontaneous cecal perforation.

Conclusions: Our case had a hollow viscus perforation without any obstructive lesions, probably caused by intestinal paresia leading to distension and ischemia of the cecal wall. The importance of the physical examination is underlined here for it is the basis of correct pre-operative diagnosis. The existence of air inside de hernia sac raised the suspicion of pneumoperitoneum.

Figure: CT scan - hernial sac filled with air

Abstract ID: 0452 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 63

Risk factors of postoperative ileus after colorectal surgery

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Introduction: Postoperative ileus is attributed to adhesions in more than half of the patients diagnosed with colorectal cancer, many of
whom underwent colorectal surgery. The aim of this study is to identify potential risk factors and predictors of postoperative ileus after laparoscopic and open colorectal surgery.

**Material and Methods:** A total of 1,039 patients who underwent surgery for colorectal cancer between January 1997 and October 2008 were retrospectively reviewed. The operations included laparoscopic surgery (LS; n = 500) and open surgery (OS; n = 539). Of these, postoperative ileus occurred in 61 patients. Comparison was made between the group with ileus (n = 61) and the group without ileus (n = 978) in terms of patient background, tumor factors, and surgery outcomes, and multivariate analysis was performed to examine potential risk factors for postoperative ileus.

**Results:** The incidence of postoperative ileus after LS was significantly less (2.8% versus 8.7%, ± 0.001). The tumor size, depth of invasion, rectal cancer, operating time, and blood loss were significantly different between those with and without ileus. There was no significant difference in age, sex, body mass index, extent of dissection, or TNM stage. Multivariate analysis showed that OS had the highest risk ratio, followed by operating time (185 minutes), and rectal cancer, in that order (OR = 2.65, 2.37, and 2.08, p = 0.02, 0.011, and 0.013, respectively).

**Conclusions:** Among the potential risk factors, OS was more highly correlated with the incidence of postoperative ileus than tumor factors, extent of dissection, and blood loss, indicating that LS may be a more useful colorectal cancer procedure in preventing postoperative ileus.

<table>
<thead>
<tr>
<th>Demographic and Surgical Data</th>
<th>ileus(+) (n = 61)</th>
<th>ileus(−) (n = 978)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>66.3 ± 11.0</td>
<td>67.1 ± 11.2</td>
<td>0.573</td>
</tr>
<tr>
<td>Male (n)</td>
<td>35</td>
<td>557</td>
<td>0.932</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>22.5 ± 3.6</td>
<td>22.8 ± 3.6</td>
<td>0.570</td>
</tr>
<tr>
<td>Tumor size (cm)</td>
<td>4.8 ± 2.4</td>
<td>4.2 ± 2.1</td>
<td>0.032</td>
</tr>
<tr>
<td>TNM stage</td>
<td></td>
<td></td>
<td>0.116</td>
</tr>
<tr>
<td>Depth of invasion</td>
<td></td>
<td></td>
<td>0.021</td>
</tr>
<tr>
<td>Rectal cancer (n)</td>
<td>39</td>
<td>364</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Open surgery (n)</td>
<td>47</td>
<td>492</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Operating time (min)</td>
<td>247.1 ± 109.4</td>
<td>200.3 ± 80.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Blood loss (ml)</td>
<td>356.2 ± 459.5</td>
<td>204.4 ± 401.3</td>
<td>0.005</td>
</tr>
</tbody>
</table>

**Abstract ID: 0453** Specific Field: Colon and Rectum

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 64**

**Rare extra-adrenal, infra aortic paraganglioma in a young lady: case report**

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**Introduction:** Aim: Most extraadrenal, inferior aortic paragangliomas are solitary. They present at middle age (30 to 50 years old) and have equal sex distribution. Incidence worldwide is unknown (1:100,000, 1:1, 000, 000?). Of the 10% of extraadrenal paragangliomas, only less than 30% are intraaortic.

**Material and Methods:** Miss GP, a 20 year old lady, presented with an abdominal mass when being investigated for diarrhea. She had an ultrasound of the pelvis and had an initial diagnosis of a large ovarian tumor. Intraoperatively noted to have 20 by 20 cm vascular tumour located within mesentery of sigmoid colon and attached to the sacrum.

A literature review was conducted using Pubmed, with analysis of papers and books written on paragangliomas. Most articles were small case series or case reports.

**Results:** Histology of the tumor show the classic zellballen pattern of an endocrine neoplasm, well differentiated. Between the zellballen, there are abundant vascular channels. Nuclei show salt and pepper chromatin and the cytoplasm is eosinophilic and granular, characteristic of an endocrine neoplasm. The features are of an extra-adrenal, inferior paraaortic paraganglioma. Even though there are no established histologic criteria to predict outcome, an extra-adrenal location is associated with an increased risk of malignancy. The definitive criteria of malignancy of extra-adrenal paragangliomas is the presence of lymph node or distant metastasis. No lymph nodes were harvested during the resection. Postoperatively, our patient recovered without complications. A CT scan of the neck, thorax, abdomen and pelvis did not reveal other masses. Catecholamine and their precursor levels were normal.

With no known advantage of either adjuvant radiotherapy or chemotherapy, she is managed with close surveillance with CT scans.

**Conclusions:** Extra-adrenal paragangliomas are rare and very poorly understood. Likewise in our literature search, there are no concrete recommendations on post operative adjuvant therapy, duration of follow up and the investigation of choice in follow up. Much research is needed to understand the behaviour of this disease.

**Abstract ID: 0454** Specific Field: Colon and Rectum

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 65**

**A surgical case of intra abdominal hematoma with rupture of middle colic arterial aneurysm**

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**Introduction:** We report a case of 47-year-old woman with middle colic arterial rupture diagnosed by 3-D CT, followed by emergency surgery.

**Material and Methods:** We report a case of 47-year-old woman with middle colic arterial rupture diagnosed by 3-D CT, followed by emergency surgery. The patient complained abdominal pain and was seen at our emergency outpatient ward. At first, she was diagnosed with the giant intra-abdominal tumor. The patient was leading to shock vital (BP 60 mmHg). She was transfused 8 units of RCC in the intensive care unit, and revealed 9.4 g/dl in Hb level. Two days later, her general appearance was getting worse, and she developed anemia (Hb 6.9 g dl). 3-D CT study was done, and it showed middle colic arterial aneurysm. We diagnosed the middle colic arterial aneurysm rupture and underwent emergency surgery.

**Results:** According to the intra-operative finding, a large hematoma involving the mesentery root of the transverse colon was associated with a ruptured aneurysm measuring 15 mm in size, which was located to the mid-portion of the middle colic artery. Partial resection of transverse colon with aneurysm was performed. Histopathological examination showed the media of resected aneurismal wall to be segmentally absent, leading to a diagnosis of segmental arterial medialysis(SAM).

**Conclusions:** In the cases of rupture of the aneurysm on the intra-abdominal visceral artery, we often choose the conservative therapy or IVR. But surgical operation may be preferable depending on the condition.
Abstract ID: 0455 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 66

A clinical trial of KY-tube removing the small intestine from the pelvic space using a new concept
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Introduction: Laparoscopic intrapelvic operation, such as gynecological, urological and rectal operations, are often interrupted by the phenomenon of the small intestine flowing into the pelvic space. This phenomenon makes intrapelvic laparoscopic operations difficult. Although, patients are placed in an extreme head down position to keep the pelvic space wide to prevent this interruption of the small intestine, the position has adverse effects on breathing and the circulatory system of a patient.

Material and Methods: We developed a tool, KY-tube, for removing the small intestine from the pelvic space using with a new concept. The tool, a catheter of 10 Fr. in diameter and 450 cm in length with an apical balloon, is very simple. The KY-tube is inserted nasally three days before the operation. The balloon tip of the KY-tube should reach the large intestine or beyond anus by the operative day. At the operation, the KY-tube is used as follows: A the beginning of the laparoscopic operation, an operator clumps the terminal ileum with a detachable vessel clip. Next, an assistant pulls on the nasal end of the KY-tube. The KY-tube then slips under the vessel clip, and become fixed when the apical balloon reaches the clip. The assistant then pulls on the tube more, and the small intestine is gathered up and shortened. Finally, the small intestine is moved out of the pelvic space.

Results: We have used the KY-tube clinically in 14 cases; nine rectal cancer, three sigmoid-colon cancer and two descending-colon cancer, and could intrapelvic-colon operative procedures successfully without interruption of the small intestine. During these operations, the patient head down position was not required. We have experienced no complications with the KY-tube throughout any operation.

Conclusions: KY-tube is useful tool at laparoscopic intrapelvic operation.

Abstract ID: 0456 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 67

Spontaneous herniation through the foramen of Winslow
Medical University Graz, Graz, Austria

Introduction: Herniation through the foramen of Winslow represents the least common entity of internal hernias accounting for 0.8% of these or 0.08% of all hernias. Only 148 cases have been described as yet, the cecum being involved in 30% of cases. A delay in diagnosis and treatment is accused of its high mortality rates ranging from 36% to 48%.

Material and Methods: We report a case of internal hernia managed in our institution in 2008.

Results: An 89-year-old obese woman presented to our surgical OPD with acute right upper abdominal pain, right shoulder pain associated with nausea and one episode of vomiting the day before admission. She was afebrile and showed no sign of peritonism. White blood count and C-reactive protein (CRP) were 21,910 ul⁻¹ and 12.3 mg l⁻¹, respectively. Abdominal ultrasound was inconclusive due to obesity, distended bowel loops and pain on examination. Upright abdominal plain films showed a distended loop of large bowel in the epigastrium. Contrast enhanced abdominal CT revealed absence of the cecum in the right side of the abdomen and presence of bowel posterior to the portal triad in the foramen of Winslow. The distended cecum was found filling the lesser peritoneal sac, displacing the stomach cranially. Subsequent laparotomy fully confirmed CT diagnosis. Reduction of the dilated and necrotic cecum was unsuccessful - even after entering the omental sac near the greater curvature of the stomach. Therefore ileum and transverse colon were dissected and a right hemicolecctomy was performed. The gangraenous cecum was then removed through the omental sac incision. The patient was discharged home 10 days after the operation in good health.

Conclusions: The successful management of this rare entity of internal hernia requires prompt and accurate CT diagnosis and surgical treatment.

Abstract ID: 0457 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 68

Enlargement of colonic pouch after proctectomy and coloanal anastomosis: potential cause for evacuation difficulty
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Introduction: Although the functional outcome after low anterior resection for rectal cancer using colonic J-pouch reconstruction (J) is superior to that using conventional straight reconstruction, the one drawback of J is difficulty with evacuation. Recently, it has been suggested that construction of a larger colonic J-pouch causes the evacuation difficulty. The purpose of this study was to elucidate the cause of evacuation difficulty with J.

Material and Methods: We compared pouchography of 26 patients with 10-cm J (10-J group) and 27 patients with 5-cm J (5-J group) at 3 months, 1 year, and 2 years after surgery. Functional assessments were performed 1 year post operatively. Clinical function was evaluated using a questionnaire. Evacuation function was evaluated by the balloon expulsion and saline evacuation tests.

Results: The greatest width of the pouch in the 10-J group in the anteroposterior view was significantly greater than that in the 5-J group at all three measurement times (3 months, 4.9 vs. 4.4 cm; p = 0.0011; 1 year, 9 vs. 5.6 cm; p < 0.0001; 2 years, 9.2 vs. 5.8 cm; p < 0.0001). The value in the 10-J group at 1 year after surgery was 1.9 times that at 3 postoperative months; in the 5-J group this ratio was 1.4. There was significant difference between these ratios (p < 0.0001). No significant difference existed between the values at 2 years and 1 year after surgery in either the 10-J or the 5-J group. An evacuation difficulty was significantly more common in the 10-J group than the 5-J group. Evacuation function in the 10-J group was significantly inferior to that in the 5-J group.

Conclusions: The evacuation difficulty observed in patients with larger colonic J-pouch reconstructions is associated with excessive distention of the pouch occurring within 1 year of surgery.
Abstract ID: 0458  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 69

Ileal pouch anal anastomosis (IPAA) for ulcerative colitis: a Japanese single institute experience

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Introduction: Since the first report on restorative proctocolectomy and ileal pouch anal anastomosis (IPAA) by Parks and Nicholsin 1978, IPAA became the gold standard operation for patients who require total proctocolectomy for ulcerative colitis (UC) in the world. In Japan, patients with UC increased year by year and sometimes surgery is a choice of management for refractory UC. Restorative proctocolectomy and IPAA have become the standard surgical procedure for Japanese patients of UC. In 1985 IPAA for UC was started in Niigata University. In this study, results at up to 23 years after IPAA for UC in our institute were analyzed.

Material and Methods: Our standard operation for UC is IPAA with mucosectomy and hand-sewn anastomosis to avoid recurrence and cancer risk. Usually pouch configuration was W-pouch for much volume and temporary diverting ileostomy was constructed. 137 UC patients who had undergone IPAA between 1985 and 2007 in our institute were examined.

Results: The mean age at the time of IPAA was 35.5 (14–19). There were 72 men and 65 women. 44 patients underwent emergent operation for acute complications of UC and all patients underwent two or three stage procedure. There was no perioperative death. Pouch failure was found in 4 patients. Two patients did not undergo closure of diverting ileostomy because of ischemic change of the pouch and incurable anastomotic leakage. One patient needed reconstruction of ileostomy because of ischemic change of the pouch. One patient needed pouch excision for pouch related late abscess. So pouch survival rate was 97.1% (133/137). Pouchitis, which is the most important complication after IPAA, was found in 20 patients and most of them were cured by metronidazole, however 5 of them needed steroids. In 133 patients with functional pouch, mean bowel movement was about 5 times daily and soiling especially at night occurred in 30%. About 30% of patients needed antidiarrheic drugs for diarrhea. In 25 females below 40-year-old at the operation, there were 10 cases of pregnancy (7 females) and all of them were normal delivery. All patients returned to their schoolwork or occupations after surgery.

Conclusions: Restorative proctocolectomy and IPAA was performed safely and provided good bowel function and quality of life. IPAA is acceptable procedure for refractory UC patients.

Abstract ID: 0459  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 70

Laparoscopic total proctocolectomy with transanal rectal mucosectomy for ulcerative colitis

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Introduction: Laparoscopic surgery is currently and progressively gaining acceptance for the management of the inflammatory bowel disease. We present our approach and invention of laparoscopic dissection and transection of rectum combined with transanal rectal mucosectomy for the treatment of ulcerative colitis.

Material and Methods: This was a retrospective and descriptive study conducted from January to November 2008. A total of 12 patients underwent laparoscopic total proctocolectomy with transanal rectal mucosectomy without hand-assist or mini-laparotomy for ulcerative colitis at Nagoya university hospital in Nagoya, Japan. The points of our inventions for this procedure were (1) the routinized and simplified operations of assistants to equalize the procedure, and (2) the arrangements of the ports and operators positions to avoid the ‘mirror-images’. Measured variables to evaluate efficacy and safety were operating time, length of hospital stay, time to resume normal diet, conversion to open procedure, morbidity and mortality.

Results: Using this approach, the median operative time was 305 minutes and the median operative blood loss was 160 g. There was no operative mortality, and no patients reported sexual or urinary complications during short-term follow-up.

Conclusions: Laparoscopic total proctocolectomy for the treatment of ulcerative colitis is a feasible approach that demonstrates excellent views of the pelvis, which could be advantageous compared with conventional surgery.

Abstract ID: 0460  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 71

Correlation between clinical presentation, ultrasonographic images, operative findings and pathology analysis of resected appendices in chronic pains of the right lower quadrant of the abdomen

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University of Buea, Cameroon

Introduction: Chronic pains of the right lower quadrant of the abdomen (RLQA) remain a frequent and challenging problem worldwide; in African settings, the difficulty in diagnosing and managing chronic pain of RLQA is special because of limited technical background, and in particular the absence of laparoscopic facilities. The aim of this study is to update our data on clinical and Echographic presentations, macroscopic and microscopic aspects of appendices excised in the management of chronic pains of RLQA and the outcome of patients who underwent an appendectomy.

Material and Methods: during a period of 4 years (January 2004–December 2007), all patients presenting with a chronic pain of RLQA where selected and underwent clinical assessment and systematic ultrasonography of the abdomen; these served as a basis to select candidates for appendectomy; the intraoperative findings are described and all the appendices removed where microscopically analysed; patient where followed-up for a period of 6 to 42 months.

Results: a total of 319 patients presenting with chronic pains of the RLQA were assessed during the study period; 213 of them (66.77%) underwent an appendectomy; their ages ranged between 6 and 49 years with a mean of 15.3 years; 192 patients (90.14%) were females. They all presented with chronic pains of the RLQA for 2 to 8 years duration. Echographic analysis showed a heterogeneous measurable lesion in the RLQA in more than 87% of cases; the operative findings displayed adhesions and other stigma of chronic inflammation in 182 cases (85.44%); pathological analysis frequently revealed lympho plasmocytic infiltration indicative of chronic inflammation; so far, 187 patients (87.79%) have never complained of their pains again.

Conclusions: It is still difficult to make a decision for chronic pains of the RLQA in low income settings; appendectomy, if applied in selected
cases, will solve the problem. It is now possible to propose an algorithm for the management of this clinical situation in low income settings and define criteria for selection of candidates for appendectomy.

Abstract ID: 0461 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 72

Endoscopic transluminal abscess drainage for Hinchey stage 1 or 2 colonic diverticulitis

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Introduction: We describe three patients with colonic diverticulitis accompanied by abscesses (Hinchey stage 1 or 2) that were successfully treated by endoscopic transluminal abscess drainage.

Material and Methods: Case 1, 2: A 27-year-old woman and 43-year-old man were admitted to our hospital with complaints of right lower abdominal pain and fever which lasted for two days. Enhanced abdominal computed tomography revealed ascending colonic diverticulitis with surrounding abscess formation in both cases (Hinchey stage 1). Case 3: A 41-year-old man was admitted to our hospital with complaints of back pain and fever. Enhanced abdominal computed tomography revealed descending colonic diverticulitis with abscess formation with penetrating left psoas muscle (Hinchey stage 2). Colonoscopy revealed severe colonic inflammation with abscess caused by diverticulitis for every 3 case. Under colonoscopy, the abscesses were drained by aspiration and washing with physiological saline after securing informed consent. The preparation before colonoscopy did the glycerine enema.

Results: Purulent discharge from the abscess cavity was removed and the abdominal pain and fever were obviously reduced after endoscopic abscess drainage immediately. Every patient received conservative therapy with antibiotic drugs, and was discharged without complications at 4, 6 and 7 days respectively, after endoscopic drainage. There was no case that showed recurrence of inflammation and diverticulitis after the endoscopic treatment.

Conclusions: After securing written informed consent and providing surgical support, endoscopic transluminal drainage is an effective approach to the treatment of Hinchey stage 1 or 2 diverticulitis with penetrating abscess formation.

Abstract ID: 0463 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 74

Long-term functional changes after low anterior resection for rectal cancer compared between a colonic J-pouch and a straight anastomosis

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Introduction: We prospectively compared changes in function between colonic J-pouch and straight anastomoses from 1 to 5 years after low anterior resection for rectal cancer.

Material and Methods: At 1, 3, and 5 years after surgery, functional outcome was compared between 48 patients with J-pouch reconstruction (J group) and 51 with straight anastomosis (S group), using a 17-item questionnaire (overall best, 0; overall worst, 26). Reservoir function was evaluated manovolumetrically.

Results: At 5 years, patients with ultralow anastomoses (less than 4 cm from anal verge) had fewer bowel movements during day or night, and less urgency and soiling in the J than S group. At that time, patients with low anastomoses (5 to 8 cm above the verge), had fewer bowel movements at night and less urgency in the J than S group. Manovolumetric results were better in the J than S group for both anastomotic levels. Functional scores improved significantly overtime for both anastomotic levels, especially in the S group. Mean scores with low anastomoses were J group, 5.6 at 1 year vs. 5.3 at 3 years (P = 0.0304) vs. 3.7 at 5 years (P < 0.0001); and S group, 10.2 at 1 year vs. 9.6 at 3 years (P = 0.0063) vs. 7.3 at 5 years (P < 0.0001). Mean scores with low anastomoses were J group, 3.4 at 1 year vs. 3.1 at 3 years (P = 0.0406) vs. 2.8 at 5 years (P = 0.0007); and S group, 8.1 at 1 year vs. 7.2 at 3 years (P = 0.001) vs. 5.5 at 5 years (P = 0.0001).
COX-2 expression in tumor cells (t-COX-2) and cancer

For patients with Stage II colon cancer, the usefulness of adjuvant chemotherapy remains controversial. Therefore, it is important to identify high-risk indicators of recurrence in the patient with Stage II colon cancer. Matrix metalloproteinase-2 (MMP-2) has been seemed to be one of the essential factors for tumor invasion and lymph node metastasis in several kinds of cancer. MMP-2 activity can be detected in both cancer and stromal tissues. However, there have been few studies about each function of cancer and stromal MMP-2. The interactions between cancer cells and surrounding stromal cells due to the intrinsic properties of cancer cells might have influenced the mechanism of cancer invasion and metastasis. COX-2 is associated with elevated production of MMP-2 and plays an important role in tumor invasion and metastasis. It has been reported that both COX-2 and MMP-2 in cancer cells were markers of poor prognosis in breast cancer.

**Material and Methods:** The subjects of this study were a total of 109 patients with Stage II colon cancer who underwent curative resection from 1996 to 2005. We performed the expression analysis of MMP-2 and COX-2 by immunohistochemical staining using resected specimens and evaluated the clinical significance of COX-2 and MMP-2 expression in both tumor and stromal tissues of colon cancer.

**Results:** COX-2 expression in tumor cells (t-COX-2) and cancer stromal cells (s-COX-2) was positive in 61 cases (56.0%) and 7 cases (6.4%), respectively. MMP-2 expression in tumor cells (t-MMP-2) and in cancer stromal cells (s-MMP-2) was positive in 32 cases (29.4%) and 54 cases (49.5%), respectively. (p < 0.05). t-COX-2 and t-MMP-2, lymphatic invasion, venous invasion and tumor size were not associated with recurrence. On the other hand, s-MMP-2 expression was significantly associated with recurrence and was shown as an independent risk factor for recurrence. t-COX-2 and t-MMP-2 expression was not associated with worsened survival, whereas the prognosis of s-MMP-2 positive cases was worse than negative cases (p = 0.0095). Five-year disease-free survival (DFS) of s-MMP-2 negative and positive groups were 92% and 63%, respectively.

**Conclusions:** MMP-2 expression in stromal cells can be a high-risk indicator of recurrence in Stage II colon cancer.

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**Abstract ID: 0464 Specific Field: Colon and Rectum**

**Mode of pres.: Poster Exhibition**

ISW 2009 Session PE 75

Long-term functional outcome of colonic J-pouch reconstruction after low anterior resection for rectal cancer

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**Introduction:** To evaluate the long-term functional outcome of colonic J-pouch reconstruction after low anterior resection (LAR) for rectal cancer in a prospective study.

**Material and Methods:** We compared the functional outcome of 46 patients who underwent J-pouch reconstruction (J-group) and 49 patients who underwent straight anastomosis (S-group) after LAR for rectal cancer. We evaluated clinical function using a 17-item questionnaire about different aspects of bowel function. Physiologic reservoir function was evaluated by manovolumetry.

**Results:** Among the patients with an ultralow anastomosis (less than 4 cm from the anal verge), those in the J-group had fewer bowel movements during the day and at night, and less urgency, soiling, protective pad use, incontinence, and dissatisfaction with bowel function than those in the S-group. Among the patients with a low anastomosis (5 to 8 cm from the verge), those in the J-group had fewer bowel movements at night, and less urgency and soiling than those in the S-group. Moreover, reservoir function (reflected by the maximum tolerable volume, threshold volume, and compliance) was better in the J-group than in the S-group in both the ultralow and low anastomosis groups.

**Conclusions:** J-pouch reconstruction after low anterior resection creates a better stool reservoir than straight anastomosis, especially when the anastomosis is less than 4 cm from the anal verge, resulting in a better quality of life 3 years after rectal cancer resection.

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**Abstract ID: 0465 Specific Field: Colon and Rectum**

**Mode of pres.: Poster Exhibition**

ISW 2009 Session PE 76

Low or ultralow anterior resection of rectal cancer without diverting stoma: experience with 28 patients

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**Introduction:** A diverting temporary stoma is frequently used to decrease the chance of anastomosis leakage in middle and lower rectum cancer surgeries, but its role to prevent the leakage is still doubtful. This study has been designed to evaluate any possible anastomosis complications after a rectum resection and a low or ultralow anastomosis when no diverting stoma is applied in patients with rectal cancer.
Abstract ID: 0467  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 78

Surgical procedure of laparoscopic prophylactic colectomy for the patients with familial adenomatous polyposis
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Introduction: Familial adenomatous polyposis (FAP) is an autosomal dominant disease caused by a germline mutation in the APC gene located at chromosome 5q21. Patients with FAP develop hundreds to thousands of adenomatous polyps, and they are at nearly 100% risk of colorectal cancer. Surgical management includes prophylactic proctocolectomy with ileo-pouch anal anastomosis (IPAA) or total colectomy with ileorectal anastomosis (IRA). IPAA has been accepted as the standard operation for FAP patients. However, the operation requires extremely complex procedures, and has a high incidence of postoperative complications, compared with IRA. Moreover, this radical operation affects the stool habit of the patients and compromises their quality of life. To monitor the possible development of rectal carcinoma after IRA, it is important to continue periodic follow-up of the remaining rectum.

Material and Methods: Between 1998 and 2007, laparoscopic prophylactic surgery was performed in 15 patients, 12 male, average age 26 years (range 20 - 65 years). We reviewed some clinical factors in the perioperative period.

Results: We have performed 13 IRA and 2 IPAA. Among them, invasive carcinomas developed in the remnant rectal mucosa of 2 IRA cases, one patient had laparoscopic low anterior resection, another had laparoscopic IPAA. We present the technique of laparoscopic prophylactic surgery for FAP.

Conclusions: Laparoscopic prophylactic surgery for FAP is a technical alternative of conventional open surgery. By this technique, it is possible to provide a better quality of life in postoperative period and better cosmetic result.

Abstract ID: 0468  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 79

The prolapsing method for the resection of rectum with lower rectal early cancers in laparoscopic low anterior resection
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Introduction: It is difficult to resect the rectum in case of the lower rectal cancer in laparoscopic surgery. We introduce the way of the prolapsing method.

Material and Methods: We have performed 8 cases of the prolapsing method for the patients with early lower rectal cancer. After the mobilization of sigmoid colon and the dissection of lymph nodes along the inferior mesenteric artery, the mesorectum is mobilized circumferentially completely to the levator muscles. The sigmoid colon is resected at the planned cut line by Echelon60™, and Lone Star Retractor is set up around the anus. The distal cut end of the sigmoid colon is grasped by Babcock forceps through the anus and pulled gently to the perineum. The rectum and sigmoid colon is prolapsed, and the tumor is visualized directly. After irrigation with 1000 ml saline, rectum is resected 1 cm away from the tumor by TL60™. Anastomosis is usually performed by double stapling technique.

Results: The rectum is resected at the proper distal margin in all cases. Anastomotic leakage and other postoperative complications are not observed.

Conclusions: Prolapsing method is safely feasible to resect the rectum in case of lower rectal early cancers.

Abstract ID: 0469  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 80

Second-look operation for recurrent colorectal cancer based on carcinoembryonic antigen and imaging techniques
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Introduction: The usefulness of postoperative carcinoembryonic antigen (CEA) monitoring and improvements in imaging techniques have renewed enthusiasm for second-look operation (SLO) as the most effective treatment for recurrent colorectal cancer by resection following early detection. The aim of our study is to evaluate the role of CEA and imaging techniques-directed SLO.

Material and Methods: Seven hundred fifty-six patients with Dukes stages B and C, who had undergone curative resection, were monitored postoperatively using CEA and imaging techniques. An SLO was performed on any potentially resectable recurrence, and in addition, an SLO was done when a persistently rising CEA value was detected.

Results: Recurrence developed in 18.8% (142/756) of patients, and 54.2% (39/72) had all of their disease resected, and 1.4% (1/72) had no detectable disease at the SLO. Among the 142 patients with recurrence, 71 (50%) patients underwent SLO. The resectable group at SLO carried a significantly better survival than the unresectable recurrence group (41.3 vs. 5.2%; p < 0.01).

Conclusions: Complete removal of colorectal cancer recurrences by SLO, on the basis of postoperative, follow-up CEA and imaging technique findings, results in improved survival.

Abstract ID: 0470  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 81

Quality of life in patients treated with abdominoperineal resection or anterior resection for rectal cancer
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Introduction: Patients with rectal cancer who undergo abdominoperineal resection (APR) are physically burdened by the presence of a permanent colostomy. We compared physical conditions of patients treated by APR with those of patients treated by anterior resection (sphincter-saving operation) and found out whether the choice of operation technique had any influence on their social and psychologic conditions.
Material and Methods: Using a questionnaire, we compared the postoperative physical, social, and psychologic conditions of 40 patients who underwent APR with those of 116 patients who underwent anterior resection.

Results: Physical conditions in the APR group were significantly worse than those in the anterior resection group. There were no significant differences in social conditions between the two groups, and social conditions were satisfactory in both groups. However, the will to live in the APR group was significantly less than that in the anterior resection group.

Conclusions: Although most patients who undergo APR return to their normal level of social condition after surgery, their will to live is less because of physical discomforts, including bowel dysfunction, urinary dysfunction, and sexual dysfunction. The quality of life is influenced by multiple factors, one of which may be the presence of the colostomy.

Abstract ID: 0471  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 82

Prognostic significance of metastatic nodes at the root of mesenteric vessels in stage III colon cancer
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Introduction: In the Japanese classification system of colorectal carcinoma, N-stage is defined as the following N1, N2, and N3; N1 as 1 to 3 metastatic pericolic nodes, N2 as 4 or more pericolic nodes, N3 as nodal involvement at the root of mesenteric vessels. The aim of our study was to examine the prognostic significance of N3-stage in colon cancer.

Material and Methods: We enrolled 152 patients who underwent curative surgery for colon cancer with stage III between 1991 and 2002. The median follow up period was 69 months. Patients were classified into N1, N2, and N3 according to the Japanese classification. Furthermore, N3 patients were divided into the following 2 groups based on the number of metastases: N3-1 as 1-3 nodes, N3-2 as 4 or more nodes.

Results: The 5-year overall survival rate of N1 patients was better than that of N2 and N3 patients. (p = .005, p = .007, respectively) But there was no significant difference in prognosis between groups N2 and N3. In N3 patients, N3-2 group showed worse outcome in the overall survival than N2 patients (p = .036). This means that the metastasis at the root of mesenteric vessels is a bad prognostic factor in the patients with ≥4 nodal metastases.

Conclusions: This study suggests that the category “N3” in the Japanese classification dependent on the concept of nodal distribution is important.

Abstract ID: 0472  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 83

Prognostic factors in patients with locally advanced colorectal cancer with macroscopic invasion to adjacent organs treated with radical surgery
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Introduction: Locally advanced colorectal cancer dictates a radical surgery, which includes en bloc resection of the colorectum and all involved organs. The prognostic factors in patients with advanced colorectal cancer with macroscopic invasion to adjacent organs (T4) who were treated with radical surgery was determined in this study.

Material and Methods: The medical records of 62 patients who intended to undergo radical surgery with combined resection of other organs for macroscopic invasion to adjacent organs between 1991 and 2000 were reviewed. The organs invaded macroscopically were the abdominal wall in 14 patients, urinary bladder in 12, duodenum in 6, vagina in 5, sacrum bone in 5, small intestine in 4, colon in 3, and other organs in 19. The clinical and pathological parameters were analyzed. Overall survival rates were analyzed according to the method of Kaplan and Meier. The prognostic factors were evaluated by univariate and multivariate analysis using SPSS 11.5 J software.

Results: Forty-two patients were treated by curative resections and 20 patients by palliative resections. Pathological examination confirmed 20 patients (32%) had neoplastic invasion to adjacent organs: 4 patients in urinary bladder, 4 in small intestine, 3 in duodenum, 3 in prostate, 2 in abdominal wall, 2 in vagina, and 4 in other organs. The cumulative 5-year survival rate is 46.5% in all patients with macroscopic T4, 66.1% in the curative resection group, and 0% in the palliative resection group. Univariate analysis demonstrated prognostic factors in the curative resection group are lymph node metastasis, venous invasion, and distant metastasis. Multivariate analysis revealed that prognostic factor in the curative resection group is lymph node metastasis. Recurrent sites in the curative resection group are local lesion in 9 patients, lymph node in 6, lung in 6, liver in 5, peritoneum in 2, and bone in 1. The cumulative 5-year survival rate in patients with pathological T4 is 90% in stage II 10 patients, 33.3% in stage III 6 patients, and 0% in stage IV 4 patients.

Conclusions: Some patients with macroscopic T4 colorectal cancer undergoing curative resection including invaded other organs have a 5-year overall survival rates of 66.1%. Patients without nodal disease may have long-term survival. Palliative resection may have low efficacy of surgical therapy.

Abstract ID: 0473  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 84

Phase I/II studies of preoperative chemoradiotherapy with S—1 and irinotecan in patients with locally advanced rectal cancer
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Introduction: We designed a new regimen for preoperative neoadjuvantchemoradiationtherapy(NCRT) with S—1 and irinotecan in patients with locally advanced rectal cancer. On the basis of the recommended dose obtained in phase I study (Int J Radiat Oncol Biol Phys, 2007) a phase II study was conducted. The primary endpoint was the feasibility of this regimen. Secondary endpoints were the response rate, local recurrence rate, survival, and safety. We report short-term outcomes of the phase II study to clarify the safety and efficacy of the regimen.

Material and Methods: The study comprised patients aged 20 to 80 years who had an ECOG performance status of 0 to 2 and a preoperative diagnosis of stage T3-4N0-3M0 rectal cancer. An approximately 1-cm circumference of the rectum was irradiated by the 4-parallel-opposed-field technique in a dose of 1.8 Gy/day for 25 days. S—1 (80 mg/m2/day) was given orally twice a day after meals on days 1 to 5, 8 to 12, 22 to 26, and 29 to 33. Irinotecan
In patients given irinotecan in a dose of 80 mg/m² was given on days 1, 8, 22, and 29. Radical surgery was performed at least 4 months after the completion of NCRT.

**Results:** In patients given irinotecan in a dose of 80 mg/m² or less in the phase I study, the overall response rate was 94.7%, and the rate of complete pathological response was 31.6%. The median period of observation was 94048 months. Recurrence occurred in 5 patients. One patient died of cancer. Among the 67 patients in the phase II study, 98.4% completed treatment. 25 patients (37.3%) had a complete pathological response, and 21 had a partial pathological response to NCRT. As for adverse events, 5 patients (9%) had grade 3 leukopenia and neutropenia; however, treatment could be resumed within 1 week. As for nonhematologic toxicity, grade 3 diarrhea occurred in 1 patient during NCRT and in 1 after NCRT. As for postoperative complications, bleeding from the internal iliac vein occurred 2 weeks after surgery, and intestinal obstruction developed 3 weeks after surgery. Both complications required reoperation.

**Conclusions:** In both phase I and II studies, patients given NCRT had an extremely high rate of complete pathological response, with minimal adverse effects. This regimen should be one of the choices for an experimental arm in phase III trial in near future.

**Abstract ID: 0474  Specific Field: Colon and Rectum**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 85**

**Oxaliplatin-induced immune thrombocytopenia ascribed to preoperative FOLFOX therapy in a patient with advanced colonic cancer**

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**Introduction:** Drug-induced immune thrombocytopenia associated with platinum compounds has been sporadically reported. We describe our experience with a patient in whom immune thrombocytopenia developed after 2 courses of preoperative FOLFOX (oxaliplatin, 5-fluorouracil, and leucovorin) therapy.

**Material and Methods:** Case report: A 63-year-old woman was admitted to our hospital because of cancer of the descending colon. Invasion of the primary tumor to surrounding organs was suspected. Coronary angiography was required because she had a history of myocardial infarction and showed electrocardiographic evidence of ischemia on exercise testing. The patient was malnourished and received nutritional support and underwent cardiovascular examinations during chemotherapy. The platelet count was 215,000/uL at initial presentation and fell to about 30,000/uL after chemotherapy. Myelosuppression was suspected. The patient was given platelet transfusions, and a left-sided hemicolecotomy was performed (pT3pN0M0, StageII).

The postoperative course was uneventful, but then gradually recovered.

**Results:** To the best of our knowledge, no oxaliplatin-induced immune thrombocytopenia ascribed to preoperative chemotherapy has been reported in the literature.

**Conclusions:** Decreased white cell and platelet counts during chemotherapy in patients with malignant tumors may be caused by myelosuppression and/or tumor invasion of bone marrow. However, caution should be exercised when patients present with signs and symptoms similar to those in our patient.

**Abstract ID: 0475  Specific Field: Colon and Rectum**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 86**

**Long-term results of laparoscopic surgery for rectal cancer**

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**Introduction:** Laparoscopic surgery for rectal cancer is still debated. The aims of this study were to compare long-term outcomes for patients undergoing curative laparoscopic or open surgery for rectal cancer.

**Material and Methods:** A series of 100 patients with rectal cancer stages II or III, who underwent curative laparoscopic (n = 48) or open surgery (n = 52) surgery from January 2001 to December 2006 have been included in this study. The study was non-randomized. Long-term results (3-year and 5-year overall survival, recurrence rates) were compared. Mean follow up for surviving patients was 71 months for open group (range 27–96 months) and 52 months for laparoscopic group (range 25–92 months). Data were analyzed by intention-to-treat principle.

**Results:** There was no differences in the age, gender and ASA classification between the two groups. Overall 3-year survival rate for stages II and III. in the laparoscopic group vs. the open group was 85% vs. 53% and 71% vs. 37%, respectively. Overall 5-year survival rate for stages II and III, in the laparoscopic vs. open group was 86% vs. 55% and 72% vs. 35%, respectively. The local recurrence rate after laparoscopic rectal resection was 5% vs. 14% after open resection. Distant metastases occured 11% in the laparoscopic group and 14% in the open group.

**Conclusions:** In this nonrandomized single center study the overall survival and local recurrence rate were significantly better in patients undergoing laparoscopic surgery for rectal cancer.
Abstract ID: 0476  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 87

Laparoscopic total colectomy in managing colonic inertia: a case report and review of literature
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Introduction: Aim: To describe a case of Laparoscopic Total Colectomy with Ileorectal Anastomosis for slow transit constipation (STC) in a 28 year old lady and a review of literature on surgical management of STC focussing on outcomes of laparoscopic surgery.

Material and Methods: Laparoscopic Total Colectomy with Ileorectal Anastomosis was performed for our patient who had a 10 year history of STC for which all causes of constipation were ruled out and medication long term poly pharmacy did not alleviate her symptoms. The literature review was conducted using Pubmed, with analysis of papers on the surgical management of STC and its outcome.

Results: The colon was dilated but normal from the cecum to the sigmoid colon on histological examination which supported a diagnosis of STC. Postoperatively, she was on liquids on the first post operative day and went home on the fifth. She has had drastic improvement of her symptoms. The literature review was conducted using Pubmed, with analysis of papers on the surgical management of STC and its outcome.

Conclusions: Surgery has been well documented to aid in the management of STC with good outcomes both clinically and in quality of life issues. We have shown that laparoscopic resection has a major role to play in the surgical treatment of this disease, in view of the obvious benefits of its reduced morbidity and mortality compared to an open surgery.

Abstract ID: 0477  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 88

Is locally advanced colon cancer always a contra indication to curative straight laparoscopic resection?
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Introduction: The presence of a large palpable colonic malignancy suggesting a locally advanced tumour used to represent absolute contraindication to the laparoscopic approach because of technical difficulties. We report our experience with the straight laparoscopic anterior resection of a palpable sigmoid colon cancer.

Material and Methods: A 60 year old male was presented with 8 cm diameter left iliac fossa mass and altered bowel habit. CT scans showed sigmoid colon tumour with no clear plane between the tumour and anterior abdominal wall. Colonoscopy revealed stenosing sigmoid colon tumour. A straight laparoscopic anterior resection was performed in Lloyd Davis position. A lateral to medial approach was undertaken using a 4-port technique with placement of ports at subumbilical, right iliac fossa, right and left hypochondrium. Sigmoid colon was dissected off anterior abdominal wall together with cuff of abdominal wall musculature. Inferior mesentery artery was ligated near the origin using EndoGIA. Specimen was retrieved via extended left iliac fossa wound before colo-rectal anastomosis was established using DST EEA-31.

Results: We present the straight laparoscopically approach of an anterior resection for locally advanced sigmoid colon tumour. No intraoperative or postoperative complications were detected. After-surgery, first bowel movement occurred on the second day and the patient was fit for discharge on fifth day. Due to social reasons, he stayed till ninth postoperative day. However, there was no issue during this period. Histologically findings revealed pT3N2 moderately differentiated adenocarcinoma with clear resection margin.

Conclusions: Straight laparoscopic anterior resection in patients with locally advanced sigmoid colon tumour is feasible with a fast recovery and a short hospital stay. Long term follow up is necessary to evaluate recurrence rate of this procedure.

Abstract ID: 0478  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 89

Detection of a rectocele-like prolapse in the colonic J-pouch using pouchography: cause or effect of evacuation difficulties?
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Introduction: The functional outcome after a low anterior resection for rectal cancer is improved by a colonic J-pouch reconstruction. One functional problem with J-pouches is difficulty in evacuation, which is more common with large reconstructions. Since rectoceles are common findings on defecography in patients with evacuation difficulties, we proposed that rectocele-like prolapse (RP) may be thus found in patients with large J-pouches.

Material and Methods: Pouchography was used to identify RP in 26 patients with a 10-cm J-pouch (10-J group) and 27 patients with a 5-cm J-pouch (5-J group). Pouchography was performed at 3 months, 1 year, and 2 years after surgery. Functional assessments were performed 1 year postoperatively. Clinical function was evaluated using a questionnaire. The evacuation function was evaluated by the balloon expulsion and saline evacuation test.

Results: No patients had RP at 3 months or 1 year after surgery. RP was significantly more common in the 5-J group than in the 10-J group at 2 years after surgery (P = 0.0374). An evacuation difficulty was significantly more common in the 10-J group than in the 5-J group. The evacuation function in the 10-J group was also significantly inferior to that in the 5-J group.

Conclusions: RP appearing 2 years after surgery is more common in patients with evacuation difficulties and large colonic J-pouch reconstructions.

Abstract ID: 0479  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition ISW 2009 Session PE 90

Functional outcome after low anterior resection with low anastomosis for rectal cancer using the colonic J-pouch: prospective randomized study for determination of optimum pouch size
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Introduction: Functional outcome after low anterior resection with ultralow coloanal anastomosis for rectal cancer is improved by construction of a colonic J-pouch vs. straight anastomosis. Optimum size of this pouch has yet to be determined. Therefore, we initiated a prospective, randomized trial using 5-cm and 10-cm pouches to determine this size.

Material and Methods: Patients with tumors 5 to 10 cm from the anal verge were included in the study. Before a low anterior resection anastomosis was performed, patients were randomized to either a 5-cm J-pouch group (5-J group) or a 10-cm J-pouch group (10-J group). Functional assessments were performed one year postoperatively. Clinical functions were evaluated using a functional scoring system. Physiologic functions, such as sphincter and reservoir function, were evaluated by anorectal manometry and evacuation function by the balloon expulsion and saline evacuation tests.

Results: Forty patients among 43 randomized patients were assessed for functional outcome one year postoperatively (5-J group, n = 20; 10-J group, n = 20). The functional score was similar for the two groups, although reservoir function in the 5-J group was significantly less than in the 10-J group. Sphincter function was similar between the two groups. Evacuation function in the 5-J group was significantly superior to that in the 10-J group.

Conclusions: The 5-cm J-pouch conferred adequate reservoir function without compromising evacuation.

Abstract ID: 0480 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 91

Expression of VEGF165b, a splice variant of VEGF-A, results in improvement of prognosis in colorectal cancer


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Introduction: The growth and metastasis of cancer depend on angiogenesis, and VEGF-A is known to be one of the most important proangiogenic factors. As a result of alternative splicing, 6 VEGF-isoforms of 121, 145, 165, 183, 189, and 206 amino acids are produced from a single gene. Tumor cells are the predominant source of VEGF; however, tumor-associated stroma has also been shown to produce VEGF. Regarding research on the invasion and metastasis mechanism, the character of the cancer cell itself has been mainly examined, and there have been few reports concerning the stromal tissue surrounding tumors. VEGF165b has recently been isolated from kidney epithelial cells. VEGF165b has been shown to bind to VEGF-R2, but not to stimulate phosphorylation, and to inhibit VEGF165-mediated phosphorylation in human umbilical vein endothelial cells. To explain how VEGF-A in stromal tissue affects tumor progression, we examined the correlation between stromal VEGF-Aexpression and clinicopathological characteristics, and, in addition, we performed expression analysis of VEGF-165 and VEGF165b using fresh-frozen specimens.

Material and Methods: Tumor specimens were obtained from 165 consecutive patients with colorectal cancer who underwent resection at the First Department of Surgery, Sapporo Medical University in 1997–2001. In order to analyze the expression of VEGF165 and VEGF165b, 20 additional samples were obtained from consecutive patients with colorectal cancer in 20062007, from whom we could obtain fresh-frozen specimens. Expression analysis of VEGF165 and VEGF165b in the tumor and stromal tissue was performed using specimens obtained by LCM.

Results: The five-year DFS of stromal VEGF-A-positive cases was 73.8%, compared with 39.9% for the cases that were stromal VEGF-A-negative. In the cases for which tumor VEGF-A was positive by immunohistochemical analysis, VEGF165 was highly expressed, whereas VEGF165b was not. However, both VEGF165 and VEGF165b were detected in stromal VEGF-A-positive cases. Thus, tumor cells mainly expressed VEGF165, and stromal cells expressed both VEGF165 and VEGF165b.

Conclusions: VEGF165b expression is considered to be one factor indicating better prognosis in colorectal cancer.

Abstract ID: 0481 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 92

Examination of nodal metastases by a clearing method supports pelvic plexus preservation in rectal cancer surgery

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Introduction: In rectal cancer surgery preservation of urinary and sexual function is attempted by means of operations preserving the autonomic nerves of the pelvic plexus. Emergence of residual cancer because of a more shallow plane of dissection is a problem of concern with these methods, so we examined indications for pelvic plexus preservation.

Material and Methods: We studied 198 patients with rectal carcinoma who underwent abdominopelvic lymphadenectomy. Lymph nodes along the superior hemorrhoidal artery and middle hemorrhoidal artery medial to the pelvic plexus were defined as perirectal nodes, and nodes along the middle hemorrhoidal artery lateral to the pelvic plexus and along the internal iliac artery represented lateral intermediate nodes. Node metastases were examined by the clearing method.

Results: Metastasis to perirectal nodes occurred in 12.5% in patients with pT1 tumors, 28.9% of those with pT2 tumors, and 50.0% of those with rectosigmoid junctional cancer. Metastasis to lateral intermediate nodes was absent in patients with pT1 or pT2 tumors and was as low as 2.5% in patients with rectosigmoid junctional cancer.

Conclusions: In patients with T1, T2, and rectosigmoid junctional cancer, perirectal node dissection is necessary, but chances of residual cancer should remain minimal when the pelvic plexus is preserved.

Abstract ID: 0482 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 93

Clinical and pathological evaluation of the patients who underwent resection for primary lesions of the colorectal cancer with simultaneous hepatic metastasis


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Introduction: Hepatic resection is an effective treatment in patients with colorectal cancer with hepatic metastasis. However, surgical resection for hepatic resection was sometimes impossible because of
existence of other organ metastasis, extent of hepatic metastasis and systemic condition of the patients. We evaluated the relation between the prognosis and clinical and pathological factors in patients who underwent only resection for primary lesion of the colorectal cancer with simultaneous hepatic metastasis.

