Managing Complications of Radiation Therapy in Head and Neck Cancer Patients: Part III.
Provision of Dentures

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Head and neck cancer is becoming a more recognizable pathology to the general population and dentists. The modes of treatment include surgery and/or radiation therapy. Pretreatment dental assessment should be provided for these patients before they undergo radiation therapy. There are occasions, however, whereby head and neck cancer patients are not prepared optimally and, as a result, they succumb to complicated oral adverse effects after radiation therapy. The management of radiation-induced caries, a sequelae of xerostomia has been reviewed in Part II of this series. In this article, the management of difficulty with dentures, another sequelae of xerostomia following radiation therapy is reviewed. [Singapore Dent J 2006;28(1):7-10]

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Xerostomia and its Sequelae

As has been briefly reviewed in Part I of this series, xerostomia is a frequent complication of radiation therapy. With xerostomia, the patient continues to have risk of oral candidiasis, rampant caries, difficulty with dentures, and effects on speech and taste. Epstein et al showed that candidiasis was noted in 16% of his patients, rampant caries and increased difficulties with dentures in 7.4% of patients, respectively.¹ In this article, the management of problems arising with providing dentures, another sequelae of xerostomia following radiation therapy is reviewed.

When to Provide Dentures?

Radiation therapy causes inflammation to the oral mucosa. The hypovascular, hypocellular, and hypoxic mucosal tissue are fragile and healing is usually delayed. This will allow infection to set in and the underlying bone may be exposed. Spontaneous healing of the bone may take several months or may not occur at all; this may manifest as a large area of exposed bone with bony sequestrum and multiple sinuses. Morton² reported that almost 20% of the dentate and edentulous patients who had radiotherapy developed osteoradionecrosis (see Part IV). Placement of dentures at an early stage after radiotherapy has been postulated as a causative factor for tissue necrosis.

Beumer et al,³ for example, fabricated complete dentures for 88 patients following completion of cancericidal doses of radiation therapy to the head and neck regions. All were followed for at least 6 months after delivery. All patients received dentures resting on the mucosa that were within the radiation field. Three patients developed osteoradionecrosis directly attributed to their dentures. These three had been dentulous prior to therapy and had either intra- or postradiation extractions. Of the 58 patients who had been edentulous prior to therapy, none developed osteoradionecrosis. Five patients developed soft tissue necrosis secondary to the use of dentures.

The controversy arises on the timing of the placement of the denture. Riley⁴ and Rahn et al⁵ in two separate studies recommended provision of dentures for at least a