

بررسی bond strength پست D.T. Light به کانال ریشه با کاربرد سیمان های رزینی self-cure و dual-cure متعاقب شستشو با مواد مختلف

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Title: Evaluation of bond strength of D.T.Light- post to root canal using dual-cure and self-cure resin cements after irrigation with various solutions

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Background and Aim: Nonmetallic tooth- colored posts adhere to canal walls by dentin bonding agents and resin cements. Better retention and proper distribution of stress result from enough and proper bonding. The purpose of this study was to evaluate bond strength of D.T. Light - post with two different resin cements (self-cure & dual-cure) and to investigate the effect of irrigating solutions applied in root canal on bond strength of the resin cements and D.T.Light- post to root canal wall.

Materials and Methods: In this experimental study 40 single root teeth (maxillary canine & central) were selected and stored in 0.1% thymol solution for one week and transferred to distilled water. The teeth were decoronated 2mm above CEJ. The canal space was mechanically enlarged using k-files (up to # 70). The teeth were randomly divided into two groups. The first group was irrigated with 2.6% NaOCl, and the second was irrigated with normal saline. After drying, the teeth were obturated with gutta percha cones using lateral condensing method. After two weeks the post space was prepared and D.T.Light- post was inserted in each subgroup using self or dual-cure cements according to manufacturer's instructions. After thermocycling, the apical part was cut 1cm below CEJ. The remained length was divided into 9 equal sequential sections. Each section was submitted to shear push-out test in universal testing machine. Statistical analysis of the bond strength data was performed using ANOVA and post hoc tests with $p < 0.05$ as the level of significance. All failed specimens were examined under stereomicroscope. Degrees of conversion (DC) of the cements were determined by FTIR.

Results: Significant difference in bond strength values were found among sites ($P=0.001$) and cements ($P=0.03$). With increasing in depth, bond strength decreased. The mean bond strength value in dual-cure resin cement was higher than self-cure cement. The irrigating solutions caused no significant difference in bond strength ($P=0.46$). DC% had significant difference in various depths.

Conclusion: According to the results of this investigation, bond strength of dual-cure cement is higher than self-cure one in D.T Light- post because of post's translucency. 2.6% sodium hypochlorite does not affect the bond strength.

Key Words: Bond strength; Self-cure resin cement; Dual-cure resin cement; D.T.Light- post, Degree of conversion