**Material and Methods:** Fifteen patients who underwent resection for the primary lesions of the colorectal cancer with simultaneous hepatic metastasis were included in this study. All patients died of colorectal cancer. The mean age of the patients was 67.9 years. Distant metastasis except for liver was seen in 6.7%, and peritoneal metastasis was seen in 20.0%. The location of the primary tumor was right colon 46.6%, left colon 26.7%, and rectum 26.7%. Relation between prognosis and clinical and pathological factors was evaluated. The significance of differences was analyzed using Mann-Whitney test, and p values of < 0.05 were considered significant.

**Results:** No significant difference was seen in node involvement, peritoneal metastasis, extent of node dissection, and histology. The mean prognosis in patients with mild lymphatic invasion and those with moderate/severe invasion was 24.8 and 10.4 months, respectively, and significant difference was seen between two groups. Vessel invasion was seen in 8 patients (66.7%). The mean prognosis in patients without vessel invasion and those with vessel invasion was 25.7 and 9.68 months, and significant difference was seen between two groups. No significant difference was seen according to postoperative therapy.

**Conclusions:** The lymphatic and vessel invasion could be a useful predictor of prognosis in patients who undergo resection for primary lesions of the colorectal cancer with simultaneous hepatic metastasis. Therefore, proper treatment for hepatic and other residual lesion after surgical resection of primary tumor prognosis should be considered in patients with vessel invasion or moderate/severe lymphatic invasion.

**Abstract ID: 0483**  
**Specific Field: Colon and Rectum**

**Mode of pres.: Poster Exhibition**  
**ISW 2009 Session PE 94**

**Autonomic nerve-preserving laparoscopic surgery for rectal cancer**  
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**Introduction:** Laparoscopic surgery for rectal cancer requires advanced techniques because meticulous procedures must be performed within the limited confines of the pelvic cavity. The advent of magnifying endoscopy has permitted a more detailed understanding of anatomy, thereby enabling total mesorectal excision, associated with minimal bleeding, and reliable autonomic nerve preservation.

**Material and Methods:** The study group comprised 148 patients with rectal cancer who underwent laparoscopic surgery from March 1998 through December 2008. Indications for surgery were T3 rectal tumors located above the peritoneal reflection that invaded the mesorectal fascia (cT2), with no clinical evidence of lymph-node metastasis (cN0). The male:female ratio was 99:49. The patients’ mean age was 63.2 ± 10.6 years. The median period of observation was 44.8 months.

**Results:** The median operation time was 245 minutes. The median intraoperative bleeding volume was 20 mL. No accessory damage occurred during surgery. Postoperative complications were suture failure in 13 patients (8.8%), wound infection in 4 (2.7%), intestinal obstruction in 4 (2.7%), and dysuria in 2 (1.4%). Dysuria responded to oral treatment. Eight patients had postoperative recurrence. The site of recurrence was the liver in 4 patients, the lung in 1, lymph nodes in 2, and the peritoneum in 1. No recurrence occurred at the port site.

**Conclusions:** No patient had dysuria ascribed to autonomic-nerve injury. An intimate knowledge of anatomy allows the intact dissected layer to be maintained, with no bleeding. Consequently, autonomic nerves can be reliably preserved and operation performed safely. Our results suggest that autonomic nerve-preserving laparoscopic surgery is useful and may become a standard procedure.

**Abstract ID: 0484**  
**Specific Field: Colon and Rectum**

**Mode of pres.: Poster Exhibition**  
**ISW 2009 Session PE 95**

**Pattern and management outcome following right hemicolectomy in Nigerian adult patients in a semi rural health facility**  

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**Introduction:** Disease profile in the developing world appears different from that of developed world. Even when similar diseases are seen, presentations differ because of differences in health care delivery system. We review all the cases of right hemicolectomy done in our center accessing the indication and management outcome for the procedure in a tertiary health center in Nigeria.

**Material and Methods:** The study evaluated consecutive patients who had right hemicolectomy done at Ife hospital unit of the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife between 1992 and 2007. Statistical analysis was performed using SPSS 13.0 software. This retrospective data analyses the indications of right hemicolectomy, morbidity and mortality, as well as, the factors affecting this.

**Results:** During the fifteen year study period, 150 right hemicolectomy were done and this accounts for 0.05% of all the major surgical procedure done. The age of the patient ranges from 15 years to 70 years with the median age of 34 years. Majority of the patients [121(80.7%)] had the procedure on emergency bases while only 29(19.3%) were planned surgery. The mean duration of symptoms for emergency and elective was significantly difference (p < 0.0001). The most common indication for right hemicolectomy in our health facility is right sided colonic tumors in [40(26.7%)]. Other leading indication was intussusception in [20(13.3%)], enterocutaneous fistula in [20(13.3%)], adhesive intestinal obstruction in [18(12.0%)], and complicated appendicitis [26(10.7%)]. Thirty two patients (21.3%) had complications, the most common complications are wound infection [25(16.7%)] and anastomotic leak [16(10.7%)]. Ten (6.7%) patients died during the study period. The factors found to influence the primary outcome significantly are age of the patient (p = 0.003), nature of surgery (p = 0.035) and estimated blood loss (p = 0.020).

**Conclusions:** Most right hemicolectomy are performed on emergency bases and may be associated with morbidity and mortality.
Abstract ID: 0485 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 96

Do elderly patients benefit from laparoscopic colorectal surgery?
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Introduction: The population of Western countries is growing older. Incidence of some colorectal diseases, especially colorectal carcinoma, increases in the elderly. The aim of this study was to analyze the short-term outcomes of laparoscopic (LAC) colorectal surgery in elderly compared to younger patients and to patients who underwent laparotomy (OP).

Material and Methods: A retrospective analysis of 705 patients who underwent elective laparoscopic (n = 360) or open (n = 345) colorectal surgery between January 2001 and December 2006 was performed. A total of 140 (20%) patients were aged 75 years or older. Preoperative comorbidity and surgical outcomes were analyzed.

Results: Elderly patients had a higher American Society of Anesthesiologists score compared with younger patients. In elderly patients, laparoscopic reduced overall morbidity rate (27% vs. 48%, p < 0.05) and length of hospital stay (10, 6 vs. 12, 8 days, p = 0.01). In the laparoscopic group postoperative morbidity rate (27% vs. 26%, NS) were similar in elderly and younger patients, while in open group elderly patients had significantly higher postoperative morbidity rate (48% vs. 34%, p < 0.05). The conversion rate for LAC in elderly was 5%. No patient had to be converted because of inability to maintain the pneumoperitoneum. Mean operating times were similar between LAC and OP colorectal resections in elderly (141 ± 46 min vs. 137 ± 57 min, NS).

Conclusions: These results suggest that laparoscopically assisted colectomy may be particularly indicated in elderly patients.

Abstract ID: 0486 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 97

A survey of complications of colonoscopy: a multicenter study in Niigata, Japan
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Introduction: Since first introduction in 1969 flexible colonoscopy has been accepted as a common procedure for the diagnosis, treatment and follow-up of colorectal pathologies. And it has advantages over other examinations such as barium enema, virtual colonoscopy, and capsule camera. It is an invasive procedure, but major complications such as hemorrhage, perforation, and postpolypectomy coagulatory syndrome are infrequent. The aim of this study was to determine the incidence of colonoscopic complications and to assess the management of these complications and evaluate patient outcomes.

Material and Methods: A survey of colonoscopic complications which occurred between January 2000 and December 2004 in 13 hospitals in Niigata prefecture in JAPAN was conducted. In this study, colonoscopic complication was defined as disadvantages which occurred at a colonoscopic procedure and required both repeat colonoscopy and medical treatment. Patients’ medical records were retrospectively reviewed for patient demographics, date of procedure, indication for procedure, and type of procedure (therapeutic or diagnostic), and outcome data were analyzed.

Results: A total of 85,507 colonoscopies were performed during this period; 40,149 colonoscopies were observation only and 45,358 colonoscopies involved treatments. Complications occurred in 186 cases (0.23%), including 159 cases of hemorrhage (0.19%), and 27 cases of perforation (0.03%). The complication rate of colonoscopies involving treatments was eight times higher than that of observation-only colonoscopies. Hemorrhage was often associated with EMR (76.7%) and endoscopic clippings were performed in 66%. Perforations most often occurred in the left-sided colon (96.3%); the majority were in the sigmoid colon (51.8%), followed by the rectum and the descending colon, and occurred during observation-only colonoscopies in 59.3%. Surgery to repair a perforation was performed in 23 cases (85.2%). There were 2 deaths (0.002%), both of which were due to perforation.

Conclusions: Complications of colonoscopy are rare with a very low incidence rate (0.23%), but can be recognized early and managed surgically with acceptable morbidity.

Abstract ID: 0487 Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 98

Delorme’s operation: a good option for the surgical treatment of rectal prolapse in very old and fragile patients
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Introduction: Rectal prolapse (RP) can be treated in numerous operative techniques. The aim of the study was to investigate the safety and efficacy of the Delorme’s operation (DO) in the treatment of RP.

Material and Methods: The patients treated with DO during a five-year period between 2003 and 2008 in Turku University Hospital were reviewed retrospectively. The follow-up data was collected from archives until November 2008. There were 33 operations and 29 patients (all female) with DO, 2 of the patients were operated 3 times. Mean age of the patients was 83.2 yrs (67–94). 17 (59%) patients were in institutional care. 5 patients had a simultaneous mesh repair for anal incontinence (Thiersch). All operations were performed under spinal anaesthesia except one under general anaesthesia. A postoperative visit was at two months after 31 operations (94%).

Results: Median length of hospital stay was 8 days (4–23), median stay after operation was 6 days. 21/29 (72%) of the primary cases were continent preoperatively, 3 of them (10%) became continent after surgery. All patients with recurrences were continent both pre- and postoperatively. Seen at a postoperative control, the operation had been beneficial in 21/31 (68%). There was a recurrence in 13/33 (39%) operations, of which 7 were re-operated during the study period. Mean recurrence time was 4.5 months. There was no operation related mortality, 7 patients (24%) died of other causes during the follow-up. In 23/33 (70%) of the operations there were no complications. 7/28 (25%) patients with only DO had minor complications such as urinary infection (4), subsiding defecation difficulties (2), heart problems (1), transient ischemic attack (1), and miscancellaneous infection (1). 3/5 (60%) patients with DO and mesh repair had complications: urinary infection (2), permanent defecation difficulties (1), urinary retention (1), ileus and inguinal abscess (1).

Conclusions: Delorme’s operation seems to be feasible with few complications for very old, high operative risk patients with rectal prolapse. Although recurrences are seen, reoperations are possible and safe. DO together with mesh carries increased risk for complications.
Abstract ID: 0488  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 99

Comparison of different surgical treatments of complex pilonidal disease: total excision + marsupialization, total excision + primary closure, total excision + Limberg flap reconstruction

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Introduction: Pilonidal disease is a benign condition that is usually seen in adults and causes sometimes recurrences as a complication at long terms. It causes also significant loss of labour force. This study aim to compare the results of marsupialization, primary closure and Limberg flap techniques at complex sacrococcygeal pilonidal disease.

Material and Methods: A total of 86 patients who were operated for complex sacrococcygeal pilonidal disease at two centers between November 2004 and January 2006, were investigated retrospectively. Of them, 29 patients were operated with total excision + marsupialization (group I). 25 patients were operated with total excision + primary closure (group II). 32 patients were operated with total excision + Limberg flap reconstruction (group III). The mean follow-up time was 42 ± 4, 5 months (35–49)

Results: The mean age was 23, 9 ± 2, 8 (18–36), the mean of body mass index was 24, 4 ± 1, 9 (20, 2–29, 4) and mean operation time was 29 ± 9 min (15–49). We evaluated the patients for wound infection, recurrence, seroma and wound breakdown. Wound infection was present in one patient from group I and in two patients from group II. Recurrence of pilonidal disease was determined in four patients from group II and 1 patient from group III. One patient from both group II and III were having seroma. Only one patient from group II had wound breakdown.

Conclusions: For the surgical treatment of complex sacrococcygeal pilonidal disease, total excision + marsupialization and total excision + Limberg flap reconstruction is seen to be superior to excision plus primary closure in terms of recurrence rate. As the wound is open breakdown and seroma was not present in group I. We though that tension free nature of flap reconstruction causes less complication.

Abstract ID: 0490  Specific Field: Colon and Rectum

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 101

Novel rubber band ligation for hemorrhoids

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Introduction: Individual healthcare facilities have adopted different techniques that include conservative treatments as well as surgical procedures to treat hemorrhoid and/or mucosal prolapse. The rubber band ligation procedure as a form of outpatient treatment is not only minimally invasive but also easy to use. Therefore, extended use of this procedure to treat hemorrhoids or mucosal prolapse is highly promising. We invented a novel rubber band ligation kit for hemorrhoids that incorporates the benefits from each conventional ligator presently available, in order to increase the convenience of the rubber band ligation procedure. Due to the excellent results we have experienced using this premarketed kit, we performed a comparative investigation of our novel ligator with other conventional ones, and here we report the results.

Material and Methods: This novel ligator is made of plastic, shaped like a cylinder, and works such that a built-in rubber band pulls on the internal cylinder to ligate the targeted lesion. Furthermore, the price is reasonably set to around $30 with streamlining the design. We used this ligator in a study on rubber band ligation for hemorrhoids consisting of 68 cases of proctophtosis and/or internal hemorrhoids.

Results: Mean patient age was 58.6 years, and chief complaints included 41 cases (60%) of hemorrhage and 22 cases (32%) of proctophtosis. Most commonly found among patients was a ligation site set in the 3 O’clock position (23 cases or 21%). The mean number of ligations per case was 1.6 and mean required-time per ligation was approximately 50 sec. Symptoms disappeared in 47 cases (70%) and 2 cases involved complaints of pain. Patients who had no effect of hemorrhoids after three ligations instead underwent surgery.

Conclusions: This newly invented rubber band ligator for hemorrhoids is an extremely simple, speedy, and useful medical apparatus that can reduce patient burden. In addition, the streamlined design enables reasonable prices, and its fully disposable nature reduces the risk of infection.
Abstract ID: 0491 Specific Field: Vascular Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 102

Predictive factor of intestinal necrosis and prognostic factor of acute superior mesenteric arterial occlusion

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Introduction: Acute superior mesenteric arterial occlusion (SMAO) has a high rate of morbidity and mortality. Early diagnosis and treatment are important to improve outcomes. The purpose of this study was to identify predictive factor of intestinal necrosis and prognostic factor of SMAO.

Material and Methods: Clinical records of 20 patients who were diagnosed as having SMAO and underwent surgical treatment between 1994 and 2008, were retrospectively reviewed. The relationships between clinical variables and clinical outcomes, intestinal necrosis and prognosis, were examined.

Results: The mean age was 75.3 years (range, 55–87 years); 7 male and 13 female patients were examined. 12 patients survived to discharge from hospital and 8 patients died during postoperative period. All patients had a history of abdominal operation and 15 patients developed intestinal necrosis. 13 patients underwent resection of necrotic small intestine and 3 of them also underwent revascularization. Unfortunately, 2 patients were unable to undergo necrotic intestinal resection because of massive necrosis of small intestine and colon. 5 patients did not develop intestinal necrosis and 3 of them underwent revascularization. Among the clinical variables examined, high LDH (P = 0.049) and creatinine (P = 0.03) levels were significantly related to intestinal necrosis. Regarding prognosis, high shock index (> 0.9) (P = 0.02), short remnant small intestine (<100 cm) (P = 0.02), no revascularization procedure (P = 0.04), high LDH value (P = 0.04) and low Bass Excess (BE) (P = 0.04) were significantly related to death during postoperative period.

Conclusions: Predictive Factors of intestinal necrosis were high LDH and creatinine levels. Prognostic Factors were high shock index, short remnant small intestine, no revascularization procedure, high LDH value and low BE.

Analysis of prognostic factor

<table>
<thead>
<tr>
<th>Alive</th>
<th>Dead</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>High shock index (&gt; 0.9)</td>
<td>1/12 (8.75%)</td>
<td>5/8 (62.5%)</td>
</tr>
<tr>
<td>Intestinal necrosis</td>
<td>7/12 (58.3%)</td>
<td>8/8 (100%)</td>
</tr>
<tr>
<td>Short remnant intestine (&lt;100 cm)</td>
<td>1/12 (8.75%)</td>
<td>5/8 (62.5%)</td>
</tr>
<tr>
<td>Revascularization procedure</td>
<td>6/12 (50.0%)</td>
<td>0/8 (0%)</td>
</tr>
<tr>
<td>LDH</td>
<td>350.0 ± 190.3</td>
<td>686.4 ± 354.0</td>
</tr>
<tr>
<td>CPK</td>
<td>292.0 ± 334.1</td>
<td>683.3 ± 725.4</td>
</tr>
<tr>
<td>Creatinine</td>
<td>1.35 ± 0.88</td>
<td>2.29 ± 1.47</td>
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<tr>
<td>pH</td>
<td>7.39 ± 0.044</td>
<td>7.27 ± 0.14</td>
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<tr>
<td>BE</td>
<td>−1.24 ± 3.07</td>
<td>−8.69 ± 7.88</td>
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Abstract ID: 0492 Specific Field: Vascular Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 103

Venous adventitial cystic disease

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Introduction: We know that Adventitial Cystic Disease of arteries is an uncommon condition (we have presented a case in the ISW 2005). Even more rare is the finding of the venous wall cystic disease, with a few cases reported in the surgical literature.

Material and Methods: We report the clinical features of a 56 yr. old man with a six months evolution pain in the left groin irradiated to the corresponding leg with swelling of the whole extremity. A duplex ultrasound examination revealed complete obstruction of the femoral common vein with occupation of the vessel suspecting a deep venous thrombosis (Fig 1). Then full-dose anticoagulant therapy was started, without clinical response after one week. The CT examination and IR image demonstrated a cystic mass with characteristic of an iliopsoas bursitis very close to the femoral vessels (Fig. 2 & 3).

Results: Surgical treatment was performed. Exploration revealed a 4 cm. cystic mass arising in the anterolateral aspect of the common femoral vein (Fig 4). The incision of the cyst released jellois content. A continuous suture on the venous wall was performed. The surgical outcome was uneventful, and long term CT and ultrasound examinations revealed normality of the surgical area (Fig 5).

Conclusions: The venous cystic adventitial disease is a very uncommon disease that almost always is misdiagnosed as DVP. A correct diagnosis and surgical treatment are the baseline of a good outcome.

Abstract ID: 0493 Specific Field: Vascular Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 104

Prevalence of asymptomatic internal carotid artery stenosis in patients referred for peripheral vascular surgery

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Introduction: The prevalence of carotid stenosis in the general population is not high enough to justify screening for carotid stenosis. This study was done to determine the prevalence of asymptomatic carotid stenosis among patients referred because of their peripheral vascular disease requiring surgery.

Material and Methods: Between March 2004 and March 2005, 54 consecutive patients underwent carotid duplex scanning. A questionnaire was used to collect data concerning known risk factors. Significant carotid stenosis was defined as a stenosis of ≥ 70%.

Results: The mean age was 62.5 years (51–72). Of all 54 patients, 2 (3.7%) had an occluded internal carotid artery. Significant carotid stenosis was found in 9 (16.7%) and its presence was correlated with diabetes, hypertension, hypercholesterolemia, hypertriglyceridemia, ischemic heart disease, severity of symptoms, ankle-brachial index, and carotid bruit. Only hypercholesterolemia and carotid bruit seemed to have independent influence.

Conclusions: The prevalence of significant asymptomatic carotid stenosis is higher among patients with peripheral vascular diseases. This patient population may indicate a suitable subgroup for screening of asymptomatic carotid stenosis.
Giant pulmonary artery aneurysm in a Behçet disease patient

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Introduction: We present a case of a 20-year-old patient presenting with hemoptoe, dyspnoe, thoracic pain and severe asthenia. Further examination revealed a giant pulmonary artery aneurysm of 7.4 x 5.6 cm.

Conclusions: A 20-year-old man presented at the emergency department because of episodes of haemoptoe since 24 hours. Other symptoms included dyspnoea, thoracic pain, severe asthenia and weight loss since 2 months, short episodes of fever, recurrent oral ulcers since 6 months and chronic inflammatory blood results. Chest x-ray 2 months before admission was strictly normal. CT-scan revealed a saccular aneurysm of more than 4 cm in the inferior lobe of the right lung and two small aneurysms in the left lung. Arteriography a few hours later confirmed the presence of a giant pulmonary artery aneurysm of 7.4 x 5.6 cm on one of the branches of the right pulmonary artery. Embolization procedure was not feasible. Resection of the right inferior lobe was performed. Pathological examination confirmed the presence of an inflammatory aneurysm with signs of rupture, thrombus and bleeding. There was no evidence for granulomas or micro-organisms. There was also presence of important vasculitis suggestive for Behçet disease. Behçet disease is a chronic, relapsing, systemic disorder of unknown etiology, characterized by recurrent oral and genital ulcers, uveitis and other clinical manifestations in multiple organ systems. Pulmonary involvement in Behçet disease is rare, occurring in 1 to 7.7% of patients. Pulmonary artery aneurysms, arterial and venous thrombosis, pulmonary infarction, recurrent pneumonia, bronchiolitis obliterans and pleurisy are the main features of pulmonary involvement. Postoperative the patient was put under severe immunosuppressive treatment (corticotherapy and cyclofosfamide). Under this treatment the two small aneurysms in the left lung disappeared within two months. During this treatment the patient developed a corticotherapy induced biological pancreatitis and a bronchopneumonia.

Abstract ID: 0495  Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 106

Development of multipurpose active overtube for endoscopic surgery

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Introduction: Endoscopic resection for gastrointestinal tumors is a useful strategy as a minimally invasive surgery. But their operating times are relatively long and surgeons are required to master special skills to complete en-bloc resection in safety. These problems are caused by the limitation of access route and manipulating range of conventional endoscope system. To improve the safety and efficiency of endoscopic resection, we developed an advanced type of active overtube which can provide adequate counter-traction and multi-directional endoscopic view during the intraluminal endoscopic surgery.

Material and Methods: Outer diameter of this overtube is 20 mm and conventional flexible endoscopes are adaptable through the overtube. It is equipped with main active channel and one auxiliary channel for irrigation and suction. Many kinds of conventional treatment devices such as a snare, forceps and electrocautery-knife can be used freely through the main active channel. Distal end of the active channel can be move freely combined with these treatment devices.

Results: From preclinical experiments in a mock-up rectum, coor- dinative motion of the devices through this overtube and flexible endoscope was confirmed. Moreover resection procedures in the rectum can be observed from oral side of the lesion by turning the tip of the endoscope with this overtube.

Conclusions: Preclinical experiments has demonstrated the feasibility and usefulness of this active overtube for intraluminal endoscopic resection of gastrointestinal tumors were confirmed in this study. Additionally, concept of this active overtube is applicable to single port laparoscopic surgery and Natural Orifice Transluminal Endoscopic Surgery.
Abstract ID: 0496  Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 107

Why do we err? In laparoscopic surgery and what may ensue?

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Introduction: Everybody knows that to err is human. Even our patients know it, when they relate to us as God’s sent angels, expecting us to perform miracles. When our ‘holy’ doings fail we become human again, all flesh and blood, and the disappointed and sometime invalidated patient seeks for compensation. Reviewing my experience as a medical expert for the plaintiff, I present here only files dealing with laparoscopic surgery.

Material and Methods: During the period 2000–2008, 36 claims for laparoscopic medical negligence out of 94 claims in other fields of general surgery were studied and four groups of patients constituting the majority of the claims; cholecystectomy, bariatric surgery, appendectomy and colorectal surgery were defined. The remaining etiologies of claims are sporadic.

Results: Eleven files were returned to the corresponding lawyers with my opinion of no negligence and most of the remaining twenty five claims were settled out of court to the satisfaction of the plaintiffs, and probably also of the defendants as well.

Conclusions: In this dissertation I will explore the similarities between different etiologies of injury and errors committed during surgery and, most importantly, I will differentiate between the loss of senses in the laparoscopic environment and the loss of common sense in taking medical decisions in general. The Israeli experience in medical malpractice litigation is not very different from that of other developed countries. The search for a better system to compensate the injured which will at the same time protect the physician is still an ongoing challenge. Some countries have found the No Fault approach quite satisfactory, others try to limit compensation and yet some other countries’ traditions do not encourage malpractice suits at all. I shall also take notice of the “cold shoulder” received by the expert working for the plaintiff by his “dear colleagues but no-longer-friends” in reviewing both existing literature and my own personal experience.

Abstract ID: 0497  Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 108

Clinical validity of compressed image in high-definition video recording system for surgical procedures

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Introduction: We have reported the importance of the concept of digital forensics applied in a novel digital recording system for endoscopic surgery in the ISW 2007. Recently, we developed a brand-new system equipped with high-definition (HD) video recording function which provides us with better quality of movie data. In order to clarify the optimal compression protocol for reviewing the surgical procedure recorded in the HD recording system, we evaluated various methods of compression.

Material and Methods: We evaluated two clinical settings; laparoscopy-assisted distal gastrectomy (LADG) and endoscopic submucosal dissection (ESD) for early gastric cancers from the view point of digital forensics in which reproducibility of the recognition of tissues and verification of the surgical procedures.

Results: For ESD, resolution of 1440 x 1080 pixels or more, bit rate of 15 Mbps, frame rate of 30 fps and compression method of H. 264 were thought to be optimal because slight difference between normal and cancerous mucosa should be distinguished. On the other hand, resolution of 720 x 480, bit rate of 9 Mbps, frame rate of 30 fps and protocol of H. 264 were sufficient to review the validity of the laparoscopic technique.

Conclusions: In this system, H.264 compression rather emphasis contrast and it was suitable for record of endoscopic surgery. Although the MJPEG protocol would accomplish more real and natural image, H.264 was thought to be standard because of the efficiency of compression.

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Mode of pres.: Poster Exhibition
ISW 2009 Session PE 109

Introduction and tradition of totally extraperitoneal inguinal hernioplasty (TEP) technique

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Introduction: Laparoscopic hernia repair is technically more difficult than open repair. The most common laparoscopic techniques for inguinal hernia repair are transabdominal preperitoneal (TAPP) repair and totally extraperitoneal (TEP) inguinal hernioplasty. Generally TEP approach is considered to be more difficult than TAPP but may have fewer complications. Then from beginning TEP technique was succeeded to operator to assistant as man to man system in our hospital. The purpose of this study is to verify the introduction and tradition of TEP technique in single hospital under changing of general surgeons.

Material and Methods: Between February 2000 and May 2008, 291 patients (male 243, female 48; mean age 64; right 141, left 123, both 27) who underwent TEP for inguinal hernia were analyzed. Comparison between the first half and the latter periods of operative duration, postoperative morbidity, pain score and length of hospital stay.

Results: There was no difference among the operators at the operative skill. Operative duration was shorter and morbidity (peritoneal tear, seroma and hematoma) were fewer in the former period than the latter. Conversion from TEP to open method was done in eight patients (2.8%) due to large hernia sac and adhesion. Mesh infection was observed in only one patient. The rate of groin hernia at the opposite side after operation was 8.3% and the chronic groin pain was not observed. The incidence rate of recurrence was 1.1% and the most patients (81%) were content with operation.

Conclusions: TEP method for groin hernia were induced and conducted in our hospital smoothly and safely without regard to rotation of the surgeons. The restricted education system of limited operators may be necessary in the induction and tradition of TEP technique.

Abstract ID: 0499  Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 110

Periampullary neoplasms as an accidental finding during endoscopic retrograde cholangiopancreatography for benign disease

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**Introduction:** Because of a high incidence of concurrent cholelithiasis with a periampullary tumor, seen accidentally during endoscopic retrograde cholangiopancreatography (ERCP), endoscopy and biopsy from a suspicious Vater’s papilla may establish an early diagnosis of a periampullary tumor.

**Material and Methods:** From 2001 to 2008, 795 patients were referred for endoscopic treatment of choledocholithiasis or postoperative complications after biliary surgery for benign disorders. During the endoscopy of 25 (3.6%) of these patients, the accidental finding of a periampullary neoplasm endoscopically was noted. All patients had already had negative for neoplasms imaging tests (ultrasoundography (US), computed tomography (CT) or magnetic resonance cholangiopancreatography (MRCP)).

**Results:** All patients were diagnosed with a possible periampullary neoplasm during ERCP, followed by tissue sampling for histological and/or cytological confirmation. The final diagnosis was established in 21 (84%) patients. The position of the neoplasm was: the distal common bile duct (CBD) in 3 (14%), the ampulla of Vater in 16 (77%) and the head of the pancreas in 2 (9%) cases. Of the 12 patients that had previous cholecystectomy: 8 (67%) had simple, 3 (25%) with indwelling T-tube insertion and 1 (8%) with choledochoduodenal anastomosis. 4 patients (16%) with negative biopsies were followed-up regularly for six months, in order to exclude an ampullary neoplasm. No major complications were observed with regards to the endoscopy. In 5 patients the neoplasm was deemed inoperable and a stent was inserted, 6 patients underwent an ampullectomy and 10 (48%) patients a Whipple’s procedure.

**Conclusions:** ERCP contributes to the accidental finding and diagnosis of periampullary neoplasms with concomitant biopsy and brush cytology after ES.

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**Abstract ID: 0500  Specific Field: Endoscopic Surgery**

**Mode of pres.: Poster Exhibition**
**ISW 2009 Session PE 112**

**Optimal cases for laparoscopic cholecystectomy in the suspected gallbladder cancer**

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**Introduction:** The surgical procedure for gallbladder cancer is still difficult to improve a prognosis. Otherwise, laparoscopic cholecystectomy (LC) is possible to get complete cure in some cases of early cancer. The present study aims to clarify the appropriate case for LC by evaluating the preoperative suspected gallbladder cancer and its clinicopathological finding.

**Material and Methods:** We performed a retrospective analysis of patients with gallbladder cancer who underwent cholecystectomy from 1981 to 2007 at Kitsato university east hospital in Japan. The histopathological finding clarified the horizontal carcinomatous spread and invasion depth in the 53 cases precisely. We classified those macroscopic configuration and the characteristic. Long-term survival was calculated using the Kaplan-Meier method, and differences in group of survivors were compared by the log-rank test.

**Results:** 43 cases with protruding lesion and 10 cases with wall thickness or with flat invasive lesion (WT) were defined. The protruding lesions were classified into 3 subclass, such as pedicle type (PD, n = 7), nodular type (ND, n = 25) and papillary type (PP, n = 11). ND and PP were sessile lesions. Particularly, the cancer nest was localized in the basal point with PD. On the other hand, the size of cancer spread in ND, PP, WT were 5.8 ± 3.5, 4.0 ± 2.0, 4.8 ± 2.8 ± 4.0 ± 1.9, 5.6 ± 2.6 ± 5.1 ± 2.6 (cm), respectively. These sizes of spreading part were 3 to 6 times of the protruding part. The frequency of case beyond pT2 cancerwas 0% (PD), 91% (ND), 82.8% (PP), 90% (WT). Patients with pT1 tumor who underwent no additional surgery, are alive without recurrence. In patients with pT2 cancer, the 5-year survival rate was 52.6%. Furthermore, those with pT3 tumor had poor prognoses (MST; 12 months).

**Conclusions:** Also the regional lymphadenectomy is necessary for the cases of pT2 cancer. There is much frequency of advanced cancer with sessile lesion and flat lesion. However, all cases with macroscopic pedicle type were pT1 cancer. Thus, the case with pedicle lesion is optimal for the laparoscopic cholecystectomy.

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**Abstract ID: 0501  Specific Field: Endoscopic Surgery**

**Mode of pres.: Poster Exhibition**
**ISW 2009 Session PE 112**

**Laparoscopic resection of adult choledochal cysts in adults**

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**Introduction:** Because of the potential development of biliary malignancies, congenital choledochal cysts are considered an indication of surgery. Recent advantages in surgical devices and techniques in the area of laparoscopic operations enabled pancreato-biliary surgeries other than simple cholecystectomy. Since we first reported in 1996, we have experienced 21 laparoscopic excisions of choledochal cysts in adult patients. We note about the changes of our operative methods and review the results.

**Material and Methods:** All the cases were divided into three groups by the time surgery was performed: former period (group A:1996 to 1999, 9 cases), intermediate period (group B:1999 to 2003, 8 cases) and the late period (group C:2004 to 2008, 4 cases) Surgical parameters including operation time, blood loss, complications, postoperative hospital stay, rate of open conversion were compared between the three groups.

**Results:** In the early period, all the operative procedures including hepatico-jejunostomy was performed laparoscopically. During the intermediate period, mini-laparotomy was made to facilitate biliary reconstruction. There was a decrease in operation time (611 vs 419 min) and Blood loss (518 vs 283 ml) from group A to group B. The procedure was converted to open in 3 patients in group A (40%) and 1 patient in group B (10%). In the late period, we completely perform all surgical procedure under laparoscope. Operation time got longer (582 min) however, blood loss was minimal (93 ml) in group C. There were no case converted to open laparotomy in group C.

**Conclusions:** Laparoscopic excision of choledochal cyst is now becoming the comparatively safe surgery.

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**Abstract ID: 0502  Specific Field: Endoscopic Surgery**

**Mode of pres.: Poster Exhibition**
**ISW 2009 Session PE 113**

**Is routine placement of surgical drains necessary after laparoscopic liver resection?**

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Introduction: We experienced Laparoscopic and Laparoscopy-LS is beneficial, with regard to the minimal invasive-
29.1 ml/min; p
The sufficient results were achieved in 40 patients. The 
Endoscopic Surgery
Specific Field:
The presence of combined complications of the portal 
7.4 to 150.8
±
The applying of the given management in patients with 
66.5 to 213.1
±
There is no difference in background of group D and N.

Results: Patient characteristics; Mean age (group D/N) = 59.3/62.2,
Gender (M: F); group D 13:9 /N 15:7. The diseases included (group 
19/13 cases, and other diseases; 1/1 cases and 12/8 of these cases 
presented with cirrhosis. Type of liver resections (group D/N) left 
lateral sectionectomy; 3/8, partial hepatectomy; group D is 19 cases 
(52.3-3 = 3, S4 = 4, S6 = 7, S7 = 5) and group N is 14 cases (S4 = 6,
S5 = 4, S6 = 6, S7 = 1, S8 = 2). The average surgical time and total 
bleeding were 167.2/192.2 minutes and 81.2/133.3 ml, respectively, 
where in the procedure for no case was changed to open laparotomy, 
and additional surgery or perioperative mortality. There is no post-
operative complication, such as bile spillage, bile ductstenosis, 
hepatic abscess and any infections. But one case of group N is neces-
ary to treatment for intractable ascites. The mean hospital stay 
group (D/N) is 9/8 post operative days.

Conclusions: There is no difference in background of group D and N. This study suggested, in order to reduce the occurrence of compi-
lications, it is not necessary to insert a drain to handle bile spillage or 
hemorrhaging, and the non-use of such a drain is believed to be 
advantageous for shedding bodily fluid in cases of cirrhosis and 
shorter hospital stay.

Abstract ID: 0503 Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition 
ISW 2009 Session PE 114

Combined miniminvasive treatment in patients 
with decompensated liver cirrhosis
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Introduction: The presence of combined complications of the portal 
hypertension in liver cirrhosis patients determine the necessity of the 
interventions, which are able to eliminate it, leaving, as far as possible, 
inductive the compensatory mechanisms of the support of the 
hepatic condition.

Material and Methods: The remote results of consecutive applying 
of mini-invasive interventions (embolization of a lienalis and a.gas-
trica sinistra, endoscopic sclerotherapy of esophageal varices, 
peritoneovenous shunting) in 50 liver cirrhosis patients (Child-Pugh 
B–27, C–23) were analyzed. The esophageal varices of grade III 
and ascites were in all patients, and 39 of them had the secondary 
 hypersplenism.

Results: The sufficient results were achieved in 40 patients. The 
complete obliteration of esophageal varices was achieved in 38 
patients after applying of combination of arteria embolization and 
prolonged endoscopic sclerotherapy. The reduction of the splenic 
flow (from 436.1 ± 66.5 to 213.1 ± 29.1 ml/min; p < 0.05), 
increasing of the arterial volume (from 99.5 ± 7.4 to 150.8 ± 
13.9 ml/min; p < 0.05) and decreasing of the portal volume supply to 
liver (from 646.1 ± 56.9 to 441.0 ± 49.3 ml/min; p < 0.05) was 
noted after embolization. Ascites was fully disappeared or controlled 
by conventional therapy without necessity of paracentesis in 40 
patients. The significant improvement of indices of the liver func-
tional condition was noted in 53% of patients, in 28% - the indices 
were stable, and in 17% - became worsen. The dissatisfied results in 
10 patients determined by the arise of variceal bleeding (three 
patients) and ascites progression (7 patients).

Conclusions: The applying of the given management in patients with 
the high risk is the perspective and optimal.

Abstract ID: 0504 Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition 
ISW 2009 Session PE 115

Laparoscopic surgery for GIST of the small intestine
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Introduction: Although laparoscopic surgery (LS) has widely 
accepted for the treatment of Gastrointestinal Stromal Tumor (GIST) 
of the stomach, it is still controversial whether LS is more beneficial 
than conventional open surgery for the treatment of GIST of the small 
stomach. We reviewed the cases of GIST of the small intestine treated 
by LS in our institution and discussed the benefit of LS.

Material and Methods: We treated the 7 cases of GIST of the small 
stomach by LS in our institution from 1995 to 2008. We analyzed the 
clinical and pathological outcomes in these 7 cases.

Results: There were 3 men and 4 women. The mean age was 61 years 
(range, 18–78), and the mean size of tumor was 56 mm (range, 
28–85 mm). Double-balloon endoscopy (DBE) were performed in 6 
cases (86%), and we could detect the tumors in 5 cases (83%). Pre-
operative marking using DBE has made it easy to identify the tumor 
location intra operatively, 5 cases underwent partial resection of the 
small intestine, and the other 2 cases underwent wedge resection. We 
could recognize the state of the tumors, peritoneal disseminations, 
liver metastases, and adhesions, and perform minimum invasive 
surgery. The median operation time was 120 minutes, and median 
bleed loss was 20 ml. The one case was converted to open surgery 
due to intra operative bleeding. There were no major postoperative 
complications. The pathological diagnosis was confirmed using 
standard hematoxylin and eosin staining and c-kit immunostaining. 
All cases were positive for c-kit. The one case could not perform 
complete resection because of the multiple peritoneal disseminations. 
Another case developed multiple recurrences in the liver after the 
operation, and was treated with imatinib mesylate. The other cases 
have no recurrence to date.

Conclusions: LS is beneficial, with regard to the minimal invasive-
ness and cosmetology, for the diagnosis and the treatment of GIST 
of the small intestine. Preoperative marking using DBE is helpful to 
identify the tumor location intra operatively.

Abstract ID: 0505 Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition 
ISW 2009 Session PE 116

Frequency of colonic diverticulosis in the asymptomatic patients
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Abstract ID: 0506 Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition 
ISW 2009 Session PE 117

Frequency of colonic diverticulosis in the asymptomatic patients
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**Introduction:** Mainly indications to colonoscopy are bleedings, anaemia, changed rhythm of bowel movements and unjustified body weight loss. Other indications are screening for asymptomatic patients over 50 years old and younger patients with positive family history of colon cancer. The aim is to analyze the incidence of colonic diverticulosis in various age groups based on the colonoscopy findings.

**Material and Methods:** Between 2000–2007, 22441 colorectal endoscopic examinations were performed in the symptomatic patients referred by the physicians (group I) and in the asymptomatic patients subjected to screening examinations (group II). The examinations were performed on ambulatory basis or during one-day hospitalization. Patients' data as well as examination images were archived to be subsequently used in the retrospective epidemiologic analysis.

**Results:** Endoscopic examinations were performed in 10550 symptomatic patients (Group I) and 11891 symptom less patients (Group II). Group I consisted of 5914 women and 4636 men at the mean age of 56.7 years (± 15.9), and group II of 7306 women and 4585 men, at the mean age of 53.8 years (± 6.9). In the symptomatic group, 2901 (27.5%) patients had colonic diverticulosis, with the majority in women (56.4%) similarly as in the asymptomatic group, where 2459 (20.7%) patients had colonic diverticulosis, also with the majority in women (60%).

**Conclusions:** Colonic diverticulosis occur in over 20% of the patients without symptoms suggesting colonic pathology, with the majority of cases diagnosed in women. Comparative analysis shows that in most of the patients reported symptoms should not be associated only with the presence of colonic diverticulosis.

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**Abstract ID: 0506** Specific Field: Endoscopic Surgery

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 117**

**Operative techniques and operative possibility of transanal endoscopic microsurgery**  
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**Introduction:** Transanal endoscopic microsurgery (TEM) is an elegant method with very good results for the treatment of almost all benign and some precisely chosen cases of malign diseases of the distal colon and rectum.

**Material and Methods:** The authors present the operative techniques and the operative possibility of TEM - our first 120 cases. We present the operative techniques of mucosectomy, full thickness excision and rectoplasty. We have performed TEM in 93 patients with benign diseases and 27 with malign diseases. Our operative techniques are as follow: 42 mucosectomies, 39 full thickness excisions and 3 TEM rectoplasties.

**Results:** The main operative time is as follow: 56 minutes for the mucosectomies, 97 minutes for the full thickness excisions and 52 minutes for the cases of rectoplasty. The intraoperative blood-loss is 40 ml. for the mucosectomy and 60 ml for the full thickness excision. The main postoperative stay is 1 day for all procedures. We have not cases of perioperative mortality. The postoperative complications are 6, 67%.

**Conclusions:** TEM is a comparatively new and less known method in Bulgaria. We present our good results in treatment of benign and malign diseases of the distal colon and the rectum.
The operation time was 285 minutes and the blood loss was 200 g. There were no mechanical ventilation and complication including pneumonia and recurrent nerve palsy after surgery. Oral fluid intake was resumed at 7 days postoperatively, and this patient was permitted to leave the hospital 17 days after the operation.

**Results:** The operation time was 285 minutes and the blood loss was 200 g. There were no mechanical ventilation and complication including pneumonia and recurrent nerve palsy after surgery. Oral fluid intake was resumed at 7 days postoperatively, and this patient was permitted to leave the hospital 17 days after the operation.

**Conclusions:** MAE using the flexible laparoscope and the endoscopic overtube was considered to be useful and conventional method.

**Abstract ID: 0510  Specific Field: Endoscopic Surgery**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 121**

**Laparoscopy-assisted gastrectomy (LAG) using 4-port technique for early gastric cancer compared with LAG using 5-port technique**

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**Introduction:** Laparoscopy-assisted gastrectomy (LAG) has been widely accepted as one of the treatment for early gastric cancer in Japan. Many surgeons accept a standard 5-port technique (5-PT) when performing LAG. The procedure needs not only an assistant surgeon but also a scopist. The purpose of this study is to demonstrate a 4-port technique (4-PT) by two-men and to compare retrospectively the surgical outcomes between the 4-PT group and the 5-PT group.

**Material and Methods:** All LAG (n = 103) performed Aug 2003 to May 2008 were evaluated. LAG using 4-PT was performed in 18 patients (17.5%) with early gastric cancer. Excepting optical port, 4-PT needs three another trocars inserted through abdominal wall, two in the left upper quadrant, one in the right upper quadrant. The surgeon operated from the left side of the patient and the assistant, who held a scope in his right hand, was positioned on the right side. Data were analyzed retrospectively.

**Results:** There were no significant differences between the 4-PT and 5-PT groups in terms of age, gender, BMI. In the 5-PT group, total gastrectomy and proximal gastrectomy were performed more often than in the 4-PT group. In the 4-PT group, one patient was converted to 5-PT. The mean pneumoperitoneum time (184.1 min in 4-PT vs. 180.7 min in 5-PT, \( p = 0.727 \)), mean intraoperative blood loss (142 ml in 4-PT vs. 137 ml in 5-PT, \( p = 0.315 \)), number of retrieved lymph nodes (36.1 in 4-PT vs. 30.8 in 5-PT, \( p = 0.245 \)) were not significantly different between the two groups, respectively. Post operative complications between 4-PT group (4 patients, 22.2%) and 5-PT (18 patients, 21.2%) were not different.

**Conclusions:** 4-PT LAG that needs only two surgeons is a feasible technique for surgery in patients with early gastric cancer.
Abstract ID: 0511  Specific Field: Endoscopic Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 122

Outcome of laparoscopic total vertical gastric plication in morbid obesity: 150 cases, 4 years follow up
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Introduction: Total vertical gastric plication (TVGP) is a new method of gastric restriction in morbid obesity surgery. The long-term result of TVGP in excessive weight loss (EWL) and its morbidity and mortality is the aim of this study.

Material and Methods: All of cases with BMI over 40 or over 35 with co morbidity or cooperation were included in this study. After release of greater curvature by ligature or coagulation, by 2-0 nylon continuous suturing from upper part of stomach to 45 cm before pylorus was used. The distance of sutures was 2 cm. The greater curvature inverted in the stomach by this suturing and the effective volume of stomach got 50 cc.

Results: 150 cases during 4 years were performed by one surgeon in Laleh Hospital, Tehran, Iran. 126 cases followed by standard control visits. The mortality rate was zero. Re operation performed in 4 cases due to leak of suture line, acute gastric perforation, stricture at sutur line and permanent vomiting secondary to adhesion between cardia and liver. In 4 cases morbidity like liver hematoma, jaundice (drug hepatitis, 2 cases), hypocalcemia was seen. EWL was 25% to 86% (mean = 57%, 94 cases) after 6 months, 61% (72 cases) after 1 year, 60% (51 cases) after 2 year, 57% (23 cases) after 3 years and 55% (10 cases) after 4 years.

Conclusions: TVGP is a safe method with 2.5% re operation rate due to technique and about 1.5% related morbidity. EWL in this technique is the same as others.

Abstract ID: 0513  Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 124

Fra-2 expression of breast cancer cells by retinoic acid
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Introduction: The Vitamin A-Derived retinoids play an important role in regulating a broad range of biological processes including cell growth, differentiation, and development in variety of cell types and tissue. In breast cancer cells, all trans retinoic acid (atRA), a derivative of retinoids, inhibits cell growth and induces apoptosis. But its mechanism is not well understood. To investigate the mechanism of action of atRA, we performed Western blot analysis to estimate the activation of MAPKs and expression of AP-1 components by atRA in MCF-7 human breast cancer cell.

Material and Methods: Serumstarved MCF-7 cells were treated with 10^-8 MRA (0.002%MDSOs as solvent ) or 0.002%MDSO at indicating time. Western blot was performed, using AP-Irelated antibody (anti-c-Fos, anti- Fra-1, anti- Fra-2, anti-c-Jun and anti-JunB antibody) and phosphospecific antibody (P-MAPK, P-MEK). The se expressions were analyzed.

Results: 1) The rapid and long-lasting phosphorylation of MEK to MAPK was induced by atRA. 2) Fra-2was induced at 2 hours after
addition of atRA. A 2-fold and 2.5-fold induction was observed at 24 and 48 hours treatment, compared with DMSO control. 3) RA had no significant induction on other AP-1 components (Fra-1, c-Jun, JunB) expression in MCF-7 cells. 4) The use of PD098059 (specific MEK inhibitor) significantly prevented to the induction of Fra-2 by atRA.

**Conclusions:** 1) atRA induces sustained phosphorylation of MEK-MAPK pathway in MCF-7. 2) Fra-2 expression by atRA is induced through MAPK pathway. 3) Those results suggested that MAPK pathway could play a key role of tumor inhibition in retinoid-sensitive human breast cancer cells.

**Abstract ID: 0514**

**Specific Field: Oncology**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 125**

**Expression profiling of colonocytes for fecal RNA-based detection of curative colorectal cancer**


**Introduction:** The early detection of colorectal cancer originating from any part of the colorectum is desirable because this cancer can be cured surgically if diagnosed early. We recently developed a new method for isolating colonocytes from the feces while maintaining the initial morphology, which thus provides a high-quality of DNA or RNA. In addition, those samples can be used for further analysis. In the present study, we directly compared fecal RNA-expression profiles between colorectal cancer patients and healthy volunteers, and found that most of the genes (92%) expressed in the colonocytes of the cancer patients never expressed in those of the healthy volunteers. Six genes (SEPP1, RPL27A, ATP1B1, EEF1A1, SFN, and RPS11) selected randomly from 85 cancer patient-derived colonocyte-specific genes were evaluated.

