ว ทันต จุฬาฯ 2558;38:229-242
CU Dent J. 2015;38:229-242

Original Article
บทวิทยาการ

A comparison of the push-out bond strength between dual polymerized core build-up composite and total-etch resin luting cement for prefabricated fiber post

Maytinee Vivathanasittiphong D.D.S.[1]
Napapa Aimjirakul D.D.S., Ph.D.[2]
Teerachai Limlawan D.D.S., M.S.[3]

[1]Master of Science Program in Prosthodontics, Faculty of Dentistry, Srinakharinwirot University, Sukhumvit 23,Wattana, Bangkok, 10110, Thailand
[2]Assistant Professor Doctor, Department of Conservative Dentistry and Prosthodontics, Faculty of Dentistry, Srinakharinwirot University, Sukhumvit 23, Wattana, Bangkok, 10110, Thailand
[3]Department of Conservative Dentistry and Prosthodontics, Faculty of Dentistry, Srinakharinwirot University, Sukhumvit 23, Wattana, Bangkok, 10110, Thailand

Abstract

Objectives: Compare the push-out bond strength of a dual-cured core build-up resin composite and dual-cured resin cement using total-etch adhesive for bonding fiber post to root canal dentin.

Materials and Methods: Sixty extracted single-rooted human premolars were sectioned transversely in mesiodistal direction 2 mm coronal to cementoenamel junction, standard endodontically treated, post space prepared and randomly divided into two groups (n=30). Group 1 fiber posts were luted with a total-etch resin cement (Variolink® II) and group 2 were luted with a composite resin core build-up material (Luxacore® Z-Dual) using total-etch adhesive system. All roots were cut transversely into 3 sections (coronal (L1), middle (L3) and apical (L5)) with 1 mm thicknessin each section. The push-out test was performed at a speed of 0.5 mm/min. Failure modes were evaluated using a scanning electron microscope (65x). The data were analyzed using ANOVA and post hoc Tukey's test ($p<0.05$).

Results: In 3 root canal regions, the mean push-out bond strength of Luxacore® Z-Dual showed significantly higher bond strength than Variolink® II ($p<0.05$). Means push out bond strength of both Luxacore® Z-Dual and Variolink® II at cervical region were higher than those of middle and apical regions ($p<0.05$). The analysis of failure modes revealed that most of the failures were adhesive failure.

Conclusion: Regional push-out bond strength of Luxacore® Z-Dual resulted in significantly higher bond strength than Variolink®II and this method could be considered as an alternative technique to luted fiber post within root canal.

(CU Dent J. 2015;38:111-000)

Key words: *core build-up material; polymerization; push-out bond strength; resin cement; total-etch adhesives*

Correspondence: *Maytinee Vivathanasittiphong bow_mmm@hotmail.com*