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Effect of endodontic sealers on push-out bond strength of cemented fiber posts

Objective: The purpose of this study was to compare the effect of Eugenol-based and resin-based endodontic sealers on the push-out bond strengths of prefabricated fiber posts luted with different resin cements.

Method & Materials: Ninety prefabricated fiber posts were luted into extracted single rooted teeth with one of three resin cements (Variolink II, ParaCore, or Rely X Unicem). Each group was subdivided into three groups with 10 teeth each. The first two groups were obturated with Guttapercha and one of two Eugenol-based endodontic sealers (Endofil or TubliSeal) each. The third group was obturated with Guttapercha and (AH26) resin-based root canal sealer. Push-out tests were performed in a universal testing machine by applying a load speed at 0.5 mm/min by using a 1-mm-diameter metallic plunger which induced a load in an apical to coronal direction. The maximum value for post dislodgement (in Newtons) was recorded. Data were collected and statistically analyzed using two-way ANOVA and Tukey multiple comparison tests ($\alpha=0.05$).

Results: The highest mean bond strength values were recorded for the AH26 sealer group (non-eugenol sealer) luted with Rely X Unicem resin cement (mean \pm SD=326.1 \pm 66.1N), while the lowest mean bond strength values were observed with posts luted with Variolink II resin cement into canals obturated with gutta-percha and Endofil (Eugenol-based) sealer (90.3 \pm 25.2 N). There was no significant difference between the means of push-out strengths for the Endofil and TubliSeal groups ($P=0.745$).

Conclusion: Eugenol-based sealers (Endofil and TubliSeal) significantly reduced the push-out bond strength of prefabricated fiber posts luted with resin cement.

Biography

Al-Dwairi Ziad N works as Vice Dean and Director of Dental Teaching Clinics at Faculty of Dentistry, Jordan University of Science and technology. He is Professor of Fixed and Removable Prosthodontics and Implant Dentistry at Jordan University of Science and Technology. He holds PhD in Prosthodontics from Queens University/Belfast, UK in 2001, Fellowship of The International Academy of Dento Facial Esthetics (FIADFE) in 2012 and Fellowship of the International College of Dentists FICD/2015. He is the President of Jordanian Section of International Association for Dental Research. He is Jordan's Representative at OSAP (Organization for Safety and Asepsis Procedures). He worked as Vice-President of the Restorative Dentistry Committee/ Jordan Medical Council and currently Member of the National Committee for contentious medical education/Jordan Medical Council and member of the advisory team of Dooox. He holds several International prizes and honors. He is currently involved in teaching undergraduate and graduate students in all field of Prosthodontics. He has more than 44 publications in high impact international journals. In addition he works as a reviewer for 31 international peer reviewed journals and on Editorial Board of 13 international journals.

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