**Results:** In total, reverse transcription-polymerase chain reaction or focused microarray of all those 9 genes detected 18 (78%) of 23 colorectal cancers for which curative resection is possible, 9 or 10 (64% or 71%) of 14 early cancers with no lymph node metastasis and 4 (80%) of 5 right-side cancers. We first attempted to identify genes for fecal RNA-based screening. Of 14,564 genes, only 3 (PAP, REG1A, and DPEP1) were selectable as final candidates which expressed frequently at any stage of this cancer and were suppressed in non-cancerous tissues and also in the peripheral blood and colonocytes of healthy volunteers. Next, we directly compared fecal RNA-expression profiles between colorectal cancer patients and healthy volunteers, and found that most of the genes (92%) expressed in the colonocytes of the cancer patients never expressed in those of the healthy volunteers. Six genes (SEPP1, RPL27A, ATP1B1, EEF1A1, SFN, and RPS11) selected randomly from 85 cancer patient-derived colonocyte-specific genes were evaluated.

**Conclusions:** These results suggest that fecal RNA-based screening could be a promising procedure for the detection of curative colorectal cancers.

**Abstract ID: 0515**

**Specific Field: Oncology**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 126**

**The morbidity of one-stage liver-colorectal resections for advanced malignant disease**

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**Introduction:** One-stage resection of colorectal malignancies associated with resectable hepatic metastases is not a universally accepted approach.

**Material and Methods:** We evaluated this approach in a prospective manner beginning in 2006. We treated 20 patients (11 male, 9 female; age 41–80) with colorectal cancer metastatic to the liver by combined resection of the colorectal non-obstructing primary and the hepatic metastases. All patients had received neoadjuvant therapy, chemotherapeutic or XRT for rectal (n = 12), and chemotherapy only for abdominal lesions (n = 8). Seventeen patients underwent hepatic lobe resections (right 12, left 5) and 3 bilateral wedge resections. In 7 patients, lobar resections were supplemented with radiofrequency ablation and/or wedge resections. Three patients had proctectomy with colostomy and nine had proctectomy with low anterior anastomosis (6 with proximal diversion).

**Results:** Seventeen out of a total of 20 procedures were viewed as curative. There was no mortality. Of 3 patients with a low anterior anastomosis and no proximal diversion, 2 developed an anastomotic leak. Wound infection occurred in 2 patients. Other complications included urinary retention, UTI, ileus, and ileostomy diarrhea.

**Conclusions:** We conclude that one-stage liver-colorectal resection for advanced malignancies can be done safely. Proximal diversion by loop ileostomy is a prudent and advisable addition to low anterior anastomosis.

**Abstract ID: 0516**

**Specific Field: Oncology**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 127**

**The tumor suppressor NPRL2 in hepatocellular carcinoma plays an important role in progression and can be served as an independent prognostic factor**

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**Introduction:** Hepatocarcinogenesis is a multifactorial, multistep process that involves the activation of oncogenes or the inactivation of tumor suppressor genes throughout the different stages of hepatocellular carcinoma (HCC) progression. NPRL2 is one of the candidate tumor suppressor genes identified on chromosome 3p21.3, a region which frequently contains genetic abnormalities found in the early stages of the development of various human cancers. In the current study, we aimed to evaluate NPRL2 expression in HCC and to explore the prognostic significance of NPRL2.

**Material and Methods:** We investigated NPRL2 mRNA expression in 70 HCC specimens, using quantitative real-time reverse transcription polymerase chain reaction analysis, and the correlation between NPRL2 expression and clinicopathologic parameters.

**Results:** NPRL2 mRNA was found to be expressed equally in both HCC tissues and corresponding non-cancerous liver tissues. However, higher NPRL2 expression correlated significantly with tumor size (P = 0.0062) and serum PIVKA-II levels (P = 0.0002). Univariate and multivariate analyses revealed that higher NPRL2 mRNA expression was an independent prognostic factor for overall survival (risk ratio 0.39; P < .0001).

**Conclusions:** These results are the first definitive evidence that NPRL2 mRNA expression in HCC is significantly associated with overall survival rates. We also demonstrated that low NPRL2 expression as an independent negative prognostic factor for patients with HCC after surgery. Our results raise the possibility that the level of NPRL2 mRNA expression can be a marker for the malignant potential of a tumor and an index of the treatment.
Abstract ID: 0517  Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 128

Clinical appraisal of hyperthermic therapy combined with low dose gemcitabine for the patients with unresectable pancreatic cancer: comparison with gemcitabine alone

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Introduction: We compared clinical validity of chemotherapy of GEM alone with hyperthermia combined with low dose GEM to the patients with unresectable advanced pancreases cancer.

Material and Methods: This study was retrospective analysis of 17 patients with unresectable pancreatic cancer who undergone hyperthermia with low dose GEM (TCgroup). During the same periods, 20 patients were treated with GEM alone (1000 mg/m2 weekly for consecutive weeks; GEM group). Thermo- chemotherapy was performed once a week, and GEM (200 mg/m2) was simultaneously given to the patients during hyperthermic treatment. We compared the anti-tumor effects in TC group with GEM group. Anti-tumor effects were evaluated by the degree of tumor shrinkage, the change of tumor marker value, PNI (prognostic nutrition index) and prognosis.

Results: In TC group, partial response (PR) was recognized in five patients (29,4%), stable disease (SD) in eight patients (47%), and progressive disease (PD) in four patients (23,5%), respectively. In GEM group, partial response (PR) was recognized in four patients (20%), stable disease (SD) in five patients (25%), and progressive disease (PD) in 11 patients (55%), respectively. Tumor marker value fell in less than pre-treatment level in 12 patients (71%) in TC group and six patients(30%) in GEM group. In GEM group, PNI value had no difference(45 ± 7.9. 44 ± 8.2) before and after treatment. Meanwhile, PNI value after treatment in TC group decreased in significance (47 ± 5.9, 42 ± 8.0). The median survival periods and one year survival rate in TC group and GEM group were 204 ± 149 days, 13.5% and 241 ± 141 day, 39.2%, respectively and there were significant difference in both groups. The harmful phenomenon to interrupt the treatment did not recognize in TC group.

Conclusions: Hyperthermic therapy combined with low-dose GEM for advanced pancreatic cancer bring about equivalent prognosis of the patients treated with standard dose of GEM alone. Thermo-chemotherapy did not recognize a harmfulness phenomenon and could be continued for a long term. In conclusion, this treatment might be appreciably useful therapy for the patients with unresectable pancreas cancer.

Abstract ID: 0518  Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 129

Signature of Lyve-1 in different stages of gastric cancer

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Introduction: Gastric cancer gives metastases by blood and by lymphatic system. The mechanism of giving metastases by lymphatic system is not well known yet. In studies LYVE-1 (lymphatic vessel hyaluronan receptor 1), transmembrane receptor for glycosaminoglycane HA, was used as marker for lymphatic vessels. The relationship between p TNM, histopathological type and density of lymphatic vessels LVD (lymphatic vessels density) was examined. Next aim was to check if LVD is correlated with long term survival.

Material and Methods: The expression of LYVE-1 by immunohistochemistry in 81 gastric cancers in different stages was investigated. Tissue was divided into three compartments: Inside the tumor, tumor periphery and the muscular tissue outside the tumor.

Results: The studies proved existence of lymphatic vessels only on the tumors periphery and outside, what confirms that there is too big pressure inside the tumor for existence of lymphatic vessels. Medium density of lymphatic vessels was higher in the muscular tissue than on the tumor periphery. There was no dependence between LVD and M or T mark. Expression of LYVE-1 was not associated with histopathological type.

Conclusions: There was a positive correlation between lymph node metastasis and LVD. Marking LYVE-1 as a marker of lymphangio genesis can be useful for extension surgical operation.

Abstract ID: 0519  Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 130

Electrochemotherapy of melanoma cutaneous metastases

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Introduction: Electrochemotherapy (ECT) is an effective treatment of cutaneous and subcutaneous tumor nodules in patients with malignant melanoma. Under the treatment electric pulses are applied to tumor nodules to deliver non-permeant or poorly permeant chemotherapeutic agent into the cells thereby increasing local cytotoxicity of anticancer drugs.

Material and Methods: In 7 patients with 81 cutaneous and subcutaneous melanoma metastases were treated by electrochemotherapy. All treatment was performed under general anaesthesia using intravenous chemotherapeutic drug (bleomycin) injection. Electric pulses were delivered by 8 high voltage pulses (kV/cm), 100 ~ s long with 5000 Hz frequency. For electric pulse application we have used linear needle and hexagonal needle electrodes. Treatment efficacy were determined at least 60 days after the therapeutic intervention (median follow up was 218 days and range 60–358 days). Evaluation of antitumor efficacy was based on WHO criteria: Complete Response (CR), Partial Response (PR), No Change (NC) and Progressive Disease (PD).

Results: Among the 81 cutaneous or subcutaneous metastases 22 tumor nodules (28%) were large (>1 cm 3), 46 (58%) medium (0.5 and <1 cm 3), and 12 (15%) small (<0.5 cm) in size. The objective response rate (CR + PR) was 68% with a 25% complete response rate. We observed no change in 26%, and progressive disease in 6%. The ECT significantly reduced the metastases related pain within 7 days.

Conclusions: ECT is an easy and effective treatment of single or multiple cutaneous and subcutaneous metastases of melanoma, with minimal side effects and the possibility to repeat the treatment as many times as needed. Our results confirm the data of recently published studies, that this new treatment modality used for palliative care of melanoma metastases has clinical benefit and impact on the quality of life.
Abstract ID: 0520 Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 131

Two case reports of perianal Paget’s disease
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Introduction: Perianal Paget’s disease is grouped roughly into two classes. One is skin originated and the other is neighboring organ originated cancer that spread to perianal skin (Pagetoid spread). It is very important for treatment strategy to distinguish the two classes.

Material and Methods: We report a case of Pagetoid spread derived from anal cancer that underwent abdominoperitoneal resection and wide resection of perineum tissue reconstructed by V-Y skin flap. We also report a case of skin originated perianal Paget’s disease diagnosed by immunostaining of skin biopsy. It underwent wide resection of perianal skin and preserved anal function.

Results: An 83-year-old woman came to our hospital with the chief complaint of perianal skin erythema and itching. We found anal cancer by total colonoscopy. Pathological examination of perianal skin revealed adenocarcinoma. We diagnosed it Pagetoid spread of anal cancer. The patient underwent abdominoperitoneal resection and wide resection of perineum tissue reconstructed by V-Y skin flap. A 57-year-old woman complaining of perianal itching was referred to our hospital. Perianal invasive erythema was observed. Pathological examination of pre-operative biopsy revealed a number of Paget cells in the epidermis. Dentate line was not involved and no lymph node or remote metastasis was observed. Immunostaining for cytokeratin (CK)7 was positive. CK20 and gross cystic disease fluid protein 15 (GCDFP-15) were negative. We evaluated it skin originated Paget’s disease. We determined the resection line by preoperative mapping biopsy. Perianal wide resection was performed keeping a 3-cm safety margin around the main lesion, with the construction of a temporary stoma and skin mesh graft.

Conclusions: Immunostaining of perianal skin erythema is useful to distinguish skin originated Paget’s disease from neighboring organ originated cancer that spread to perianal skin (Pagetoid spread).

Abstract ID: 0521 Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 132

Cytoreductive surgery and intraperitoneal chemotherapy for pseudomyxoma
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Introduction: Pseudomyxoma peritonei (PMP) is a rare clinical syndrome defined as presence of abundant extracellular mucinous, viscous material in the peritoneal cavity, both floating and adhering to serosal surface (jelly-belly). A ruptured appendiceal mucinous adenoma is considered to be the most origin, but low-grade ovarian cancer is often associated. It is usually diagnosed after the discovery of “jelly belly” by laparotomy. Sometimes it is very difficult to define the origin from appendix or ovary even by histopathologist.

Material and Methods: PMP needs to be considered as a borderline malignant disease if classified pathologically as disseminated peritoneal adenomucinosis (DPAM), in contrast to peritoneal mucinous carcinoma (PMCA). Cytoreductive (Debulking) surgery plus intraperitoneal chemotherapy is reported as a novel treatment with some encouraging results. The principal prognostic factors are the completeness of cytoreduction and especially the histopathological grade.

Results: We herein report a 58-years-old female case of disseminated peritoneal adenomucinosis, the benign form of pseudomyxoma, with both peritoneal and retroperitoneal involvement. Real-time ultrasound and CT scan preoperatively suggested the diagnosis. The origin is confirmed as being the ovary, depending both on the histopathological examination and the past history of appendectomy 20 years ago. The operative procedures were bilateral Salpingo-oophorectomy, total omentectomy, and peritoneectomy. During laparotomy two Port-A Cath were implanted into the peritoneal cavity and superior Vena Cava respectively for postoperative intraperitoneal & systemic chemotherapy. Now she is still disease-free after follow up of 16 months.

Abstract ID: 0522 Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 133

Population screening for hereditary cancer: a novel, effective tool in early cancer diagnostics
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Introduction: Cancer remains an important cause of morbidity and mortality, necessitating effective screening in order to reveal the tumour in early stage or before its establishment. The knowledge about hereditary basis of a subgroup of cancers in combination with available surveillance and prophylactic surgery provides a background for prophylaxis of hereditary cancers therefore an effective screening approach must be elaborated. We show novel population screening data and compare the expediency of different screening methods in the diagnostics of hereditary cancer in order to develop an optimal strategy.

Material and Methods: The population screening was carried out in Valka district of Latvia, 09/2005-06/2007, obtaining family cancer histories from 18642 (76.6%) adults. Data from population screening and screening of consecutive hospital cases were compared in breast and colorectal cancer models. The hospital cases included 1011 consecutive breast cancer cases as well as 702 consecutive colorectal cancer cases. Hereditary cancer syndromes were diagnosed by internationally accepted criteria.

Results: Population screening disclosed 5 (0.03%; 95% confidence interval (CI) 0–0.1%) cases of hereditary breast-ovarian cancer (HBOC), 223 (1.2%; 95%CI = 1.1–1.3%) cases of suspected HBOC, 5 (0.03%; 95%CI = 0–0.1%) cases of hereditary colorectal cancer as well as 544 (2.9%; 95%CI = 2.7–3.2%) other hereditary cancer syndromes. By hospital screening, 16 HBOC cases (1.58%; 95% CI = 1.0–2.6%), 158 cases (15.62%; 95% CI = 13.5–18.0%) of suspected HBOC, 1 case (0.14%; 95% CI = 0–0.8%) of hereditary colorectal cancer was diagnosed. In a group of 18642 persons with gender composition analogous to Valka, 1 [95%CI = 0–5] case of hereditary colorectal cancer can be expected as based on the cumulative risk and hospital screening. Population screening has disclosed 5 cases, the highest value.

Conclusions: Population screening reveals higher number of patients at risk for hereditary cancer thus providing clinically significant results as well as reliable data for scientific analysis of the urgency of hereditary cancer problem. Hospital screening remains a valuable tool in the medical science involving patients in research studies as well as providing adequate medical care to cancer patients and their families.
Abstract ID: 0523
Specific Field: Oncology

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 134

Strategies for early detection/presentation of cancer in Nigeria
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Introduction: Cancer is a major contributor to high morbidity and mortality in Nigeria. It kills more than the deaths caused by malaria + TB + HIV/AIDS combined. Nigeria records about 100,000 new cases of cancer annually. Cancer prevention awareness among Nigerians is still very low (less than 25%).

Material and Methods: The Federal Ministry of Health (FMOH), has thus packaged a campaign to fight cancer in 6 Geopolitical Zones of Nigeria starting from the South East Zone. The theme for the Zonal activities is “Early Detection Saves Life”.

Results: previous statistics: Out of the 10 commonest cancers in women, breast cancer formed 43.4% while that of the cervix was 15.4%. Recent analysis of the 10 commonest cancers in both male and female, breast cancer came 1st (29.6%), followed by cancer of the cervix (10.2%) and then that of the prostate (7.9%). Majority of the patients still present late despite increased awareness campaigns in the villages.

Conclusions: Preliminary Result: The campaigns have however increased the number of persons seeking doctors’ attention and those of stage II breast cancer. The Federal Government’s recent increasing concern about the detection (early or late) of cancers is affecting positively the outcome of the awareness/sensitisation campaigns. Much is however desired about the management since only the rich can afford the high cost of the disease detection as well as management. On the other hand, the State Governments are yet to show any form of interest in that regard.

Abstract ID: 0525
Specific Field: Infection / Antibiotics / Wound Healing

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 136

Technique and management of open abdomen with mesh and a zipper for superior mesenteric arterial occlusion
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Introduction: The open abdomen (OA) has become widely accepted management of severe intra-abdominal sepsis, abdominal compartment syndrome. Massive necrotic bowel resection is sometimes needed after superior mesenteric arterial occlusion (SMAO). Moreover, after resection of infarcted bowel, “second look” operation may be indicated to confirm that all ischemic tissue has been removed. We present our OA technique and management and evaluate the efficacy for SMAO.

Material and Methods: We treated OA technique for 12 patients with SMAO. Their mean age was 69 years. Eleven patients had underlying diseases such as hypertension, arterial fibrillation, diabetic mellitus and liver cirrhosis. All 12 patients required long segmental resection of the small bowel. We performed OA using a zipper, with or without mesh, at the initial operation. Multiple debridement and irrigations was performed by manually explored the entire abdominal cavity through the opening zipper once or twice a day under respiratory ventilation in the intensive care unit. Precise observation of the blood flow at the anastomotic site and remnant bowel, and throughout the organs. Subsequently, the ascites was cultured for bacteria. The criteria of cease the OA management were as follows: (1) the blood flow of anastomotic site and remnant bowel was sufficient, and the bowel edema was subsided to close the wound, (2) the irrigation fluid was clear and the bacterial culture was negative. After debridement of the wound, the abdominal wound was closed at second look operation.

Results: The mean APACH II score was 12 ± 4 points. All patients underwent massive bowel resection, and the mean length of remnant intestine was 105 ± 25 cm. Four patients was underwent OA using zipper only, and 8 patients underwent OA using zipper and mesh. The mean duration of OA treatment was 4.6 ± 0.9 days. No patients required re-resection of the remnant bowel.

Conclusions: OA using zipper with or without mesh is useful procedure for allowing inspection of the blood flow of the anastomotic site and remnant bowel after massive bowel resection for SMAO.
Abstract ID: 0526  
Specific Field: Infection / Antibiotics / Wound Healing

Mode of pres.: Poster Exhibition  
ISW 2009 Session PE 137

Maggot debridement therapy: our initial experience and factors influencing outcomes

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Introduction: In recent years, there has been resurgence in the use of maggot debridement therapy (MDT) for chronic wounds. The aim of our study is to report on our experience with MDT, our patients’ perception and to assess factors likely to influence outcome.

Material and Methods: In the period between March and May 2008, patients with wounds that seemed suitable for MDT were referred to our MDT wound nurse. A total of 14 patients with 15 wounds were treated with MDT using a standardized treatment protocol. The patients’ biographic data (age, gender, co-morbidities including diabetes and peripheral vascular disease status), wound characteristics and significant investigations results were obtained from the patients’ case notes. The patients were also questioned on their perception on MDT after completion of treatment. The clinical outcomes (granulation area and limb survival) of the patients were then evaluated.

Results: In total, 7 of 15 wounds (47%) had a successful outcome. All of which required only 3 or less applications. Factors that negatively influenced outcomes included presence of diabetes mellitus and peripheral arterial disease and heel ulcers. Majority of the patients experienced minimal discomfort during the therapy.

Conclusions: MDT is a safe and effective treatment option for patients with chronic wounds. Although the number of patients in our study is small, our results help us to refine our MDT treatment protocol by allowing us to identify and therefore excluding patients who are less likely to have positive outcome.

Abstract ID: 0527  
Specific Field: Infection / Antibiotics / Wound Healing

Mode of pres.: Poster Exhibition  
ISW 2009 Session PE 138

Treatment of bacterial catheter-related sepsis(CRS) with antibiotic-lock technique (ALT)


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Introduction: Background: Home Parenteral Nutrition (HPN) is an effective therapy which retains life and promotes social activity in unnourished patients, while troublesome complication such as catheter related sepsis (CRS) frequently occurs. In “Guidelines for Management of Intravascular Catheter-Related Infections” (Clin Infect Dis. 32, 2001), ALT is recommended instead of catheter removal. However, it remains uncertain whether ALT is also effective in infection of an implantable subcutaneous infusion port system (ISIPS).

Aim: To investigate whether ALT is effective to treat CRS in ISIPS.

Material and Methods: Seven patients with ISIPS were enrolled from January 2005 to November 2008. Those were 3 Crohn’s disease, 2 chronic idiopathic intestinal pseudo-obstruction, 1 non-specific ulcer, and 1 radiation enterocolitis patients. The patients were diagnosed as CRS by clinical signs such as high grade fever and/or bacteremia in culture. Three ml of Vancomycin (25 mg/ml) was injected from infuser ports and locked twice a day for 2 weeks. Success rate was evaluated by re-administrating HPN on the same ISIPS without any sign of CRS. The protocol was approved by the ethical committee of Tohoku Univ. Hospital.

Results: Ten episodes of CRS were treated with ALT. ALT was completed in all trials without any significant complication. Success rate was 60% in 1 month and 50% in 2 months. The average infection-free period was 151.3 days, and 1 episode was free from CRS for more than 12 months after ALT. Vancomycin-sensitive bacteria was identified in all examined cultures except for 2 unsuccessful cases with Candida infection.

Conclusions: Because the success rate and infection-free period after ALT in ISIPS are comparable to those in tunneled CVC without infuser ports, ALT is a candidate therapy for CRS also in ISIPS. ALT in ISIPS possibly enables survival of the catheter and decreased frequency of port removal in HPN.

Abstract ID: 0528  
Specific Field: Infection / Antibiotics / Wound Healing

Mode of pres.: Poster Exhibition  
ISW 2009 Session PE 139

Spleenic abscess

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Splenic abscess is relatively rare, but potentially life-threatening condition, that tends to occur in patients with predisposing factors. The purpose of this study was to review our experience with managing of 8 patients.

**Material and Methods:** From 1996 to 2006, 8 patients (6 men, 2 women), aged 18–85 (mean 52.5) with splenic abscesses were treated in our department. The diagnosis was based on abdominal ultrasonography and computed tomography.

**Results:** The clinical symptoms included: fever (5 patients), left upper abdominal pain (6) and leucocytosis (3). The radiological findings revealed left-side pleuro-pulmonary reaction in 7 out of 8 patients. Splenomegaly (130 to 218 mm, mean 180) was detected in all patients. The single abscess was found in 3 patients and multiple abscesses were noted in 5 patients. The predisposing factors were found in all patients. They included myeloblastic leukaemia (1 patient), myelomonocytic leukaemia (1), myelodysplasia (2), myeloproliferative syndrome (1), immunoglobulin deficiency (1), diabetes mellitus (3), alcoholic liver cirrhosis (2), pancreatitis (1). Open splenectomy was performed in all 8 patients. Postoperative complications were: portal vein thrombosis (1), deep vein thrombosis of the right lower limb (1), circulatory (2) and renal insufficiency (1). Abscess cultures included: Salmonella sp. (2), E. coli (1), Klebsiella pneumoniae (1), Streptococcus epidermidis MRSA (1) and Aspergillus fumigatus (1). All patients survived the operation and were discharged from the hospital.

**Conclusions:** Although splenectomy remains the traditional treatment for splenic abscess, particularly for multiple abscesses, due to high morbidity, CT-guided percutaneous drainage for single abscess may be appropriate in carefully selected cases.

### Abstract ID: 0529

**Specific Field:** Infection / Antibiotics / Wound Healing

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 140**

Splenbe infarction and abscess after endoscopic injection of hypertonic saline-epinephrine solution administered for bleeding gastric ulcer

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**Introduction:** Endoscopic hemostatic therapy for bleeding ulcers is the first-choice procedure for upper GI bleeding. Local injection therapy is a useful, simple, and economical procedure. The agents used as sclerosants, include absolute ethanol; epinephrine; hypertonic salin-epinephrine (HSE); and other agents. On the other hand, sclerotherapy is known to cause complications such as fever, pain, ulceration, and recurrent bleeding occasionally; however, splenic infarction and abscess is an extremely rare complication of endoscopic injection therapy. Here, we describe a rare case of splenic infarction and abscess that developed after endoscopic injection of HSE administered for bleeding gastric ulcer.

**Material and Methods:** A 68-year-old woman, presented with bleeding from gastric ulcer. Endoscopy revealed bleeding from an open ulcer containing a distinctly visible blood vessel. Endoscopic sclerotherapy with HES was performed. The bleeding stopped with 12 ml of HSE injection. On the day after the initial endoscopic sclerotherapy, the anemia worsened. Consequently, repeat endoscopic sclerotherapy was performed. The vessel that was noted in the previous endoscopy was persistent. Additional 27 ml of HSE was reinjected. On day 3 after the second endoscopic sclerotherapy, the patient developed high fever (39 °C) with upper abdominal pain. Enhanced computed tomography (CT) showed a large hypodense splenic area, characteristic of infarction. On day 13 of admission, arteriography was performed, and splenic artery was found to be obstructed. The high fever continued for more than 7 days; repeated enhanced CT revealed a large splenic abscess; laparotomy was performed consequently. The whole spleen was necrosed and debrided. The splenic artery was sclerosed by the HSE injection, and there was no bleeding from splenic artery. The postsurgical clinical course on was uneventful, and the patient was discharged on 24 after the surgery.

**Conclusions:** Splenic infarction and abscess should be considered in a patient with persistent high fever and pain after endoscopic injection therapy. The use of adhesive agents and, small amounts of sclerosants and slow injection speed are recommended for endoscopic injection therapy.

### Abstract ID: 0530

**Specific Field:** Thoracic Surgery

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 141**

Extra-pulmonary tuberculosis in Indonesia

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**Introduction:** Tuberculosis is still a major health problem in Indonesia which has not yet been eradicated. Although many efforts have been done to overcome this issue, there are still many difficulties such as patients’ compliance and awareness, drugs supplies, etc. Despite of government’s eradication program for tuberculosis along with relatively low-priced medication supports (Rifampycin - 5 cents; INH - 4 cents; Ethambutol - 5 cents; Pyrazinamide - 3 cents), even free drugs given in governmental healthcare, the number of incidence of tuberculosis is increasing. This might be influenced by low education aptitude of Indonesian common society.

**Material and Methods:** Other than pulmonary tuberculosis, there are quite a number of extra-pulmonary tuberculosis cases that are treated in our Dept. of Surgery. From year 2006 until 2008 we have accumulated as many as 184 number of extrapulmonary tuberculosis cases. Lymphadenitis (54.3%) and mastitis (11.41%) being the two most common ones. Others are peritonitis, osteomyelitis, appendicitis, psoas abscess, perianal fistula, cystitis, adenitis, hernia, orchitis, and prostatitis.

**Results:** Intra abdominal cases of tuberculosis may be complicated with rupture of lymph nodes, stenosis, or fistula, mostly requiring repeated operations. Fortunately these complications are rare. Mastitis tuberculosis is a common differential diagnosis of breast cancer, and the role of pathologist is very important since the treatment is different for both cases.

**Conclusions:** Tuberculosis patients are still common in Indonesia, along with a large number of extra pulmonary tuberculosis. Lymphadenitis tuberculosis and mastitis tuberculosis are the two most common extra-pulmonary lesions of tuberculosis in our department. Prompt diagnosis and proper treatment are mandatory, even though they are relatively not that straightforward.
This discussion will advance the notion that a structured team approach to surgical tool development must involve a comprehensive understanding of the medical marketplace by all involved. The concept of a ‘compound ethical burden’ and a systems approach to development of medical equipment is proposed for all professionals involved.

Efficiency of NSAID in the treatment of inflammatory myofibroblastic tumor: case report

Material and Methods: We describe the case of a 62-year-old woman who complained of upper abdominal pain associated with inapetency, asthenia and weight loss. The examinations showed retroperitoneal mass close to the left side of the aorta, extending till mesentery. In front of suspicion of lymphoma, we performed exploratory laparotomy with multiple biopsies.

Results: Histopathologic results showed an inflammatory myofibroblastic tumor of retroperitoneal space. Due to this diagnosis, incomplete surgical resection and persistence of symptoms, we start a treatment with acetamisin 90 mg/day. Six months after operation, patient is asymptomatic with disparition of the tumor at CT-scan.

Conclusions: IMT is a benign lesion with variable evolution from spontaneous regression to local, quick and invasive growth. In case of incomplete surgical resection is the treatment of choice.

Isolation and characterization of stem cells from the human parathyroid gland

Material and Methods: Successful instrument design requires substantial acumen in many critical areas which include, modern sterilization procedures, material engineering, industrial design, human factors analysis and of course the economics which drive the medical industry. How do design and surgical professionals consolidate a conceptual design’s possible direction?

Results: It is not the intention of this study to restrict the application of competent design theory and practice as applied to medical product development. The rationale of this exploration is to provide a resource with which those in surgical theatres along with professionals in industrial design and engineering may utilize when confronted with single and multi-use surgical apparatus design.

Conclusions: This discussion will advance the notion that a structured team approach to surgical tool development must involve a comprehensive understanding of the medical marketplace by all involved. The concept of a ‘compound ethical burden’ and a systems approach to development of medical equipment is proposed for all professionals involved.
Material and Methods: Five surgically resected human parathyroid glands were obtained from patients with secondary hyperparathyroidism. Tissues were minced and digested with type II collagenase and cultured in Iscove’s modified Dulbecco medium with 10% fetal calf serum, supplemented with 10 ng/ml FGF-2. Adherent cells were further selected by limiting dilution and single-cell clonal expansion. Cell karyotypes were carried out and surface phenotype of the cells was characterized with flow cytometry. Telomerase activity was performed with Telomere Repeat Amplification Protocol (TRAP) assay. Cells were differentiated in keratinocyte medium with addition of calcium (0.5uM) and vitamin D (20 nM) followed by real time calcium ion imaging. Cells were induced for mesenchymal differentiation with cytochemical staining. Gene expressions for cell lineages were carried with real-time and reverse-transcriptase PCR. Intracellular organelles are demonstrated by transmission electron microscopy.

Results: Parathyroid-derived stem cells (PDSCs) were able to be isolated and maintained in prolonged culture with normal karyotypes. PDSCs demonstrate telomerase activity and express the pluripotent gene Sall4. Induction with calcium and vitamin D reveals uptake of calcium and upregulated calcium receptor gene expression which is one of the markers for PTH-secreting cells. As a demonstration of its stem cell property, PDSCs were able to differentiate into osteoblasts, chondrocytes, adipocytes and express smooth muscle actin under in vitro induction.

Conclusions: The isolation, characterization and culture of a stem cell population from human parathyroid glands have been established in this study. Further studies are needed to formulate induction conditions to differentiate the PDSCs into PTH-secreting chief cells as a possible alternative treatment for hypoparathyroidism and PTH deficiency-related diseases.

Abstract ID: 0535 Specific Field: Miscellaneous

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 146

Complications of abdominal part of ventriculo-peritoneal shunts (VPS)

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Introduction: The abdominal cavity has been used for absorption of cerebrospinal fluid in patients with hydrocephalus since 1905. Abdominal complications of VPS are a rare event; however, their frequency varies from 5% to 47% according to the reports.

Material and Methods: 7 patients presented to Al-Bashir teaching hospital from Feb. 2006 to June 2007, all known to have ventriculo-peritoneal shunt. Six patients with large abdominal pseudocysts; Abdominal pseudocysts formed 10 times in 6 patients. Diagnosis was supported by clinical findings, ultrasound and computed tomographic scan. Pseudocysts dealt with differently in different patients without mortality and minimal morbidity. Operative surgical excision of the cysts when possible done in 2 patients with catheter relocation to upper abdominal quadrant, while catheter relocation to internal jugular vein in 3 patients, one patient successfully managed with aspiration under ultrasound guide with antibiotic cover. A female patient, 2.5 years of age presented with extruding of the catheter through the anus and peritonitis explored and a perforated recosigmoid junction, the perforation closed, and the catheter exteriorized through the anterior abdominal wall.

Results: There were 7 patients, 6 females and 1 male, with age range from 8 months to 51 years. All of the patients with pseudocysts presented with abdominal distension and a soft mass filled with liquid that occupied most of the abdominal cavity without evidence of shunt malfunction. Patient followed from 1 year to 3 years after treatment, cyst recurred in one patient. 4 of the patients with pseudocysts appeared to have other operation in the abdominal cavity, appendectomy in 3, intestinal obstruction in one, incisional hernia in one.

Conclusions: Patients with a history of ventriculo-peritoneal shunt that presents with an abdominal mass should be investigated for the occurrence of pseudocysts; abdominal operations for other reasons appears to be a predisposing factor for cyst formation.

Clinical features of 5 patients with abdominal CSF pseudocyst

<table>
<thead>
<tr>
<th>age</th>
<th>gender</th>
<th>presentations</th>
<th>No. of cyst formation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 months</td>
<td>female</td>
<td>distension</td>
<td>1</td>
</tr>
<tr>
<td>2.5 years</td>
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<td>distension</td>
<td>2</td>
</tr>
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<td>distension</td>
<td>3</td>
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<tr>
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<td>1</td>
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Figure: Multiple operations is a risk factor for pseudocyst formation

Abstract ID: 0536 Specific Field: Miscellaneous

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 147

Extra gastrointestinal stromal tumor: a case report with review of literatures

O. Sadieh [1], A. Breizat [2], A. Ghannam [1], A. Domour [1], Q. Al-Ani [1]

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Introduction: Extra Gastrointestinal Stromal tumor (EGIST), are unique tumors that occurs outside the gastrointestinal tract. EGIST, shows c-kit expression and histology appearance similar to GIST, and it is about 5% of GIST tumors, where there is dense expression of CD34.
A 66-year-old man presented with abdominal distension of one month duration, with weight loss of 10 kg over the last two months. Patient known to have peptic ulcer surgery 20 years ago with gastro-jejuno-stomy and vagotomy. Imaging study showed a huge heterogeneous mass, biochemical investigations were normal.

Results: Surgical exploration reveals a huge tumor attached to the tail of the pancreas, excised completely with splenectomy, and histopathology was consistent with GIST. Imatinib mesylate treatment started after the surgery and patient followed uneventful for 33 months.

Conclusions: The therapy of choice of resectable EGISTs is complete surgical removal of the tumor. EGISTs have a more aggressive path than GIST and usually with worse prognosis because it had more space to grow with less symptoms.

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Specific Field: Miscellaneous

S203

If strictureplasty is preferred, it is critical to evaluate for cancer, as the site of stricture formation has been associated with adenocarcinoma.

Abstract ID: 0539 Specific Field: Miscellaneous

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 150

Enterocutaneous fistulas: treatment and results
K. Kontzoglou, P. Katsaronis, P. Paraskeva, K. Konstadoudakis, G. Kouraklis
2nd Department of Propedeutic Surgery, National and Kapedistrian University of Athens, Medical School, Laiko General Hospital of Athens, Athens, Greece

Introduction: Enterocutaneous fistulas are the most challenging conditions in surgery with significant associated morbidity and mortality even nowadays. A retrospective analysis of records of 37 patients with enterocutaneous fistulas treated over a period of five years in our department has been done. There were 14 males and 23 females, aged between 18 and 85 years old, aiming to identify factors related to the origin of the patient, his/hers medical and surgical history, the need for operative treatment and the possibility of spontaneous closure, the quality of patients' life and the mortality.

Material and Methods: We reviewed files of patients of patients with postoperative enterocutaneous fistulas treated in our department during a 5-year period, aiming to identify factors, such as nutrition and other drugs, related to spontaneous closure, the need for operative treatment and mortality. Only patients with small bowel fistulas were included.

Results: A total of 37 patients were treated and the location of the fistula tent to be the small bowel. The majority of patients were female (23) and the age range was 18 to 85 years old. The ECF were related to inflammatory bowel disease in 3 cases, diverticular disease in 4 cases, carcinoma in 5 cases (1 after radiotherapy), closure of Hartmann in 2 cases, small bowel ischemia in 2 cases (1 after vascular procedure), bowel obstruction in 5 cases, appendicitis in 1 cases. One patient was initially treated in another hospital, surgery was attempted in 7 patients and 3 patients died. The fistula output was high in 5 patients (>500 ml/day) and 6 patients developed sepsis. Management of enterocutaneous fistula initially concentrated correction of fluid and electrolyte imbalances, total parenter nutrition, the use of somatostatin in 24/h infusion, skin protection, drainage of collections and treatment of sepsis. Surgical repair was attempted when spontaneous fistula closure was unlikely, when further complications developed, when multiple fistulas were present and when control of fistula output could not be obtained.

Conclusions: A strategy of control of acute sepsis, maintenance of nutritional support prior to surgery and prevention of complications allows for primary closure. Resection should only be performed when feasible.

Abstract ID: 0540 Specific Field: Miscellaneous

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 151

Increase of interleukin-15 in experimental severe acute pancreatitis
K. Kamei, T. Yasuda, T. Ueda, H. Ohyanagi, H. Shiozaki, Y. Takeyama
Kinki University School of Medicine, Osakasayama, Osaka, Japan

Introduction: Interleukin (IL)-15 is a novel cytokine that shares many biological properties with IL-2. Recent studies showed that serum IL-15 levels were elevated in patients with acute pancreatitis (AP), particularly in alcoholic AP with pancreatic necrosis. Tissue factor pathway inhibitor (TFPI) is a regulator of coagulation-fibrinolysis system and plays a role in the severity and organ dysfunction in SAP. However, the role of IL-15 and the efficacies of IL-15 on organ injury in SAP have not been investigated in experimental SAP. The aim of this study was to investigate the expression of IL-15 and the efficacy of IL-15 on organ injury in SAP.

Material and Methods: SAP was induced by retrograde injection of 3% and 20% sodium deoxycholate into the biliopancreatic ducts in rats. At the same time, recombinant IL-15 protein was administered intraperitoneally. Expression in injured organs were evaluated by western blotting and immunohistochemical staining. Bacterial culture of the ascites, pancreas and mesenteric lymph nodes, and laboratory data were evaluated.

Results: Western blotting analyses revealed that the expressions of IL-15 protein in pancreas, liver, lung and ileum were increased after the induction of 3% DCA pancreatitis. The maximum expressions in the organs were observed 18 hours after the induction of SAP. The expression of IL-15 in kidney was not observed. Immunohistochemical staining showed the expression of IL-15 in cytoplasm in each organ. Infection of recombinant IL-15 protein intraperitoneally attenuated organ injury of pancreas and liver.

Conclusions: These results suggest that IL-15 has a key role in organ injury in SAP.

Abstract ID: 0541 Specific Field: Miscellaneous

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 152

Plasma tissue factor pathway inhibitor levels in patients with acute pancreatitis
T. Ueda [1], T. Yasuda [1], K. Kamei [1], M. Shinzkei [2], Y. Ku [2], H. Ohyanagi [1], H. Shiozaki [1], Y. Takeyama [1]
Kinki University School of Medicine, Osakasayama, Osaka, Japan

Introduction: Interleukin (IL)-15 is a novel cytokine that shares many biological properties with IL-2. Recently, we showed that plasma tissue factor (TF) levels were elevated in patients with AP, particularly in alcoholic AP with pancreatic necrosis. Tissue factor pathway inhibitor (TFPI) is a regulator of coagulation-fibrinolysis system and plays a role in the severity and organ dysfunction in SAP. However, serum IL-15 expression have not been investigated in experimental SAP. The aim of this study was to investigate the expression of IL-15 and the efficacy of IL-15 on organ injury in SAP.

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Conclusions: These results suggest that IL-15 has a key role in organ injury in SAP.
Plasma TFPI concentrations were measured in 44 patients with AP on admission with an ELISA kit. The relationships with severity, pancreatic necrosis, organ dysfunction, infection, and prognosis were analyzed.

**Results:** Plasma TFPI levels were increased in AP compared with healthy volunteer (37.5 ± 2.9 vs. 27.5 ± 1.1 ng/mL, P < 0.05). Plasma TFPI levels in severe AP were greater than those in mild AP (42.1 ± 3.9 vs. 30.2 ± 3.8 ng/mL, P < 0.05). Plasma TFPI levels significantly correlated with Ranson score, APACHE II score, and Japanese severity score. Plasma TFPI levels in patients with pancreatic necrosis were greater than those in patients without pancreatic necrosis (42.2 ± 3.9 vs. 28.3 ± 3.2 ng/mL, P < 0.01). Plasma TFPI levels in patients with organ dysfunction were greater than those in patients without organ dysfunction (45.8 ± 4.5 vs. 29.2 ± 2.9 ng/mL, P < 0.01). In patients with pancreatic necrosis, the TF/TFPI ratios in non-survivors were lower than those in survivors (1.4 ± 1.1 vs. 42.8 ± 17.2, P < 0.05). Moreover, the mortality rates in patients with the TF/TFPI ratios 2.0 were lower than those in patients with the TF/TFPI ratio < 2.0 (13% vs. 67%, P < 0.05).

**Conclusions:** Plasma TFPI levels were significantly increased in patients with AP, and the elevation was markedly related to the severity, pancreatic necrosis and organ dysfunctions. These results suggest that the imbalance of TF and TFPI may influence the disease state and thereby prognosis.

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**Abstract ID: 0542**  
Specific Field: Miscellaneous

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 153**

Role of triggering receptor expressed on myeloid cells-1 (TREM-1) in experimental severe acute pancreatitis

T. Yasuda, T. Ueda, K. Kamei, H. Ohyanagi, H. Shiozaki, Y. Takeyama  
Kinki University School of Medicine, Osaka, Japan

**Introduction:** Triggering receptor expressed on myeloid cells (TREM)-1 is an important regulator of innate immunity and a critical amplifier of inflammatory signaling in response to lipopolysaccharide and other microbial products. Recently, we disclosed that serum TREM-1 levels were significantly increased in patients with severe acute pancreatitis (SAP) and that they correlated with disease severity and early organ dysfunction. The aim of this study was to clarify the role of TREM-1 in the pathophysiology of experimental SAP.

**Material and Methods:** Wistar rats weighing 250–300 g were employed. Sham-operated rats (laparotomy only) were set as the control. SAP was induced by retrograde injection of 3% or 20% (wt/vol) sodium deoxycholate (DCA) (0.1 ml) to biliopancreatic ducts (DCA pancreatitis). TREM-1 levels in serum and ascitic fluid were determined with an established available enzyme-linked immunosorbent assay (ELISA) kit. The expressions of TREM-1 protein in major organs were investigated by ELISA and western blotting. Next, to clarify the source of TREM-1, peritoneal macrophage depletion was done and TREM-1 levels in serum and ascitic fluid were measured. At last, the efficacy of blockade of TREM-1 was examined using LP17 (a synthetic TREM-1 inhibitor).

**Results:** TREM-1 levels in serum and ascitic fluid were significantly higher in SAP group than those in sham group. They were also significantly higher in 20% DCA pancreatitis than those in 3% DCA pancreatitis. In 3% DCA pancreatitis, they are increased along with the time course (development of pancreatitis). Expressions of TREM-1 protein were significantly increased in major organs, such as pancreas, liver, lung, and kidney. Peritoneal macrophage depletion resulted in the decrease of TREM-1 levels in serum and ascitic fluid. Blockade of TREM-1 significantly improved the liver and renal dysfunction (serum AST and BUN levels).

**Conclusions:** Serum and ascitic TREM-1 levels were significantly increased along with disease severity and progression. Expressions of TREM-1 protein were increased in injured organs. These results suggest that TREM-1 may act as an important mediator for inflammation and organ failure in SAP and that TREM-1 may be a potential therapeutic target for the development of SAP and associated organ dysfunction.

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**Abstract ID: 0543**  
Specific Field: Miscellaneous

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 154**

Non-mesh-one layer inguinal hernia repair under local anesthesia

A. Yakubu  
Jahun General Hospital, Jahun, Jigawa State, Nigeria

**Introduction:** There is still no consensus about the best and most cost-effective surgical approach to inguinal hernia repair. The cost of most methods is unacceptable in poor communities with very limited health care budget. This study analysed our experience in an opened non-mesh-one layer inguinal hernia repair with acceptable outcomes.

**Material and Methods:** During a period of seven years (2001 to 2008), 1238 patients underwent inguinal hernia repair. Subjects were aged from 18 to 87 years with a mean of 45.3 ± 1.1 years, they were all evaluated retrospectively. Patients were observed in recovery room for 1–3 hrs and discharged home on oral drugs. Wound dressing was changed and sutures removed at first (3rd-day) and second (7th-day) follow up visit respectively. There is no restriction of movement and feeds from the first postoperative day. The follow up period ranged from 2 to 24 months. Single surgeon operated on all cases. Demographic information, cases incidence, types of hernias, associated diseases, complications and mortality were analyzed.

**Results:** There were 742 patients (60.0%) with indirect hernia, 496 patients (40.1%) with direct hernia, 342 patients (27.6%) with bilateral hernia and 33 patients (2.7%) presented with recurrent hernia. Local anesthesia was successful in 1046 patients (84.4%). Spinal anesthesia was used in 186 patients (15.0%). The mean inpatients’ stay was 4.5 hours for LA and SA (2 hrs to 7 days). The mean time to return to normal activity was 10 ± 0.7 days. The average cost per patients was approximately 13,000:00 Naira (599:00). The mean duration of surgery was 30 ± 2.0 min (25–63 min). Postoperative complications were observed in 8% of all cases. There was a recurrence of 0.73%.

**Conclusions:** The non-mesh-one layer inguinal hernia repair under local anesthesia can be performed by skilled surgeons with low complication and recurrence rate comparable to other popular methods especially in communities with poor income.

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**Abstract ID: 0544**  
Specific Field: Miscellaneous

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 155**

Sacrococcygeal chordoma with bilateral buttock, pelvic and paravertebral recidivas

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Universitary Emergency Hospital Bucharest, Romania, Romania

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Introduction: Chordomas are rare bone tumors that arise from embryonic notochordal remnants along the length of the neuraxis at developmentally active sites. These sites are the ends of the neuraxis and the vertebral bodies. Chordomas comprise less than 1% of CNs tumors, though they can occur in extraaxial locations; they are slow growing tumors and tend to extend into surrounding soft tissue.

Material and Methods: We present a case report of a 33-year-old male B.C.V. who came to the General Surgery Department Of University Emergency Hospital 29 july 2004 for a bilateral huge buttock tumoral growth (20/15 cm, 20/20 cm), pain in the lower part of his back, with no semnificant personal antecedents.

Results: Between 29 july 2004 and 20 January 2008 he was evaluated and treated into our clinic and he developed a fast progressive evolution with multiple recurrences (bilateral buttock, pelvic, spinal bilateral) that imposed surgical treatment (seven surgical interventions, five in general surgery department and two in a neurosurgery department), radiotherapy (linier electron accelerator), chemothrapy (Cisplatinum 50 mg local and Gleevec 400 mg p.o.). The patient developed neurological deficits, urological complication (bilateral ureterohydronefrosis stage III that lead to permanently ureteral stents), nephrological complications (kidney failure) and hematological complications (severe secondary anemia). In spite of complex therapy the patient died 42 month after the first surgical intervention.

Conclusions: Sacro-coccygeal chordoma is a rare disease and it presents difficult diagnostic and therapeutic problem. Considering the high rate of local recurrence in spite total en bloc resections with safety edges and secondary radiotherapy we can a firm that it imposes team-work to obtain the best therapeutic results and an improved life quality for the patient. Also because of the high rate of reurrence that request repeated surgical interventions with wide hospitalization periods and to the anatomically localisation (spinal, intracranially or sacrococciageal) in well inervated areas and with important neurological functions it is a highly disabling disease that affects patient’s social, economic, and familial status.

Abstract ID: 0545 Specific Field: Miscellaneous

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 156

Small bowel obstruction caused by hypertrophic intestinal tuberculosis: case report
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Clinical center Banja Luka, Banja Luka, Bosnia and Herzegovina

Introduction: Tuberculosis is one of the rare causes of intestinal obstruction. Hypertrophic tuberculosis of intestines is rather rare, and the reports of this disease of the gastrointestinal tract have become even more unusual since the description by Crohn et al.

