Evaluation The Effect of Three Endodontic sealers on the retention of Cast posts Cemented with Resin Cement (An In Vitro Study)

A thesis
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Abstract

This in vitro study was conducted to evaluate the effect of three endodontic sealer on the retention of intraradicular posts cemented with resin cement. Forty human maxillary canines were selected for this study .the clinical crown were removed and the roots embedded in acrylic block ,the roots were instrumented till size 50 K file using crown down technique ,the forty samples were randomly divided into four groups of ten roots each as follow :

Group (I) : with no obturation ,this group served as a control group.

Group (II): obturated with gutta percha and zinc-oxide sealer (Dorifill) .

Group (III): obturated with gutta percha and calcium hydroxide sealer (Apexit plus) .

Group (IV): obturated with gutta percha and resin sealer (AH26).

After a storage period of 72h at 37$_{o}$c post space were prepared 8mm in depth and 1.8mm in diameter using pesso reamer NO. 6 to receive cast posts ,after their fabrication ,the posts were cemented in the roots by resin cement (Relyx U100) .

After cementation ,the sample were stored in distilled water at 37$_{o}$c for 72h then submitted to tensile bond strength test in an Instron machine and tensile force was applied at a crosshead speed of 0.5mm/min and a load cell 50 kg until posts dislodgment .

The maximum forces required for post removal was recorded in Newton and the data were submitted to statistical analysis by Analysis of variance (ANOVA) ,student t-test and least significant difference (LSD)test.

The result showed highest mean value for the force required to dislodge the post was in group IV (270 N) and lowest mean value was in group II (164.6 N) .ANOVA test showed high significant difference between the groups ($p< 0.01$) ; Student t-test showed high significant difference between the control and other groups ; LSD test showed significant difference between group II and group III, while the difference between group II and group IV ,group III and group IV was high significant

From the results of this study ,its clear that the chemical formulation of endodontic sealers have an influence on the adhesion of intraradicular posts with greatest negative effect for the eugenol –based endodontic sealer followed by calcium hydroxide sealer while resin sealer increase retention of the post .