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Push-out Bond Strength of Fibre Post Cemented with New Dual-Curing Luting Resins
Caroline Teng Huay Sin, Mak Wen Chin, Lui Joo Loon
(Faculty of Dentistry, University of Malaya, Kuala Lumpur)

Purpose of the study: To evaluate the push-out bond strength of different luting resins after cementation of fibre-reinforced composite (FRC) posts with and without thermocycling.

Materials and Method: Sixty sound orthodontically extracted lower premolars were selected. The crowns were first removed. Root canal treatment was performed and post space was prepared. For Groups A and D, the FRC posts (Postec Plus, Ivoclar Vivadent) were cemented with RelyX U100 (3M ESPE), Groups B and E with SF Com Clicker (RelyX U200) (3M ESPE), Groups C and F with Multilink Speed (Ivoclar Vivadent). Two slices of 3mm thick specimens were obtained from each post-cemented sample, namely coronal and apical portion; thus 120 specimens were tested (n=120). Push-out force was measured by pushing from the apical towards the coronal end using Universal Testing Machine for groups A, B, C after 48 hours of water storage; while for groups D, E, F after 1000 thermocycles between 5°C-55°C with 15s dwell time. Failure mode was assessed under a Scanning Electron Microscope for adhesive and cohesive failures.

Results: The push-out bond strength was significantly different between RelyX U200 and Multilink Speed; RelyX U200 and RelyX U100 for the apical portion of thermocycled groups; RelyX U100 and Multilink Speed for the apical portion of non-thermocycled groups (One-way ANOVA, p<0.05). Thermocycling significantly decreased the bond strength in RelyX U100 but did not significantly affect the others (t-test, p<0.05). All of the specimens showed adhesive failure between the cement and dentine.

Conclusions: The mean push-out bond strength of FRC Postec Plus post to root canal dentine was highest in the new RelyX U200 self-adhesive resin cement followed by RelyX U100 and Multilink Speed. Thermocycling significantly reduced the push-out bond strength of RelyX U100 but less for the other two.

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The Accuracy of Vinyl Polyether Silicone as a New Impression Material in Implants
Syazwani Azhar Azman, Mohd Syukri Mohd Tain, Wan Adida Azina Mahmood
(Faculty of Dentistry, University of Malaya, Kuala Lumpur)

Purpose of the study: The aim of this study was to investigate the accuracy of casts obtained using new impression material Vinyl Polyether Silicone (VPES) for multi-unit implant.

Materials and Methods: A reference model with six implant parallel to each other was constructed with heat cured acrylic resin. Impression of the reference model were made using Vinyl Polyether Silicone by direct open tray pick up technique. Five impressions were made and poured with type IV dental stone. Linear differences in interimplant distances in the X, Y, and Z axes were measured on the casts using a coordinate measuring machine.

Results: The interimplant distance X, Y, and Z axes from the five casts were close to the reference model with the mean deviation of X is 0.00304, Y is 0.00232 and Z is 0.00228 with accepted value is 0.15. Although the data is statistically significant (p<0.05), it is clinically acceptable.

Conclusion: Casts obtained from all five impressions exhibited differences from the reference model but was clinically not significant. Casts obtained using Vinyl Polyether Silicone was accurate and the material is highly recommended as an impression material for multi-unit implant.