Material and Methods: Authors present case of 38 years old patient with previously diagnosed pulmonary tuberculosis who has been transferred from pulmology department to the surgical ward with clinical presentation of acute abdomen on acceptance. Distension of abdomen together with diffuse rigidity of abdominal wall has been determined on clinical examination. Plain radiography of abdomen shows small bowel obstruction. Leucocytesisis and high level of CRP has been determined in blood laboratory findings. An emergency laparatomy shows intestinal obstruction with multiple stenosis on ileum and inflammatory infiltration and total stenosis on the site of ileocecal valve. Temporary loop ileostomy has been performed due to total obstruction. Two surrounding lymph nodes were sent for pathob ballistic examination. Recovery was uneventful and patient was scheduled for restorative surgery after the treatment with tuberculostatic agents.

Results: Intestinal obstruction is common surgical disorder. Intestinal tuberculosis is rare cause of this disorder among our surgical pathology compare to some Asian countries where is leading cause of intestinal obstruction. Loop ileostomy is safe surgical procedure in treatment of obstructive intestinal surgical emergencies compared with resections and stricturoplasties.

Conclusions: We present 38-year old man with complete intestinal obstruction on the ileocecal valve due to advanced tuberculosis with abdominal propagation that has been succesfully managed by loop ileostomy.

Abstract ID: 0546 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 157

Age and tumor type predict cure in well-differentiated thyroid carcinoma presenting with distant metastases
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University of Sydney, Sydney, Australia

Introduction: Well-differentiated thyroid carcinoma overall has an excellent longterm prognosis, however in patients presenting with distant metastases results are less favorable. The aim of this study is to describe the longterm outcomes for patients presenting with metastatic differentiated thyroid carcinoma following treatment with multimodality therapy.

Material and Methods: A standardized treatment protocol incorporating total thyroidectomy, radiiodine ablation (RAI) and TSH suppression was utilised for all cases of WDTC. Data were prospectively entered into a comprehensive thyroid cancer database. The study population included all patients with evidence of distant metastases at presentation. Patient demographics, tumour histology, RAI doses and thyroglobulin levels were analysed. Patients with two consecutive negative RAI scans and Tg values < 0.3 ug/L were considered free of disease. Patients with poorly differentiated carcinoma (insular) were excluded from the study.

Results: In the period 1968-2009, 1733 patients underwent treatment for WDTC. Of these, 37(2.1%) had distant metastatic disease at presentation. Mean age at presentation was 53 yr, there were 24(65%) females and median follow up was 10 yr. The primary thyroid tumors included 19 Papillary (51%) and 17 Follicular cancers (46%), with a mean tumor size of 31 mm. In 62% of patients site of distant metastases was lungs, 43% bones, 24% lung and bone and 38% mediastinum. On average 3.6 therapeutic doses of RAI were administered per patient with a mean cumulative dose of 20.0 GBq. The overall 5 and 20 yr survival were 87% and 65% respectively. At final follow up 8(22%) patients were disease free with no radiological or biochemical evidence of disease. Multivariate analysis younger age (< 45 yr) and papillary cancer subtype were independent predictors of cure. Patients under the age of 45 yr had a three fold greater chance of cure compare with older patients (p = 0.035). Disease free patients had fewer doses of RAI 1.6 versus 4.1 (p = 0.03) and a lower cumulative RAI dose 8.9 versus 22.5 GBq (p = 0.032) at final follow up.

Conclusions: In patients with well-differentiated thyroid cancer and distant metastases a multimodality approach results in a cure rate of 22% and median survival of 20 years. Younger age at presentation and papillary subtype improve the likelihood of cure.
Abstract ID: 0547  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 158

Pre-eclampsia and primary hyperparathyroidism: diseases of a common origin?

H. Hultin [1], P. Hellman [1], E. Lundgren [1], Mats Olovsson [2], S. Montgomery [3], A. Ekbom [4], J. Rastad [5]


Introduction: Objective Case reports have described associations between calcium metabolism disturbances and primary hyperparathyroidism with pre-eclampsia, suggesting parathyroid involvement in pre-eclampsia aetiology. This study examines whether parathyroid adenoma (PA), the main cause of hyperparathyroidism, diagnosed and treated prior to pregnancy is associated with pre-eclampsia.

Material and Methods: A register-based study was performed to assess the association between parathyroid adenoma and subsequent pre-eclampsia. The underlying hypothesis for this investigation was that vitamin D deficiency and the link to factors included in the metabolic syndrome may be a common predisposing factor. Women with a diagnosis of PA were identified through the Swedish Cancer Register and were included in the study if they also had a singleton birth recorded in the Swedish Medical Birth Register between 1973 and 1997. Fifty-two women with a diagnosis of PA were identified, who could be matched to 519 healthy controls.

A diagnosis of pre-eclampsia does not include women with prorichronic hypertension. To ensure that treatment of parathyroid adenoma was completed prior to pregnancy, those with a diagnosis of PA made less than two years prior to delivery (and the matched comparison women) were excluded. Conditional logistic regression was used to investigate the association of PA with subsequent pre-eclampsia in the first singleton pregnancy with adjustment for potential confounding factors.

Results: Statistical PA prior to delivery is significantly (p < 0.001) associated with pre-eclampsia, producing an adjusted odds ratio of 6.89 (95% confidence interval: 2.30, 20.58).

Conclusions: Abnormalities associated with PA may be involved in the aetiology of pre-eclampsia. A history of PA should be viewed as a risk for pre-eclampsia in pregnant women.

The odds ratio for pre-eclampsia associated with a diagnosis of parathyroid adenoma(PA) more than two and five years prior to delivery

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<th>Unadjusted OR (95%CI)</th>
<th>Adjusted OR (95%CI)</th>
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<tr>
<td>PA more than two years prior to delivery</td>
<td>6.35 (2.44, 17.30)</td>
<td>6.89 (2.30, 20.58)</td>
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<td>PA more than five years prior to delivery</td>
<td>7.69 (2.43, 24.31)</td>
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Abstract ID: 0548  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 159

High pluripotent status of CD133 positive cells in primary papillary thyroid cancer

C.C. Ke [1], Y. -R. Shih [1], R.S. Liu [2], Y.F. Tsai [3], L.M. Tseng [3], O.K. Lee [1], C.H. Lee [3]

[1] Institute of Clinical Medicine, National Yang Ming University, Taipei, Taiwan, [2] Department of Nuclear Medicine, Faculty of Medicine, National Yang Ming University, Taipei, Taiwan, [3] Department of Surgery, Taipei Veterans General Hospital, Taipei, Taiwan

Introduction: Papillary thyroid cancer (PTC) represents > 70% of all thyroid cancers, and belongs to well-differentiated cancer. With appropriate surgery resection and 131I ablation, PTCs are usually curable. However, local or regional recurrences occur in 5 ~ 15% of patients with PTC, with distant metastasis occurring in 5 ~ 10% of patients. We hypothesize a small portion of cells escape from radiation ablation and contribute to recurrence and metastasis. CD133 is recently proposed as a marker of cancer stem cell in various cancers. In this study, we analyzed the expression of selected pluripotent and thyroid specific genes in both CD133pos and CD133neg portion of cells derived from resected primary tumors.

Material and Methods: Papillary thyroid tumors resected from patients were cultured in F12 K containing 10% FBS and supplemented with hydrocortisone, TSH, Insulin and Glycyl-L-histidyl-L-Lysine acetate. Cells expressing CD133 were isolated with magnetic microbeads and total RNA were isolated and reverse transcribed for subsequent real-time qPCR using the Taqman probe system.

Results: CD133pos cells represent ~ 5% of the whole population and are enriched to >70% after magnetic microbeads isolation. ES cell regulators are expressed significantly higher in CD133pos than in CD133neg cells in all donors, including Oct4 (pos/neg = 8.7 ~ 35 fold), nanog (pos/neg = 40 ~ 83 fold), Lin28 (pos/neg = 5 ~ 808 fold) and Sox2 (pos/neg = 17 ~ 82 fold). No difference was noted in expression of KRHa and c-Myc. Expression of thyroid specific transcription factors (TTF-1 and Pax8) was slightly higher in CD133neg than in CD133pos cells (neg/pos = 1 ~ 2 fold). Thyroid specific gene expression was significantly higher in CD133pos than in CD133neg cells, including NIS (neg/pos = 2 ~ 4 fold), Tg (neg/pos = 1.02 ~ 36 fold), TPO (neg/pos = 1.1 ~ 3 fold) and TSHR (neg/pos = 1 ~ 2 fold).

Conclusions: CD133pos cells within PTC cells exhibited a gene expression profile of an undifferentiated state. These cells may contribute to the recurrence or distant metastasis of PTC. Further characterization is being carried out for their in vivo and in vitro metastatic and tumor initiating properties.

Abstract ID: 0549  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 160

Genetic variation of TP53 and MDM2 in adrenocortical carcinoma

J.H. Kim [1], K.J. Bussey [1], M. Wandoloski [1], K. Delgjorno [1], M.T. Barrett [1], M.J. Demeure [2]

Adrenocortical carcinoma (ACC) is a rare and aggressive endocrine malignancy. The increased incidence of ACC in the genetic Li-Fraumeni (TP53 mutation) syndrome suggests the p53 pathway is involved in ACC oncogenesis. The p53 tumour suppressor-gene induces cell-cycle arrest and apoptosis in response to DNA damage or other cellular stress. mdm2 regulates p53 activity in a tight feedback loop. Disruption of the p53 pathway results in dysregulation of the cell cycle and inhibition of apoptosis. ACC phenotypes may depend on aberrations in TP53 or its regulatory pathway.

**Material and Methods:** Genomic DNA was extracted from 26 ACCs and exons 2–11 of TP53 amplified by PCR and sequenced. Additionally, the aneuploid population of 4 of the tumor samples was also sequenced separately after flow sorting of nuclei based on DNA content. MDM2 Single nucleotide polymorphism (SNP) 309 was evaluated by restriction digest with MspAlI of a 287 bp fragment amplified by PCR from the first intron of MDM2. Genotype of MDM2 SNP 344 was determined by Taqman assay (PN4367302, Applied Biosystems) following manufacturer’s protocols. Results of both SNP 309 and SNP 344 were confirmed in 5 samples by sequencing. Genotype and mutational data was combined with expression data generated from 18 ACC tumors on Affymetrix UI33 Plus 2 chips.

**Results:** Four of 26 ACCs had a mutation of TP53 (7181733 C > T, 7180544 G > GT, 7182449 G > A, 7182882 T > C). The codon 72-proline allele of TP53 was observed in 20 of 26 ACCs in a homozygous state; no heterozygotes were observed. Two tumors had both aberrations. Using expression data from 18 ACC, leading edge analysis following gene set enrichment analysis (GSEA) of p53 gene sets identified MDM2 as the major gene driving the enrichment score in the R72P tumors but not in R72P, R74 tumors. Mean MDM2 expression levels were significantly higher in tumors with the R72P_P allele compared to tumors with the R72P, R allele (p = 0.03). MDM2 SNP 309 had 14 T/T (56%), 10 T/G (40.0%) and a G/G (4%), a similar frequency to that of general population. All samples were homozygous for the ancestral allele of SNP 344.

**Conclusions:** TP53 mutation is relatively uncommon in patients with sporadic ACC. However, the R72P polymorphism of p53 gene appears to be selected for in these tumors resulting in increased MDM2 expression and altered p53 function. This effect is not accounted for by SNPs in MDM2.

**Abstract ID: 0550** Specific Field: Endocrine Surgery

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 161**

A genome-wide linkage analysis of papillary thyroid carcinoma: evidence for linkage to chromosome 8

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**Introduction:** The incidence of thyroid carcinoma, the most common endocrine malignancy, has increased over the past few decades in industrialized countries. Genetic predisposition plays a greater role in the development of thyroid cancer than in the case of any other cancer, and the effect of genes extends beyond the members of a nuclear family. However, the genetic mechanism underlying the pathogenesis of thyroid carcinoma still remains unknown. Therefore, we conducted a genome-wide linkage analysis on 90 sibling pairs with papillary thyroid carcinoma (PTC), the most frequent type of thyroid carcinoma, in order to identify the genetic locus conferring the predisposition to papillary carcinoma.

**Material and Methods:** In this study, the sibling pairs with PTC (169 patients, including 90 pairs from 82 families) were enrolled from the Noguchi Thyroid Clinic and Hospital. All participants signed an informed consent form approved by the Ethics Review Committee of the Noguchi Thyroid Clinic and Hospital and the Ethics Review Committee of RIKEN. Genome-wide genotyping of single nuclear polymorphisms (SNPs) was performed with Affymetrix GeneChip Human Mapping 50KXba arrays. The obtained genotyping data was examined on the basis of certain criteria by using the statistical program package R. We selected 11,838 SNPs from a total of 50K SNPs. We performed multipoint linkage analysis using Merlin (http://www.sph.umich.edu/csg/abecasis/Merlin/) (A multipoint, non-parametric genetic map; deCODE).

**Results:** In this study, we found the suggestive linkage of the chromosome 8q (maximum lod score = 2.41) with PTC.

**Conclusions:** This is the first study to report the suggestive linkage of chromosome 8q with PTC. There are many possible candidate genes for PTC in this genome region. Therefore, an extensive survey of this region is necessary to uncover the molecular pathogenesis of PTC in relation to this linkage region.

**Abstract ID: 0552** Specific Field: Endocrine Surgery

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 163**

An institutional experience over two decades of pediatric and adolescent pheochromocytoma


**Introduction:** Adrenocortical carcinoma (ACC) is a rare and aggressive endocrine malignancy. The increased incidence of ACC in the genetic Li-Fraumeni (TP53 mutation) syndrome suggests the p53 pathway is involved in ACC oncogenesis. The p53 tumors suppressor-gene induces cell-cycle arrest and apoptosis in response to DNA damage or other cellular stress. mdm2 regulates p53 activity in a tight feedback loop. Disruption of the p53 pathway results in dysregulation of the cell cycle and inhibition of apoptosis. ACC phenotypes may depend on aberrations in TP53 or its regulatory pathway.

**Material and Methods:** Genomic DNA was extracted from 26 ACCs and exons 2–11 of TP53 amplified by PCR and sequenced. Additionally, the aneuploid population of 4 of the tumor samples was also sequenced separately after flow sorting of nuclei based on DNA content. MDM2 Single nucleotide polymorphism (SNP) 309 was evaluated by restriction digest with MspAlI of a 287 bp fragment amplified by PCR from the first intron of MDM2. Genotype of MDM2 SNP 344 was determined by Taqman assay (PN4367302, Applied Biosystems) following manufacturer’s protocols. Results of both SNP 309 and SNP 344 were confirmed in 5 samples by sequencing. Genotype and mutational data was combined with expression data generated from 18 ACC tumors on Affymetrix UI33 Plus 2 chips.

**Results:** Four of 26 ACCs had a mutation of TP53 (7181733 C > T, 7180544 G > GT, 7182449 G > A, 7182882 T > C). The codon 72-proline allele of TP53 was observed in 20 of 26 ACCs in a homozygous state; no heterozygotes were observed. Two tumors had both aberrations. Using expression data from 18 ACC, leading edge analysis following gene set enrichment analysis (GSEA) of p53 gene sets identified MDM2 as the major gene driving the enrichment score in the R72P tumors but not in R72P, R74 tumors. Mean MDM2 expression levels were significantly higher in tumors with the R72P_P allele compared to tumors with the R72P_R allele (p = 0.03). MDM2 SNP 309 had 14 T/T (56%), 10 T/G (40.0%) and a G/G (4%), a similar frequency to that of general population. All samples were homozygous for the ancestral allele of SNP 344.

**Conclusions:** TP53 mutation is relatively uncommon in patients with sporadic ACC. However, the R72P polymorphism of p53 gene appears to be selected for in these tumors resulting in increased MDM2 expression and altered p53 function. This effect is not accounted for by SNPs in MDM2.

**Abstract ID: 0550** Specific Field: Endocrine Surgery

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 161**

Histone deacetylase inhibitors activates Notch1 signaling and suppresses tumor progression in follicular thyroid cancer in vivo

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**Introduction:** We have previously demonstrated that Notch1 acts as a tumor suppressor and histone deacetylase (HDAC) inhibitors induce Notch1 expression in follicular thyroid cancer (FTC) cells in vitro. However, it is not known whether similar phenomenon occurs in xenograft model of FTC. Therefore, this study was aimed at assessing the antitumor effect of the HDAC inhibitors, suberyl bis hydroxamic acid (SBHA) and valproic acid (VPA), in an in vivo model of FTC.

**Material and Methods:** Nude mice were subcutaneously injected with human FTC236 cells and then treated with SBHA (100 mg/kg), VPA (366 mg/kg) or vehicle injection every day for 12 days. Tumors were measured every 4 days and then harvested after 12 days for Western blot analysis to analyze the Notch1 activation.

**Results:** Treatment of SBHA or VPA in FTC tumor resulted in an average 50% or 38% reduced tumor volume respectively compared to the control groups (P < 0.05). Analysis of SBHA- or VPA-treated FTC tumors revealed a marked increase in Notch1 protein indicating that SBHA and VPA activate the Notch1 signaling pathway. Importantly, SBHA or VPA treatment resulted in an increase in protein levels of p21 and concomitant with a decrease in cyclinD1, suggesting that the growth inhibition was due to cell cycle arrest.

**Conclusions:** These results demonstrate that HDAC inhibitors effectively inhibit FTC tumor growth in vivo. SBHA and VPA are promising candidates for clinical studies in advanced FTC.
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Introduction: Pheochromocytoma (PCC) is a rare surgically correctable cause of secondary hypertension in children & adolescent. The aim was to analyze our data with respect to clinical presentation, management & long-term outcome of children with PCC.

Material and Methods: We retrospectively analysed records of children with PCC operated between 1989 and 2008, with regards to their presentation, investigations, management & long-term treatment outcomes. Biochemical diagnosis was established by 24-hour urinary metanephrine. Localization was done with ultrasonography, CECT or MRI. All children were preoperatively prepared with a-blockers for 10–14 days.

Results: 105 patients of biochemically proven PCC’s were operated during this period. 19.1% (n = 20) patients were below 18 yrs. There were 10 boys & 10 girls. Mean age was 14.5 (5–18) yrs. 16 children had apparently sporadic, 1 child had familial PCC, 2 had MEN 2a and 1 had MEN 2B. Presenting symptoms were headache (70%), sweating (60%), palpitation (65%) & abdominal pain (35%). 4 children had hypertensive crisis & 4 had seizure disorders at presentation. 1 child was normotensive. Majority of the children had elevated 24-hr urinary metanephrine levels (8.1 + 5.3 mg/day). Imaging revealed unilateral (n = 14), bilateral (n = 4) & extra-adrenal (n = 2) tumours. Two parangangioma excision, 14 unilateral & 4 bilateral adrenalectomies were performed. Out of 9 laparoscopic procedures, 4 children underwent successful laparoscopic excision. Rest had to be converted to open procedure. Mean tumoursize was 6.2 cm (4–11.5) & mean tumorweight 52.6 gms (5–264). Histopathology confirmed PCC in all. Malignancy was diagnosed in one child. Morbidity included pulmonary edema(n = 1), sub-diaphragmatic collection(n = 1) & wound infection(n = 1). There was no peri-operative mortality. Post-operative urinary metanephrine levels normalized in 75% children. 20% had persistent hypertension on follow-up.

Conclusions: Pediatric pheochromocytoma constitutes around 20% of all PCC’s. Headache is the commonest clinical presentation. Treatment modalities are the same as adults and surgery has excellent outcome in specialized units. Majority of children became normotensive during follow-up.

Abstract ID: 0553 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 164

Left shifted calcium-PTH set point in obese patients before bariatric surgery

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Introduction: A state resembling secondary hyperparathyroidism including raised levels of parathyroid hormone (PTH) and normal levels of calcium in serum has been reported in morbidly obese patients. A plausible reason may be vitamin D deficieny, although some conflicting data are reported. We aimed to characterize the derangement in more detail.

Material and Methods: 108 consecutive morbidly obese patients with a mean BMI of 45. 4 admitted for bariatric surgery were examined before and one year after RYGB (Roux-en-Y-gastric bypass). Levels of 25-OH-Vitamin D3, intact PTH (iPTH), calcium, creatinine, albumin and glucose were measured in serum. Selected patients underwent citrate-calcium clamping (CiCa-clamp) in order to further characterize the calcium homeostasis. A group of 19 healthy volunteers of normal weight underwent the CiCa-clamping as comparison.

Results: All patients had normal pre- and postoperative serum calcium and creatinine levels. Preoperatively, mean levels of 25-OH vitamin D3 in serum were low, 53 nmol/L ± 25 (reference range 75–250 nmol/L). Mean serum iPTH was 5.2 pmol/l ± 2.29 (reference range 1.1–6.9 pmol/l) in the preoperative group with 10 patients displaying raised values. CiCa-clamping in obese subjects revealed a remarkably high sensitivity for calcium and a left-shifted set-point at an ionized calcium concentration of 0.98 mmol/l. One year after RYGB weight-loss was in mean 46 kg, and BMI had decreased to 30.6. The mean levels of 25-OH vitamin D3 were 50, 1 nmol/l ± 24, (range 8–107) and s-iPTH 6.0 ± 3.23 pmol/l. Fourteen patientshad elevated levels of iPTH. CiCa-clampingone year postoperatively also demonstrated a left-shifted set-point compared to healthy individuals.

Conclusions: Although vitamin D levels in these morbidly obese individuals were in the lower normal range, only few patients display overt signs of secondary HPT. However, the CiCa clamping confirms a derangement similar to that seen in models of secondary hyperparathyroidism due to renal insufficiency and hypovitaminosis D. This state remains after RYGB and weight-loss.

Abstract ID: 0554 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 165

Size of parathyroid glands estimated by ultrasonography can predict requirement of parathyroidectomy after kidney transplantation

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Introduction: After restoration of normal renal function with successful kidney transplantation, most of the hyperplastic glands would return to a normal state in function and morphology. However, we sometimes encounter the patients with hyperparathyroidism (HPT) after transplantation. In these patients, before kidney transplantation, the parathyroid cells usually had already shown progression to nodular hyperplasia, monoclonal proliferation. There are the possible relationship between the largest dimension estimated by ultrasonography (US) and hyperplastic pattern of parathyroid glands in renal HPT.

Material and Methods: Between July 1973 and December 2008, 2639 patients underwent total parathyroidectomy (PTx) with forearm autograft for renal HPT in our department. We had performed PTx after successful kidney transplantation in 19 patients. In 7 patients out of these patients, the size and function of parathyroid glands were examined before kidney transplant. We studied the clinical outcomes in these 7 patients (Group A) and 14 patients who did not require PTx after transplantation (Group B). We evaluated the size of parathyroid glands estimated by US, serum calcium (Ca) level and serum intact-PTH level, before and after transplantation in these 2 groups.

Results: In Group A, in all patients, except for one, we detected enlarged parathyroid gland by US before transplantation. The mean largest dimension of parathyroid gland was 11.9 mm, mean serum intact-PTH level was 302 pg/ml, serum Ca level was 11.1 mg/dl, and serum phosphorus level was 6.4 mg/dl. In Group B, in 6 out of 14 patients, parathyroid glands were recognized. The mean largest dimension of parathyroid gland was 2.3 mm, mean serum intact-PTH level was 357 pg/ml, serum Ca level was 8.8 mg/dl, and serum phosphorus level was 6.1 mg/dl. There was no difference regarding PTH level between A and B groups. However, the size of parathyroid gland estimated by US was significantly larger in Group A, than that in Group B.
Conclusions: Persistent hyperparathyroidism after transplantation most commonly occurs in patients who have severe secondary HPT at the time of transplantation. We conclude that the glandular size of the largest parathyroid gland estimated by US can be a useful factor to predict the requirement of PTx after kidney transplantation.

Abstract ID: 0556  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 167

Implementation of laparoscopy to adrenal surgery
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Introduction: Laparoscopic approach (LA) has become the preferred method for adrenal surgery. We started LA 1995 with a prospective series of Conn’s adenomas. The purpose of this study is to review our learning experience.

Material and Methods: 407 patients underwent adrenal surgery between 1995-08.343 LA were performed. Open approach (OA, n = 55) and open radical cancer surgery (9) were excluded. Conversions were done in 14 patients (4%). Surgeons 1–3 have made 182, 99 and 32 LA operations, respectively. The rest OA performed by other surgeons were excluded. Complications were bacteremia, pneumothorax, hemorrhage, venous trombosis, urinary tract infection and pain. The learning curve calculations were accomplished by fitting the power formula (Y = aX^b) to the time used for operation.

Results: The initial estimated time was 143 ± 9 min and the natural slope of learning was −0.12 ± 0.02 corresponding to learning percentage slope of 92.3%. The operation time decreased significantly as the number of operation increased (p = 0.029). The improvement in mean operation time as the number of operation doubled from 1–5 to 6–10 was 18.3% from 142 ± 52 to 116 ± 30 min. There were no significant differences in learning between different adrenocortical disorder. The learning rates are 90%, 90%, and 98% for different surgeons. There might be a tendency to remove larger tumours with LA as the surgeon gets familiar with the technique. There were moderate differences in mean tumour size as the number of operations increased, but the variance was large and the trend was barely significant. Complications decreased significantly as the number of operations increased (p = 0.020) and there was also a decreasing trend (p = 0.001).

Conclusions: We have used the learning rate to assess how quickly surgeons are getting familiar with LA and how they are able to shorten operation time. The learning percentage is 100% for fully learned procedure indicating no improvement as the number of operations increase. The excellent learning rate (92%) obtained here is expected as professionals implement a new procedure into otherwise familiar performance. One of the surgeons seemed to have a head start as he entered the study later on as the operational procedures were already established.

Abstract ID: 0557  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
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Outcome of patients requiring tracheostomy placement related to thyroid disorders
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Introduction: Thyroidectomy is a safe surgical procedure with controllable but significant risks. Tracheostomy (TR) may be necessary in a small percentage of patients. We report our experience with patients requiring TR related to thyroid disorders.

Material and Methods: A retrospective review (1998–2008) of patients undergoing TR related to a thyroid disorder was performed. Demographics, diagnoses, procedures, complications and outcomes were recorded. Descriptive methods of analysis are used.

Results: 2,582 patients underwent thyroidectomy during the study period. 15 patients (0.5%) [7 male, median age 69 yrs (range 24–81)] underwent TR due to a thyroid related disorder or procedure. Median BMI was 36 (range 25–41). 53% had a thyroid malignancy. One patient underwent TR prior to operation for airway obstruction secondary to a benign multinodular goiter, and four others underwent planned TR for invasive or compressive tumor at the time of operation. Two patients underwent unplanned TR at the time of surgery; one patient required TR for tracheomalacia, and the other had tumor invading the trachea requiring partial tracheal resection. Three patients required TR within hours after extubation due to respiratory distress and recurrent laryngeal nerve dysfunction. Five patients required TR in the later postoperative setting at a median of 18 days (range 2–40 days) for progressive respiratory distress secondary to recurrent laryngeal nerve dysfunction. Median thyroid weight was 106 grams (range 29–329 g). Preoperatively, 33% had documented recurrent laryngeal nerve paralysis. Additional intentional sacrifice of a recurrent laryngeal nerve was carried out in 2 patients. Inadvertent recurrent laryngeal nerve transection was identified in one patient with short-term paresis of the opposite visually intact nerve (1/2, 582 = 0.03%). All remaining recurrent laryngeal nerves were identified visually and intact. Decannulation occurred in 73% (median 62 days, range 7–283 days). No patients with anaplastic cancer were decannulated.

Conclusions: The need for TR related to a thyroid disorder is extremely rare but can occur in the immediate or late postoperative setting. TR is usually temporary, except in those with anaplastic cancer. Many requiring TR are obese.

Abstract ID: 0558 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 169

Expression of somatostatin receptors in primary gastro intestinal stromal tumours (GIST)
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Introduction: Neuroendocrine tumours often express somatostatin receptors (SSTR). SSTR-based radiotherapy, using radiolabelled somatostatin analogues, was proven effective treatment of neuroendocrine (NE) tumours with high expression of SSTR2. These receptors are internalized after ligand-binding and will thus deliver the radionuclide close to the tumour cell nucleus. Recently, we demonstrated NE differentiation of both low- and high-risk GIST, the radionuclide close to the ligament of Treitz and multiple liver metastases in patient no 20.

Material and Methods: The expression of the SSTR1-5 mRNA in GIST was analysed by qRT-PCR. The expression of the SSTR1-5 mRNA in GIST was analysed by qRT-PCR in relation to clinical data. Results: qPCR demonstrated high expression levels of SSTR1 (94 ± 38 target copies per 1000 b-actin, mean ± SD) in GIST and low levels of SSTR2 (2.8 ± 3.9, mean ± SD); SSTR 3–5 were undetectable. Immunohistochemistry confirmed the presence of SSTR1 in GIST tumour cells. SSTR1 expression was not related to tumour size, risk score, or mutational status. Octreotide scintigraphy allows visualization of certain GIST.

Conclusions: The present results with high to very high expression of SSTR1 by the tumour in about half of the patients with GIST can be of interest for SSTR-based imaging and radiotherapy. The SSTR expression profile in patients with verified imatinib resistance needs to be studied. Preclinical studies on binding and internalization in tumour cell cultures, biodistribution and dosimetric studies of radiolabelled somatostatin analogues in GIST cell lines or xenografts using an optimal radiolabelled SSTR1 ligand are also needed.
Among 134 patients with pheochromocytoma, 798 consecutive patients underwent parathyroidectomy for primary hyperparathyroidism. The majority of these patients (66%) had a rise in ioPTH 5 min. after resection of a single parathyroid gland. Of these 110 patients, 37 (34%) continued to have elevated ioPTH levels and further exploration revealed additional hyperfunctioning glands. Importantly, in the majority of patients (n = 73 or 66%), the ioPTH started to fall after this 5 min. timepoint. In these 73 patients, the ioPTH declined by more than 50% from the 5 min. timepoint in 30% of patients at 10 min., in 89% at 15 min., and in 99% at 20 min. Measurement of an additional ioPTH value at 20 min. correctly predicted normocalcemia in 99% of patients.

Conclusions: A rising ioPTH level immediately after parathyroid resection is seen in 14% of patients undergoing parathyroidectomy for primary hyperparathyroidism. The majority of these patients (66%) do not have additional hyper-functioning parathyroid glands. The addition of a 20 min. ioPTH sample will predict operative success in 99% of patients.

Abstract ID: 0560 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 171

A rising ioPTH level immediately after parathyroid resection: are additional hyperfunctioning glands always present?

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Introduction: Intraoperative parathyroid hormone (ioPTH) monitoring is commonly utilized to determine if all hyperfunctioning parathyroid glands have been resected during surgery for primary hyperparathyroidism. However, in our experience, several patients have a significant rise in their ioPTH level immediately after resection of a perceived adenoma. The purpose of this study was to determine if a rising ioPTH level following parathyroid resection reliably indicates the presence of additional hyperfunctioning glands.

Material and Methods: 798 consecutive patients underwent parathyroidectomy for primary hyperparathyroidism with ioPTH monitoring. Patients with an elevated 5 minute ioPTH were extensively studied. Operative success was defined as normocalcemia 6 months after surgery. Data are reported as mean ± standard error of the mean.

Results: Of the 798 patients, 110 (14%) had a rise in ioPTH 5 min. after resection of a single parathyroid gland. Of these 110 patients, 37 (34%) continued to have elevated ioPTH levels and further exploration revealed additional hyperfunctioning glands. Importantly, in the majority of patients (n = 73 or 66%), the ioPTH started to fall after this 5 min. timepoint. In these 73 patients, the ioPTH declined by more than 50% from the 5 min. timepoint in 30% of patients at 10 min., in 89% at 15 min., and in 99% at 20 min. Measurement of an additional ioPTH value at 20 min. correctly predicted normocalcemia in 99% of patients.

Conclusions: A rising ioPTH level immediately after parathyroid resection is seen in 14% of patients undergoing parathyroidectomy for primary hyperparathyroidism. The majority of these patients (66%) do not have additional hyper-functioning parathyroid glands. The addition of a 20 min. ioPTH sample will predict operative success in 99% of patients.
Introduction: Primary hyperparathyroidism (pHPT) is associated with increased cardiovascular mortality and morbidity. Available data are mainly based on findings from cohorts of non-selected pHPT patients with preexisting cardiovascular diseases or risk factors. The aim of the present study was to analyse the effects of parathyroidectomy (PTX) on the left ventricular (LV) function in asymptomatic pHPT patients without any known cardiovascular risk factors.

Material and Methods: The study sample consisted of 26 normotensive patients with asymptomatic pHPT with no medication affecting the cardiovascular system, 17 women and 9 men, mean age 54.1 ± 7.5 years, BMI 24.4 ± 2.3 kg/m², blood pressure 125 ± 19 mmHg/81 ± 10 mmHg. Blood levels of ionized calcium (Ca++) and parathyroid hormone (PTH) were analyzed. A novel ultrasound-based technique, tissue Doppler imaging (TDI), was performed before and 16.1 ± 4.5 months after successful PTX.

Results: The levels of Ca++ and PTH normalized postoperatively (1.46 ± 0.06 vs. 1.25 ± 0.04 mmol/L; 107.3 ± 37.1 vs. 49.0 ± 14.0 ng/L; p < 0.001). There were no significant differences between pre and post PTX regarding heart rate or blood pressure. The peak systolic tissue velocities (s’) in the septal and lateral LV walls were higher before PTX compared with the postoperative values, septal-s’ 8.38 ± 0.86 vs. 7.96 ± 0.93 cm/s; (p < 0.05) and lateral-s’ 10.56 ± 1.90 vs. 9.10 ± 1.51 cm/s (p < 0.001). Similarly, the diastolic tissue velocities in the lateral LV wall during early (e’) and late (a’) filling phases were higher and decreased after PTX, lateral-e’ 12.88 ± 5.61 vs. 11.94 ± 2.67; (p < 0.05) and lateral-a’ 9.81 ± 2.17 vs. 8.81 ± 1.96 cm/s; (p < 0.01).

Conclusions: Our results indicate that patients with asymptomatic pHPT without any other known cardiovascular risk factors have a higher myocardial performance, suggestively explained by inotropic action mediated by Ca++ and PTH if longstanding could increase the workload and hypothetically promote cardiac hypertrophy.

Abstract ID: 0563 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 174

Thyroid transcription factor-1, thyroglobulin, cytokeratin 19 and cytokeratin 20 in pathological staging of papillary thyroid cancer
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Introduction: Papillary thyroid cancer (PTC) is multifocal in 60% and spreads to lymph nodes in 50% of patients, both of which involve worse prognosis. The aim of this study was to evaluate usefulness of immunohistochemical profile of thyroid transcription factor-1 (TTF-1), thyroglobulin (TG), cytokeratin 19 (CK-19) and 20 (CK20) in diagnostics of PTC metastases to lymph nodes.

Material and Methods: Immunohistochemical tests were made in paraffin-fixed tumor tissues of 44 patients with PTC and 33 patients with nodular goiter. In PTC group there were: 29T1, 9T2 patients, 4 T3 and 8 T4 patients with lymph node metastasis. Both presence and expression of TTF1, TG, CK-19 and CK-20 were analyzed. Results were stratified using 4 point scale from 0 to 3 (0 meaning no expression and 3 meaning marker expression present in 50% of cells). Data were compared and statistically analyzed.

Results: Expression of CK-20 had no clinical significance. 2rd degree expression was found for CK-19 in 27/44 (61.3%) specimens. In 29 T1 patients: CK-19 was positive in 18/29 (62.5%) specimens; TG in 15/29 (52%) specimens; TTF-1 in 11/29 (37.5%) specimens. In 8 patients with lymph nodes metastases CK-19 was positive in 7/8 (87.5%) specimens; TG in 7/8 (87.5%) specimens TTF-1 in 1/8 (12.5%) specimens. Compared with TG, an antibody to TTF-1 is a similarly sensitive marker for thyroid tumors.

Conclusions: Expression of TG and CK-19 allows for differentiation between follicular cancer and follicular variant of papillary cancer and helps to identify suspicious extra-tumor foci and small foci of either capsular involvement or extracapsular extension.

Abstract ID: 0564 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 175

Adrenal ganglioneuromas: incidentalomas with misleading clinical and imaging features
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Introduction: Ganglioneuromas are rare benign tumors of the neural crest, most commonly arising from mediastinal and aortocaval sympathetic ganglia, and less frequently appearing in the adrenal glands. This study presents our experience regarding diagnostic and therapeutic management of these tumors.

Material and Methods: Amongst 150 cases of incidentalomas we had 7 ganglioneuromas, which were reviewed regarding clinical presentation, functional and imaging status as well as operative results. All tumors were incidentally discovered with ultrasonography and were subsequently evaluated with unenhanced CT scan. Two cases were further studied with functional imaging, one with 131I-MIBG due to asymptomatic urine VMA elevation, and one with FDG-PET/CT scan and history of breast cancer. Biochemical and hormonal screening was carried out in all patients to clarify tumors secretory profile. Four females and three males were operated, with mean age 49.6 yrs (range 39–64). Indications for surgery was large size (4 cases), with additional radiographic suspicion for malignancy in 3 of them, pheochromocytoma (2 cases) and metastatic tumor (1 case).

Results: Five tumors (71%) were asymptomatic. One tumor was discovered during work up for epigastric pain and one tumor caused poorly controlled arterial hypertension. The preoperative CT scan median size was 6.8 cm (range 4–13), whereas the median histological size was 7.7 cm (range 4–13). Both cases that were evaluated with radionuclide studies showed false positive results, suggestive of pheochromocytoma and adrenal metastasis respectively. Three patients underwent open adrenalectomy because of preoperative radiological evidence of carcinoma and the remaining four underwent laparoscopic anterior adrenalectomy. Histologically all seven tumors consisted of fascicles of Schwann-like cells and dispersed mature ganglion cells. No tumor showed immature neuroblastic cells or pheochromocytoma areas. We had no mortality and/or morbidity. No recurrence occurred during a mean follow of 6, 2 yrs (range 10 months-13 yrs).

Conclusions: Adrenal ganglioneuromas are rare incidentalomas that can mimic primary or secondary adrenal malignancies as well as pheochromocytomas. Despite their usually large size, resection via laparoscopic approach is safe and effective.
Abstract ID: 0565  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 176

Predictors for disease recurrence and re-operative surgery in papillary thyroid carcinoma: a case control study

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Introduction: Patients presenting with papillary thyroid carcinoma (PTC) have an excellent long term survival overall, however up to 15% will develop local recurrence requiring further treatment. The aim of this study is to investigate the factors which predict cancer recurrence and the need for further surgery in patients treated for PTC.

Material and Methods: A hospital-based case control study of patients treated for PTC was performed. Cases included 34 consecutive patients requiring re-operative surgery for recurrent PTC. The control group comprised 34 patients cured of PTC after primary surgery and matched for age, sex, and tumour type.

Results: In the period 1993 to 2002, 34 patients underwent re-operative surgery for PTC recurrence. The site of recurrence was the central compartment (level VI) in 53/3 (15%), lateral in 17/33 (52%) and both compartments in 11/33 (33%). The median time to recurrence was 3 yr. Cases and controls were equivalent in age at diagnosis. Sex distribution for both groups was 26F:8 M. Mean primary tumour size was equivalent for cases (24 mm) and controls (20 mm), p = 0.21. Extrathyroidal tumour extension of the primary was more frequent in cases of recurrence 65% versus 20%, p = 0.008. Total thyroidectomy was the initial procedure in all control patients. Less than total thyroidectomy was performed in 18% of cases. The risk of PTC recurrence was significantly increased if less than total thyroidectomy was performed at the initial procedure, OR = 2.21, p = 0.01. The rate of utilisation of compartment based lymph node dissection at initial surgery was significantly lower in the cases compared with controls being 21% and 41% respectively, OR = 1.8, p = 0.02. The risk of PTC recurrence was three fold greater in patients who had their initial procedure performed by a surgeon without a dedicated interest in endocrine surgery as compared to an endocrine surgeon, p < 0.001.

Conclusions: Extrathyroidal tumour extension, incomplete primary surgery and the level of experience of the primary surgeon are significantly associated with tumour recurrence and the need for re-operative surgery in papillary thyroid cancer.

Abstract ID: 0566  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 177

Malpractice claims and lawsuits after thyroidectomy in Turkey between 2006–2008

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Introduction: Thyroid surgery is one of the most frequent surgical approaches. Although surgical technique, experience, anaesthesia, asepsis, and antisepsis are well developed today, there are still unexpected results with the thyroid surgery. In this study, the aim is to state the risk factor of the thyroid surgical approach and give feedback to all healthcare workers, especially the surgeons, about the precautions that need to be taken.

Material and Methods: The study covers a retrospective of the malpractice claims and lawsuits regarding the general surgery practice in the Council of Forensic Medicine (CFM) between 2006 and 2008. The expertise reports concerning the unexpected results of the thyroid surgery are also included in the study. Cases are evaluated regarding age, sex, hospital, pre-operative thyroid function tests, thyroid ultrasonography, practised operation, histopathological examination, the unexpected result in post-operative period, vocal cord consultation, autopsy findings, and the decision on whether a medical malpractice existed.

Results: Between 2006 and 2008, CFM produced 20 reports about claims regarding the unexpected results of the thyroid surgery. When the operation causes were examined, it is observed that 13 cases were operated due to MNG, 2 cases due to Basedow Graves, 1 case due to papillary carcinoma, 1 case due to recurrent goiter, 1 case due to follicular adenoma, 1 case due to chronic lymphocytic thyroiditis, 1 case due to an undeclared indication. Operation reports reveal, (% 85) subtotal thyroidectomy was performed to 17 cases (85%), and total thyroidectomy was performed to 3 cases (15%). When the unexpected results of the thyroidectomy are investigated, permanent hypocalcemia was identified in 8 cases, unilateral vocal cord paralysis in 5 cases, bilateral vocal cord paralysis in 4 cases, hypopituitarism in 1 case, and anxiolysis in 2 cases. In the expertise reports from CFM that are also used as resources in this study, it is determined that 17 cases were handled with appropriate medical procedure, 2 cases included malpractice and 1 case was unable to be delivered opinion about.

Conclusions: Some of the unexpected results of thyroidectomy are evaluated as postoperative complications, whereas some are considered as malpractice. While investigating such claims, CFM considers whether the case was handled with appropriate medical procedure or not.

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Mode of pres.: Poster Exhibition
ISW 2009 Session PE 178

Bilateral superficial cervical plexus block combined with general anesthesia administered in thyroid and parathyroid operation

M. -L. Shih [1], Q. -Y. Duh [2], C. -B. Hsieh [1], T. -W. Chen [1], C. -S. Wong [1], J. -C. Yu [1], C. -C. Yeh [1]


Introduction: To investigate the analgesic efficacy and reduction adverse effects of general anesthesia in patients undergoing thyroidectomy and parathyroidectomy administered with or without bilateral superficial cervical plexus block (BSCPB).

Material and Methods: A prospective study of 170 patients undergone elective thyroid and parathyroid operations at TSHG from March 2006 to Oct. 2007. They were randomized assigned to receive a BSCPB with isotonic sodium chloride (Group A; n = 56), bupivacaine 0.25% (Group B; n = 55), or levobupivacaine 0.25% (Group C; n = 59) after induction of general anesthesia. The analgesic efficacy
of BSCPB was assessed with following variables: intra-operative anesthetic (desflurane) and analgesic (sufentanyl) requirements, numbers of patients needed postoperative analgesic, first analgesic requirement time and visual analog scale (VAS) sores and post-OP nausea/vomiting (PONV) score. We also compared hospital stay, operation time and discomfort in swallowing caused by operation or general anesthesia.

**Results:** Significantly fewer desflurane requirement (Fi/Fe) for general anesthetic, fewer patients required analgesic (Group A:B:C = 33:8:7), and longer duration for analgesic need postoperatively (Group A:B:C = 82.1:360.8:410.1 min.) in Group B and Group C (P < 0.05). VAS scores and PONV score were also significantly reduced in Group B and C in the fist 24 hours (P < 0.05). There was no significant difference for operation time, post-operative discomfort in swallowing and hospital stay among the 3 groups.

**Conclusions:** We conclude that BSCPB is an effective technique to reduce the amount of general anesthetic required during operation. It also significantly alleviates intensity of post-operative pain, nausea and vomiting after thyroid and parathyroid surgery in the first 24 hours.

### Demographics

<table>
<thead>
<tr>
<th></th>
<th>Group A (n = 56)</th>
<th>Group B (n = 55)</th>
<th>Group C (n = 59)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>47.2 ± 13</td>
<td>45.3 ± 16.2</td>
<td>47.0 ± 14.4</td>
</tr>
<tr>
<td>Man/Woman</td>
<td>5/51</td>
<td>9/46</td>
<td>12/47</td>
</tr>
<tr>
<td>Bilateral thyroidectomy</td>
<td>26 (42.9%)</td>
<td>22 (40.0%)</td>
<td>21 (35.6%)</td>
</tr>
<tr>
<td>Unilateral thyroidectomy*</td>
<td>32 (57.1%)</td>
<td>33 (60.0%)</td>
<td>38 (64.4%)</td>
</tr>
<tr>
<td>Thyroid cancer</td>
<td>9 (16.1%)</td>
<td>10 (18.2%)</td>
<td>12 (20.3%)</td>
</tr>
<tr>
<td>Nodular goiter</td>
<td>41 (73.2%)</td>
<td>39 (70.9%)</td>
<td>38 (64.4%)</td>
</tr>
<tr>
<td>Hyperthyroidism</td>
<td>6 (10.7%)</td>
<td>5 (9.1%)</td>
<td>7 (11.9%)</td>
</tr>
<tr>
<td>Hyperparathyroidism</td>
<td>0 (0%)</td>
<td>1 (1.8%)</td>
<td>2 (3.4%)</td>
</tr>
<tr>
<td>Duration of operation (min)</td>
<td>152.9 ± 56.4</td>
<td>156.4 ± 60.7</td>
<td>164.1 ± 62.6</td>
</tr>
</tbody>
</table>

### Comparison of symptoms in males and females with primary hyperparathyroidism

<table>
<thead>
<tr>
<th></th>
<th>Pre-op (%)</th>
<th>Post-op (%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nephrolithiasis</td>
<td>39</td>
<td>21</td>
<td>0.01</td>
</tr>
<tr>
<td>Muscle pain</td>
<td>47</td>
<td>51</td>
<td>NS</td>
</tr>
<tr>
<td>GERD</td>
<td>25</td>
<td>14</td>
<td>NS</td>
</tr>
<tr>
<td>HTN</td>
<td>36</td>
<td>52</td>
<td>NS</td>
</tr>
<tr>
<td>Depression</td>
<td>7</td>
<td>3</td>
<td>NS</td>
</tr>
</tbody>
</table>

**Abstract ID: 0568  Specific Field: Endocrine Surgery**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 179**

**Gender differences in symptoms and their improvement after parathyroidectomy**

S. Arora, C. Seaberg, R. Prinz

Rush University Medical Center, Chicago, United States

**Introduction:** Patients with primary hyperparathyroidism are often diagnosed with hypercalcemia on routine blood tests. Classic symptoms include renal stones, bone and muscle pain, fatigue, abdominal pain, psychiatric disturbances and hypertension. Knowing the differences in presenting symptoms between males and females and their likelihood of improvement after parathyroidectomy can help predict which patients will benefit most from parathyroidectomy.

**Material and Methods:** A retrospective review of 670 patients undergoing parathyroidectomy at a single institution from 1998–2008 was performed. Patients who completed a questionnaire regarding their symptoms during their initial and follow-up visits were reviewed. One hundred and eighty patients had pre- and post-operative data and were included in the study. Symptoms of nephrolithiasis, muscle pain, GERD, HTN, depression and fatigue were compared between males and females. Pre- and post-operative data between genders were compared to analyze changes in symptoms after parathyroidectomy.

**Results:** There were 38 males and 142 females. Comparison of pre- and post-operative calcium and PTH values between males and females showed no difference. Musculoskeletal pain was the most common presenting symptom in both males (47%) and females (72%). Pre-operatively more females had HTN and depression (p < 0.05) than males, and more males had nephrolithiasis than females (p < 0.05). Females had significant improvement in fatigue and muscle pain (p < 0.05) while males had significantly less nephrolithiasis (p < 0.05) after parathyroidectomy. The improvement seen in GERD, HTN and depression in both genders did not reach significance.

