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Original Article

The effect of touch-cure polymerization on the push-out bond strength of fiber posts



A B S T R A C T

Objective: To assess the impact of a novel touch-cure polymerization of dual-curing resin cement on the push-out bonding strength (PBS) of the conventional prefabricated glass fiber-reinforced composite (GFRC) and custom-made glass fiber (GF) posts at different root sections. *Methods:* Forty single-root mandibular first premolars were treated endodontically and prepared for receiving the posts, the prepared roots were randomly divided into 4 groups. Group I: A prefabricated (GFRC) post was cemented by G-CEM ONE resin cement with adhesive-enhancing primer (AEP). Group II: A prefabricated (GFRC) post was cemented by G-CEM ONE without AEP. Group III: A customized (GF) post was cemented by G-CEM ONE with AEP. Group IV: A customized (GF) post was cemented by G-CEM ONE without AEP. (n = 10 for each group). The PBS was tested with a universal testing machine, and the values were analyzed with (ANOVA) and Tukey's post hoc test at a $P \leq 0.05$ significance level. *Results:* Group III revealed the greatest PBS values, followed by Group IV, Group I, and finally, Group II showed the lowest PBS values. The coronal root slices showed the highest PBS in comparison with the middle and apical third. *Conclusion:* The touch-cure polymerization improved the PBS of the prefabricated and customized fiber posts. Therefore, "touch and cure" cement may be considered a clinical alternative to conventional types of resin cement. The customized (GF) posts exhibited a higher PBS than the prefabricated (GFRC). The combination of customized posts and G-CEM ONE with AEP is recommended as a new strategic approach to improve interfacial adhesion.