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

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Abstract

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 AND MATERIALS: Ninety prefabricated fiber posts were luted into extracted singlerooted 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 gutta percha and one of two eugenol-based endodontic sealers (Endofil or TubliSeal) each. The third group was obturated with gutta percha 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 (α = .05).RESULTS: rnThe highest mean bond strength values were recorded for the AH26 sealer group (non-eugenol sealer) luted with Rely X Unicem resin cement (mean ± SD = 326.1 ± 66.1 N), 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 ± 25.2 N). There was no significant difference between the means of push-out strengths for the Endofil and TubliSeal groups (P = .745). CONCLUSION: Eugenol-based sealers (Endofil and TubliSeal) significantly reduced the push-out bond strength of prefabricated fiber posts luted with resin cement.

Biography:

Professor Ziad N. Al-Dwairi 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, holds PhD in Prosthodontics, 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 (https://www.dooox.de/Advisory-Team).He is a former member of University Council/Jordan University of Science and Technology and worked as Chairman of the Prosthodontics Department, Faculty of Dentistry/Jordan University of Science and Technology and a Former Dean Assistant/ Faculty of Dentistry/ Jordan University of Science and Technology. He holds several International prizes and honors as follows: 1. The senior prize The Elida Gibbs Travel Award 2000 from the Irish Division of International Association for Dental Research (IADR) 2. The Procter and Gamble Research award 2000. Oral and Dental Research Trust, London 3. (BSSPD research Prize 2001). British Society for the study of Prosthetic Dentistry First Research Prize 4. Certificate of recognition from IADR and AADR 2002, Get a member Campaign 5. Member of the Advisory Group For Dental Ethics Manual, FDI He is currently involved in teaching undergraduate and graduate students in all field of Prosthodontics in addition to involvement in advanced programs for MFDS Trainees, High specialty trainees and Advanced clinical trainees in Prosthodontics. He supervised several MSc students as a main and a co advisor and as an examiner for more than 27 theses in all disciplines of Prosthodontics with 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. He was a Member of the advisory group formed by FDI for publishing the Dental Ethics Manual in 2007 and carried out its translation into Arabic Language to be available to all Arabic natives.