**Conclusions:** The most common symptom in both male and female patients with primary hyperparathyroidism is musculoskeletal pain. Musculoskeletal pain and depression are more common in females than in males. After parathyroidectomy females have significant decrease in muscle pain and fatigue and males have a significant decrease in nephrolithiasis.

**Abstract ID: 0569  Specific Field: Endocrine Surgery**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 180**

**Minimally invasive surgery in re-operative parathyroidectomy: less is more**

S. Arora, J. Yoo, P. Balash, R. Prinz

Rush University Medical Center, Chicago, United States

**Introduction:** Re-operative parathyroidectomy (re-op PTX) has higher morbidity and lower success rates in patients with sporadic primary hyperparathyroidism. A focused, minimally invasive (MIP) approach to re-op PTX may be possible with accurate pre-operative localization and use of intra-operative parathyroid hormone level (ioPTH) assay.

**Material and Methods:** 690 consecutive patients undergoing parathyroidectomy at a single institution between 1998 and 2008 for sporadic primary hyperparathyroidism were reviewed. Patients having re-operative parathyroidectomy after previous neck surgery
were studied. Data was collected regarding type of prior neck operation, pre-operative imaging for localization, surgical approach, success rates and complications.

**Results:** Fifty-eight patients underwent 65 re-operative parathyroidectomies. Nine patients underwent 3 or more operations for recurrent or persistent hyperparathyroidism. Patients were localized with a combination of ultrasound [62], sestamibi [61], CT [11], MRI [6], and selective venous sampling [1]. Of the 65 re-operations, 60 (92%) had more than one localizing study. Intraoperative gamma probe localization was utilized in 18 re-operative procedures. All patients underwent intraoperative parathyroid hormone monitoring. MIP was performed in 20/65 (31%) re-op PTX- in 8/19 patients after thyroidectomy, in 10/37 after parathyroidectomy patients, and in 2/9 patients after both thyroidectomy and parathyroidectomy. All patients who underwent MIP were cured. The overall cure rate was 98%. Three patients had hypocalcemia post-operatively, of whom 1 underwent MIP. One patient had temporary recurrent laryngeal nerve paresis after bilateral exploration.

**Conclusions:** Cure rate for re-op PTX approaches that of initial parathyroidectomy. Up to 15% of patients with recurrent or persistent hyperparathyroidism have 3 or more operations to achieve cure. Multiple studies are required for accurate pre-operative localization. MIP is worthwhile for reoperations but is more likely to be successful after previous thyroidectomy (44%) than parathyroidectomy (27%) or both thyroidectomy and parathyroidectomy (22%).

**Abstract ID: 0570 WITHDRAWN**
likely to have a single adenoma and could therefore be operated with a focused approach without using intraoperative quick-PTH.

**Material and Methods:** We retrospectively analyzed the PHPT patients operated on between 09/2001 and 12/2008 and focused on the operative approach. We compared our own criteria with those introduced by Kebebew et al.

**Results:** Of 465 PHPT patients 408 (87.7%) had a single adenoma. To our experience, detailed medical history, preoperative localization (sonography or sestamibi positive) and intraoperative quick-PTH are sufficient for focused operations in an endemic goiter area. The scoring system by Kebebew et al. on the 160 eligible patients retrospectively, 6 of 11 patients with MGD (54.5%) had a score 3 and would have undergone a minimal-invasive operation, leading to postoperative persistent disease.

**Conclusions:** To our experience, detailed medical history, preoperative localization (sonography or sestamibi positive) and intraoperative quick-PTH are sufficient for focused operations in an endemic goiter area. The scoring system by Kebebew et al. adds no further positive information.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Conversion</th>
<th>“Classical” Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>focused operation (n = 148)</td>
<td>conversion (n = 9)</td>
<td>“classical” operation (n = 308)</td>
</tr>
<tr>
<td>familiar HPT</td>
<td>2 (1.4%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>goiter</td>
<td>16 (10.8%)</td>
<td>6 (66.7%)</td>
</tr>
<tr>
<td>thyroid operation in history</td>
<td>16 (10.8%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>positive preoperative localization (sonography or sestamibi)</td>
<td>148 (100%)</td>
<td>9 (100%)</td>
</tr>
<tr>
<td>intraoperative quick-PTH</td>
<td>113 (76.4%)</td>
<td>6 (66.7%)</td>
</tr>
</tbody>
</table>

**Abstract ID:** 0573 Specific Field: Endocrine Surgery

**Mode of pres.:** Poster Exhibition

ISW 2009 Session PE 184

A multi-institutional audit of laparoscopic adrenalectomy in Greece and the UK


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**Introduction:** To evaluate the results of laparoscopic adrenalectomy in our institutions.

**Material and Methods:** Prospective study.

**Results:** From 2000 to 2008, 180 laparoscopic adrenalectomies were performed in 169 patients (mean age: 50.4 years, female: 59.8%). Median BMI and ASA were 27.2 and 2. Thirty-four patients (20.1%) had previous abdominal operations; 32 had open and 2 laparoscopic procedures. There were 11 bilateral (6.5%) for Cushing’s disease, 72 right (42.6%) and 86 left (50.9%) adrenalectomies. Diagnosis in unilateral cases was Conn’s syndrome in 45 patients (28.3%), non-functioning adenoma in 40 (25.3%), pheochromocytoma in 30 (19%) and Cushing’s syndrome in 26 (16.5%). Moreover, there were 9 (5.7%) metastatic tumours: 4 metastases from lung cancer, 2 from colon cancer, one melanoma, one sarcoma and one was a metastatic germ cell tumour. Less frequent pathologies were encountered in the remaining 8 cases (5%) including ganglioneuroma, schwannoma, oncocytozma, myelolipoma, cavernous haemangioma and adrenal cyst. Median tumour diameter was 4 cm, with 57 (31.7%) tumours > 5 cm. Particularly, 39 (21.6%) tumours were < 3 cm, 84 (46.7%) 3–5 cm, 13 (7.2%) 5.1–6 cm, 22 (12.2%) 6.1–7 cm, 15 (8.4%) 7.1–8 cm and 7 (3.9%) > 8 cm. Median operative time was 130 min for bilateral and 55 min for unilateral procedures. Thirteen cases (7.7%) underwent concurrent laparoscopic cholecystectomy, two of whom also had laparoscopic common bile duct exploration. Three cases (1.7%) required conversion: a 10 cm pheochromocytoma, a 4.5 cm pheochromocytoma involving the renal artery and a 6.2 cm metastatic tumour extending to extra-adrenal tissues. Median postoperative vAs pain scores at rest and at movement were 2.1 and 3. Morbidity was 2.3% (n = 4). Median hospital stay was 48 hours.

**Conclusions:** Laparoscopic adrenalectomy, even for patients with large tumours or previous open abdominal surgery, is safe and effective when performed by surgeons highly experienced in laparoscopic endocrine surgery. Although the procedure for large masses is technically demanding, size criterion should not be considered a contraindication to laparoscopic adrenalectomy. A substantial portion of the patients will have had prior abdominal surgery and they should not be denied the benefits of a laparoscopic procedure.

**Abstract ID:** 0574 Specific Field: Endocrine Surgery

**Mode of pres.:** Poster Exhibition

ISW 2009 Session PE 185

Scarless “in the neck” endoscopic thyroidectomy(SET)

C.T. K. Tan, W.K. Cheah

National University Hospital, Singapore, Singapore

**Introduction:** “Scarless in the neck” endoscopic thyroidectomy (SET) has been described as way to resect thyroid nodules without leaving a scar in the neck. This study reviews our experience with thyroid surgery the SET technique.

**Material and Methods:** The study group comprised of all patients undergoing SET during the period of 2005 and 2008. Data was prospectively gathered, including patient demographics, indication for surgery, approach, nodule size, final pathology and complications.

**Results:** We performed 36 cases over a 3 year period comprising of 12 cases via the axillary approach and 9 cases via the anterior/breast approach and 15 cases via both the axillary and breast approach (hybrid). All were lobectomies and one case was an isthmusectomy.
The mean age of the patients was 41.2 years, the mean gland and nodule size was 5.1 cm (range: 3.0–8.5) and 3.6 cm (range: 1.5–6.0) respectively and mean length of stay was 2.1 days (range: 1–4). The mean operative time was 155.5 minutes whereby the first 10 cases was 164.5 min and the next 10 cases was shortened to 145.5 min. There were 3 conversions. We encountered three post-operative complications. One patient had transient hoarseness. Another patient had a delayed presentation of a suspected tracheal perforation secondary to a thermal injury; which resolved with conservative treatment. The third patient had a transient brachial neuropaxia following the positioning of the arm in a flexed and internally rotated position during the axillary approach. The final histology of two patients returned as papillary carcinoma and they had subsequent open completion thyroidectomies. All patients were satisfied with the aesthetic outcome of the procedure.

Conclusions: The procedure is a safe surgical technique to remove thyroid nodules. It does not leave the patient a scar in the neck.

Abstract ID: 0575 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 186

Characteristics Influencing survival in follicular thyroid cancer
Mayo Clinic, Rochester, United States

Introduction: Our previous experience with patients treated for follicular thyroid cancer (FTC, 1946–1970) identified longer survival with 1) age <60 years, 2) absence of vascular invasion, and 3) no metastases at initial presentation. Twenty years later we pondered whether patients with follicular thyroid cancer fare any better

Material and Methods: A retrospective review of 103 patients evaluated, operated on, and treated from 1986 to 2000 for pathologically re-confirmed FTC at our institution was completed. Patients with metastatic disease at diagnosis were excluded from this study. Patient survival was estimated using Kaplan-Meier survival. Cox proportional hazards regression was used for univariate and multivariable assessment of variables, results reported as hazard ratio (HR).

Results: Sixty one females and 42 males ranged in age from 12 to 90 years (mean = 55.5). A palpable nodule or neck mass was the initial presentation in 58% of patients. Tumor size varied from 0.4 to 12.5 cm (mean = 4.2). Thyroidectomy was performed in all patients: 49% total, 36% near-total, and 18% lobectomy. Median follow-up was 7.4 years (range: 1 month to 17 years). Capsular (89%) and vascular (65%) invasion was confirmed in the majority. Metastasis developed in 21 patients, more commonly to lungs (13), bone (11) and brain (7), and local recurrence occurred in 11 patients. Overall survival was 76.5% at 10 years, FTC being the cause of death in 7 patients. Type of thyroidectomy, presence of capsular invasion and use of I-131 therapy were not univariately associated with patient survival (p > 0.05); age > 60 years (p = 0.001, HR = 5.5), size > 4 cm (p < 0.001, HR = 5.1), extrathyroidal extension (p < 0.001, HR = 11.9), and vascular invasion (p = 0.02, HR = 3.6) were associated with decreased survival. In a multi-variable model, variables independently associated with survival included age > 60 years (p = 0.004, HR = 4.9), size > 4 cm (p = 0.02, HR = 3.4), and vascular invasion (p = 0.02, HR = 6.8).

Conclusions: Similar to our report in 1991, long term survival of patients with follicular thyroid cancer is predicted by tumor size < 4 cm, absence of vascular invasion, and age < 60 years. Capsular invasion, use of I-131 therapy, and type of thyroidectomy appear less important to patient outcome.

Abstract ID: 0577 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 188

Minimally invasive parathyroidectomy for overtly symptomatic primary hyperparathyroidism in vitamin D deficient patients: an institutional perspective
Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India

Introduction: Few primary hyperparathyroidism (PHPT) patients are diagnosed In India, majority of which are young and present with advanced musculo-skeletal disease complicated by vitamin D deficiency. Role of minimally invasive parathyroidectomy (MIP) in such patients has not been documented. This study evaluated safety and efficacy of MIP in patients with overtly symptomatic PHPT with vitamin D deficiency in comparison to conventional bilateral neck exploration (BNE).

Material and Methods: 121 consecutive PHPT patients managed during 1998-2007 who underwent preop parathyroid localization (USG & 99 mTc-MIBI) were studied. 83% had overtly symptomatic disease, 49% had osteitis fibrosa cystica and 71% had vitamin D deficiency (s-25-VitD < 15 ng/ml). Clinical & investigative parameters, operative details, histopathology and follow-up data were reviewed. Statistical analysis was done using SPSS 16 software.
Results: MIP was offered to 59 (49%) with localized single gland disease. Rest 62 with multigland disease or discordant /negative localization underwent BNE. Postoperatively, 91 patients needed intravenous calcium for hypocalcaemia. Patients were followed up for median duration of 5 +/- 3.8 years. In mDA group, 6 (10.7%) required conversion to BNE due to suspected multigland disease (n = 3), failure to locate pathology (n = 1) or large/ invasive tumor (concern for carcinoma, n = 2). Mean duration of surgery, operative morbidity and hospital stay in two groups did not differ significantly (p = 0.1). Lesser patients in MIP group needed post-op i.v. calcium. There was no difference in rates of persistent/ recurrent HPT in the two groups.

Conclusions: A relatively lesser proportion of Indian PHPT patients are offered MIP due to multigland disease, concern for carcinoma in large/invasive tumors and discordant localization findings. In carefully selected cohort of patients with vitamin D deficient and overtly symptomatic PHPT, MIP is as safe and effective as BNE.

<table>
<thead>
<tr>
<th></th>
<th>MIP</th>
<th>BNE</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptomatic postop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hypocalcaemia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needing i.v. calcium</td>
<td>40</td>
<td>51</td>
<td>0.5</td>
</tr>
<tr>
<td>Mean hospital stay</td>
<td>10 (+/-2.86)</td>
<td>11.8 (+/-2.96)</td>
<td>0.1</td>
</tr>
<tr>
<td>RLN palsy</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Persistent HPT</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Recurrent HPT</td>
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Abstract ID: 0578 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 189

Increased risk for multifocality in patients with papillary thyroid microcarcinoma diagnosed at young age

Mackay Memorial Hospital, Taipei, Taiwan

Introduction: Age is considered an important prognostic factor for thyroid cancer. We aimed to investigate the influence of age on clinicopathological features of papillary thyroid microcarcinoma.

Material and Methods: We reviewed 81 patients who underwent thyroidectomy for papillary thyroid microcarcinoma (less or equal to 1.0 cm). The surgical procedures were compatible between older patients (45 years and older) and younger counterparts (under 45 years).

Results: There were 72 women and 9 men with a mean age of 47 years (range 15 to 81 years). Forty-seven (58%) older patients had similar tumor size, nodal status, and percentage of extrathyroidal invasion compared to those of younger patients. Significantly more younger patients had multiple foci of carcinoma (35% vs. 13%, P = 0.029). Twelve younger and two older patients had associated Graves’ disease (P = 0.001). However, there was no correlation between the presence of Graves’ disease and multifocality.

Conclusions: Multifocality is more frequent in younger patients with papillary thyroid microcarcinoma. Although young age heralds a favorable prognosis, close surveillance is recommended for patients who receive less than total thyroidectomy.

Abstract ID: 0579 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 190

Gasless endoscopic thyroid and parathyroid surgery using lifting procedure: appropriate techniques for cosmetic improvement and prevention of complications based on 420 cases experience

Nippon Medical School, Tokyo, Japan

Introduction: We have developed video-assisted endoscopic thyroid and parathyroid surgery using gasless anterior neck skin lifting procedure in 1998 and named it VANS method. Since then, 420 cases have been operated on by this procedure. Based on experience, we report the cosmetic advantages of the VANS method and proper techniques to avoid complications that have developed in this series.

Material and Methods: Four hundreds and twenty patients who underwent VANS method included benign thyroid nodules, papillary carcinomas, Graves’ diseases, Hashimoto’s thyroiditis, parathyroid diseases. The main incision was made on the chest wall where was concealed by open-neck clothing. The working space was obtained by lifting two pieces of Kirschner wire that were inserted into subcutaneous layer of the anterior neck. The endoscope was inserted through 5 mm wound in the lateral neck. Selected complications were external branch of the superior laryngeal nerve and the recurrent nerve paralysis, relapse of Graves’ disease, atrophy of the sternohyoid muscle and the trachea injury. Those complications were retrospectively checked by reviewing recorded videos. Cosmetic advantages were evaluated by sending questionnaire to both patients undergoing endoscopic and conventional surgery.

Results: Transient or permanent nerve paralysis (1.2%) was mainly due to heat stimulation by US scalpel. Relapse of Graves’ disease (18%) was due to inadequate estimation of the remnant thyroid weight. The insertion of endoscope at the contralateral side of the neck helped to identify the other side of the recurrent nerve. In accordance with technical device and accumulated experiences, relapse rate has been extremely improved. The atrophy of sternothyroid muscle can be avoided by prevention from injury to lateral edge of this muscle. The tracheal injury (0.7%) was developed by cavitation effect. Cosmetic results were satisfactory according to the evaluation of questionnaire.

Conclusions: The VANS method is concise, suitable and practically safe procedure besides having cosmetic advantages. However, careful selection of operative indication is necessary to prevent from complications that deteriorate postoperative quality of life of the patient.

Figure: Post op picture
Abstract ID: 0580  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 191

Does intraoperative parathyroid gland size impact operative success?

M.A. Guerrero [1], J. Gosnell [1], D.M. Elaraj [2], J. Hwang [1], I. Suh [1], M.R. Vriens [1], O.H. Clark [1], Q. -Y. Duh [1], E. Kebebew [1]

[1] University of California, San Francisco, San Francisco, United States, [2] Northwestern University Memorial Hospital, Chicago, United States

Introduction: Primary hyperparathyroidism (PHPT) is often diagnosed during routine laboratory examination. Preoperative imaging studies are used to distinguish single gland (SGD) from multigland (MGD) disease. It has been shown that the preoperative biochemical profile may help discern SGD from MGD. The challenge remains in those with discordant imaging results or failed intraoperative PTH (IOPTH). We sought to determine if measuring intraoperative gland size could impact decision making in patients with PHPT.

Material and Methods: We performed a retrospective study on patients with PHPT who were operated on from February 2005 to May 2007. Patients with familial disease and those presenting with persistent (PD) or recurrent disease to our institution were excluded. Of the remaining, only those with intraoperative parathyroid gland measurements were analyzed. The volume ($L\times W\times H$) and largest diameter of glands were recorded. The largest gland was used in those with multigland disease. The data was analyzed utilizing the Mann-Whitney-Wilcoxon and Pearson’s chi-square tests.

Results: Of the 488 patients with PHPT who underwent surgery, 383 (78.5%) were evaluated; 300 (80%) had SGD and 73 (20%) had MGD. Imaging studies were concordant in 207 (69%) patients with SGD. Eight (2.1%) patients had PD. We found no difference in size or volume between SGD and MGD. Glands in SGD who were cured were larger than those with persistent disease (1.76 vs 0.96 cm, respectively; $p = 0.016$). A trend existed between outcome and gland size; glands 1 cm were more common in PD than those cured (50% vs 14%, respectively; $p = 0.0102$). Only 26% of SGD had a volume greater than 0.5 cm$^3$ versus 88% in PD ($p < 0.001$). IOPTH was utilized in 77.6% of cases; 93% were true positive. Of the 8 with PD, 4 were false positive, 2 were true negative and in 2 IOPTH was not used.

Conclusions: This study shows that measuring intraoperative parathyroid size may assist decision making. Though IOPTH is advocated, we did not find it useful in cases of PD. We showed that patients with glands 1 cm or 0.5 cm$^3$ are at greater risk for operative failure and a bilateral neck exploration should be considered to evaluate for MGD.

Abstract ID: 0581  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 192

Near-total parathyroidectomy stabilizes coronary calcification in patients with chronic kidney disease

J. Sharma [1], A. Khan [1], M. Milas [2], J. Bailey [1], T. Dodson [1], P. Raggi [1], C.J. Weber [1]

[1] Emory University School of Medicine, Atlanta, United States, [2] Cleveland Clinic Foundation, Cleveland, United States

Introduction: Patients with stage 5 chronic kidney disease (CKD) undergoing hemodialysis have an increased risk of cardiovascular complications possibly related to increased vascular calcification. In this patient population an increase in coronary artery calcium score (CACS) of 20–25% per year has been previously reported. The purpose of this study was to prospectively evaluate changes in coronary calcification in patients before and after near-total parathyroidectomy (NTPTX).

Material and Methods: Sequential chest computed tomography for CACS measurement was performed in 9 patients with CKD before and after NTPTX. Indications for NTPTX included calciphylaxis ($n = 3$), hypercalcemia ($n = 5$; mean calcium = 11.2 mg/dL) and secondary hyperparathyroidism ($n = 1$). All patients had intact parathyroid hormone (PTH) measurements preoperatively, intraoperatively, and postoperatively in long-term follow-up (mean 3.8 yrs, range 2–6 years).

Results: Patients with calciphylaxis had a higher initial CACS (2375 ± 1321) than those without calciphylaxis (899 ± 984) and overall mean CACS score in nine patients was 1388 ± 1263. The preoperative mean PTH level for these 9 patients was 1560 ± 860 pg/ml and intraoperatively PTH dropped to 88.9 ± 38.2 pg/ml at completion of NTPTX. In 7-of-9 patients post-surgical PTH values remained stable with a mean PTH of 160.1 ± 60.5 pg/ml at follow-up of 4.2 years, and these patients experienced stabilization of CACS with a mean increase of only 2.3% per year. Two patients developed recurrent hyperparathyroidism (PTH levels > 600 pg/mL) and their mean CACS increased by 14.3% per year. In patients with a stable CACS, one patient was treated with cinacalcet and two patients were treated with sevelamer; both patients with recurrent hyperparathyroidism were treated with cinacalcet and sevelamer.

Conclusions: Successful NTPTX with durable PTH levels is associated with stabilization of CACS in patients with severe secondary hyperparathyroidism undergoing hemodialysis.

Abstract ID: 0582  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 193

Is prophylactic low molecular weight heparin safe after thyroidectomy?

S.M.E. Helme, A. Ter, T. Duff, P. Sinha

Princess Royal University Hospital, Orpington, Kent, United Kingdom

Introduction: Patients undergoing surgery often are prescribed prophylactic low-molecular weight heparin (LMWH) to minimise risk of deep vein thrombosis (DVT) and pulmonary embolus (PE). However, after thyroid operations surgeons may be wary of administering such drugs due to the risk of post operative haematoma and possible respiratory compromise. We have found no published guidance as to whether how thyroid patients should be treated regarding DVT prophylaxis and whether LMWH can be used safely.

Over the last 12 months, our department’s policy for DVT prophylaxis has changed and we have been routinely administering LMWH post operatively for endocrine surgery patients.

Material and Methods: A retrospective notes analysis was performed for consecutive patients who had thyroid lobectomy or total thyroidectomy between January 2007 and September 2008 by a single endocrine surgeon. Patients were classified according to whether they received postoperative LMWH or not. All patients had pneumatic compression during surgery and TED stockings during and after their operation and all patients were positioned in the reverse Trendelenburg position for their operation. Note was made of any post operative haematoma, DVT or PE. Other information was also collected, including patient demographics, routine medications, length of operation and the use of a drain after surgery.
Results: 126 patients underwent thyroid lobectomy or total thyroidectomy. All patients had “Surgicel” placed in the thyroid bed at the end of surgery, and approximately half the patients had a drain left in situ. The decision to leave a drain was made at the end of the operation according to how dry the surgical field looked. 49% of patients received postoperative LMWH and 51% of patients did not. No patients in either group developed a post operative haematoma and no DVT or PE was seen.

Conclusions: Despite no formal guidelines for the prevention of DVT in patients undergoing thyroid surgery, we believe that the administration of low dose LMWH post operatively is safe. While not every patient will fall into the medium and high risk category for DVT, there will be some who are high risk and would benefit from its use. Though there is caution regarding the potential for life threatening neck haematoma, we believe that where surgical technique is meticulous, LMWH can safely be used.

Abstract ID: 0583 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 194

Thyroid surgery with the new harmonic scalpel or the electrothermal bipolar vessel sealer: a prospective study

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Introduction: The harmonic scalpel and the electrothermal bipolar vessel sealing system (LIGASURE PRECISE) have been both shown to be safe and effective in thyroid surgery. The moderate dissection capabilities of the previous harmonic scalpel instruments available for thyroid surgery have led to an innovative technical improvement of the device (FOCUS) that has very recently been implemented and has been made available in 2008. Comparison of the utilization of this new device, however, with the electrothermal bipolar vessel sealer has not been performed in any study. The objective of this study was to compare the results of total thyroidectomy using the FOCUS to that with the LIGASURE device.

Material and Methods: This is a prospective randomized study of all total thyroidectomies in our endocrine surgical department between August and December 2008. Patients (n = 90) were randomized into those submitted to total thyroidectomy with FOCUS (group A, n = 50) and those with LIGASURE (group B, n = 50).

Results: No significant differences were identified between the two groups in terms of demographics, reoperative thyroid surgery, thyroid gland weight and diameter, pathologic diagnosis, preoperative and postoperative calcium, complications, hospital stay, and the final outcome. Mean operative time was significantly shorter in group A than group B (60 ± 8.3 min vs 72.5 ± 7 min, p = 0.009).

Conclusions: The new harmonic scalpel and the electrothermal bipolar vessel sealing system are very useful adjuncts to the thyroid surgeon’s armamentarium. They are safe, effective and hand-friendly, offering great tissue delicate grasping and dissection capabilities. Utilization of the new harmonic scalpel device in total thyroidectomy significantly reduced operative time compared to that with the electrothermal bipolar vessel sealer.

Abstract ID: 0585 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 196

Intracranial incidental lesions on neck computed tomography scans in thyroid cancer patients: another advantage of computed tomography scans in the preoperative evaluation of thyroid cancers

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**Introduction:** Computed tomography (CT) scans play critical roles in the detection and characterization of thyroid lesions, the evaluation of the extent of disease relative to adjacent tissues of the neck, and the detection of cervical lymphadenopathy and regional metastases. Because standard neck CT scans for thyroid cancers range from the skull base to the thoracic inlet, intracranial lesions are seldom detected. In our institution, the range of neck CT scans has been extended from the frontal sinus to the lower aortic arch, increasing the incidental detection of intracranial lesions in asymptomatic patients. In this report, we review our experience in evaluating and treating intracranial lesions that were incidentally discovered on neck CT scans during preoperative evaluations for thyroid cancers.

**Material and Methods:** We identified 11 patients who had incidental intracranial lesions on neck CT scans, and their medical records were reviewed retrospectively.

**Results:** The mean age of patients was 55.9 years, and the male:female ratio was 1:10. All patients were diagnosed with papillary thyroid carcinoma. Intracranial lesions included seven cerebral aneurysms, two meningiomas, and two nonfunctioning pituitary microadenomas. Four patients with cerebral aneurysms underwent coil embolization, and the other seven patients were closely monitored. Ten patients underwent thyroid surgery a mean of 43.8 days after treatment of the intracranial lesions. Of the 10 patients who underwent thyroid surgery, none experienced any peri- and post-operative complications related to intracranial lesions.

**Conclusions:** Pathologic intracranial lesions can be critical during peri- and post-operative periods if not treated. Clinicians should be aware of the possibility of intracranial findings on neck CT scans, and appropriate evaluation and treatment for intracranial lesions should be performed prior to thyroid surgery.

**Abstract ID: 0586**  
**Specific Field: Endocrine Surgery**

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 197**

**The curious case of bedridden brothers: late presentation and treatment of neonatal hyperparathyroidism**

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**Introduction:** Neonatal hyperparathyroidism is a rare form of familial hyperparathyroidism with autosomal dominant inheritance of a defective calcium sensing receptor gene.

**Material and Methods:** A review of case records of two male siblings diagnosed to have severe hyperparathyroidism. The diagnosis, treatment and follow up till 8 months were documented.

**Results:** The elder brother was 5 years of age and the younger was 1 year and six months at presentation to our institute. Both gave a history of failure to thrive, global developmental delay, being completely bedridden and floppy, capable of uttering only sounds and monosyllables. Both had poor appetites with severe constipation requiring laxatives, enemas and digital evacuations. The younger sibling was misdiagnosed to have Hirschsprung’s syndrome and a diverting colostomy had been performed at 5 months of age with no effect. The biochemical results were as follows for the younger, elder siblings respectively: serum Calcium corrected 17.755 pg/ml; serum Creatinine 0.4, 0.5 mg/dl. Xrays of the hands and forearm were normal for age. Ultrasonography showed medullary calcinosis in both children. calcium levels were brought down preoperatively using diuresis and pamidronate. In the elder sibling the neck was explored and 3 and ½ glands were removed including thymectomy. In the younger sibling the same preoperative preparation was pursued and a total parathyroidectomy with immediate reimplantation of ¼ of one gland into a forearm muscle pocket. All parathyroid tissue was confirmed to be hyperplastic on histopathology with no supernumerary parathyroids in the thymus. Post operative recovery was slow with prolonged hypocalcemia requiring intravenous then oral calcium/Vitamin D supplements. At first review, 8 months post op, both children had shown definite improvement in mentation, appetite, muscle tone, activity and bowel habit. The younger brother showed a more dramatic improvement though he required more calcium supplements to maintain normocalcemia.

**Conclusions:** Patients with severe neonatal hyperparathyroidism can survive infancy and undergo curative surgery with reasonable short term results. Further follow up will reveal the degree of developmental recovery and survival in the long term.

**Abstract ID: 0587**  
**Specific Field: Endocrine Surgery**

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 198**

**Sestamibi negative scan: a challenge to focused approach in hyperparathyroidism**

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**Introduction:** Sestamibi scan is an important preoperative localizing tool in patients with primary hyperparathyroidism. Factors such as presence of thyroid nodules, predominant chief cells, and small gland size are being considered as factors.

**Material and Methods:** Retrospective analysis of the demographic features, clinical presentation and histopathological features in 11 patients with primary hyperparathyroidism having a negative sestamibi scan. We have also analyzed the cellular components

**Results:** In 245 patients with primary hyperparathyroidism, 11 [4.5%] had a negative sestamibi scan. The mean age was 42 yrs and the primary presenting symptoms were renal stones except one who had pancreatitis as the initial presentation. Average size of the gland was 1 to 2 cms and the average weight of the gland was less than one gram. Serum calcium was in the range of 10.7 to 13.3 mg% and parathormone was from 120 to 2603. pg/ml. 1 had MEN II and he presented with pheochromocytoma. U/S has sensitivity and specificity of 69% and 77%. Only 2 had thyroid nodule and only 1 patient the tumor was on the same side. All the 11 patients underwent the conventional neck exploration as against the focused approach. Hyperplasia patients had 3.5 gland parathyroidectomy and 2 had thyroidectomy along with the adenoma excision. 2 had failed exploration and 1 was later diagnosed with familial hypercalcemia. 8 were adenomas [67%], 2 hyperplasia, 2 failed exploration. Histopathological examination showed 5 as having lobular pattern and 4 follicular patterns. Chief cells formed the majority of the cell types in 6 [55%] and clear cells formed the majority in 3 and 2 patients had equal percentage of oncocytic and clear cells. 3 of them had lymphocytic infiltration and 2 had microcystic degeneration and one had hemorrhage. Post op calcium was
normalized and all were disease free at 48 month follow up except 1 who had the failed exploration

**Conclusions:** Negative sestamibi remains a challenge and bilateral neck exploration is a safe approach. There are no predominant cell types although 6 patients with sestamibi negative had predominantly chief cells; weight, location and size of the gland do not seem to influence sestamibi scan outcome

**Abstract ID: 0588**  
Specific Field: **Endocrine Surgery**

**Mode of pres.: Poster Exhibition**  
ISW 2009 Session PE 199

**Differential expression of connexins in benign and pathological thyroid tissue**


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**Introduction:** Connexins (Cx) are involved in intercellular communication and have been related to cancer. Several connexins have been described with particular tissue distribution, particularly Cx32, Cx43 and Cx26 in the thyroid. Studies in other tissues suggest variable expression related to proliferation and invasion. We studied Cx expression on different thyroid pathologies and tried to establish patterns of expression useful for thyroid nodule diagnosis.

**Material and Methods:** We selected tissue from nodules and adjacent normal tissue of 123 thyroidectomies in 2005. A simple blind study was conducted for the analysis of Cx43 expression on immunofluorescence. Qualitative analysis of expression pattern was done through confocal microscopy identifying normal (membrane staining) and abnormal patterns (staining cytoplasm, cytoplasm and membrane or without staining). Definitive diagnosis was made on hematoxylin eosin staining.

**Results:** A normal pattern of staining was present in 75% of thyroiditis (n = 8), 81.8% of Graves disease (n = 11), 53.1% of multinodular goiter (n = 47), 51.3% of adenomas (n = 39), and only 5.9% of differentiated epithelial cancer (n = 17).

**Conclusions:** Cx43 expression is altered in thyroid pathologies. This altered localization is predominant in cancer. Nevertheless, considerable alterations are found both for goiter and adenomas for half of cases: whether there is an ethiopathological relation with hyperplasia-dysplasia-cancer progression still remains obscure.

Comparison of normal and abnormal expression among thyroid pathologies

<table>
<thead>
<tr>
<th></th>
<th>Thyroiditis</th>
<th>Graves disease</th>
<th>goiter</th>
<th>adenomas</th>
<th>Differentiated epithelial cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>normal membranal staining</td>
<td>75%</td>
<td>81.8%</td>
<td>53.1%</td>
<td>51.3%</td>
<td>5.9%</td>
</tr>
<tr>
<td>abnormal staining</td>
<td>25%</td>
<td>18.2%</td>
<td>46.8%</td>
<td>48.7%</td>
<td>94.1%</td>
</tr>
</tbody>
</table>

p (compared to cancer)  
p = 0.0010  
p = 7.209E-05  
p = 0.0007  
p = 0.0013

**Figure:** immunofluorescence of Cx 43 in a micropapillary carcinoma

**Abstract ID: 0589**  
Specific Field: **Endocrine Surgery**

**Mode of pres.: Poster Exhibition**  
ISW 2009 Session PE 200

**Retroperitoneal tumors preoperatively misdiagnosed as adrenal origin**

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**Introduction:** Despite of recent advances in imaging modalities, there are kinds of peri-adrenal retroperitoneal tumors that we can hardly differentiate from adrenal origin tumors preoperatively. To avoid unnecessary dissection and minimize the extent of the operation in such instances, we reviewed our consecutive series.

**Material and Methods:** Non-adrenal origin retroperitoneal tumors whose preoperative diagnoses were mislead as adrenal origin, during the last ten-year period in the two tertiary referral hospital -Seoul National University Hospital and Korea University Anam Hospital- were collected and reviewed retrospectively.

**Results:** Fourteen cases were found. Computed tomographies (CT) were performed in all the cases for the preoperative diagnoses, and in addition, magnetic resonance imagings (MRI) in three cases. Neither the preoperative nor the intraoperative biopsy of the tumor for the diagnosis was done. Nine tumors (64.3%) were located in left, and the others located in right, unilaterally. All the tumors were relatively large, that is, the maximal diameter was more than 6 cm in every case. All of them were non-functioning tumors. Most (64.3%) of them were neurogenic tumors, including extra-adrenal ganglioneuromas (6 cases), Schwannomas (2 cases), and a retroperitoneal paraganglioma (1 case). And most (78.6%) of the tumors were solid, including the neurogenic tumors, Castleman’s disease.
(1 case), and idiopathic retroperitoneal fibrosis (1 case), except the purely cystic bronchogenic cysts (2 cases) and a mixed solid and cystic leiomyosarcoma (1 case). Most of the tumors had clear or regular borders, except a case of ganglioneuroma and the Castleman’s disease with irregular margins. Almost all (92.9%) of them were benign, just except a case of leiomyosarcoma, but the operative extents were more than the just excisions of the tumors, i.e. partial or whole adrenalectomy with or without combined resection, for most of the cases.

Conclusions: For the proper surgical therapy of the large juxta-adrenal tumors, the application of additional diagnostic measures such as endoscopic ultrasound (EUS), laparoscopic ultrasound (LUS), and intraoperative tissue confirmation of the tumor should be considered when the diagnosis is not conclusive. The disease entities we mentioned here should be excluded preoperatively or intraoperatively when considering adrenalectomy.

Abstract ID: 0590  Specific Field: Endocrine Surgery
Mode of pres.: Poster Exhibition
ISW 2009 Session PE 201

Utilization of NP-59 scanning in the workup of adrenal hyperfunction and its impact on clinical decision-making

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Introduction: The role for nuclear imaging in adrenocortical lesions is controversial. With high quality imaging and biochemical testing, the need for I131-6ido-methyl-19-norcholesterol (NP-59) scans to localize hyperfunctioning adrenal adenosmas is diminishing. The goal of our study was to evaluate the current utilization of NP-59 scans and determine their impact on clinical decision-making.

Material and Methods: During the study period, 17 NP-59 scans were performed at our institution. Six studies were ordered by outside providers. The remaining 11 patients were treated within our system. Patient records were reviewed to identify the indications for the scan, the ordering provider, and the impact on patient management.

Results: Of the 11 NP-59 scans ordered from our institution, 73% were ordered by endocrinologists and 27% by surgeons. A clinical diagnosis of adrenal hyperfunction was present in all cases, with the majority having hyperaldosteronism. CT or MRI was performed in 8 cases (20%): 2 patients showed non-descended tissue (one in the carotic sheath, one intrathyroidal - upper pole), 2 patients had a retroesophageal adenoma and in 3 cases the parathyroid tissue was found in the mediastinum.

Conclusions: In contrast to sporadic MGD and familial disease, we find in 8 cases (20%): 2 patients showed non-descended tissue (one in the carotic sheath, one intrathyroidal - upper pole), 2 patients had a retroesophageal adenoma and in 3 cases the parathyroid tissue was found in the mediastinum.

Abstract ID: 0592  Specific Field: Endocrine Surgery
Mode of pres.: Poster Exhibition
ISW 2009 Session PE 203

Different approach for laparoscopic adrenalectomy: looking for a submesocolic route in 48 patients

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[2] University “Politecnica delle Marche”, Ancona, Italy

Introduction: To report a our experience in laparoscopic adrenalectomy (LA) through anterior, lateral and submesocolic approaches.
Material and Methods: 321 patients (pts) underwent LA. The surgical route choice was based on patient (BMI, previous abdominal surgery) and lesion features (size, side, secreting mass as about pheochromocytoma, suspect malignancy). The submeso way, we first described in 2005, was reserved for left lesions not larger than 6 cm. Finally, the approach for right LA was anterior in 138 cases and flank in 5 pts. Left LA was performed by means of anterior way in 112 pts, submesocolic route in 48 cases and flank in 18 pts.

Results: Mean operative time (OpT) was 80, 1 min. for right anterior LA (65–150) and 103 for flank right LA (96–180), 108 min. for left anterior LA (80–305), 101, 5 min for left submesocolic LA (40–345), 147, 5 min. for flank left LA (80–195). Moreover the mean OpT for bilateral flank LA was 390 min vs 194 min in the anterior bilateral LA route. One intraoperative death occurred in a left LA for pheochromocytoma flank approached. Intraoperative major complications requiring conversion to open surgery were observed in 9 pts: bleeding (7), splenic colonic flexure tear (1), hypertension and severe arrhythmia in pheo removal (1). There were not significant statistically differences comparing anterior, flank and submesocolic routes in terms of hospital stay and pain medications, while bleeding and OpT were significantly lower in anterior/submesocolics series. This positive trend was particularly noteworthy in the last year series.

Conclusions: LA allows short hospital stay, rapid return to work and best cosmetic results. Moreover, further benefits seem to be found if we are looking for tailor the best approach to the best patient/lesion. Left adrenal lesions can be safely treated by laparoscopic submesocolic access.

Abstract ID: 0593 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 204

Algorithmic management of post-thyroidectomy hypocalcemia

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Introduction: Measurement of the parathyroid hormone (PTH) level following total thyroidectomy (TTx) may allow early prediction of postoperative hypocalcemia. We present an algorithmic method of managing hypocalcemia preemptively based on the PTH level one hour after surgery.

Material and Methods: We examined 292 consecutive patients undergoing TTx over two years, 213 of whom received conventional care and 79 of whom underwent algorithm-based calcium replacement. The algorithm entailed routine postoperative oral calcium administration and the early addition of oral calcitriol in patients with low one-hour PTH levels. Outcomes measured included serum calcium levels, hypocalcemic symptoms, and need for intravenous (IV) calcium.

Results: Critically-low calcium levels, defined by total calcium < 7.5 mg/dL (1.88 mmol/L) or ionized calcium < 0.94 mmol/L, were less common among algorithm patients (9.9 vs. 19.1%, RRO.52, p < 0.05). Algorithm patients were less likely to develop clinical manifestations of hypocalcemia (2.53% vs.7.04%, RR 0.36, p < 0.05) and less likely to require IV calcium (6.3% vs. 16.0%, RR 0.46, p < 0.05). Among patients requiring IV calcium, algorithm patients received fewer doses (1.14 vs.1.79, p < 0.05). Low one-hour PTH levels were found in 18% of algorithm patients, and these did not significantly correlate with low calcium levels, suggesting that the algorithm adequately compensated for temporary hypoparathyroidism. No patients developed hypercalcemia.

Conclusions: An algorithm incorporating post-operative PTH levels can be utilized to mitigate against hypocalcemic outcomes and should be considered routinely in the management of patients undergoing total thyroidectomy.

Abstract ID: 0594 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 205

Pre-operative localization of parathyroid adenoma by 4D-CT

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Introduction: Primary hyperparathyroidism (pHPT) is a common endocrine condition. A single parathyroid adenoma is the underlying etiology in the majority (up to 80%) of cases of pHPT. In the case of pHPT due to a single adenoma, a minimally invasive approach or directed parathyroidectomy may be feasible if accurate preoperative imaging assists in identifying the causative lesion.

Material and Methods: We retrospectively studied 94 patients with pHPT who underwent parathyroidectomy at a single institution from Jan 2006-May 2008. 52 patients underwent pre-operative 4D CT scan in addition to sestamibi scan. Demographicdata, intraoperative findings, as well success in ability to perform a minimally invasive operation were compared to imaging results.

Results: 4D CT showed a sensitivity of only 67% (38 cases) when used to lateralize hyperfunctioning parathyroid glands to one side of the neck, sensitivity of 74.5% and PPV of 85.4%. When used to localize to a quadrant CT scan was able to identify an adenoma 50% (28 cases) of the time. sensitivity of 60% and PPV of 68.8%.

Conclusions: While 4D CT scan may play an important role in localizing a lesion for preoperative planning, it is probably used best in adjunct with other imaging modalities to provide the best operative results.

Abstract ID: 0595 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 206

Volume changes in remnant thyroid tissue after thyroidectomy in patients with Graves’ disease

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Introduction: To identify independent risk factors affecting the change in volume of remnant thyroid tissue following thyroidectomy in patients with Graves’ disease.

Material and Methods: A total of 102 patients with Graves’ disease underwent subtotal thyroidectomy. For all patients, the total thyroid remnant immediately following thyroidectomy was less than 3 grams. Regular evaluation of residual thyroid volume by ultrasonography was performed over 1–10 years (mean, 2.5 years). The rate of volume change was determined as Vn-V1/V1, with V1 defined as the first examination and the early addition of oral calcitriol in patients with low one-hour PTH levels. Outcomes measured included serum calcium levels, hypocalcemic symptoms, and need for intravenous (IV) calcium.

Results: Critically-low calcium levels, defined by total calcium < 7.5 mg/dL (1.88 mmol/L) or ionized calcium < 0.94 mmol/L, were less common among algorithm patients (9.9 vs. 19.1%, RRO.52, p < 0.05). Algorithm patients were less likely to develop clinical manifestations of hypocalcemia (2.53% vs.7.04%, RR 0.36, p < 0.05) and less likely to require IV calcium (6.3% vs. 16.0%, RR 0.46, p < 0.05). Among patients requiring IV calcium, algorithm patients received fewer doses (1.14 vs.1.79, p < 0.05). Low one-hour PTH levels were found in 18% of algorithm patients, and these did not significantly correlate with low calcium levels, suggesting that the algorithm adequately compensated for temporary hypoparathyroidism. No patients developed hypercalcemia.

Conclusions: An algorithm incorporating post-operative PTH levels can be utilized to mitigate against hypocalcemic outcomes and should be considered routinely in the management of patients undergoing total thyroidectomy.
Results: Sixteen patients (15.7%) demonstrated no change in thyroid volume (group A, rate of volume change <7% and ≥−7%), 59 patients (57.8%) demonstrated an increased thyroid volume (group B, rate of volume change 7%), and 26 patients (25.5%) demonstrated a decreased thyroid volume (group C, rate of volume change −7%). The rate of volume change demonstrated a significant negative correlation with patients’ age and residual volume ratio. Group C had significantly more ATR-negative patients than the other groups (31% in group A vs 24% in group B vs 46% in group C; P = 0.048). Furthermore, the rate of volume change in group C demonstrated a significant negative correlation with ATR titer (P = 0.020).

Conclusions: Among patients with Graves’ disease, younger patients or those with low residual volume ratios may have a higher potential for an increased post-thyroidectomy residual volume. However, among those patients who demonstrate a decreased rate of volume change, a high ATR titer may also indicate a significant decrease in post-thyroidectomy residual volume.

Abstract ID: 0596  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 207

Parathyroid “incidentalomas” found during thyroid surgery: should they be removed?
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Introduction: Endocrine surgeons usually encounter the parathyroid glands during thyroid surgery, and occasionally these glands appear macroscopically abnormal. Despite an incidence of 0.2%–4.5% of parathyroid “incidentalomas”, only approximately 135 cases have been reported.

Our unit presents eight patients who had an abnormal parathyroid gland found during routine thyroid surgery. We have reviewed the literature and postulate whether these glands could represent further evidence of a preclinical stage of primary hyperparathyroidism.

Material and Methods: A retrospective analysis of all 236 thyroid operations performed by a single surgeon was performed to identify patients in whom abnormal parathyroid tissue was removed at surgery. None of these patients were suspected of having concomitant thyroid and parathyroid disease prior to their operation.

Results: 8/236 patients (3.39%) had a single macroscopically abnormal parathyroid gland removed and sent for analysis. Seven patients were found to have histological evidence of a parathyroid adenoma or hyperplasia. None of the patients had abnormal serum calcium detected pre-operatively. Post-operatively, four patients had normal calcium, three had temporary hypocalcaemia and one refused follow-up. No patients had recurrent laryngeal nerve impairment.

Conclusions: Despite the risk of removing a histologically normal gland, we believe that when parathyroid “incidentalomas” are found during surgery they should be excised and sent for histological analysis. We have found this to be a safe procedure with minimal morbidity for the patient.

As the natural history of primary hyperparathyroidism is better understood, these glands found in normocalcaemic patients may in fact represent the early or preclinical phase of the disease. By removing them at the original operation, the patient is saved re-do necksurgery with its high complication rate as or when clinically apparent primary hyperparathyroidism develops in the future.

Abstract ID: 0598  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 209

Endoscopic thyroid surgery for malignant disease: application and Indication
Nippon Medical School, Tokyo, Japan

Introduction: In recent years, there was a wide development of several minimally invasive techniques for thyroid and parathyroid surgery to improve primarily the cosmetic results of neck surgical procedures. We have been developing a totally gasless endoscopic surgical technique for thyroid tumors that uses an anterior neck skin lifting method. We called this technique the Video-Assisted Neck Surgery (VANS) method. We reported the validity and safety of this method for malignant tumors. More than 420 cases were experienced since initial case and then 64 cases were malignant. Based on this experience, we would like to discuss the application and indication for malignant diseases.
for the treatment of malignant thyroid tumors, including lymph node dissection.

**Material and Methods:** We review the 64 of 420 consecutive patients who underwent VANS method for thyroid tumor since March, 1998 to December, 2008 retrospectively.

**Results:** Among the 64 cases, 17 cases were incidental carcinoma. There were 7 cases were diagnosed Follicular cancer minimally invasive, 3 were Papillary cancer follicular variant, 5 were Papillary cancer in Adenomatous goiter and 2 were poorly differentiated carcinoma. Among the 47 preoperative diagnosed cancer cases, 3 cases underwent lobectomy with lateral neck dissection, 3 cases total thyroidectomy, and 41 cases lobectomy with central node dissection. The two cases had transient recurrent laryngeal nerve palsy, 10 years after operation, one case of follicular cancer minimally invasive had bone metastasis. But, there are no recurrent cases in the other series, so far.

**Conclusions:** VANS method is an efficient, feasible and safe procedure. Unilateral Papillary thyroid cancer which size is less than 1 cm in diameter without lymphadenopathy is a good indication for this method.

**Abstract ID: 0599  Specific Field: Endocrine Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 210**

**Complications following thyroid surgery**

P. Christiansen, L. Lindahl, S. Pourzahed, H. Rønning

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**Introduction:** The most feared complications after thyroid surgery are recurrent laryngeal nerve (RCN) paresis and hypocalcemia caused by hypoparathyroidism, and it is stated that these complications should not occur more often than in 1–2%. The aim of the present study was retrospectively to document the results of thyroid surgery at a university unit of endocrine surgery.

**Material and Methods:** In the period 1995–2005 in all 1201 operations were performed on 1152 patients (912 women and 230 men). Medial age of the patients was 47 years (women 48.5 years; men 44.5 years). Previous neck operation was performed in 169 patients (14%). The indications for surgery were: compression symptoms 356 (30%), cosmetic reasons 27 (2%), solitary adenoma 268 (22%), thyrotoxicosis 213 (18%), thyroid cancer 89 (7%), and other 250 (21%).

**Results:** Consultants performed 941 procedures (78%), and in 260 cases (22%) the operation was performed by a senior or junior house officer under supervision. The surgical procedures included 649 unilateral lobectomies (54%), 140 total thyroidectomies (12%), 299 lobectomies combined with contralateral resection (25%), and 113 other procedures (9%). The RCN was identified in 1153 operations (96%), and concerning nerves at risk (NAR), the nerves were localized in 1584 of 1662 (95%). At least 1 parathyroid was identified at 1108 operations (92%). Autotransplantation was performed in 84 operations (7%).

Wound infection was observed after 32 procedures (2.7%) and bleeding demanding reoperation after 32 procedures (2.7%). RCN paresis was seen in 36 of 1662 nerves at risk (NAR) (2.2%). They were unilateral in 32 cases (2.7%) and bilateral in 2 cases (0.2%). The paresis was permanent in 1.0% and transient 1.7% (NAR) following primary surgery. The corresponding figures after reoperations were 0.9% and 2.4%, respectively. Follow-up values for serum calcium were available in 1040 cases (median 2 months). Forty-six patients (4.4%) needed substitution (calcium 1.8%, calcium and vitamin D 2.6%). The need for substitution with vitamin D and calcium was 0.9% after unilateral and 4.3% after bilateral procedures.

**Conclusions:** In this single institution series from a university unit of endocrine surgery it is documented that the most feared complications RCN paresis and hypocalcemia can be kept at an acceptable low level in both primary and secondary thyroid surgery.

**Abstract ID: 0600  Specific Field: Endocrine Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 211**

**To study the suitability of parafibromin staining in the diagnosis of parathyroid carcinoma and evolve a new grading system**

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**Introduction:** Parafibromin (PF) is a useful immunohistochemistry technique used in patients with primary hyperparathyroidism. Negative staining of the cells can indicate parathyroid carcinoma

**Material and Methods:** Retrospective study on 15 paraffin blocks of pts with PN causing hyperparathyroidism, staining pattern using PF immunohistochemistry was carried out on blocks 5 PC, IPN to be defined. 2 hyperplasias and 7 adenomas. Antibody used was mouse Anti-parafibromin Monoclonal Antibody. Results as% of +ivity, the clinical outcome along with histopathological features were correlated. Adjacent normal areas of parathyroid tissue served as internal control

**Results:** 1 with PN who had only focal area of fibrous invasion did stain 100%, did not have either intraoperative nor biochemical features of PC and hence classified as atypical adenoma. All the PCs stained 0–1+ grade with 80–100% negativity except 1 pt who had biochemical, intraoperative and histopathological features of PC but the gr was 0, with a negative staining of 40% and 3 + in 60%. 1 adenoma with extensive micro cystic changes was gr 0 and completely negative for staining which has also been described in HPT-JT- syndrome, but this pt did not have those features. Adenomas were 3+ gr with complete +ivity for staining. Even though the gr was o and 100% negative in both pts with recurrence, this number is too small to draw a conclusion that PF staining 0 brand 100% negativity in 350 dilution can predict the outcome. Based on this we propose a new grading system I. 0–1+ 80–100% area of -ve staining II. 2 + more than 40% area of -ve staining, complete -ve in one area [low grade carcinoma] III. 3 + < 40% area of -ve staining.

Gr I is carcinoma and Gr II has to be correlated with other features. Gr III is unlikely to be carcinoma

**Conclusions:** PF is an useful immunohistochemistry marker to diagnose PC but the area of staining and the dilution play an important role in correlating it with the histopathological features thus adding an additional parameter towards final diagnosis of carcinoma. The proposed new grading system which has to be correlated with the clinical presentation

**Abstract ID: 0601  Specific Field: Endocrine Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 212**

**Incidental finding of thyroid carcinoma in patients with thyroidectomy for presumably benign thyroid diseases**


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**Introduction:** There has been a worldwide rising incidence of thyroid cancer over the last decade, and this is likely attributed to the increasing diagnosis of papillary thyroid carcinoma (PTC), particularly papillary thyroid microcarcinoma (PTMC, defined as papillary carcinoma 10 mm in diameter). The latter is mostly detected
Incidentally in surgical specimen of benign diseases of the thyroid, with autopsy incidence varies from 3% to 36%. The aim of this study is to present the prevalence of thyroid carcinoma as an incidental finding in patients who underwent thyroidectomy for presumably benign thyroid diseases and to differentiate the histological subtypes of these incidental thyroid carcinomas.

**Material and Methods:** A retrospective study was performed among patients who underwent thyroidectomy for presumably benign thyroid diseases over a period of 2 years from January 2007 in a single institution. Patient demographics, pre-operative fine needle aspiration biopsy and post-operative specimen histology were evaluated.

**Results:** A total of 178 patients, with a mean age of 47 years (range from 18 to 84), were included in our study. Male: female ratio was 1 to 4. The numbers of total thyroidectomy and hemi-thyroidectomy performed were 62 cases (34.8%) and 116 cases (65.2%), respectively. The main pathology was benign nodular goiter in 82% of all cases. Thyroid carcinoma was incidentally detected in 32 patients (18%). PTC comprised 84% of these incidental carcinomas (27/32 cases) and follicular thyroid carcinoma (FTC) in 16% (5/32 cases). All FTC were minimally invasive with either extra-capsular extension or vascular invasion. Of all incidental findings of PTC, 20 cases were PTMC, which represented the majority (62.5%) of all incidental thyroid carcinomas. The prevalence of incidental PTMC in our patient group was 11.2%, which was comparable to the range of 3.1% to 21% as shown in a recent meta-analysis study. Mean diameter of PTMC was 5 mm.

**Conclusions:** The prevalence of incidental thyroid carcinoma is considerably high in patients with presumably benign thyroid diseases. Therefore, close monitoring for early detection of possible clinical malignancy is required, or more aggressive therapy such as total thyroidectomy, with or without radioiodine ablation, should be considered.

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**Abstract ID: 0602**  
**Specific Field:** Endocrine Surgery

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 213**

**Role of 99m Tc-sestamibi scans in the localization of parathyroids in tertiary hyperparathyroidism**

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**Introduction:** The objective of the study was to study different functional and anatomic features of the hyperplastic gland and clinical and biochemical characteristics of renal hyperparathyroidism (HPT) patients and their relationship with the scintigraphic detection of parathyroid glands.

**Material and Methods:** A retrospective study between 2005 to 2008 was performed on patients with chronic renal failure (CRF) who underwent parathyroidectomy for HPT. Weight, histology, and localization of hyperplastic glands were recorded. Double-phase scintigraphy with technetium 99m-sestamibi was performed pre-operatively for these patients and the results were correlated with the location of the parathyroid glands during surgery and final histology. Serum parathyroid intact hormone (PTH), creatinine, calcium, and phosphate levels were performed.

**Results:** There were 32 cases. 65% of the cases were predictive of the location of the parathyroid glands. Serum PTH did not correlate with the total parathyroid gland weight. It did not detect any supernumery parathyroid glands. It had a 80% sensitivity in locating a dominant hyperplastic parathyroid gland.

**Conclusions:** Double-phase 99m Tc-sestamibi scintigraphy is of limited usefulness in patients with renal HPT. It may assist ensuring the dominant hyperplastic gland is removed during parathyroid surgery.

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**Abstract ID: 0603**  
**Specific Field:** Endocrine Surgery

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 214**

**Surgery in Hashimoto’s thyroiditis: indications, complications and associated cancers - our experience**

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**Introduction:** Hashimoto’s thyroiditis is usually treated medically. Even visible goiters have reduction in size with drug therapy. Indications for surgery are suspicion for malignancy and tracheo-esophageal compression. However large euthyroid, asymptomatic goiters may need surgery. The aim of the study was to determine the indications, complication and associated cancers in patients with Hashimoto’s thyroiditis who eventually underwent surgery.

**Material and Methods:** Retrospective study of 155 patients who underwent thyroidectomy at our hospital between 2008 Feb to 2009 Feb was done. Final histopathology revealed 20 cases of Hashimoto’s thyroiditis. Parameters assessed included demographics, pre operative investigations, surgical indications, post operative complications and incidence of malignancy.

**Results:** Male: female ratio was 1:19. Mean age was 32.25 +/- 9.48 years and duration of goiter was 49 +/- 39.7 months. History of hyperthyroidism was present in 20% and hypothyroidism in 10%. Apart from the size of the goiter the indications for surgery were pain and neck swelling in 10%, discomfort on swallowing in 40%, dysphagia (10%). MNG involving both the lobes were seen in 75%. FNAC confirmed thyroiditis in 10% whereas in 25% diagnosis was follicular neoplasm. Total thyroidectomy was done in 60% and hemithyroidectomy in 40%. The mean gland weight was 122.25 +/- 41.78 gms. Firm and rubbery consistency hindered maneuvering the gland medially to dissect the parathyroids and recurrent laryngeal nerves. There was no case of permanent hypocalcemia/recurrent laryngeal nerve palsy. Temporary hypocalcemia was seen in 10%. The average post operative hospital stay was 52.8 +/- 14.25 days. None of our patients had associated malignancy however 25% had associated follicular adenoma.

**Conclusions:** Patients with euthyroid, large but asymptomatic Hashimoto’s goiters occasionally need surgical intervention. Cytologic diagnosis of hyperplastic follicular and hyperplastic Hurthle cells may be difficult in some cases. We did not come across any associated malignancy unlike other series. Even though thyroidectomy is technically demanding but is safe with no long term complications.
Abstract ID: 0604  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 215

The long-term results of minimally invasive parathyroidectomy without intra-operative parathyroid hormone monitoring

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Introduction: The long-term results of minimally invasive parathyroidectomy (MIP) for primary hyperparathyroidism (PHPT) without the use of intra-operative parathyroid hormone monitoring (ioPTH) are not well established. This study examines the long-term results of patients undergoing MIP for PHPT without ioPTH from our institution.

Material and Methods: All patients undergoing parathyroidectomy for PHPT from 1999 to 2008, who had pre-operatively completed a Pasieka illness questionnaire (PIQ), were contacted by letter. Serum was collected for calcium, ionised calcium, parathyroid hormone (PTH), crosslaps and a PIQ was completed.

Results: 246 patients underwent parathyroid surgery, 142 responded to our correspondence, of which 64 underwent MIP and 78 bilateral neck exploration (BNE). Follow-up after BNE was longer than MIP (61 versus 41 months p < 0.0001 t-test) and more glands were excised at BNE (1.4 versus 1.1 p = 0.0046 Mann-Whitney). The fall in serum biochemistry and PIQ score at long-term post-operative follow up are shown below. There was a trend towards a higher incidence of recurrent disease in the MIP group at long-term follow-up (6/58 versus 3/71 p = 0.29 Fisher’s Exact). Based on the post-operative fall in PTH we estimate that ioPTH would have identified three patients who had persistent PHPT after MIP.

Conclusions: The advantages of MIP for PHPT are improved cosmesis, shorter operating time and hospital stay. In this study at long-term follow-up MIP was equally effective as BNE at restoring serum biochemistry to normal, however a trend towards higher recurrence in the MIP group and greater fall in the PIQ score in the BNE group (p = 0.12, t-test) suggests BNE maybe a superior operation for PHPT.

Abstract ID: 0605  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 216

Prospective single blinded randomized study to evaluate the injury rate of external laryngeal nerve in thyroid operations using two surgical techniques

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Introduction: The conventional method of ligating the superior thyroid vessels (STV) individually can cause traction injuries inadvertently to EBSLN.

Material and Methods: Patients who had hemi or total thyroidec- tomy were included. Postoperative recurrent laryngeal nerve (RLN) injury were excluded. Out of 32 patients, 13 of them in group I. In this group the RLN was identified up to cricothyroid followed by ligation of the inferior thyroid vessels [ITV] and Zukerhandl tubercle. STVs was ligated at the end. II group had 19 patients. STVs was ligated individually as first step followed by RLN identification and ligation of ITV. The ENT surgeon who did stroboscope pre and post-operative day was blinded for the technique.

Results: The mean gland size was 8 cms and mean calcium which was comparable in both groups. Parameters like GrBas (84.6% Vs 94.7%), pitch (92.3% Vs 94.7%), loudness (92.3% Vs 100%), quality (84.6% Vs 94.7%), closure (100% Vs 69.2), phase (100% Vs 84.6%), bowing (0% Vs 15.3%), rotation (0% Vs 23.1%), mucosal wave (100% Vs 92.3%), amplitude (100% Vs 92.3%), MTD(45.1% Vs 61.5%) were compared for best outcomes between the two groups. EBSLN Injury Parameters like closure, phase, bowing, rotation, mucosal wave, amplitude were better in group 1 than in group2. In group 2 with positive stroboscopic positive findings, 44% of them had voice changes recorded with voice software especially to the high pitch.

Conclusions: Inadvertent ligation/traction injury of the EBSLN can be significant up to 15% patients who undergo thyroidectomy with conventional method. Voice can change significantly especially to a professional who needs to use high pitch.

Abstract ID: 0606  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 217

Mild primary hyperparathyroidism and health-related QOL: a systematic review

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Introduction: We conducted a systematic review to determine if parathyroidectomy is beneficial on health-related quality of life (HRQOL) in patients with mild hypercalcemia due to primary hyperparathyroidism who do not have either osteitis fibrosa cystica or renal stones (mild PHPT).

Material and Methods: MEDLINE (1966 to January 2009) was searched. Bibliographies of the retrieved articles were perused for additional citations. Randomized controlled trials (RCTs) and longitudinal cohort studies were selected if (1) the study population...
included patients with mild PHPT, (2) changes in HRQOL were measured before and after surgery, and (3) the HRQOL was measured using a reliable and valid instrument. Selected studies were appraised their designs, study populations, HRQOL measures, and the results.

**Results:** 3 RCTs and 3 observational studies contributed to the analysis. We found the following: (1) all investigations used SF-36 or its modification to measure HRQOL; (2) improvements in HRQOL were observed in 5 studies but they were inconsistent in terms of areas and extent; (3) clinical importance of the observed changes was not discussed nor clarified; (4) investigators from 3 RCTs discussed a potential placebo effect of surgery.

**Conclusions:** Some patients with mild PHPT may feel something better after surgery. But it is hard to tell how better because clinical significance of observed changes remains to be determined.

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**Abstract ID: 0607**  **Specific Field: Endocrine Surgery**

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 218**

**Pre-operative arterial embolization of large, vascular thyroid glands and bone secondaries: encouraging results from a case-cohort study**

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**Introduction:** Pre-operative embolisation procedure very selectively for large, vascular glands and bone secondaries from thyroid carcinoma that had a high risk of morbidity at surgery

**Material and Methods:** Retrospective review of case records of 7 patients with pre-operative embolization followed by thyroidectomy and excision of bone secondary with arthroplasty/internal fixation. The cases were compared to a cohort of fifteen comparable historical controls of large gland (> 500gm) thyroidectomy without embolization in the same time period. The parameters estimated were intra-operative blood loss, requirement of transfusion, mean operating time and postoperative hypocalcaemia. Pre-operative arterial embolization was done by selective cannulation of all the feeder vessels using gel-foam and PVA (PolyVinylAlcohol) via a right femoral artery puncture. The operation was performed within the next 24 hours

**Results:** 3 Graves’, 2 nodular hyperplasia, 2 femoral head and proximal humerus secondaries. Controls had 7 Graves’, 6 nodular hyperplasia, 2 papillary cancer. The embolized group had a significantly lower blood loss, 88 mL (+/- 21.7 mL) versus 434.4 mL (+/- 227.3 mL). No blood was transfused but in control 4 (26%) needed. Mean operating time was reduced significantly from 3.5 hours (+/- 1.2 hours) to 2.8 hours (+/- 0.5 hours). Transient hypocalcaemia was significantly worse in the embolized group (all pts) compared to 64% in control. There was no permanent hypocalcaemia or recurrent nerve injury in either group. 2 pts with bone secondaries underwent total thyroidectomy followed by excision arthroplasty and internal fixation without any blood loss

**Conclusions:** Pre-operative arterial embolization is a useful tool in the treatment of large, vascular goitres. Significant reduction in blood loss, transfusion rates, operating time can help reduce the morbidity. Transient hypocalcaemia postoperatively can be anticipated. Embolization with or without surgery for bone secondaries can be a better palliation.

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**Abstract ID: 0609**  **Specific Field: Endocrine Surgery**

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 220**

**An experience of robotic thyroid surgery for a papillary carcinoma previously treated with radiofrequency ablation**

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**Introduction:** Radiofrequency ablation (RFA) has been applied to the limited cases of local recurrences or focal distant metastases of well-differentiated thyroid cancer in the high-risk reoperative condition or for the palliative purpose, but no report has been made on the RFA for primary thyroid cancer. We report on a patient with a primary papillary thyroid carcinoma who had undergone RFA before the cytologic diagnosis, later referred and treated with robotic surgery successfully.

**Material and Methods:** A 44-year-old female patient was referred from the private hospital for the treatment of the thyroid nodule, suspicious of papillary carcinoma, diagnosed by the fine needle aspiration cytologic examination (FNAC). She had undergone RFA of the nodule, just after the FNAC at the same time, that is, without confirmation of the diagnosis. It was reported that the RFA had been
carried out with 20–30 W of power for about 5 minutes under the ultrasonographic (US) guidance, using an internally cooled electrode (17 gauge, with 1-cm active chip). On the preoperative US, a 1.6 cm sized hypoechoic nodule was detected in the right lobe of thyroid, but neither other thyroid lesion nor lymphadenopathy suggesting metastasis was observed.

**Results:** The patient underwent robotic total thyroidectomy and central node dissection using the bilateral axillo-breast approach, with the da Vinci® surgical system (Intuitive Surgical, Sunnyvale, CA, USA), exactly a month after the RFA. There was no specific intraoperative finding, except the mild adhesion of sternothyroid muscle with the surface of the right lobe, which turned out to be the RFA portion. The operative time was 305 minutes, and the console time was 171 min. No postoperative complication was observed. Pathologic examination revealed a 0.7 cm sized viable papillary carcinoma without extrathyroidal extension in the right lobe, back to back with 0.8 cm sized ablated necrotic tissue. Metastases were detected in 2 out of 6 central lymph nodes.

**Conclusions:** RFA for the operable primary thyroid malignancy should be avoided, because of the possibility of remnant viable cancer portion and undetectable nodal metastasis by the imaging modalities. And robotic or endoscopic thyroid surgery may be a feasible operative method in the cases of nodules undergone RFA.

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**Abstract ID: 0610  Specific Field: Endocrine Surgery**

**Mode of pres.: Poster Exhibition**
**ISW 2009 Session PE 221**

Retrocaval retroperitoneal tumor mimicking as hydatid cyst

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**Introduction:** Retrocaval retroperitoneal tumors have almost always presented as solid tumors and rarely as having features suggestive of hydatid cyst both on ultrasound and CT Scan. One such rare case is presented here.

**Material and Methods:** This 50 years female presented with pain in abdomen for duration of 6 months, no other significant history, not a known case of diabetes, hypertension, tuberculosis. The clinical examination revealed a vague mass in the right hypochondrium with ill-defined margins and limited mobility. The whole abdomen was evaluated with an ultrasound. It was reported as hydatid cyst of liver. Therefore contrast enhanced CT Scan was performed which also gave the same findings. Patient was planned for surgery. Operative findings were quite in contrast to what the imaging findings were. It was a large 18x15 cm retrocaval retroperitoneal tumor extending from liver behind the IVC lifting both renal veins anteriorly. All IVC and both renal veins were densely adherent to it. As no features of hydatid were found only incisional biopsy was taken and abdomen closed. The biopsy was repored as paranganglioma. redo surgery was performed after metastatic workup revealed no metastasis. Complete tumor along with part of IVC right kidney were removed with reconstruction of the IVC with PTFE graft and implantation of the left renal vein on the IVC graft.

**Results:** Follow up of the patient and the details of such presentations will be presented

**Conclusions:** Retrocaval retroperitoneal tumors can present as having features like a hydatid cyst. Careful planning can help in the proper management with good results

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**Abstract ID: 0611  Specific Field: Endocrine Surgery**

**Mode of pres.: Poster Exhibition**
**ISW 2009 Session PE 222**

Secondary substernal goiter: a special entity?

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**Introduction:** Secondary substernal goiter is a thyroid formation with cervical departure that goes beyond the superiothoracic strait for at least 3 cm and that preserves the connexions between the cervical and the thoracic portion, maintaining a direct vascularization supplied by the thyroid arteries.

The aim of this study is to determine the characteristics of patients with secondary substernal goiter.

**Material and Methods:** The present retrospective study included 830 patients hospitalized in the 3rd Department of Surgery with goiter during the last 5 years. 63 patients had final diagnosis substernal goiter (primary or secondary) (7.59%). The male/female ratio was 22/41, the mean age of the patients with substernal goiter was 57.78 years (SD 11.42).

**Results:** 1 patients with substernal goiter necessitated sternotomy (1.59%). The volume of the gland was 307.5 ml for the sternotomized patient while for the others it was 231.4 ml (SD 168.21). The sternotomized patient had malignancy. The other patients with substernal goiter had malignancy in 1.58% (1 case) and benign disease in 98.52% (61 cases). The mean hospitalization was 1.6 days (SD 0.86) for the total population, while it was 3 days for the sternotomized. The mean operative time was 88.5 min (SD 23.8 min), augmenting to 120 min for the sternotomized. No mortality was observed, no blood transfusion was needed in any case.

**Conclusions:** In our series sternotomy was once employed in a case of a carcinoma. When performed it slightly increases morbidity. Attention has to be paid when confronting substernal goiters and although the presence of a cardiothoracic surgeon is not absolutely necessary, his aid has to be considered in selected cases.

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**Abstract ID: 0612  Specific Field: Endocrine Surgery**

**Mode of pres.: Poster Exhibition**
**ISW 2009 Session PE 223**

Surgical collaboration with Nagasaki (Japan) and Semipalatinsk (Kazakhstan) for the patients with thyroid cancer might be affected Semipalatinsk nuclear test sites

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**Introduction:** From 1949 to 1989, 456 nuclear tests were conducted by the former Soviet Union at the Semipalatinsk Nuclear Test Site (SNTS) in Kazakhstan. A noticeable increase in the number of cases of Hashimoto’s thyroiditis and thyroid cancer were reported. It is not clear for the surgical procedures for the patients with thyroid tumor or thyroid cancer in Semipalatinsk. It is very important to assess the clinical behavior of thyroid cancer which might be affected SNTS in control of the accurate diagnosis and standardized surgery. We have
collaborated with Semipalatinsk oncology center since 1999 to improve the accuracy for the preoperative diagnosis for thyroid tumors and to standardize the thyroid surgical procedures for papillary thyroid cancer and also to assess the clinical aggressiveness of thyroid cancer which may be associated with the SNTS.

**Material and Methods:** To assess the change of diagnostic accuracy and thyroid surgery from 1999 to 2008 in Semipalatinsk Oncology Center collaborated with Nagasaki University and Nagasaki Medical Center. Material: One hundred sixty nine patients with thyroid cancer underwent thyroid surgeries in Semipalatinsk Oncology Center were evaluated. Out of them, 125 patients with papillary thyroid cancer were assessed about surgical procedure. Method: cross-sectional observational study.

**Results:** 1) The preoperative diagnosis was made based on fine needle aspiration biopsy specimens (FNAB). According to the accuracy of FNAB, annual changes in the preoperative diagnosed rates of thyroid cancer were dramatically increased from 2002. 2) The rate of a partial lobectomy has gradually decreased. On the other hand the rate of a total lobectomy has increased form 2002. Lymph node dissection was infrequently indicated at the Semipalatinsk oncology center somehow.

**Conclusions:** Optical method to diagnose thyroid tumor were performed certain, and accurate diagnosis of thyroid cancer changed the surgical procedure during the period of this study. Accurate diagnosis and standardized surgery for thyroid cancer help to evaluate the biological character of thyroid cancer might be affected SNTS in next decade.

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**Abstract ID: 0613**  Specific Field: *Endocrine Surgery*

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 224**

**Accuracy of ultrasound, FNAC and frozen section in diagnosis of thyroid malignancies**


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**Introduction:** The aim of this study is to conduct an audit of the sensitivity and specificity of ultrasound, fine needle aspiration cytology (FNAC) and frozen section in the evaluation of thyroid malignancies in our practice.

**Material and Methods:** The medical records of all the patients who underwent thyroid surgery in Tan Tock Seng Hospital General Surgery Department from January 2005 to December 2007 were retrospectively reviewed using a standardized data collection template. Results of the ultrasounds, FNACs and frozen sections were compared with the final histological diagnosis.

**Results:** A total of 112 patients underwent thyroid surgery in the 3-year study period. Thyroid malignancy constituted 34(30%) of all patients who underwent thyroid surgery. The most popular diagnostic tools used were ultrasound (81%), FNAC (69%) and frozen section (59%). The sensitivity of ultrasound, FNAC and frozen section were 41.4%, 86.4% and 68.8% respectively. FNAC was shown to be a superior diagnostic test in detecting malignancy compared to ultrasound. FNAC was able to pick up 53% of thyroid cancers missed by ultrasound. Frozen section was able to pickup 33% of thyroid cancers that were missed by both ultrasound and FNAC.

**Conclusions:** FNAC has a sensitivity in diagnosing thyroid malignancies and is recommended to be used as first line investigation. Ultrasound by itself has a low sensitivity but in combination with FNAC will increase the diagnostic yield for diagnosing thyroid malignancies.

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**Abstract ID: 0614**  Specific Field: *Endocrine Surgery*

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 225**

**Total video endoscopic thyroid resection by the axillobilateral breast approach: first own experiences and results**

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**Introduction:** In first investigations we operated 21 Patients using the axillobilateral approach (ABBA). This method allows thyroid resection without scarcing the neck.

**Material and Methods:** Incisions were performed at the edge of the mamilla and axilla then the trocars were were placed subcutaneously under the platysma. Dissection was done bluntly and and with an ultrasonographic scalpel under videoscopic control. The resected thyroids were removed through the axillary trocar.

**Results:** Subtotal thyroid resection was performed in twenty - three female Patients using the ABBA-technique. In none of these cases a conversion or a reoperation was necessary. Median operating time was 135 minutes.

In the postoperative course we noticed one transient recurrent nerve palsy and one hypoparathyroidism.

**Conclusions:** Thyroid resection with the ABBA technique is a feasible and safe method in selected patients. The cosmetic result is the primary aim of this method.

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**Abstract ID: 0615**  Specific Field: *Endocrine Surgery*

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 226**

**Pharyngoesophageal diverticulum mistaken as a thyroid nodule on neck ultrasound**


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**Introduction:** Neck ultrasound is routinely used in the evaluation of thyroid nodules and performing guided needle biopsies. Occasionally, non-thyroidal lesions can mimic thyroid nodules on examination or imaging and get aspirated. We report a rare case of an asymptomatic pharyngoesophageal (Zenker’s) diverticulum mistaken as a thyroid nodule on neck ultrasound.

**Material and Methods:** A 63-year-old hypertensive female with a recent stroke was found to have an incidental left thyroid nodule during evaluation of the carotid vessels with neck ultrasound. The nodule was 2 cm in diameter, isoechoic with a surrounding hypoechoic rim and contained tiny foci of echogenicity. A guided fine needle cytology (FNAC) of the ‘nodule’ was performed.

**Results:** The FNAC showed abundant squamous cells, bacteria and food-like debris with no thyroid cells or colloid. The suspicion of a pharyngoesophageal (Zenker’s) diverticulum was confirmed on the barium swallow which showed a left lateral diverticulum in the upper esophagus at the level of C6 vertebral body. It measured 2.0 cm in size and corresponded to the lesion seen in the left lobe of the thyroid gland. At follow-up 6 months later, the patient remained asymptomatic with no increase in size of the diverticulum.
Pharyngoesophageal diverticulae can closely mimic thyroid nodules on neck ultrasound and should be considered in the differential diagnosis of a suspected solitary thyroid mass that shows squamous cells, bacteria and/or food debris in the cytological aspirate. Pathologists should be aware of this condition and suggest the diagnosis when appropriate.

Abstract ID: 0616  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 227

Laparoscopic adrenalectomy: the first experiences in Bosnia and Herzegovina
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Introduction: In the international medical literature has been reported that Gagner et al performed the first laparoscopic adrenalectomy in 1992. Nowadays laparoscopic adrenalectomy represent gold standard for operative treatment of different adrenal pathologies. We present the first independent experiences in these procedures in Bosnia and Herzegovina.

Material and Methods: Two patients 65 and 49 years old has been operated. The first patient had adenoma of right adrenal gland without functional disorders, while the second patient had adenoma of left adrenal gland with Conn syndrome.

Results: Patients underwent laparoscopic transabdominal adrenalectomy. The duration of the procedure was 2 hours and 45 minutes and 3 hours respectively. Postoperative course were uneventful. Discharge from hospital on postoperative day 2 and 5 respectively. Hormonal screening after the procedure in patient with Conn syndrome shows normal lab values. So far with no complication related to the operative procedures.

Conclusions: The first laparoscopic adrenalectomy in Bosnia and Herzegovina was performed on the 29th of May 2008. Patients had excellent operative and postoperative course with no complications. We present the first step in introduction of laparoscopic adrenalectomy as gold standard in operative treatment of certain adrenal pathology in Bosnia and Herzegovina.

Abstract ID: 0617  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 228

Sentinel lymph node biopsy in differentiated thyroid cancer: intraoperative staging in decision to perform modified radical neck dissection
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Introduction: Despite the ongoing debates considering the prognostic impact of lymph node metastases in differentiated thyroid carcinoma (DTC), peroperative management of cervical lymph nodes is not optimized. Most of the teams rely on preoperative ultrasound diagnosis and/or intraoperative palpation of lymph nodes. Few teams proposed sentinel lymph node (SLN) mapping as a possible more accurate staging. Considering the results of previous studies of SLN biopsy in DTC, the objective of this study was to determine whether SLN biopsy of first draining nodes in jugulo-carotid chain is an accurate technique to select patients with true positive but not palpable lymph nodes for selective MRND.

Material and Methods: In a period from 2001 to 2008, we have performed SLN biopsy in 156 patients with DTC. Before mobilization of the thyroid gland, approximately 0.2 ml of 1% solution of methylene blue dye was injected peritumorally. After 10 minutes the dissection was continued above and beyond the omohyoid muscle, towards the internal jugular vein and common carotid artery until the blue stained lymph nodes were found and recognized and sent for frozen-section examination. An extended dissection of level III and IV was done consecutively. All dissected nodes were examined by frozen section and conventional (HE) histopathology examination. If any of the nodes were positive on frozen-section, MRND was performed after total thyroidectomy and routine dissection of central neck compartment. There were no allergic reactions on methylene blue dye.

Results: Identification of blue stained SLN was successful in 93.2% of cases. Specificity and sensitivity of the method were 100% and 78% respectively. Negative and positive predictive values were 94.6% and 100%, while overall accuracy of the method was 95.3%.

Conclusions: According to previous data, status of lower jugulo-carotid lymph nodes significantly predicts the status in upper two thirds. Our results imply that SLN biopsy in the jugulo-carotid chain using methylene blue dye mapping, is a feasible and accurate method for estimating lymph node status in the lateral neck compartment. The method could be helpful in detection of true positive but non-palpable lymph nodes and may support a decision to perform a selective MRND in patients with DTC.

Abstract ID: 0618  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 229

Retro-jugular lymph node dissection may improve Graves’ ophthalmopathy: new insight into the pathogenesis of Graves’ disease
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Introduction: Regional lymph nodes (LN) have an important impact on autoimmune process and obstruction of these lymphways decreases
the autoimmune response. The retrojugular LN are the common lymph drainage of orbit and thyroid. Furthermore, TSH-Receptor-specific T cells are recruited to the orbit and secrete cytokines that induce Graves’ Ophthalmopathy (GO). It is suggested that drainage of the thyroid into retrojugular LN may have a role in pathogenesis of Graves’ disease (GD), especially in the development of GO.

**Material and Methods:** Cervical LN and peripheral Blood (pB) were collected from 10 patients with GD, (test-group) and 10 patients with multinodular goiter (control-group). Plasmacytoid dendritic cells (pDCs) were stained using BDCA-2-PE and CD123-FITC monoclonal antibodies and analysed with flow-cytometry. Immunohistochemical detection (IHC) of TSH-receptor (TSHR) in LN was performed.

**Results:** TSHR-staining was positive in Graves’LN. The number of pDCs was significantly higher in LN of the test-group than in the control-group (p = 0.0001). The number of pDCs was also significantly higher in cervical LN of all patients with GD when compared to pDCs in pB of the same patients (p = 0.001) and to pDCs in pB of control-group (p = 0.002). PDCs in pB of both groups were similar (p = 0.383).

**Conclusions:** TSHR is expressed in Graves’LN. Furthermore, pDCs are selectively accumulated in perithyoidal LN of Patients with GD, but not in patients with multinodular goiter. These results suggest that the migration and accumulation of pDCs and TSHR in an anatomical joint between thyroid and orbit may be of importance for priming and maintenance of a chronic autoimmune stimulation of GO in GD patients. The mean size of the tumour was 15 mm(7-60 mm). At final histology, 16 patients had lymph node involvement, 3 patients had multifocal MTC and 5 patients had additional papillary cancer. Finally, 15 patients (13%) would have been disease free if a hemithyroidectomy had been performed.

**Conclusions:** The indication of hemithyroidectomy in patients with sporadic MTC is limited and questionable. Negative preoperative genetic test is the prerequisite condition to consider hemithyroidectomy in selected cases of sporadic MTC.

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**Abstract ID: 0619**  Specific Field: **Endocrine Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 230**

**Is total thyroidectomy required for all patients with sporadic medullary thyroid cancer?**


[1] University Hospital La Timone, Marseille, France, [2] University Hospital La Timone, Marseille, France

**Introduction:** Total thyroidectomy is the treatment of choice for both hereditary and sporadic medullary thyroid cancer (MTC). Compared to the hereditary forms of MTC, sporadic MTC is unilateral at an early stage. With the advent of RET germline mutation testing, certain groups have advocated selective use of hemithyroidectomy for the treatment of sporadic or incidentally discovered MTC. Our aim was to determine if there is a group of patients in whom hemithyroidectomy could have been considered in our experience.

**Material and Methods:** A retrospective review of a prospectively collected database was performed from January 1998 to August 2008. All patients with familial MTC (FMTC) and positive ret proto-oncogene mutations were excluded. A total of 117 patients, 66 females and 51 males without suspicion of FMTC (no familial history, no associated endocrine disease, and no clinical evidence of bilateral MTC) were identified. MTC was suspected on the basis of elevated basal (> 30 pg/ml) and pentagastrin stimulated (> 200 pg/ml) serum calcitonin (normal basal).

**Results:** Of all 117 patients, 78 patients (67%) had an indication for total thyroidectomy (TT): bilateral MTC involvement of the gland or bilateral lymph node involvement in 11 cases, associated thyroid disease necessitating a TT (multinodular goitre or hyperthyroidism) in 50 cases, side of the MTC unknown despite routine pre-operative investigations in 15 cases. In the remaining 39 patients (33%), MTC was clinically unilateral and hemithyroidectomy could have been considered. The MTC was palpable in 34 patients and subclinical in 5 patients. The success rate to cure patients with primary hyperparathyroidism (pHPT) was 78% (p < 0.001). The number of patients with sporadic MTC was 50 cases, side of the MTC unknown despite routine pre-operative investigation in 15 cases. In the remaining 39 patients (33%), MTC was clinically unilateral and hemithyroidectomy could have been considered. The MTC was palpable in 34 patients and subclinical in 5 patients. The mean size of the tumour was 15 mm(7-60 mm). At final histology, 16 patients had lymph node involvement, 3 patients had multifocal MTC and 5 patients had additional papillary cancer. Finally, 15 patients (13%) would have been disease free if a hemithyroidectomy had been performed.

**Conclusions:** The indication of hemithyroidectomy in patients with sporadic MTC is limited and questionable. Negative preoperative genetic test is the prerequisite condition to consider hemithyroidectomy in selected cases of sporadic MTC.

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**Abstract ID: 0620**  Specific Field: **Endocrine Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 231**

**Super-selective venous sampling in patients with persistent primary hyperparathyroidism: a useful adjunct to imaging techniques**

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**Introduction:** The success rate to cure patients with primary hyperparathyroidism (pHPT) at the initial operation is very high (90-98%). However, some patients require reoperation due to persistent pHPT. In these patients a variety of imaging techniques (US, CT/MRI, MIBI, methionine-PET) and invasive techniques (selective venous sampling (SVS)) may be required to localize the parathyroid adenoma. One of the drawbacks of SVS is the “low spatial resolution”.

**Material and Methods:** We modified SVS in the following regard: patients first underwent conventional SVS. Parathyroid hormone levels were determined measuring quickPTH. After receiving the results, the patients underwent super-selective venous sampling (super-SVS) of various small venous branches in the region with the highest level after SVS.

**Results:** Between 2004 and 2008, 5 patients with persistent pHPT underwent super-SVS. All patients had previous undergone at least one operation due to pHPT. Postoperative parathyroid hormone levels remained elevated and various imaging techniques were applied (US, CT/MRI, MIBI, methionine-PET), none of them conclusive. Patients then underwent super-SVS. In all but one patient, super-SVS was carried out as planned. With the help of super-SVS, re-evaluation of the imaging results enabled localization of the parathyroid adenoma in these patients. Subsequent surgery rendered all of them cured during the observation period.

**Conclusions:** Super-SVS is a helpful adjunct to imaging techniques and may be superior to SVS.

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**Abstract ID: 0621**  Specific Field: **Endocrine Surgery**

**Mode of pres.:** Poster Exhibition

**ISW 2009 Session PE 232**

**Indeterminate (follicular) nodules of the thyroid: is it possible to preoperatively predict the risk of malignancy?**

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**Introduction:** Fine-needle aspiration biopsy (FNAB) is the cornerstone of assessment of thyroid nodules. Cytological criteria for benign
and malignant aspirations are well established. When cytology suggests a follicular neoplasm only formal histological assessment can differentiate between benign and malignant lesions. We evaluated if there are factors predictive of malignancy in cytologically indeterminate (follicular) thyroid nodules.

**Material and Methods:** The medical records of all the patients who had a diagnosis of follicular thyroid nodule (Thy3 according to the British Thyroid Association classification) between December 2007 and November 2008 were reviewed. Among them, those who had an histological control were included in this study. The following parameters were registered: age, sex, ultrasound characteristics (echogenicity, microcalcifications), nodule size, thyroid disease (single nodule Vs multinodular goiter), immunocytochemical stains for HBME-1 and Galectin-3 results, final pathology.

**Results:** Among 1585 patients who underwent FNAB, 261 had a diagnosis of follicular nodule (Thy3). Among them, 195 underwent thyroidectomy: 152 females and 43 males, with a mean age of 48.7 years (range: 20–77). Final histology showed 146 benign and 49 malignant nodules (follicular variant of papillary carcinoma in 43 cases, follicular carcinoma in 6). No significant differences were found between benign and malignant lesions for age and sex of the patients, lesion’s size, ultrasound characteristics. The malignancy rate in case of single nodules was significantly higher than in multinodular goiter (30/63 Vs 19/132) (P < 0.001). Positive immunostaining for both HBME-1 and Galectin-3 was observed in 58 cases, negative for both in 137. The malignancy rate was significantly higher in HBME-1 and Galectin-3 positive nodules (42/49 Vs 16/146) (P < 0.001). The risk of malignancy was 1:4 for the entire series of patients, but it increased to 1:2:1 (47.6%) for single nodules and to 1:1:4 (72.4%) for HBME-1/galectin-3 positive nodules.

**Conclusions:** One in four patients with cytological indeterminate thyroid nodule has a differentiated thyroid carcinoma. Thyroidectomy is mandatory in all the patients with single and/or HBME-1/galectin-3 positive nodules, because of the increased risk of malignancy, and suitable in all the other cases.
Abstract ID: 0624 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 235

Minimally invasive adrenalectomy: retroperitoneoscopic versus transperitoneal approach
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Introduction: Retroperitoneoscopic adrenalectomy (RA) has been widely practiced in Europe and is being rapidly adopted in the United States. We have recently adopted this approach and have compared it to a contemporary cohort of minimally invasive transperitoneal adrenalectomies (TA).

Material and Methods: A total of 48 minimally invasive adrenalectomies were performed at Scott & White Memorial Hospital between September 2006 and November 2008. A retrospective chart review was undertaken to evaluate the 24 RAs and compare the results to the previous 24 consecutive TAs performed at our institution.

Results: There was a statistically significant (P < 0.05) shorter duration in mean operating time between RA (122.7 min; range 61–210 min) and TA (151.7 min; range 94–300 min). The mean postoperative hospital stay was comparable at 1.7 and 1.8 days (P > 0.05) for RA and TA, respectively. Estimated blood loss was also equivocal at 111.5 ml (range: 5–800 ml) for RA and 134.8 ml (range: 25–900 ml) for TA (P > 0.05). Postoperative complications were minor and comparable with both operative approaches.

Conclusions: An analysis of our early experience supports that mean operating times of RA are decreased in comparison to TA and both operations have similar complication rates, blood loss and hospital stay. RA is advantageous for patients with bilateral adenal tumors and provides the benefit of avoiding an intrabdominal operation. RA is a safe and effective minimally invasive technique and thus has become our preferred approach for the removal of small, benign functional adrenal tumors.

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<tr>
<th>Procedure</th>
<th>Operating Time</th>
<th>Estimated Blood Loss</th>
<th>Hospital Stay</th>
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<tr>
<td>Retroperitoneoscopic Adrenalectomy (RA)</td>
<td>122.7</td>
<td>111.5</td>
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<tr>
<td>Transperitoneal Laparoscopic Adrenalectomy (TLA)</td>
<td>151.7</td>
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Abstract ID: 0625 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 236

Focal excision of adult nesidioblastosis and enucleation of insulinoma
P.S.V. Rao
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Introduction: Diffuse and focal forms of Nesidioblastosis are well known cause of persistent neonatal hypoglycemia. However, very few cases of Nesidioblastosis have been described in adults, and these are presumed of diffuse type, and surgical treatment has been near-total pancreatectomy. Eight patients were successfully operated by a single surgeon for symptomatic hypoglycaemia. Four underwent enucleation of an Insulinoma. Four adults underwent Focal excision of Nesidioblastosis.

Material and Methods: The surgical records of patients who were operated on for Insulinoma/Adult Nesidioblastosis by a single endocrine surgeon at three different hospitals over a 10 year period were evaluated retrospectively. In four patients a single Insulinoma was localized by CT/MRI scan and was enucleated. In another four adult patients the lesion was not seen on imaging. Pancreatic vein catheterization and insulin assay was used successfully in localizing the occult source of hyperinsulinism. These four underwent Focal excision of Nesidioblastosis i.e. the entire pancreas was mobilized and examined at laparotomy and a small (about 1 cm) piece of Pancreas that corresponded to the target area and looked and felt different from the rest of the gland was excised. In these the biopsy showed Nesidioblastosis. Those, in whom the source of hyperinsulinism could not be localized had not been referred for surgery. They probably had diffuse Nesidioblastosis.

Results: All four patients who underwent enucleation of Insulinoma are asymptomatic over a follow up of 11 to 1½ years. Three of the patients who underwent Focal excision of Nesidioblastosis are asymptomatic over a follow up of 5, 3 and 1 years and one is lost to follow up. The second of these patients had a pancreatic leak which was successfully treated with an internal pancreatic drain.

Conclusions: Enucleation of Insulinoma is an effective long term remedy. There is a subset of adult hypoglycaemic patients with Focal Nesidioblastosis who can be effectively treated by excision of the focus of hyperinsulinism in a small (about 1 cm) part of the Pancreas.

Abstract ID: 0626 Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 237

Reducing recurrent laryngeal nerve injury during central level VI lymph node dissection for thyroid cancer
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Scott & White Clinic/Texas A&M U Health Science Center, School of Medicine, Temple, United States

Introduction: A central level VI lymph node dissection (CLND) can potentially reduce the risk of local recurrence for appropriate thyroid cancers, but the risk of recurrent laryngeal nerve (RLN) injury has been reported to be significantly increased with this procedure, limiting its broader application in the surgical management of thyroid cancer. Intraoperative feedback from nerve monitoring during CLND concerning the timing, location, and mechanism of RLN injury can potentially modify the surgeon’s subsequent dissection techniques to reduce RLN injury.

Material and Methods: Previously published results of an initial consecutive 164 nerves-at-risk (NAR) with CLND with or without thyroidectomy were compared to the next consecutive 254 NAR. All data was prospectively collected from March, 2004 to February, 2009, recording RLN injury during central neck procedures while utilizing intraoperative nerve monitoring. Preoperatively paralyzed RLN’s and cancer invaded RLN’s deemed non-salvageable intraoperatively and intentionally sacrificed were excluded from the NAR. Vocal cord paralysis/paresis was documented and followed periodically with flexible laryngoscopy.

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Results: RLN injury occurring during CLND with thyroidectomy was reduced from initially 12 of 141 NAR (8.5%), to subsequently 3 of 229 NAR (1.3%) (p < 0.01), while CLND without thyroidectomy was initially 1 of 23 NAR (4.3%), and subsequently 1 of 25 NAR (4.0%), (p = 1). With follow-up, permanent vocal cord paralysis remained in 2 RLN’s initially (1.2%), and 0 RLN’s subsequently.

Conclusions: The significantly lower incidence of RLN injury achievable during CLND with thyroidectomy encourages the liberal application of CLND to the initial surgical management of thyroid cancer potentially metastatic to level VI lymph nodes.

Abstract ID: 0627  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 238

Intraoperative neuromonitoring in thyroid reoperations: do the results influence the surgical procedure of the primary operation?
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Introduction: Reoperative thyroid surgery is associated with a higher rate of laryngeal recurrent nerve (RLN) palsy than primary operation. Total thyroidectomy is favoured by many authors for benign thyroid disease to avoid reoperation. The introduction of intraoperative neuromonitoring (IONM) as a standard procedure in reoperative thyroid surgery seems to reduce recurrent laryngeal nerve palsy substantially. The aim of this retrospective study was to investigate whether the routine use of IONM was able to minimize the palsy rate of the recurrent laryngeal nerve.

Material and Methods: Between 1/2001 and 9/2007 and between 7/2008 and 1/2009 192 reoperations of the thyroid being performed with IONM were analysed retrospectively.

Results: 110 bilateral and 82 unilateral reoperations were performed. In 31 patients a unilateral operation preceeded the reoperation and in 161 patients a bilateral subtotal resection or a Dunhill procedure was the primary operation. 12 patients were operated a third time. Transient RLN deficit rate was 1.6% and permanent RLN rate was 0.6% (302 nerves at risk).

Conclusions: Intraoperative neuromonitoring seems to reduce the rate of LRN palsy in thyroid reoperation substantially. With palsy rates comparable to those of primary operation we suggest that total thyroidectomy is not mandatory as primary procedure in benign goiter.

Abstract ID: 0628  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 239

Comparative evaluation of the diagnostic results of fine-needle aspiration cytology and pathology in the assessment of thyroid nodules
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Introduction: Fine-needle aspiration has become an accepted and cost-effective procedure for rapid diagnosis of thyroid lesions. The routine use of Fine-needle aspiration has reduced the rate of unnecessary surgery for thyroid nodules. This study conducted to determine the accuracy of fine-needle aspiration biopsy diagnosis.

Material and Methods: During this cross-sectional study, reports of 600 fine needle aspiration cytology of the thyroid, performed during a period of 11 years (1991–2001) in departments of pathology of Shahid Rahnemoon and Shahid Sadoughi hospitals were reviewed. Pathological diagnosis were available for 28 cases. Cytological reports were classified diagnostically, and histological and cytological correlations were determined. Statistical analysis was performed with SPSS 13 and descriptive tests.

Results: From 600 cases (91 male, 509 female) the cytological diagnosis were as follows: 526 (87.7%) benign, 28 (4.7%) malignant, 10 (1.6%) suspicious, and 36 (6%) unsatisfactory. Between benign lesions, goiter and follicular adenoma and between malignant lesions, papillary cell carcinomas were the most common. Malignant nodules were more common in females than males (4.9% versus 3.3%). We identified no false-positive results between malignant FNA and histopathology and so positive predictive value was 100%.

Conclusions: Fine-needle aspiration of the thyroid gland is highly accurate and has a low rate of false-positive diagnosis in case of malignant results.
reoperated with completion lobectomy. We hereby would like to emphasize the importance of preoperative fine needle aspiration biopsy. It should be performed and in some institutions it has to be improved as a diagnostic tool. Ultrasound guided FNAB can maybe further improve the result.

Abstract ID: 0630  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 241

White blood count as a prognostic marker of anaplastic thyroid cancer
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Introduction: Anaplastic thyroid cancer is one of the most aggressive types of all cancers. In the present study, we retrospectively analyzed treatment outcomes for patients with anaplastic thyroid cancer at our department, and investigated prognostic factors.

Material and Methods: Subjects were 26 patients who were diagnosed with anaplastic thyroid cancer from 1984 to 2007. Univariate analysis was performed for the relationship between survival time and the following background factors: age, gender, presence or absence of acute exacerbation within the past month, tumor size and leucocyte count (< 10,000/mm³ and > 10,000/mm³).

Results: Subjects included 10 men and 16 women with a mean age of 70.5 years (range, 53–84 years). Survival time was between 17 and 410 days (median, 120.5 days). Univariate analysis revealed significant differences in survival time with regard to presence or absence of acute exacerbation within the past month (p = 0.0457) as well as leucocyte count (p = 0.0001). On multivariate analysis, leucocyte count was identified as an independent prognostic factor (p = 0.0015).

Conclusions: Leucocyte count was thought to be an independent prognostic factor for anaplastic thyroid cancer, which is associated with an extremely poor prognosis. In addition, one patient with a high leucocyte count and an abnormally high blood G-CSF level had a rapid progression and survived for only 60 days. This suggests that increases in leucocyte count were caused by G-CSF production.

Abstract ID: 0631  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 242

Relationship of psychological patient-reported outcomes with clinicopathological variables in thyroid carcinoma surgery patients
T.Y. Sung [1], Y.W. Shin [2], S.W. Kang [3], J.J. Jeong [3], K.H. Nam [3], H.S. Chang [3], C.S. Park [3], W.Y. Chung [3]

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Introduction: The psychological variation, health behavior modification and quality of life (QOL) after surgery for malignant diseases can differ. In previously reported papers, patient-reported outcomes in association with malignant disease showed differences for higher need for support in category such as patient satisfaction, psychological variations and QOL in relation to poor education, advanced stage, and recurrence or metastasis. We performed the study to analyze the relationship of psychological patient-reported outcomes with clinicopathological variables in thyroid carcinoma surgery patients.

Material and Methods: We collected 364 self-administered questionnaire from patients who had surgical treatment for thyroid carcinoma. Criteria for data collection included general demographics, health behaviors, psychological and physical variations, and QOL based on the fear of progression questionnaire (FoP-Q) scores. Clinicopathological variables were collected by retrospective review of the medical records. Relationship of psychological patient-reported outcomes with clinicopathological variables in thyroid carcinoma patients was analyzed.

Results: Among 364 patients, 357 had papillary thyroid carcinoma. The demographic data showed relatively uniform patterns without significant difference. The advanced stage of disease had no significant relationship to psychological changes of sudden anxiety or fright. (p > 0.05) In analysis of general demographics, disease entity, health behaviors, psychological and physical variations, and QOL based on FoP-Q scores after surgical treatment of thyroid carcinoma, there was no significant difference related to the clinicopathological variables, such as current job status, advanced stage, or matter of recurrence, of thyroid carcinoma surgery patients. (p > 0.05)

Conclusions: In thyroid carcinoma surgery patients, our survey showed no significant difference between psychological patient-related outcomes and clinicopathological variables. We suggest that even though thyroid carcinoma requires surgical treatment, the patients fear less about the disease itself, different from other malignant diseases such as breast carcinoma. Furthermore, the patients seem to manage well with the disease with less affect in QOL.

Abstract ID: 0632  Specific Field: Endocrine Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 243

Factors contributing to operative failure in the era of focused parathyroidectomy: a contemporary series
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Introduction: Parathyroidectomy in the hands of experienced surgeons has a success rate of >95%. Yet, there are 1–5% of patients that will have a failed parathyroidectomy. Over the last decade, there has been a significant shift in the surgical management of primary hyperparathyroidism (pHPT) to perform focused parathyroidectomy. This study examines the causes of operative failure in the era of focused parathyroidectomy guided by intraoperative parathyroid hormone monitoring (IPM).

Material and Methods: Since 1993, 897 consecutive patients with pHPT underwent focused parathyroidectomy guided by IPM at a single institution. Prospectively collected biochemical and perioperative data was analyzed for factors that could affect outcome. Patients were divided in 2 groups: group 1 (n = 871, 97.2%) patients had a successful parathyroidectomy, group 2 (n = 26, 2.8%) patients had a failed operation. Operative failure was defined as hypercalcemia and high PTH within 6 months after parathyroidectomy. Detailed intraoperative data from the failed operations was also collected and analyzed.

Results: Group 2 patients were more likely to be older (64 vs. 59 years, p = 0.08), had prior thyroidectomy (12% vs. 3%, p = 0.03) or parathyroidectomy (15% vs. 7%, p = 0.09), had negative or equivocal Sestamibi (84% vs. 20%, p < 0.0001) or ultrasound localizing studies (77% vs. 23%, p < 0.0001) compared to group 1.
patients. In addition, patients considered operative failures were more likely to have mediastinal glands (12% vs. 2%, p = 0.03), multi-
glandular disease (MGD) (31% vs. 5%, p < 0.0001) compared to
successfully treated patients. Upon review of intraoperative findings,
the major causative factor of operative failure was surgeon inability to
find the abnormal parathyroid gland in 22/26 (85%) patients. In the
remaining operative failure cases, IPM was false positive and missed
MGD in 4/26 (15%) patients, or 0.4% overall.
Conclusions: In the era of focused parathyroidectomy guided by
IPM, older patients with prior thyroid/parathyroid operations, nega-
tive or equivocal localization studies, MGD and ectopic glands are
more likely to have a failed operation. The majority of 365 operative
failures are not due to false positive IPM results, but rather, the
inability of the surgeon to find the abnormal parathyroid gland(s).

Abstract ID: 0633  Specific Field: Metabolism/
Nutrition/Critical Care

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 244

The effect of viscosity of enteral nutrition to gastrointestinal
motility and secretion of gut hormones
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Tohoku university, Sendai, Japan

Introduction: Aspiration pneumonia and diarrhea are representative
complications in patients having enteral feeding via gastric fistula.
Adding pectin to an enteral formula (EF) and increasing viscosity
through gelatinization is believed to decrease these complications.
Our aim was to study the effect of viscosity of EF on upper gastro-
intestinal motility and hormone secretion.

Material and Methods: Used were five beagle dogs equipped with
strain gauge force transducers to measure gastrointestinal motility at
the gastric body, gastric antrum, duodenum, and jejunum. Gastric
fistula was constructed at the gastric fundus with metal cannula. Three
different test materials were given via gastric fistula for 5 minutes;
liquid EF, EF with viscosity of 2,000 centi-pores (cp) (low viscosity),
and EF with viscosity of 20,000 cp (high viscosity). Motor response
to solid food given orally was taken as a control. Calories of these 4
test materials were 400 kcal. Motility index was measured as area
under the contractile wave for 60–90 minutes after feeding. Plasma
concentrations of gastric inhibitory polypeptide (GIP) and peptide YY
(PYY) were measured for 3 hours after administration of those 4 test
materials.

Results: Length of the postprandial contractions in the jejunum,
which reflects gastric emptying, was shorter for liquid EF
(200.83 ± 39.51 minutes) than control (498.33 ± 64.40 minutes,
p < 0.05 vs liquid EF). However, it prolonged as the viscosity
increases (269.0 ± 47.16 minutes for low viscosity and
416.0 ± 55.21 minutes for high viscosity). Motility index in the
antrum in liquid EF (0.135 ± 0.18) was less than control
(0.993 ± 0.42. p < 0.05) vs liquid EF. Motility index in the antrum
increased with the increase in viscosity (0.283 ± 0.097 for low
viscosity and 0.680 ± 0.088 for high viscosity), and that in high
viscosity was comparable to control. The same phenomena were
observed in the duodenum and jejunum. Concentration of plasma GIP
increased slowly. In liquid EF, however, the concentration immedi-
ately increased and remained high. In high viscosity groups, pattern of
GIP secretion was similar to control. There was no difference in
plasma PYY concentration among four groups.

Conclusions: These results indicate that patterns of upper gastroin-
testinal motility and GIP secretion in high viscosity EF were similar
to those after solid food given orally.

Abstract ID: 0634  Specific Field: Metabolism/
Nutrition/Critical Care

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 245

Assessment of effective factors on cases with the best result
of weight loss secondary to morbid obesity surgery
M. Talebpour, A. Talebpour
Tehran Medical University, Tehran, Iran

Introduction: Morbid obesity is a disease and operation is advised in
cases with multiple diet and exercise failure. Result of operation is not
the same in different cases. The aim of this study is to find out
effective factors in cases with the best result.

Material and Methods: All of cases with BMI over 40 or over 35
with co morbidity or cooperation were included in this study. The
preferred technique in these cases was total vertical gastric plication
(TVGP). About 10 important factors assessed in these cases including:
age, sex, comorbidity, single or couple, loss of appetite, volume of
stomach during time, job, relatives coworking, pain during eating
and group club. EWL calculated by drawing a curve for each patient
based on weight of each week in the first month, each 2 weeks in next
5 months and each month during next 18 months. Cases with EWL
more than 60% after 6 months or 70% after 2 years selected as the
best group. Above factors assessed in these cases and importance of
each factor calculated by analysis of data.

Results: TVGP was performed in 150 cases by one surgeon during
4 years in Laleh Hospital, Tehran, Iran. 126 cases followed by stan-
dard control visits. EWL was 57% (94 cases) after 6 months, 61% (72
cases) after 1 year, 60% (51 cases) after 2 years, 57% (23 cases) after
3 years and 55% (10 cases) after 4 years. 40 cases included in
selected group. Comparing above factors in these cases to all of
patients showed importance of: young age, female, single and group
club.

Conclusions: Although surgery is indicated in morbid obesity
patients but gaining the best result is not related to the form of
operation. It is secondary to some other factors that increase the
interest of patient to use diet and exercise at the best form.
Abstract ID: 0635  Specific Field: Metabolism/Nutrition/Critical Care

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 246

The change of an acetate breath test after massive hepatectomy in rats

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Introduction: Orally administered acetate is absorbed through the small intestine and taken up by the liver. A portion of the acetate is oxidized and released as CO2 in the exhaled breath. Acetate which escapes the liver uptake is taken up by the peripheral tissue and oxidized. Acetate metabolism is thought to change after liver surgery or in cirrhotic liver. We used a rat model of the 70% hepatectomy, performed a 13C acetate breath test, and examined changes in acetate metabolism after hepatectomy.

Material and Methods: Five F344 male rats which were 9 week old underwent 70% hepatectomy by the Higgins-Anderson Method (groupA). Postoperatively, pellets and water were administered freely. For the rats in the sham operation group, only the facioligament of the liver was resected (groupB).

The rats fasted for approximately 24 hours before a 13C acetate breath test was performed at 1, 2, 4, 6, 8, and 10 weeks after the surgery. The rats were orally administered 100 mg/kg of 13C-labelled acetate, and they were placed in breath collection containers. Labeled 13CO2 which accumulated at the bottom of the container passed through a tube and was collected over time with a breath collection bag for the control and at 10, 20, 30, 40, 50, 60, 70, 90, and 120 minutes. Collected 13CO2 was measured by UBit-300R.

Results: The peak of the total breath output of 13CO2 (Cmax) was decreased approximately 13% at 1 week after surgery compared to the output level before operation. At 2 weeks after surgery in groupA, the level was reversed with groupB, and the trend continued onward to 8 weeks postoperatively. The time that 13CO2 breath output peaked (Tmax) was more prolonged in the groupB than groupA.

Conclusions: Cmax in the 13C acetate breath test in groupA was approximately 13% decreased at 1 week after 70% hepatectomies compared to preoperatively that before operation. At 2 weeks after operation, the level was reversed with groupB, and this trend continued thereafter as the rats grew. When T was approximately equal if the liver weight was preoperative and regenerated it in postoperative one or two weeks, it was said, but reversed in control group postoperative two weeks later. This is supposed when the peripheral tissue compensates too much in earlyphase after surgery, the total acetate acid metabolism might increase in the whole body eventually.

Abstract ID: 0636  Specific Field: Metabolism/Nutrition/Critical Care

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 247

Pattern of death in a Nigerian teaching hospital: a 3-decade analysis

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Results: Intestinal perforation and necrosis were found in 6 and 3 cases, respectively. Partial intestinal resection was carried out in those 9 cases. One patient died of multiple organ failure 2 days postoperatively. There were no statistical differences of POSSUM score in the types of incarceration (partial vs. total), appearance of Howship-Romberg sign, or the elapsed time form theonset. However, it was demonstrated that POSSUM score was significantly worse in patients to whom intestinal resection was necessary than those who did not (p = 0.04). It was also significantly worse in those who developed postoperative complications (7 cases, 55.3 ± 14.5) than those who did not (8 cases, 36.4 ± 3.7, p = 0.006). Patients who needed long hospital stay (28 days or more) scored significantly high POSSUM score (57.2 ± 15.0) than those who did not need long stay (37.2 ± 4.3, p = 0.01).

Conclusions: In the present study, the POSSUM score assessment for the patients with obturator hernia is useful for the prediction of the postoperative complication and the long hospital stay.

Abstract ID: 0638 Specific Field: Metabolism/Nutrition/Critical Care

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 249

Nutritional status of acute general surgical patients-predictor of hospital stay
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Introduction: Previous studies have shown that nutritional status affects recovery after elective surgery. The impact of nutritional status on recovery of patients in the acute surgical setting has not been well defined.

Material and Methods: Over an eight week period starting in November 2008 consecutive patients admitted for >24hours under the general surgical service at a general hospital were screened within 48 hours of admission using the subjective global assessment (SGA) nutritional assessment tool. Patients were graded A (well nourished), B (moderately or suspected of being malnourished) and C (malnourished). Cox regression was used to examine the influence of SGA grade on hospital length of stay (LOS).

Results: From 332 eligible patients, 310(140 M, 170 F) were screened in the acute setting, and from 162 eligible patients, 150 (67 M, 83 F) were screened in the elective setting. Mean age for acute patients was 52 ± 20 (SD) y and for elective patients 60 ± 15 y (P < 0.0001). For acute patients mean BMI was 28.6 ± 7.2 kg/m² and for elective patients 29.3 ± 6.6 kg/m² (P = 0.32). Malignancy was present in 15 (5%) acute patients and 66 (44%) elective patients (P < 0.0001). In acute patients the median (range) LOS was 3 (1–20), 5 (1–30) and 7 (2–65) days (P < 0.001) for SGA category A to C respectively. Patients in the elective group were significantly better nourished with 38% SGA grade B or C versus 52% such patients in the acute group (P = 0.024, Table 1).

Conclusions: The data indicate that energy requirements for cancer patients who undergo major elective upper gastrointestinal surgery vary with patients and are generally lower than it used to be presumed.

Abstract ID: 0640 Specific Field: Metabolism/Nutrition/Critical Care

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 251

Surgical treatment of type 2 diabetes patients: preliminary results of modified gastric bypass
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Introduction: Bariatric surgery is formally indicated in obese patients with body mass index (BMI) over 40 or 35 with comorbidities associated. The improvement in metabolic control in type 2
diabetic patients with a BMI > 35 after bariatric procedures has raised the potential use of these procedures in patients with mild obesity or non-obese.

**Material and Methods:** Prospective study includes 11 patients with diagnosed type 2 diabetes and a BMI < 35. These patients underwent a modified gastric bypass, with a 200 cm. biliary limb and a 100 cm. alimentary limb since August 2008. Data were analyzed considering blood glucose levels and the use of drugs to achieve metabolic control.

**Results:** Five male and 6 female patients were included with an average age of 50.3 years, BMI of 31.7. The mean time of type 2 diabetes was 5, 2 years. The average postoperative follow up was 4 months and the average preoperative blood glucose level was 175 mg/dl. All patients were treated with oral hypoglycemics, 4 of them with 2 different drugs and 2 with an associated insulin treatment. After the follow up the average BMI was 27.1. Ten patients achieve normal blood glucose levels without using drugs and 1 patient still has blood glucose levels over 126 mg/dl using 1 oral hypoglycemic. None of them need to use insulin for metabolic control.

**Conclusions:** Preliminary results shown that modified gastric bypass is an effective procedure to achieve normal blood glucose levels in diabetes type 2 patients with a BMI < 35.

**Abstract ID: 0641** 
**Specific Field:** Metabolism/Nutrition/Critical Care

**Mode of pres.:** Poster Exhibition
**ISW 2009 Session PE 252

Untreated comorbidity in severely obese patients: important lessons for non-bariatric surgeons

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**Introduction:** International bariatric surgical guidelines recommend that severely obese patients have metabolic causes excluded and comorbidities optimised prior to consideration of surgery. The aim of the study was to examine the prevalence of undetected co-morbidities amongst severely obese patients.

**Material and Methods:** The study was carried out prospectively, gathering data from patients referred to a regional bariatric surgical assessment service with a minimum body mass index of 35 kg/m². Patients were studied from November 2007 to August 2008 using a standard questionnaire and details extracted from history taking, physical examination and routine investigations.

**Results:** Data from 111 patients were available: 94 female (85%) 17 male (15%) of mean age 41.0 ± 1.0 years (mean ± SEM). Mean body mass index was 50.9 ± 1.0 kg/m². Known co-morbidities included depression (54, 49%), arthritis (52, 47%), hypertension (34, 31%), gastro-oesophageal reflux (23, 21%), diabetes (20, 18%), asthma (16, 14%), hypothyroidism (17, 15%), sleep apnoea (14, 13%), hyperlipidaemia (13, 12%), cardiac disease (4, 3.6%) and thromboembolism (2, 1.8%). Thyroid stimulating hormone was measured in 83: 16 known hypothyroid patients were inadequately replaced and a new diagnosis was made in two. Plasma glucose was determined in 12 and abnormal in 17:5 (31%) were undiagnosed diabetics. Plasma testosterone was measured in 12 of 17 males, indicating hypogonadism in 3 (25%). Plasma cholesterol from 98 patients revealed elevation in 36, of whom 30 were under diagnosed hyperlipidaemics.

**Conclusions:** Undiagnosed or under treated comorbidity is relatively common in severely obese patients, and may require optimisation to ensure safe surgery. Primary care screening of severely obese patients appears to be inadequate. The increased prevalence of obesity means that general surgeons are often confronted with severely obese patients for emergency and elective non-bariatric surgery, with increased risks of complications. Elective preoperative assessment for such patients should include endocrine and metabolic screening, whilst potential undiagnosed comorbidities should be considered when managing emergency cases. Severely obese surgical candidates should receive similar attention to that directed towards smokers.

**Abstract ID: 0642** 
**Specific Field:** Metabolism/Nutrition/Critical Care

**Mode of pres.:** Poster Exhibition
**ISW 2009 Session PE 253

Laparoscopic sleeve gastrectomy: weight loss outcome

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**Introduction:** The first weight loss surgery were performed in the fifties of the last century. In the present times it is a life-saving and enhancing operation for many severely overweight individuals who have failed to lose weight through other, less drastic means. During all these years the types of procedures and perioperative management has changed. The new bariatric operation, laparoscopic sleeve gastrectomy (LSG) has emerged from the duodenal switch in the end of nineties. The early outcome of weight loss are reported.

**Material and Methods:** The goal of this study is the assessment of weight loss after LSG. In our Clinic, from April 2006 to February 2009, we performed 83 operations of this kind. We analyzed the period from April 2006 to January 2008, the group consisted of 23 patients with at least 12 months follow up. The gastric tube were performed by using Endo-GIA staplers over a 34-Fr bougie.

**Results:** There were 18 women and 5 men, with mean age 38, 5 years (range 22 to 56). The preoperative mean BMI was 53 kg/m² (range 47 to 62). The percentage of excess weight loss (%EWL) at 12 months was 64% (52% to 70%). The mortality rate was 0%.

**Conclusions:** LSG has been highly effective for weight reduction as the sole operation even in superobesity. Its efficacy is higher than other restrictive procedures such as Adjustable Silicone Banding and Vertical Banded Gastroplasty and it is good alternative for these bariatric operations. LSG can be the first stage operation before Duodenal Switch or Gastric bypass or one stage restrictive operation in case of good long term outcome.

**Abstract ID: 0643** 
**Specific Field:** Breast Surgery

**Mode of pres.:** Poster Exhibition
**ISW 2009 Session PE 254

The effect of ethnicity and age on the survival of breast cancer in Malaysia

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**Introduction:** Malaysia is a high middle income country in South East Asia, where breast cancer is the commonest cancer in women. Among the three main races in Malaysia, ie the Malays, Chinese and Indians, it has been reported previously that Malay women present with later stages compared to the Chinese and the Indians. The aim of this study is to study the effect of ethnicity and age on survival from
breast cancer in the University Malaya Medical Centre, Kuala Lumpur.

**Material and Methods:** Survival analysis of a cohort of patients with breast cancer seen in the University Malaya Medical Centre (UMMC) between Jan 1998 to Dec 2002 was performed. Demographics and clinicopathological data were collected.

**Results:** 1041 patients were included in the survival analysis, and there were 328 deaths from breast cancer in this group. The mean age was 51 years old. 63.8% of patients were Chinese, 22.6% Malays and 12.3% were Indian. 70% presented with early stages (Stage 1–2) while 30% presented with late stages (Stage 3 and 4). Overall 5-year survival was 68.5%. Survival was 92.7% in Stage 1, 79.9% in Stage 2, 48% in Stage 3, and 9.7% in Stage 4. There was a significant difference in survival between the three ethnic groups. (p < 0.01) The Chinese had the best survival of 75.4%, the Indians 70.3%, while the Malays had the poorest survival of 49.6%. The patients were divided into 4 age groups (less than 40, 40–49, 50–59, and more than 60 years old) There was no difference in survival between the different age groups (p = 0.2), although younger patients less than 40 years old had a lowest survival of 63.5% compared to the other age groups. Within all the four age groups, the Malays had a significantly lower survival. There was also no difference in survival between the different age groups within each ethnic group.

**Conclusions:** These results show that overall, the 5-year survival of 68.5% for breast cancer in Malaysia is lower than data from developed countries. Since survival depends on the stage at diagnosis, the poorer survival in Malays could be secondary to delayed presentation. Agedoes not appear to have an effect on survival unlike other studies which show a poorer survival in younger women. A limitation of this study is that adequacy of treatment, which is another major function of survival, was not analysed.

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**Abstract ID: 0644 Specific Field: Breast Surgery**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PE 255**

**Male breast cancer in Chinese population: a comparison to the Caucasian counterparts**

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**Introduction:** Breast cancer is uncommon in men. There is limited knowledge about male breast cancer in Chinese population. In Hong Kong about 11 cases of male breast cancer is diagnosed annually. This study aims to be the first to perform a 12 year review of the clinical presentation and outcome of Chinese male breast patients and comparison to Caucasian population.

**Material and Methods:** A retrospective study of patients with male breast cancer treated in Hong Kong (HK) was performed and compared with that from the SEER database.

**Results:** A total of 86 medical records of male breast cancers treated in 16 hospitals during this 12 year study period in HK and 2350 records from the SEER database were retrieved and reviewed. There is significant difference in the mean age of diagnosis of breast cancer where men in HK are diagnosed at a younger age (64 vs 67, p = 0.019) and significantly more are diagnosed at age younger than 49 in HK (p = 0.016). For the HK cohort, only 3% had a family history of breast cancer. The most common presentation was presence of a breast lump. Although invasive carcinomas are the most common cancers in both groups, it is significantly more likely for the HK cohort to be diagnosed with in situ cancer (p = <0.001). It is also more likely for HK men to present with a low grade cancer (p = 0.004). Tumor size is similar in the two cohorts but it is significantly more likely for Caucasian cohort to have nodal involvement but there is no differenceswith the overall staging. Majority (80.2%) of HK male have ER positive cancers and 15.1% were erbB2 receptor positive. Only 2.2% were triple negative cancers. The mean follow up was 55 months (1–179) months for the HK cohort and 5-year overall survival is better in men age under 49 years old (90.9% vs 67.7%, p = 0.031). Interestingly 15 patients in the HK cohort also had a second primary cancer not of breast origin.

**Conclusions:** Male breast cancer in Chinese men present with breast cancer at an earlier age compared to Caucasian, with lower grade cancers and less nodal involvement. Overall survival is better in the younger age group. Although a majority of our cohort did not have family history of breast cancer, there was a high incidence of second primary cancer not of breast origin.

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**Abstract ID: 0645 Specific Field: Breast Surgery**

**Mode of pres.: Poster Exhibition**

**ISW 2009 Session PF 256**

**Outcome of locally advanced breast cancer in a single institution in Malaysia: is primary surgery a better option?**


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**Introduction:** Locally advanced breast cancer (LABC) is characterized by presence of a large primary tumour (> 5 cm) (T3), associated with or without skin or chest-wall involvement (T4) or with fixed (matted) axillary lymph nodes in the absence of any evidence of distant metastases. These cancers are classified as stage IIIA and IIIB according to the AJCC Staging System. Current guidelines recommend primary surgery or neoadjuvant therapy followed by surgery. In Malaysia, presentation of LABC is not uncommon. Compliance to treatment is also an issue. The primary objective of this study is to compare the survival of LABC patients subjected to neoadjuvant chemotherapy and surgery as the primary treatment.

**Material and Methods:** This is a retrospective study of Stage III breast cancer patients diagnosed in University Malaya Medical Centre in Kuala Lumpur from 1998 to 2002. The survival data was obtained from the National Registry of Births and Deaths with the end-point of the study was April 2006. The Kaplan Meier method was applied for survival analysis. Cox regression analysis was done to identify important prognostic factors.

**Results:** A total of 155 patients were diagnosed as Stage III breast cancer from 1998 to 2002, 74 patients (47.7%) were offered primary surgery, 62 patients (46.5%) were offered neoadjuvant chemotherapy while 10 patients (6.5%) were given Tamoxifen as primary treatment. Post-operatively, patients were subjected to adjuvant chemotherapy, radiotherapy and or hormonal therapy. 9 patients (5.8%) defaulted follow-up after the diagnosis was made. The 5-year survival in the primary surgery group was 56.7% compared to 44.7% in the neoadjuvant chemotherapy group (p < 0.01). The important prognostic factors were race, size of tumour, nodal status, estrogen receptor status and pathological response of neoadjuvant chemotherapy. 10 patients (16.1%) had complete response (CR) after neoadjuvant chemotherapy whereas 38 patients (61.2%) had partial response (PR) and 6 patients (9.7%) were without response. The default rate for patients after neoadjuvant chemotherapy was 11% (8 patients).

**Conclusions:** Patients who had primary surgery had better survival than those who underwent neoadjuvant chemotherapy. This phenomenon may be due to lower volume disease in operable stage III breast cancer.
Abstract ID: 0646 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 257

Mammographic determination of breast volume by elliptical cone estimation
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Introduction: We propose a new breast volume calculation method treating the breast as an elliptical cone (EC) on craniocaudal and mediolateral oblique mammograms. This study aims to compare the accuracy and reproducibility of our new proposed calculation method (EC) to the old Katariya’s method, which calculate breast volume as circular cone (CC) on craniocaudal mammogram only.

Material and Methods: From Jan 2005 to Dec 2006, 83 mastectomy patients with recorded breast weight and available preoperative mammographic films were included. Two surgeons independently measured breast height and width in the preoperative craniocaudal and mediolateral oblique mammograms. Breast volume was calculated as circular cone in craniocaudal (CC), and as elliptical cone (EC) in both craniocaudal and mediolateral oblique mammograms. The accuracy of each method was determined and compared using linear regression analyses. Interobserver variability was assessed by bivariate correlation.

Results: The most accurate formula for calculating breast volume was the one that assumed the elliptical cone projection. The mean error of estimated breast volume using EC formula is 3.8 cm$^3$ (SD 133 cm$^3$). The mean error of traditional CC formula is -51.3 cm$^3$ (SD 182 cm$^3$). Using a linear regression model, the correlation coefficient of estimated breast volume using EC formula is 0.977, while that using CC formula is 0.952 (Figure 1). Measurements were reproducible between the two independent observers, the Pearson correlation for EC formula is 0.93 (p < 0.001) and for CC formula is 0.95 (p < 0.001).

Conclusions: Breast volume can be accurately determined by making measurements on mammograms. The new proposed EC formula calculating breast volume in both craniocaudal and mediolateral oblique mammograms may be more accurate; as the horizontal and vertical dimension of the breast are not always the same. In addition, height measurement on mediolateral oblique film can eliminate the compression error as the craniocaudal film may miss the base of the breast and underestimate the breast volume. Taking both mammogram views for measurement is comparably reproducible to the traditional method. Reproducibility of measurement can be further enhanced by better defining the point of measurements.

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Abstract ID: 0647 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 258

Necessity of sentinel lymph node biopsy in surgical treatment of in situ breast cancer
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Introduction: Ductal carcinoma in situ (DCIS) of the breast is defined as a non-invasive breast cancer, and is widely considered not to give metastases to the lymph nodes, so that axillary lymph node dissection (ALND) would comprise overtreatment. Nonetheless, a number of studies have reported the detection of metastases in sentinel lymph nodes (SLNs) in patients with DCIS, though with a very low incidence. The aim of this retrospective study was to determine the rate of SLN positivity in patients with a final diagnosis of DCIS of the breast.

Material and Methods: Between October 2002 and October 2008, 71 patients with DCIS underwent wide excision after radio-guided lesion localization; 67 of them (67/71, 94.4%) had participated in simultaneous SLN mapping. SLNs were analysed by 250-micron step-sectioning with haematoxylin and eosin staining and immunohistochemical evaluation.

Results: The histologic investigation verified pure breast DCIS in 58 cases (58/71, 81.7%). DCIS with microinvasion in 8 cases (8/71, 11.3%) and lobular in situ breast cancer in 5 cases (5/71, 7%). SLNs were identified in 63 cases (63/67, 94%) and removed in 62 cases (62/67, 92.5%), i.e. an average of 1.6 SLNs per patient. In 4 patients (4/67, 6%), the SLN biopsy was unsuccessful because of the failure of the radiocolloid substance to migrate. In these cases, axillary sampling was performed. In 1 case (1/67, 1.5%), only a parasternal SLN was detected; this was not removed. Histologic analysis of the SLNs and the axillary lymph nodes with haematoxylin and eosin or cytokeratin immunohistochemistry did not prove the presence of metastases.

Conclusions: The literature and our own experience lead us not to recommend SLN biopsy in all patients with DCIS. SLN biopsy can be necessary in certain circumstances: if the preoperative histologic diagnosis indicates a microinvasive focus in the sample, then SLN is necessary simultaneously, and if the final histology verifies an invasive or microinvasive tumour, or if mastectomy is to be performed, SLN biopsy should be recommended as a second step.

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Abstract ID: 0648 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 259

Contribution of a nurse consultation with a DVD support, for patients’ information of the in the management of breast reconstruction
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Introduction: To evaluate the installation of a nurse consultation and an interactive support DVD in breast reconstruction. To judge utility of these new tools of information for the patients

Material and Methods: The nurse consultation is carried out after the initial consultation of the surgeon; During this consultation a DVD, containing information given as well as patients’ evidence on their path of care. Evaluation by anonymous questionnaire on 110 women, between February and December 2007. Rate of participation: 72.7% (80/110), Middle Age: 51.5 ±10.8, 9.2. Evaluation of the information given by the surgeon and the nurse (8 items from surgical techniques to convalescence). Evaluation of the interest and comprehensibility. Quotation from 0 to 10.

Results: The Information given is considered to be useful (surgeon > 9.3, nurse > 9.4) and comprehensible (> 8.7/ > 8.9). The information made by the nurse is more comprehensible than that done by the surgeon, for over all items. The nurse consultation is considered to be very useful (9.45). 70% of the patients learned from extra informations, compared to the consultation of the surgeon. This
The nurse consultation and the DVD are not replacement components of the surgeon consultation. They are complementary and have an important role in the acquisition of information and the psychological support of the patients. The surgeon initial consultation remains predominant in the decision of choice by the patients, it must remain most complete possible.

Abstract ID: 0649  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 260

Retrospective cohort study comparing overall and disease free survival in metastatic breast cancer, matched with non metastatic breast cancer patients

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Introduction: Lymphovascular invasion is an independent factor in carcinoma breast outcome.

Material and Methods: Retrospective cohort comparing metastatic breast cancer with matched non metastatic patients. We have analyzed data from 756 patients using the available records. The pathological report and the Radiology results were also analyzed.

Results: Of 756 Patients male 18 [2.3%] and 738 [95.5%] female. The average age at presentation was 4 th and 5 th decade [30%, 29%] range - 20 to 87 yrs Patients in stage I-2.1%, stage II-29%, stage IIIA-20% stage IIIB was 8%. The incidence of metastasis were lung, liver [38%, 22%] lymphatic and vascular invasion factor in case and control were 7.69%, 3.39%:16.50%, 14.41% They were statically significant in study group than in control group [Pearson Pearson chi2(2) = 10.5713 Pr = 0.005 : chi2(2) = 9.9832 Pr = 0.007]. Pre operative chemotherapy was not helpful in reducing the incidence of DFS as the percentage was 33.66% 32.17% [Pearson chi2(1) = 0.0541 Pr = 0.816]. There was no difference in the grade and disease free survival. Presence of lymphovascular and fibrocystic factors did significantly affect the disease free survival.

Conclusions: The presence of lymphovascular and fibrocystic disease in carcinoma breast patients does influence the disease free survival. Presence of fibrocystic disease is not risk factor. Pre operative chemotherapy doesn’t influence the disease free survival.

Overall survival, by Group

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Abstract ID: 0650  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 261

Closure of rectus fascia primarily after monopedicled TRAM flap harvest for breast reconstruction

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Introduction: Dissection of pedicled TRAM flap results in defects of both rectus muscle and anterior rectus fascia, which may cause considerable donor-site morbidity. The aim of this work is to introduce a technical modification to preserve partly anterior rectus fascia to allow its primary closure and avoid abdominal wall complications mainly hernia and abdominal bulge.

Material and Methods: Forty two consecutive patients who underwent breast reconstruction with monopedicled TRAM flap were evaluated after primary closure of rectus fascia without mesh, regarding postoperative abdominal wall complications.

Results: Mean age of patients was 43.8y (30y–52y). Thirty four patients underwent immediate breast reconstruction, while 8 patients underwent delayed breast reconstruction. Donor site complications was 9% and included infection, seroma and partial necrosis of the umbilicus. There was no hernia, only one patient developed abdominal bulge. Flap related complications included partial flap loss in 3 patients. There was no delay in starting adjuvant treatment in the immediate reconstruction group.

Conclusions: It is a safe technique, which enables surgeons to dissect the flap and preserve larger area of rectus fascia to allow its primary closure without donor-site complications. We believe that this modification prevents hernia and abdominal bulge, but we need larger number of patients to better evaluate this technique.
Abstract ID: 0651  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 262

Major mammary duct excision with a safe technique
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Introduction: Major mammary duct excision with a safe technique described here is cosmetically good and with minimum complication as compared with the classical operation.

Material and Methods: All patients with nipple discharge, pain in the nipple with discharge, and recurrent breast abscesses were evaluated on out patient bases with ultrasound/mammography, nipple cytology and fine needle aspiration where ever indicated, patients with persistent discharge from nipple especially blood stained, pain because of periductal mastitis, recurrent abscesses formations were offered radical duct excision with this new modified technique. To have a better result a modification has been made in this procedure by giving an incision over only one-third of areolar circumference and no areolar flap is raised.

Results: Total number of patients operated were 119, with maximum number in the 40–49 age group (40/119). Presenting symptoms were nipple discharge in 40, pain in the nipple in 30, abscess retroareolar in 30 and nipple discharge with lump in 19 cases. Recurrence of the discharge was found in only 2 patients. On reoperation few residual ducts were identified and excised. Pain persisted in 2 patients and was managed with analgesics only.

Conclusions: We conclude that this modified technique for the radical mammary duct excision is safe and with good cosmetic results.

Abstract ID: 0652  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 263

One-stop diagnosis for symptomatic breast disease
H. Al-Ansari
Baghdad teaching hospital/medical city, Baghdad, Iraq

Introduction: Although breast cancer is a common problem, most breast abnormalities are benign, and the distinction between benign and malignant lesions, remains a common clinical problem for surgeons. Aim: of this study was to verify the role of the triple assessment in early detection of breast disease in the symptomatic breast clinic. Setting: Baghdad teaching hospital in the medical city/Baghdad-Iraq.

Material and Methods: A consultant-led one-stop diagnostic service has been available at a symptomatic breast clinic at Baghdad Teaching Hospital since April 2001. Women can be investigated appropriately, using the triple assessment of clinical examination, ultrasonography and cytology at initial presentation. A prospective audit of six months period was undertaken to assess the impact of this service on clinical practice and to detect the accuracy of the diagnostic modalities used. The data of 320 new patients presenting to the symptomatic breast clinic between May and November 2001, were analyzed and the outcome established. A triple test was performed in 41.5% (133/320) of all patients.

Results: In this study, 274 patients (85.6%) had a management decision made at the first or second outpatient visit, 15.6% (50/320) were offered surgery. Twenty eight symptomatic cancers were detected and evaluated on a one-stop basis, constituting 8.8% of the workload of this clinic. Fine needle aspiration cytology (FNAC) gave the highest accuracy rate (96%), followed by ultrasonography (90%), then clinical examination came last (84%).

Conclusions: A “one-stop” symptomatic breast clinic provides an accurate and effective means of establishing a correct diagnosis and allows optimal patient management.
Intra-operative lymphatic mapping and sentinel lymph node biopsy (SLNB) in breast cancer: pilot study in two tertiary medical institutions in Lagos metropolis

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[2] Lagos state University Teaching Hospital, Ikeja, Nigeria

Introduction: SLNB is a technique used to identify axillary nodes most likely to contain tumor cells metastasizing from a primary carcinoma of the breast. In this study, we sought to determine the feasibility of using only methylene blue dye, a cheap and easily available alternative in our environment, to map these lymph nodes intraoperatively and biopsy them for histological examination.

Material and Methods: Studies were approved by the hospital research ethical committee of both institutions. We included all patients with diagnosed breast cancer with clinically non-palpable axillary lymphadenopathy that consented to the procedure. Under general anesthesia, the patients had intradermal dye injection on the affected breast observing “rule of 5” i.e. 5 ml of dye injected, 5 mins of breast massage, 5 mins before axillary skin incision. All blue stained lymph nodes, nodes with blue coloured lymphatic tracts and intraoperative palpable nodes in the axilla were removed and sent for histology. This was followed by appropriate surgical treatment of the primary tumor and level 11/111 axillary lymphadenectomy. Patient’s data were collected in a proforma designed for this study and analyzed.

Results: The study demonstrated “node identification rate” of 85% and 0% “false negative rate” in 20 patients, thus conforming with the guidelines set by the Society of Surgical Oncology and American Society of Breast Surgeons in 2000 that success is determined by [80% “node identification rate” and < 5% “false negative rate”].

Conclusions: The study showed methylene blue dye localization technique as a successful technique in identifying sentinel lymph nodes in breast cancer patients in our environment.

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<table>
<thead>
<tr>
<th>Result of lymphatic mapping using subareolar injection of dilute 1% methylene blue dye</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of patients mapped</td>
<td>20</td>
<td>–</td>
</tr>
<tr>
<td>Patients with successful mapping</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>Node identification rate</td>
<td>17/20</td>
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<tr>
<td>Positive sentinel nodes</td>
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<tr>
<td>True positive sentinel nodes (nodes that predict the axilla)</td>
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<tr>
<td>False-negative sentinel nodes</td>
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occult malignancy in the breast reduction tissue which may require further surgery.

Abstract ID: 0656 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 267

Risk of nonsentinel node metastasis by micrometastasis in sentinel node in breast cancer

J. Gatek [1], P. Vazan [1], J. Kotoc [1], K. Kotocova [1], L. Hnatek [1], J. Duben [1], B. Dudecek [1], J. Bakala [2]


Introduction: Sentinel node is the only positive node in substantial part of positive sentinel nodes especially when only micrometastases and submicrometastases are identified. The aim of the study is to identify risk of metastasis in nonsentinel node by micrometastasis in sentinel node

Material and Methods: Sentinel node biopsy was performed in 398 patients at Atlas Hospital Zlin between 1998 and 2006. Radiocolloid has been used in combination with blue dye. Lymphoscintigraphy was done in all patients. The nodes with negative findings of metastases and/or micrometastases were examined by serial permanent sections and immunohistochemical anticytokeratin staining, taking 1 IHC-stained section from two levels 50 micro apart. IHC staining with a monoclonal antibody cocktail was used in negative nodes after H&E survey

Results: Micrometastasis in sentinel nodes were 46x (17, 4%) including 6 submicrometastases. Average size of tumor was 17, 6 mm (range 7–38). There was invasive ductal carcinoma 37x, lobular 2, others 7. Conservative surgery was performed 38x and mastectomy 8x. Size of the tumor: pT1b8x, pT1c25x, T213x. Stage of the tumor: Stage 11x, IIA30x, IIB 15x. There were 92 axillary sentinel nodes, mean number 2.0 (range 1–5) and 453 non sentinel nodes, mean number 11.1 (range 5–24). Patients with micrometastasis in sentinel node and positive non sentinel node were 8x. Positive non sentinel nodes: micrometastasis in one node 1x, one macrometastases 3x, one macro- and one micrometastasis 1x, two macro- and two micrometastases 1x, macrometastases in three nodes 1x, macrometastases in four nodes 1x

Conclusions: This study confirms that presence of micrometastases and submicrometastases in tumor pT1a (0%) are very rare. Micrometastases were confirmed 8/46 in tumor pT1b, in non sentinel node only 1/8 (12.5%) and in tumor T1c 3/25 (12.5%) Micrometastases were more frequent in tumor pT2 4/13 (30,7%) Tumor pT1a, pT1b, pT1c had low probability of metastases in non sentinel nodes and so patients with tumors pT1a, pT1b and selectively pT1c could be saved from axillary dissection with minimal risk

Abstract ID: 0657 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 268

Breast enlargement vs cancer: a bizarre complication of CHF

W.A. Jones, A.E. Barber

University of Nevada School of Medicine, Las Vegas, USA

Introduction: There are many benign breast abnormalities that mimic cancer. One such incidence is congestive heart failure (CHF).

However, are only rare reports of unilateral breast edema resulting from CHF. We present a case involving an 82 year-old female with unilateral breast enlargement from CHF and radiologic findings suspicious for breast cancer. An 82 year-old female presented to the emergency room with severe shortness of breath. She was evaluated and diagnosed with CHF exacerbation. The emergency medicine physician noted enlargement of the left breast and surgery was consulted after ultrasound revealed a BI-RADS 3 lesion. However, the breast enlargement resolved after several days of CHF treatment.

Conclusions: Unilateral breast enlargement is a rare complication of CHF. It is important to include this occurrence in the differential of breast abnormalities to avoid excessive imaging and biopsies.

Abstract ID: 0658 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 269

VATS (Video Assisted Thoracic Surgery) partial lobectomy for breast cancer lung metastasis

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Introduction: Lung metastasis is one of the most frequent metastases of breast cancer and usually leads to lethal status. Frequently, lung metastasis is diagnosed in multiple site and surgical resection through thoracotomy is avoided because of severe surgical damage to patient. Chemotherapy and endocrinotherapy are considered as first line therapy to lung metastasis. Although chemotherapy and endocrinotherapy shows good response rate, complete cure of lung metastasis through these therapies is rare. Surgical resection can only leads to complete cure. VATS partial lobectomy causes less surgical damage to patient than thoracotomy and is considered good therapeutic procedure for control of breast cancer lung metastasis

Material and Methods: We performed VATS partial lobectomy for lung metastasis under the following conditions (1) primary lesion is completely resected (2) no other distant lesion is diagnosed or well controlled (3) lung metastasis is solitary or less than three. Fifteen cancer patients were treated by VATS partial lobectomy or lobectomy between 1993 and 2008.

Results: Three patients are alive without disease and three are alive with breast cancer recurrence. Median survival is 2 year 10 month after VATS operation. Mean blood loss is 40.5 ml and mean duration of drainage is 2.9 days in VATS.
Conclusions: VATS partial lobectomy or lobectomy is good therapeutic method for breast cancer lung metastasis.

Abstract ID: 0659 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 270

Mammary duct ectasia: clinical features of 97 cases
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Introduction: Mammary duct ectasia (MDE), also called plasma cell mastitis, periductal mastitis, or mammary dysplasia, is a benign condition of the mammary gland first described by Haagensen in 1951. This disease is not common. The etiology of MDE is unknown and its pathogenesis is still controversial, inflammation could be either the cause or the result of dilated damaged ducts. Ninety-seven cases treated by the authors were reported to study clinical features of mammary duct ectasia.

Material and Methods: Ninety-seven cases including 95 females and 2 males were treated from 1965 through 2008. The patients’ charts were reviewed and the clinical manifestations and treatment were studied retrospectively.

Results: The patients aged 24–75 years (mean 35 years old). All the females had delivery and breastfeeding history. Most of the lesions were unilateral (95.9%) and predominant in the left (60.8%). One patient had lesion in her accessory mammary. Patient complained of breast lump in 55 cases (56.7%), nipple discharge in 18 (18.5%). Preoperative diagnosis was correct in 13 cases (13.4%). Nine (9.3%) were misdiagnosed as breast cancer. Surgical treatment were performed in 95 cases (97.9%), including simple mastectomy in 21 (22.1%), lumpectomy in 72 (75.8%). Two cases developed fistula after resection and underwent reoperation. All of the specimens had frozen section and histopathology proven. Cancerous resection was avoided.

Conclusions: Mammary duct ectasia (MDE) usually presented with symptoms of subareolar breast lumps, periductal mastitis, nipple discharge, mastalgia, mammary abscess or fistula, and nipple retrac- tion. Although it may sometimes masquerade as breast cancer, mammary duct ectasia is not associated with an increased risk of breast cancer. Frozen section is important to distinguish MDE from breast cancer during operation. Lumpectomy is the choice of treatment. In case of abscess and fistula, drainage and antibiotics are required.

Abstract ID: 0660 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 271

Does pretreatment hemoglobin level affect the response to neoadjuvant chemotherapy in breast cancer patients
S.K. Gupta, M. Kumar, S.K. Saroj

Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

Introduction: A low pretreatment hemoglobin level is associated with a poor response to chemotherapy and/or radiotherapy in a variety of cancers. However, the relationship between pretreatment hemoglobin levels and response to chemotherapy in breast cancer patients is unclear. The aim of our study was to assess the influence of pretreatment hemoglobin levels on the response to neoadjuvant chemotherapy in breast cancer patients and hence whether there is a need to correct low hemoglobin levels before instituting chemotherapy.

Material and Methods: 53 newly diagnosed breast cancer patients receiving neoadjuvant chemotherapy for operable breast cancer were studied during the period September 2006 to June 2008. All patients received neoadjuvant chemotherapy comprising of cyclophosphamide (500 mg/m²), 5-fluorouracil (500 mg/m²) and adriamycin (50 mg/m²) for 6 cycles. Response was assessed by physical examination and imaging and was categorized according to UICC criteria as “responders” (complete or partial response) and “non-responders” (stable or progressive disease). The pretreatment hemoglobin levels were compared between “responders” and “non-responders” using student’s t test.

Results: The mean age of breast cancer patients was 46.8 years (Range 30–65 years). The overall response rate was 64.1% with a complete clinical response in 35.8% (18/53). The mean pretreatment hemoglobin levels were 10.4 g/dl in “responders” and 10.1 g/dl in “non-responders”, however this difference was not statistically significant. (P = 0.857). There was also no significant difference in the baseline hemoglobin levels between patients showing complete response and those with partial response. The distribution of women within each of the menopausal and receptor status, tumour size and nodal status categories was very similar between “responders” and “non-responders”.

Conclusions: This study indicates that pretreatment hemoglobin levels have no influence on the response to neoadjuvant chemotherapy in breast cancer patients. Hence, no benefit is likely to accrue to these patients by improving hemoglobin levels before starting chemotherapy.

Abstract ID: 0661 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 272

Breast reconstructions: implants vs. autologous tissues
M. Margaritoni

County Hospital Dubrovnik, Dpt. of Plastic and Breast Surgery, University of Dubrovnik, Dubrovnik, Croatia

Introduction: The author analyze 10-year experience in breast reconstructions as a common part of breast cancer treatment.

Material and Methods: We have analyze a period of 10 years of breast reconstructions performed in Dpt. of Plastic and Breast Surgery County Hospital Dubrovnik comparing the number and results of reconstructions with autologues tissues and prothesis, primary vs. secondary reconstructions and results of breast cancer treatment with radical and BCS vs. skin-sparing mastectomies with immediate reconstructions.

Results: On our department we perform about 300–350 breast surgery procedures annually including diagnostic and oncology breast surgery as well as prophylactic, oncoplastic and reconstructive breast surgery and finally aesthetic breast surgery. Oncoplastic and reconstructive breast procedures make up to 15% of entire number of breast surgery procedures. In last 10 years we have performed 305 breast...
reconstructions (out of more than 3000 breast surgery procedures) with or without intervention on the opposite breast. Out of them 151 (49.5%) were performed by various techniques of autologues tissue alone, 122 (40%) patients were treated with implants alone, and 32 (10.5%) reconstructions were performed with combination of these two general methods. We perform aldo additional 91 procedure (reconstruction of NAC complex, corrections of shape, volume and scars as well as reconstruction of the chest walls). The number of serious early and late complications is insignificant.

**Conclusions:** Breast reconstruction is, first of all, functional surgical approach in breast cancer treatment and it became a common and integral part of comprehensive breast surgery which is oncologically more radical than breast conserving surgery with better local control, mostly avoiding postoperative radiotherapy and decreasing number of local recurrence and sometimes offering also better cosmetic results.

**Abstract ID: 0662**  
**Specific Field:** Breast Surgery

**Mode of pres.:** Poster Exhibition  
**ISW 2009 Session PE 273**

**Evaluation of quality of life, oncologic, functional and aesthetic results after breast reconstruction by Latissimus dorsi musculocutaneous Flap**

F. Dravet, M. Dejode, J.M. Classe  
CRLCC Nantes Atlantique, Nantes- SaintHerblain, France

**Introduction:** Retrospective Assessment from 1998 to 2005 from women who have a breast reconstruction by autologous latissimus flap or by latissimus flap and silicone implant for Differed Breast Reconstruction (DBR) or Mastectomy and Immediat Breast Reconstruction (MIBR)

**Material and Methods:** Analysis of oncologic results on 450 patients. Analysis of aesthetic, functional results and of quality of life by an anonymous questionnaire in the non progressive patients (407): 263 appraisable answers (136 DBR, 127 MIBR). The cotation of each item was 0 to 10.

**Results:** Results oncologic: 43 patients (9.5%) had a cancer relapse : metastasis (M) alone: 29 (67.4%), M and Local Recurrence (LR): 3 (7%), LR only : 4 (9.3%).

Aesthetic results: The overall assessment of the breast reconstruction was of 7.68/10.11.2% patients considered it to be bad (< 5/10). The symmetry between the 2 breasts in time is of 6.6/10.19.9% patients considered it to be bad (< 5/10). The scar ransom, considered to be most important, is mostly in the back (4.1/10) then on the contralateral breast and then the breast reconstruction.

Functional results: The discomfort and the pain prevail above all in the back (3.56 and 2.59/10). Weaker symptoms in the event of MIBR than DBR. 77.2% had kinesthesietherapy after surgery. The handicap is considered to be overall low (2.5/10) but 10% of the patients keep a feeling of important handicap (> 7.5/10). Quality of life results: 71% of the patients are serene. The discomfort to put herself in bathing suit or to look at bare-chested is low (2.59 and 2.44/10). However 8.9% are in a very discomfort to see herself bare-chested and 17.6% to show herself to their spouse, with an impact on their emotional and sexual life in 36.4% of the cases. 95.7% do not regret having made this breast reconstruction

**Conclusions:** This study makes it possible to concentrate on the group of no satisfied patient for better determining the causes and the improvements of the surgical techniques to bring but also the overall surgical management of the patient.

**Figure:** Carcinoma Breast
Abstract ID: 0664  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 275

Pattern of presentation and management of ca breast in the developing countries: there is a lot to do
A. Malik
LUMHS, Jamshoro, Pakistan

Introduction: Early detection of breast cancer before it spreads to axillary lymph nodes greatly increases the survival rate up to 5 years. In under resourced areas, women continued to present late in the course of this disease with widespread metastasis through out the body. A number of factors are responsible for this delayed presentation including local customs avoiding women exposure, poverty, lack of knowledge, lack of education etc. This study is conducted to find out the pattern of presentation and different treatment modalities in practice in developing countries.

Material and Methods: Its a descriptive analysis of 234 patients of breast lump with 103 malignant lumps. The records of all the patients with malignant breast lumps are evaluated and a reference is made of various modes of presentations of Ca breast and treatment offered.

Results: Breast cancer is commonest malignancy in women. A early diagnosis ensures a reasonable degree of disease free period. In our series 87% of the total cases of ca breast are received in stage 4 with distant metastasis while remaining cases were received in operable stage, there is a substantial delay in referral and presentation of ca breast in under previlleged, remote areas of countries like Pakistan. This is attributed to lack of knowledge, lack of education, poverty and prevailing customs avoiding women exposure even to the clinicians.

Conclusions: Advance Ca breast is common in areas with poor diagnostic facilities and in under previlleged remote rural areas. A lot of effort is required to educate people so as to improve early diagnosis of ca breast.

Abstract ID: 0665  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 276

The validity of the preoperative MRI for detection of intraductal spreading of breast cancer
Y. Koyama, E. Sakata, M. Hasegawa, M. Yoshizawa, N. Manba, K. Hatakeyama
Niigata University Graduate School of Medical & Dental Sciences, Niigata, Japan

Introduction: Intraductal spreading (IDS) is one of the main factors responsible for positive surgical margin at breast conserving surgery (BCS) for primary breast cancer. Therefore, it is very important to know the status of IDS preoperatively in breast cancer treatment. There are some examinations such as ultrasonography, computed tomography and magnetic resonance imaging (MRI) popularly used for evaluating tumor, and MRI has been reported as useful for detecting tumor and IDS. In the present study, our purpose was to clarify the validity of MRI for preoperative IDS detection.

Material and Methods: Two hundred eighteen patients of primary breast cancer, who received both preoperative MRI examination and surgical treatment at Niigata university hospital between 1994 and 2007, were entered into the present study. The patients of ductal carcinoma in situ or neo-adjuvant chemotherapy cases were excluded. Among all 218 patients, mastectomy was performed in 95 patients and BCS was performed in 123 patients. The status of IDS evaluated by preoperative MRI (MRI-IDS) was compared with postoperative histological diagnosis of IDS (Hx-IDS), and each sensitivity (ST), specificity (SP), accuracy (AC), positive predictive value (PPV) and negative predictive value (NPV) was calculated. The correlation between MRI-IDS and other clinicopathologic factors such as age, tumor size, or lymphovascular invasion (LVI) were also examined. The statistical analysis was performed by chi-square test, and the statistical significance was defined as p < 0.05.

Results: The ST, SP, AC, PPV and NPV of DS-MRI for whole surgical patients was 71.1%, 79.6%, 76.6%, 65.1% and 83.7%, respectively. In the cases of BCS, the ST, SP, AC, PPV and NPV of DS-MRI for whole surgical patients was 42.4%, 92.2%, 78.9%, 66.7% and 81.4%, respectively. There was significant correlation between MRI-IDS and Hx-IDS (p < 0.001). However, There was no correlation between MRI-IDS and clinico-pathologic factors.

Conclusions: Our results suggest that preoperative MRI evaluation is valid for IDS detection, and also useful to decide surgical procedure.

Abstract ID: 0666  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 277

Efficacy of pain relief protocol after immediate breast reconstruction
K. Sandelin [1], J. Karlsson [1], M. Hamnstedt [1], L.M. Petersson [2], P. Gannedahl [1]


Introduction: Submuscularly placed implants causes pain because of the fasciomuscular stretch. Opioides are inefficient as pain relief and cause respiratory depression and nausea. When NSAID and local anesthetics via indwelling subpectoral catheters were added the need for opioides decreased. A multidisciplinary team of nurses and physicians proposed a pain relief protocol (PRP) for pre and postoperative analgesia. This survey assesses both the need for additional pain relief during hospital stay and patients’ satisfaction with PRP and to identify any patient with long term pain after the breast procedure.

Material and Methods: One hundred and four patients underwent uni or bilateral mastectomy and immediate breast reconstruction during the study period. Patients were treated in a plastic reconstructive unit (n = 30) for prophylactic surgery and in a breast and endocrine unit (n = 74) for cancer surgery. Cancer patients got predominantly expander implants whereas permanent implants dominated for prophylactic surgery. Preoperative PRP included 1 g paracetamol, 200 mg of a coxibe and 20 mg oxycodon. A subpectoral indwelling catheter was inserted and at completion of the procedure 10 ml of ropivacaine 2 mg/ml was administrated. Postoperative PRP included ropivacaine every 3 hours for 72 hs, 1 g paracetamol every 6 hours, 20 mg coxibes and 20 mg oxycodon every 12 hs. At discharge paracetamol, NSAID were prescribed and 10 mg of oxycodon if needed. Electronic charts were reviewed for clinical data and whether or not the pain regimen was adhering (33/104) was the surgeon’s decision. Eight patients...
Our results show the possibility to predict chemosensitivity in breast cancer patients with molecular subtype classification and topoisomerase 2 expression. Amentoflavone was also found to decrease fatty acid synthesis. These data provide evidence that amentoflavone is a potential therapeutic target for breast cancer.

Material and Methods: A group of 45 primary breast cancer patients who received systemic chemotherapy (PSC) were examined in this study. The expression of ER, HER2, EGFR, CK5/6 were evaluated by immunohistochemical methods to classify five molecular subtypes, Luminal A, Luminal B, Her2, Basal-like and Normal-like. The specimens were obtained both before and after PSC. Results: 45 patients were classified as Luminal A (19 cases), Luminal B (4 cases), HER2 (6 cases), Basal-like (13 cases) and Normal-like (3 cases). Basal-like subtype group showed high nuclear grade (9 in 10 patients: 90.9%) and high expression rate of Topo 2 (11 in 13 patients: 84.6%). The expression of Topo 2 is reversely correlated with the expression of ER, PgR and Her2. In 8 cases evaluated as pathological complete response (CR) in PSC, 5 cases were Basal-like, 2 cases were Her2, and 1 case was Luminal B and all of them expressed Topo 2 strongly. These results suggest that Basal-like tumor expresses Topo 2 strongly and more likely response to PSC compared to the other subtypes. Conclusions: Our results show the possibility to predict chemosensitivity according to molecular subtype classification and expression status of Topo 2.

Abstract ID: 0669 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 280

Promoter hypermethylation is an early event in breast carcinogenesis

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Introduction: Aberrant methylation of CpG islands in the promoter region of tumor suppressor genes has become established as an important epigenetic mechanism for gene silencing. Promoter hypermethylation in precursor lesions at risk for progression to invasive cancer may be biomarkers of cancer risk and targets for cancer chemoprevention. In breast cancer promoter hypermethylation has been described for several genes covering all aspects of cellular function. However, the methylation studies of precursor lesion of the breast are rather sparse and mostly done in a purely qualitative manner.

Material and Methods: To evaluate the significance of alterations in promoter hypermethylation during multistage carcinogenesis of the breast, quantitative multiplex methylation-specific PCR of six genes (APC1, Cyclin D2, HIN-1, RAR-b, RASSF1A, and Twist) was performed on DNA from 15 normal breast tissues, 21 usual ductal hyperplasia (UDH), 48 ductal carcinoma in situ (DCIS), and 35 stage I invasive ductal carcinoma (IDC), not otherwise specified.
We found no to very low levels of promoter methylation in normal samples. In general UDH, DCIS, and IDC samples revealed varying levels of methylation ranging from 0 to 100%. One-way analysis of variance showed that the methylation levels of all six genes increased significantly with the progression of breast neoplasia from normal epithelium, through hyperplasia, to DCIS. However, methylation levels were not significantly different between DCIS and IDC.

Conclusions: Our results suggest that promoter hypermethylation is an early event in breast carcinogenesis. Promoter hypermethylation in the precursor lesions of the breast cancer may be used as a target for cancer chemoprevention.

Abstract ID: 0670 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition ISW 2009 Session PE 281

Pre and perioperative briefing can enhance safety in high volume breast surgery
K. Sandelin, P. Westelt, H. Björne
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Introduction: Communication failure has been identified as the primary root cause in more than 70 percent of operative and post-operative events. A checklist like pilots use before departure attempts to prevent and manage threats to patient safety. Patients scheduled for breast surgery follow a pathway with preanaesthetic assessment. A clinical coordinator, a breast surgeon, an anaesthesiologist and a coordinating scrub nurse review next week’s operating schedule for possible adjustments. In autumn of 2008 the concept of Preoperative Briefings or Checklists were introduced at Karolinska University Hospital. Our initial experiences are presented.

Material and Methods: In 2008, 800 breast operations were performed, the majority for breast cancer. In October 2008 Preoperative Briefings were introduced as a routine preceding all breast surgeries. Participants in the operating room are introduced and their tasks presented. Items discussed by the team include identification of the patient, site of surgery, type of procedure, need for special instrumentation, prophylactic antibiotics and anticoagulants, anticipation of risks and potential problems. The checklist is a translation of the “Operating room briefing checklist” used by Makary et al J Am Coll Surg 2007. All items checked are recorded and any incident with a potentially adverse effect is documented. To evaluate surgical staff experiences a survey will be conducted after six months trial.

Results: To date there is 80% compliance to perform Preoperative Briefings. Adverse events are detected during the weekly preoperative meeting in around 15% mostly by correction of missing medication and information regarding the surgical procedure and in 5–10% during the Preoperative Briefings, including administration of antibiotics, thrombosis prophylaxis and issues regarding the surgical procedure. The acceptance of the operating room team members is high and the briefings facilitate communication.

Conclusions: Significant improvements in reduction of perioperative serious events and deaths after implementation have been reported. Breast surgery although considered safe is associated with adverse events. A structured regimen during the pre and perioperative phase can improve patient safety an improve communication and atmosphere in the operating room.

Abstract ID: 0672 Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition ISW 2009 Session PE 283

Is the false negative result in sentinel lymph node biopsy of breast cancer avoidable?
T.J. Liu
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Introduction: Aim: Sentinel lymph node biopsy (SLNB) is a current standard surgical procedure on the early breast cancer patients with negative axillae for sparing total axillary lymph node dissection. However, up to 10% false negative result (FNR) bothered both of surgeons and patients. Those FNR is avoidable or not were re-examined from a retrospective analysis of SLNB validation.

Material and Methods: 219 patients with cT1-2N0 breast cancer were enrolled in SLNB validation by isotopes labeled on sulfur colloids.
According to the isotopes radioactivity discrepancy (RD), there was no fracture during the study. Median treatment time was 11 months. All of them did not get pCR, showed poor response to Neoadjuvant chemotherapy (NAC). Radioactivity discrepancy in post SLNB axillae should be decreased from 6.4% into 1.3%.

FNR incidence in relation to Radio-activity Discrepancy (RD)

<table>
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<th>FNR NO.</th>
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<td>&gt;0</td>
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Abstract ID: 0673  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 284

Neoadjuvant chemotherapy for breast cancer: assessment to tumor
A. Sakamoto, S. Amano
Nihon University School of Medicine, Tokyo, Japan

Introduction: Neoadjuvant chemotherapy (NAC) in Patients with locally advanced but operable breast cancer has been already recognized as one of the relevant strategy. In most cases, NAC was performed to patients that have axillary lymph nodes metastasis and/or tumor size >2–3 cm, but inclusion criteria for NAC has been remained undetermined in Japan, we clinical surgeon often suffer whether we should offer NAC to patients whose tumor is of 2 to 3 cm. And, in St. Gallen’s recommendation, patients who have tumor > 2 cm are included into intermediate risk group, should be given either chemotherapy (CT), or endocrine therapy (ET). After operation some patient may have overtreatment if treated NAC. In this study, we evaluate NAC for patients whose tumor is between 2 and 3 cm diameter.

Material and Methods: 95 cases of operable breast cancer achieved NAC for 2001—2007 were investigated by retrospective chart review. They were classified into 2 groups, tumor size was 3 cm or more (3T n = 63), and 2 to 3 cm (2T n = 32). The latter group was also subdivided into 2 groups as to lymph nodes status, metastasis positive (2T+, n = 11) and negative (2T−, n = 21). Treatment regimens were anthracycline-based regimen, or anthracycline + taxan and Herceptin + Paclitaxel. Pathological complete response (pCR) was defined as no cancer cell including no intra ductal component in the breast and axilla lymph nodes in the resection specimen.

Results: pCR was observed 8 cases (8.4%) in all. 3T/2T+:6(6.3%)/1(9.1%)/3(14.3%). 30 cases included into Intermediate risk category, (recommended CT/ET), showed pCR 2(6.7%), pPR3 (10%). In this risk population, 4 patients who had local recurrence or distant metastasis were observed by follow-up survey. 2 patients were 2T-and included into CT or ET recommended, and 2 patients were 2T+. All of them did not get pCR, showed poor response to NAC. As to safety or feasibility to CT, there were no significant differences among all groups.

Conclusions: Neoadjuvant chemotherapy to tumor < 3 cm showed good response, especially it brought 2T- much more pCR. On the other hand, relapse in 2T-after NAC were noticeable. Even if patients were supposed to have less risk preoperatively, some cases showed poor prognoses. Thus, NAC to tumor < 3 cm can also obtain important information, that show significant favorable or unfavorable predictive factor, as well as to larger tumor.

Abstract ID: 0674  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 285

Trend in the bone mineral density on patients treated with anastrozole
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Introduction: Aromatase Inhibitors (AIs) is a key drug on treatment of hormon receptor positive postmenopausal breast cancer. On the other hand, it is known as a cause of bone mineral density (BMD) loss. Osteoporosis may lead bone fracture which makes patient’s QOL worse. We evaluated retrospectively the trend of the BMD on patients who are treated with Anastrozole (ANA).

Material and Methods: Between October 2004 and March 2007, 25 patients received ANA as an adjuvant therapy for postmenopausal breast cancer, with their BMD measured at least twice annually. We Patients who developed bone metastasis during treatment, and patients who had been diagnosed and treated as osteoporosis before starting Anastrozole were excluded. Median age was 60 yo. Dual-energy x-ray absorptiometry (DXA) of lumbar spine was used to measure BMD, before and one year after administration of Anastrozole. WHO Diagnostic criteria for osteoporosis was applied to define osteoporosis. Student-t test with CI = 95% was applied for statistic evaluation.

Results: There was no fracture during the study. Median treatment duration with ANA was 16 ± 11 months. Three of 25 cases were diagnosed as osteoporosis with their first DXA. Seventeen cases showed decrease on BMD, with 14 cases showed annual decrease of BMD more than 2%. After one year administration of ANA, 2 more patients developed osteoporotic, 2 patients newly categorized as low bone density, and only 11 patients (44%) remain as normal bone density. Overall decrease of BMD was 2.2% annually, as average BMD were 0.88 ± 0.13 g/cm² and 0.86 ± 0.14 g/cm² respectively before and a year after, and there was significant difference (p = 0.030). On the other hand, 8 patients kept or gained their BMD during the period.

Conclusions: In our institution, 70% of patients who treated with ANA for breast cancer showed decrease of BMD. Some reports suggest difference in tendency of osteoporosis and fracture between...
Caucasian and Asian population, and in Japan we evaluate patients BMD with %YAM. Because of the difference of scale, half of the low bone density population is considered as normal by %YAM. We need to follow these patients carefully to evaluate the relationship between T-score and bone events.

Abstract ID: 0675  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 286

A case of recurrent breast cancer responding to Vinorelbin-Trastuzumab combination therapy
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Introduction: A 60-year-old woman with Stage II ER positive, PgR positive, HER2:2 + cancer in the right breast underwent surgery after chemotherapy with EC(Epirubicin + Cyclophosphamide) followed by docetaxel. Exemestane was used for postoperative adjuvant treatment. She received right chest wall tumor resection for local recurrence 1 year after the surgery. Two years after the second surgery, PET showed a local recurrence in the right chest wall and metastasis to the right axillary nodes and liver.

The tumor was ER positive, PgR negative, and HER2:3 + at recurrence and Vinorelbin-Trastuzumab combination was initiated as first line chemotherapy. All lesions were disappeared from PET and CT after 5 courses of the regimen, resulting in clinical complete response.

Material and Methods: A 60-year-old woman with Stage II ER positive, PgR positive, HER2:2 + cancer in the right breast underwent surgery after chemotherapy with EC(Epirubicin + Cyclophosphamide) followed by docetaxel. Exemestane was used for postoperative adjuvant treatment. She received right chest wall tumor resection for local recurrence 1 year after the surgery. Hormone therapy was continued with Tamoxifen in place of Exemestane. Two years after the second surgery, CEA level was elevated and positron emission tomography showed a local recurrence in the right chest wall and metastasis to the right axillary nodes and liver.

Results: The tumor was ER positive, PgR negative, and HER2:3 + at recurrence and Vinorelbin-Trastuzumab combination was initiated as first line chemotherapy for the recurrent lesion and liver metastasis. All lesions in the right chest wall, right axillary nodes and liver were disappeared from positron emission tomography and computed tomography after 5 courses of the regimen, resulting in clinical complete response.

Conclusions: Vinorelbin combined with Trastuzumab therapy appears to be useful for HER2 over expressive recurrent breast cancer.

Abstract ID: 0676  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 287

Series of oncoplastic surgery procedures in breast cancer patients
C. Irgil [1], Y. Bayram [2], M. Calikapan [3], A. Okumus [4], Y. Okumus [5], B. Orhan [4]


Introduction: Reconstruction of the breast after oncologic surgery has gained great attention in recent years. Mastectomy procedures should be abandoned in the early stages. When oncologic principles are committed, oncoplastic surgery can be applied in selected patients.

Material and Methods: From 2000 to 2008, 90 breast cancer cases were operated with the oncoplastic procedures in Bursa Breast Center. All cases involved pathological diagnosis of carcinoma preoperatively. Fine needle aspiration biopsies (FNAB) and/or Core biopsies were performed to ease the procedures of oncoplastic surgery. After consultation of the cases with a plastic surgeon, the operations were done together with plastic and breast surgeon. Intraoperative frozen sections were evaluated in all cases. When implants were decided to use, Mentor High Profile type was preferred. All cases involved suction drains in the breasts and axillary region when it is involved. The operations were planned according to the tumoral zone and breast volume. The procedures are as follows: 52 cases (57.7%) involved skin sparing mastectomy + Silicon implant + Axillary procedure, 17 cases (18.8%) involved subcutaneous mastectomy + Silicon implant + Axillary procedure, 9 cases (10.0%) involved bilateral reduction mammoplasty (Inferior pedicle) + Axillary procedure + tumoresection. 12 cases (13.5%) involved reconstruction with TRAM flap.

Results: The mean hospitalization time of the cases was 1.8 days (1–4 day). Wound dehiscence and infection were observed in four cases. Nine cases involved axillary seroma necessitating aspiration. Five cases involved infection and skin necrosis necessitating implant removal and double-bubble was observed in two patients.

Conclusions: In spite of the accompanying problems and necessity of secondary operations, oncoplastic surgery procedures are much more convenient than the conventional procedures in terms of reducing physiological, psychological and social problems encountered postoperatively. In selected cases women should be informed about the alternatives of oncoplastic surgery and should be encouraged as these procedures offer improved postoperative results with increased patient comfort and tolerance.

Abstract ID: 0677  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 288

How breast cancer patients accepted preoperative chemotherapy in Japan
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Introduction: Recently, neoadjuvant chemotherapy has become one of the standard therapeutic strategy for operable breast cancer. We surgeon had already known these benefits of getting higher rate of breast conserved therapy, and obtaining important information of response against anti-tumordrugs, but whether patients also understood this new strategy sufficiently was left questionable. This study was carried out to clarify how breast cancer patients think about and accepted NAC in Japan.

Material and Methods: Questionnaire survey was performed to breast cancer patients who achieved NAC for 2004–2007 in our hospital. They were requested to complete questionnaires to determine the following: general knowledgement of breast cancer, understanding level to NAC, how they feel when they had explained NAC, trait anxiety during therapy, assessment to NAC after treatment, and so on. Treatment of regimen was EC, CEF or CEF + Taxan. The adequate reply of 68 patients were obtained and evaluated.
Results: 70.8% of all patients answered they had not known about standard treatment of breast cancer. When they were diagnosed cancer, 64% of patients expected that they would have operation at first, and 79% did not know what NAC means at all. 87% of patients thought physician gave them enough explanation, but patients who could understand the significance of NAC were 53%. Patient’s anxiety was decreased along with the therapeutic process. According to patient’s profile, tumor <3 cm patients had more anxiety in compare to tumor >3 cm in diameter(p < 0.05) And also, there found significant difference that patients who went to hospital within 3 months after they noticed their breast abnormality, had been more anxious to NAC than patients who left their worry for over 3 months. Final assessment to NAC, 92% of patients were satisfied with this treatment, however 4% still also wanted to have operation first. Conclusions: Breast cancer patients had poor knowledge about therapeutic modality itself in Japan. Lack of basical information of breast cancer treatment caused patients much anxiety in the face of NAC. This survey also revealed that there is the gap of consciousness between the patients and the physicians on new strategy. We think it important for clinical surgeon to know how patients think and accept such relatively newer treatment, in order to give them NAC with less anxiety.

Abstract ID: 0678

Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 289

Radiofrequency ablation (RFA) for hepatic metastases from breast cancer

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Introduction: Patients with hepatic metastasis from breast cancer are generally considered to have a poor prognosis. As the hepatic metastasis from breast cancer has a tendency to have an extrahepatic lesion, systemic therapy therefore becomes acclimatization, and symptom relaxation and the elongation of life become a therapeutic purpose. Hepatic metastasis from breast cancer is important prognostic factor, and the hepatic arterial infusion chemotherapy is performed, but focus control tends to be difficult.

Material and Methods: We present six cases of hepatic metastases from breast cancer treated by RFA for elongation of life.

Results: Average age is 55.3 years old. The average period of time from the date of the primary surgery for the breast cancer till the breast cancer hepatic metastasis appeared, was 6.3 years (16 months to 20 years). The hepatic metastasis from breast cancer was solitary in one case and in five cases the metastasis was multiple. Of the five patients, one received only RFA, five received RFA following systemic chemotherapy. RFA was performed for six patients in 13 procedures to ablate 57 hepatic tumors. All patients were followed up for at least 9 months or until death, up to 38 months. The mean follow-up was 20 months. Since the appearance of hepatic metastasis, there were not patients died because of liver metastasis within one year.

Conclusions: Since RFA is relatively simple to perform, gives rise too few complications, can be safely repeated for hepatic metastases, it is an acceptable form of treatment for hepatic metastases. After the appearance of liver metastases, in case the chemotherapy was ineffective, RFA is effective. Control of liver metastasis from breast cancer is possible using RFA and may lead to a survival benefit by in combination with hepatic artery injection, systemic chemotherapy, particularly in those patients with disease confined to the liver.

Abstract ID: 0679

Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 290

Her2/neu and hormone receptors do not change during neoadjuvant chemotherapy in breast cancer
M. Kotani, A. Matsui, Y. Isobe
Tokyo Medical Center, Tokyo, Japan

Introduction: The selection of a systemic breast cancer therapy is based on the expression pattern of immunohistochemical prognostic markers. As preoperative treatment becomes more common, the question arises whether or not such therapy changes important tumor characteristics. The objective of our study is to compare hormone receptor status, and HER2/neu expression between pre- and post-therapy patients receiving neoadjuvant chemotherapy.

Material and Methods: We determined the protein expression levels of estrogen receptor, progesterone receptor and HER2/neu in the core biopsy and the resected tumor sample from 36 patients receiving neoadjuvant chemotherapy from 2006/1 to 2009/1.6 pathological cases were excluded from the analysis.

Results: In 2 patients hormone non-responsive changed hormone responsive. In 1 patient hormone responsive changed hormone non-responsive. In cases of 90% (27/30) hormone receptors did not change. As to HER2/neu no case was found that the decision was changed. There were no significant differences in the changes in expression patterns from the core biopsy to the treated resected tumor among those who had received neoadjuvant chemotherapy.

Conclusions: Although the expression levels of hormone receptors and HER2/neu changed after neoadjuvant, it was not so significant changes as influencing the therapy plan.

Abstract ID: 0680

Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 291

Tuberculosis mastitis: a seldom breast infection
C. Irgil [1], M. Calikapan [2], S. Yildirim [3], Y. Okumus [2], E. Irgil [4]


Introduction: The aim of the study was to present our three granulomatosis infection cases diagnosed as tuberculosis (tb) mastitis which are very rare.

Material and Methods: Three cases with erythema and oedema in breast were applied and diagnosed as tb mastitis between 2000–2008 in Bursa Breast Center.

Results: Case 1 was 36 years old. She had had multiple abscesses and fistulas in her right breast. Case 2 was 50 years old and had had multiple abscesses and fistulas bilaterally in her breasts. Both cases were diagnosed as granulomatosis infections and caseification necrosis histopathologically. Bacillus could not be found. Case 3 was 21 years old. She had had cold abscesses in her left breast. She also diagnosed as granulomatosis infection and bacillus was found. Three of them were undergone anti-tb treatment.

Conclusions: The mastitis is a rare infection of breast. It is seen in cases with rib tb by neighborhood and/or by haematogen spread where tb is prevalent. It may cause mass, abscess and sinuses.
Differential diagnosis must be performed for breast cancer. The exact diagnosis must be done histopathologically with caseification necrosis and granulomatosis infiltration. The mass and the sinuses must be removed surgically. Patients must undergo anti-tbc treatment. In developing countries where tbc is still prevalent, breast surgeons must know the difference between breast cancer and breast tbc and how to treat them.

Abstract ID: 0681  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 292

Breast pseudoangiomatous stromal hyperplasia
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Introduction: We report herein three cases of breast pseudoangiomatous stromal hyperplasia, a very rare phenomenon.

Material and Methods: Patient 1, a 28-year-old woman, had the tumor measuring 30 x 25 mm in the right breast. Patient 2, a 34-year-old woman had the tumor in the left breast. Patient 3, a 46-year-old woman had the tumor in the right breast. Surgical treatment was performed in all cases. Vimentin, alpha-smooth muscle actin, desmin, and CD34 were positive in the stromal cells on immunohistochemical studies. Consequently, the histopathological diagnosis of the lesion was pseudoangiomatous stromal hyperplasia (PASH) of the breast.

Results: HE and immunohistochemical stainings led to a diagnosis of PASH originating from the breast in three cases. We show the pictures in detail.

Conclusions: We experienced three cases of PASH that originated from the breast, a very rare phenomenon for 11 years.

Abstract ID: 0682  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 293

Breast cancer screening in Georgia
National Screening Centre, Tbilisi, Georgia

Introduction: In Georgia BC represents the most frequent disease. 1200 cases are registered annually. Over 800 women die from BC and the number of the deaths due to BC seems to be increasing. Frequently (53%) the BC is diagnosing in advanced stages. The goals of screening are to reduce mortality caused by BC through early detection; to maximize early detection of BC in the target population; to ensure equitable access for the women of the target ages to the BC screening; to ensure that services are acceptable and appropriate to the needs of the eligible population; to achieve high standards of the program management, service delivery, monitoring and evaluation and accountability.

Material and Methods: During 7 month 9741 women aged 40–69 were screened for BC. More than 50% of the cases were screened by the National Screening Centre, the rest were screened by the contracted partners at their treatment and diagnostic facilities. Diagnostic procedures that were performed are distributed as follows: Out of 9741 women screened for BC ultrasound investigation was performed in 2005 (21%) cases and FNA investigation was performed in 307 (3.2%) cases;

Results: As a result of the screening program 78 women were identified to have malignant BC, or highly suspicious to have the malignant form of the cancer and in 252 cases benign form of BC has been diagnosed. In 47 cases out of 78 malignant ones, malignancy was confirmed by FNA, in the rest of cases, suspicion on malignant cases was aroused according to the results of mammography based on BIRAD system. Each woman suspected for cancer were carefully consulted and advised to refer to the specialized Breast units for further diagnosis and/or treatment. The follow-up information for every patient regarding the outcomes of their treatment is being collected and will be available.

Conclusions: The breast screening makes possible early detection and treatment in the target population, resulting BC morbidity and mortality decreasing.

Number of women screened for BC by participation Centres

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<th>Centre</th>
<th>December</th>
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<th>October</th>
<th>September</th>
<th>August</th>
<th>July</th>
<th>June</th>
<th>May</th>
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<td>Breast cancer screening</td>
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<td>1076</td>
<td>1237</td>
<td>1217</td>
<td>1500</td>
<td>1667</td>
<td>1221</td>
<td>9741</td>
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<td>545</td>
<td>592</td>
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<td>813</td>
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<td>332</td>
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<tr>
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Abstract ID: 0683  Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 294

Influence of the type of breast cancer surgery on the upper limb function
T. Utsumi, C. Yoneda, N. Kobayashi, H. Hanada, S. Miyajima, A. Tatematsu, E. Saitoh
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Introduction: Sentinel lymph node biopsy (SLNB) is widely accepted as an excellent method in the management of early breast cancer in patients with clinically negative axillary lymph nodes. The aim of this study was to evaluate the relationship between the type of breast cancer surgery and early postoperative arm mobility.

Material and Methods: The study group consisted of 290 consecutive patients aged 30 to 86 years (median age 58) with breast cancer, operated upon in the Department of Breast Surgery and evaluated in Department of Rehabilitation Medicine afterward, between February 2005 and December 2008. Out of the 290 patients, 126 (43.4%-group 1) underwent breast conserving therapy with SLNB, 65 (22.4%-group 2) simple mastectomy with SLNB, 41 (14.1%-group 3) breast conserving therapy with axillary lymph node dissection (ALND) and 58 (20%-group 4) modified radical mastectomy. Shoulder mobility was evaluated after 1 month and after 3 months.

Results: After 1 month, patients in the ALND group (group 3 and 4) had more limitations in shoulder mobility than patients in the SLNB group (group1 and 2) (Fig. 1). After 3 months, shoulder mobility was not different between the ALND group (n = 52) and the SLNB group (n = 32) (shoulder flexion: 161.6 ± 22.5 degree vs. 167.8 ± 19.5
degree, abduction: 165.2 ± 27.5 degree vs. 164.4 ± 28.9 degree, respectively).

Conclusions: In terms of upper limb functional status, the benefits of SLNB over ALND was observed at the early postoperative time. However, long-term effects have to be confirmed by further, larger series.

Figure: Mean Values (± SD) for shoulder flexion and abduction after 1 month

Abstract ID: 0684   Specific Field: Breast Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 295

Most simple method for the prediction of nonsentinel lymph node status in breast cancer patients with metastatic sentinel lymph nodes

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[2] Kyeimyung University College of Medicine, Daegu, Korea,
[3] Seoul National University College of Medicine, Seoul, Korea

Introduction: Many breast cancer patients with metastatic sentinel lymph node (SLN) do not have additional metastasis in non-SLN. Many prediction models had been developed for saving of axillary lymph node dissection (ALND) in case of no additional lymph node metastasis. The goals of this study are to identify predictive factors of non-SLN metastasis and to develop most simple prediction model

Material and Methods: We analyzed 314 breast cancer patients in two different institutions as training dataset. The independent validation dataset consisted of 82 breast cancer patients in one institute. Various models were developed through logistic regression model and machine learning tools: artificial neural network (ANN), support vector machine (SVM), decision tree (DT), and Bayesian network (BN). The receiver operating characteristic (ROC) curve was drawn and the area under the ROC curve (AUC) was calculated to assess the discriminative power of the various prediction models

Results: Multivariate analysis revealed that non-SLN status was predicted by increasing tumorsize, lymphovascular invasion, increasing number of metastatic SLN, and decreasing number of nonmetastatic SLN. Based on multivariate logistic regression, we developed model for predicting non-SLN metastasis. The AUC for our model was superior to other previously published prediction models: Logistic model (0.817), MSKCC nomogram (0.786), Louisville score (0.758), Tenon score (0.751), and MD Anderson score (0.691) respectively when identical validation dataset were applied

Conclusions: Non-SLN metastasis correlated with increasing T stage, presence of lymphovascular invasion, increasing number of metastatic SLN, and decreasing number of nonmetastatic SLN. Our simplest prediction model using only four factors appears to be as effective and accurate as other machine learning tools and other previous prediction models for selecting patients for whom ALND might be avoided

Abstract ID: 0685   Specific Field: Military Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 296

Surgery in an Afghan population: is pictorial consent and injury pattern recognition identification of patients appropriate?

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Introduction: The aim of this study was to develop a safe way to obtain informed consent and ensure the correct patient was operated on in a generally poorly educated, non-English speaking Afghan patient population admitted to a military role 2 (enhanced) hospital facility.

Material and Methods: Priorto Herrick9, surgical consent for Afghan patients was obtained via an interpreter in the traditional manner and documented on a UK formatted consent form (MOD form 660) (group 1) with patient identification largely being the responsibility of the interpreter. Patient agreement was documented by placing a thumbprint on the form. During Herrick9, pictorial consent and injury pattern recognition (IPR) identification of patients was introduced. The consent was written as part of the case note narrative with diagrammatic representation of the injuries and the proposed surgery, which was explained by the interpreter (Group 2). We compared the consent and identification process for ten consecutive patients from each group. Each method of consent was examined for documentary evidence of the procedure, patient identification and method of patient agreement. The senior Afghan interpreter was asked for his views on pictorial consent.

Results: Nine patients from group 1 and seven from group 2 had consent taken via an interpreter. The others had been intubated prior to arrival in the facility. For group 1, each of the nine MOD form 660’s were completed in English by the operating surgeon and included details of the procedure. Seven had been signed by the interpreter. Each had a thumbprint on the form but there was no name or date alongside it. There was no way of confirming that the thumbprint was that of a particular patient. For group 2, pictorial consent was documented in the narrative with specific documentation of the injury pattern of that patient. Confirmation of consent and patient identification by IPR was by the operating surgeon. The senior interpreter thought that pictorial consent led to improved patient understanding of the proposed surgical intervention. The surgical team were happy with IPR identification of patients and pictorial consent.

Conclusions: The use of pictorial consent and IPR identification would appear to be superior in this particular environment.
Abstract ID: 0686   Specific Field: Military Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 297

Soft tissue injuries in war field conditions treated by complex of hyaluronic acid and iodine: case reports
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Introduction: The approach to wound treatment under war conditions is usually problematic. Especially the treatment of acute infected war injury is almost complicated. It is important, as the first step, to do radical debridement of the wound without primary suture. Stimulation of the healing process in this stage would be advantageous

Material and Methods: The first young soldier suffered from a shrapnel injury in right arm soft tissues. He was admitted to the Czech Field Hospital 24 hours after the injury. According to the cultivation finding, the wound was infected by Staphylococcus aureus. After the wound debridement and rinsing, HI complex soaked gauze was topically applied to the open wound. The HI complex wound dressing was replaced within next 4 days every 24 hours. After 4 days, the swab was negative and the wound was without macroscopic signs of infection, so the delayed primary suture was carried out. The next course was without complications; the patient was discharged with the healed wound after 8 days.

The second patient with a shrapnel injury of the left thigh was transported to the Czech Field Hospital 16 hours after an attack. The wound was open and with suppurating discharge (Staphylococcus aureus). The way of treatment was the same as in the first patient. The HI complex wound dressing was replaced within next 4 days every 24 hours. The 4th day after starting the HI complex treatment, the swab was negative and the wound was without macroscopic signs of infection. The delayed primary suture was done. The wound was completely healed after 8 days.

Results: All war injuries are considered contaminated and therefore a delayed primary suture is preferable. To our best knowledge, we are the first who used the HI complex for the treatment of acute war wounds before the delayed primary suture. According to our first results, the HI complex has an excellent effect during the management of these wounds. The study is supported by Research Project No.: MSM 0021620820 and by Research Project No.: PVZ 0000503 of the Ministry of Defense of the Czech Republic.

Abstract ID: 0687   Specific Field: Burns

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 298

Reversed saphenous fasciocutaneous island flap in marjolin's ulcers
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Introduction: The reconstruction of the heel represents a challenge due to the limited local soft tissue availability and also due to the special structural and functional characteristics of this particular region. A great number of possibilities have been described; we represent a new flap for heel reconstruction which is a modified form of sural fasciocutaneous flap.

Material and Methods: Ten patients (2 female and 8 male; median age 68 years, range 48 to 76) underwent reversed saphenous fasciocutaneous island flap after wide excision of heel lesion. The causes of heel lesions in all patients were Squamous Cell Carcinoma on the chronic burn’s scar. In this new technique, sural nerve and artery were saved and blood supply to flap is based on lesser saphenous vein. Mean lesion surface was 60 cm² (range 30 cm² to 112 cm²).

Results: Epidermolysis and flap discoloration were seen in 3 patients but treated with intermittent wet dressing and conservative management. One patient showed partial necrosis in flap circumference which recovered with debridement and skin graft. Total flap necrosis was not seen in any patients. Mean hospital stay was 10 days (range 8 to 15 days). The mean follow up was 12 months (range 6 to 18 months).

Conclusions: Reversed saphenous fasciocutaneous island flap is an option for heel reconstruction. In contrast with sural flap, sural nerve and artery are saved.

Abstract ID: 0688   Specific Field: Paediatric Surgery

Mode of pres.: Poster Exhibition
ISW 2009 Session PE 299

Rescued cases of sudden intrauterine hemorrhage from umbilical cord ulcer associated with congenital intestinal atresia
N. Takeda-Kawashima [1], K. Tanaka [1], Y. Ogihara [2], M. Kitsunezaki [2], M. Nowatari [2], Y. Kanai [3], K. Amano [3], M. Watanabe [1]
[1] Dept. of Surgery, Kitasato University School of Medicine, Sagamihara, Kanagawa, Japan, [2] Dept. of Pediatrics, Kitasato University School of Medicine, Sagamihara, Kanagawa, Japan, [3] Dept. of Gynecology, Kitasato University School of Medicine, Sagamihara, Kanagawa, Japan

Introduction: There have been several reports of umbilical cord ulcer (UCU) associated with congenital intestinal atresia, in which many cases led to fetal or neonatal death. We herein present rescued cases with intestinal atresia complicated by intrauterine hemorrhage due to the rupture of UCU which resulted in intact survival.

Material and Methods: Two cases that had congenital intestinal atresia were suspected prenatally.

Results: Case 1: The fetus was diagnosed by a ‘double bubble’ sign under an ultrasonography at 30 weeks’ gestation. She was born on emergency caesarean section due to fetal distress at 31 weeks’ gestation. She was delivered with the birth weight of 1,068 g, with Apgrar scores of 1 and 1 (at 1 and 5 min). The amniotic fluid was bloody due to UCU. Thedata presented severe acidosis (pH 6.967, pCO₂ 85.8 Torr, BE-12.2 mmol), severe anemic (Hb 8.0 g/dl), thrombocytopenia (plt 6.6 x 10³/mm³), and shock (BP 25/15 mmHg). She underwent resuscitation, blood transfusion and peritoneal dialysis from the 3rd to 20th day for the renal failure. After the curative surgery for the duodenal atresia on the 23rd day, she had pulmonary hemorrhage from the cardiac decompensation, and residual renal failure. The microscopic examination of the cord showed the ulceration consisting of loss of the Wharton’s jelly with bared vessels. Case 2: The fetus was diagnosed by a ‘triple bubble’ sign under an ultrasonography at 29 weeks’ gestation. She had bloody amniotic fluid by amniocentesis at 31 weeks’ gestation. She was born on emergency caesarean section due to fetal bradycardia by the fetal heart rate (FHR) monitoring. She was delivered with the birth weight of 1,360 g, with Apgrar scores of 8 and 9. The amniotic fluid was bloody due to UCU. The data presented almost normal. She showed a good condition, and then underwent the curative surgery for the
jejunal atresia on the 2nd day. She was discharged from the hospital without any complications. The microscopic examination of the cord showed same as case1.

Conclusions: We recommend from our two cases that careful observation by FHR monitoring and early suspicion for UCU from bloody amniotic fluid prevent the fetal life-threatening crisis.

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Treatment with sclerotherapy and surgery for lymphatic malformations of the tongue
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Introduction: Lymphatic malformations are localized areas of abnormal development of the lymphatic system. These malformations involve every area of the human body but most commonly occur in the head and neck. Management plans of lymphatic malformations should be changed according to the anatomic site of the tumor. The tongue is one of the anatomic areas in which therapeutic approaches are the most difficult. We present here our experiences with the treatment of lymphatic malformations of the tongue in children and discuss the effectiveness of the combination treatment with OK-432 sclerotherapy and glossectomy.

Material and Methods: Eleven children (5 boys and 6 girls) with lymphatic malformations of the tongue were treated at our institute. All patients received OK-432 sclerotherapy as an initial treatment and the age at the time of initial treatment ranged 6 months to 9 years. The mean number of times OK-432 sclerotherapy was utilized was 4.5 (range of frequency, 2 to 10 times). Eight of the cases with macroGLOSSIA, who could not close their mouths, underwent a glossectomy after repeated OK-432 sclerotherapy. The remaining 3 cases were treated with only sclerotherapy.

Results: Tongue protrusion was improved in all 8 cases treated with OK-432 sclerotherapy and glossectomy. These 8 patients became able to retract their tongues with good function. Other problems such as speech impediment, feeding difficulties, airway obstruction, and drooling were also improved. Clinical improvement was observed in the remaining 3 cases treated with only sclerotherapy.

Conclusions: Lymphatic malformations of the tongue are microcystic and surgical intervention is indicated for most cases with this type of lymphatic malformations. However, OK-432 sclerotherapy induces a partial response even in patients with the microcystic type of lymphatic malformations, leading to some shrinkage of the tumor. In addition, OK-432 sclerotherapy may prevent lymphorrhrea after excision of the tumor. The combination treatment of OK-432 sclerotherapy and glossectomy provides excellent results for patients with lymphatic malformations of the tongue.
Index of Presenting, First and Second Authors of the Abstracts for Free Paper, Poster and Video Sessions. The abstracts are printed as submitted and accepted for presentation at International Surgical Week ISW 2009 in Adelaide, Australia, September 6–10, 2009.

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