EFFECT OF EUGENOL- BASED ENDODONTIC SEALER ON FIBER POST RETENTION

INTRODUCTION
Posts and core were often used in endodontically treated teeth to aid in the retention of coronal restoration. In most cases, the use of resin-based cements has been recommended to use with fibre post. Higher retention values were also achieved when resin cement was used rather than zinc phosphate or glass ionomer cements (Goodman et al., 1984). Posts are only placed in a successful root treated teeth. Most of the sealer cements used contain eugenol (2-methoxy-4-allylphenol) which has been shown inhibiting the polymerisation of resin (Powers and Sakaguchi, 2007).

Eugenol-containing root canal sealers represent the gold standard of sealers in endodontics (Happeg et al., 2002). The presence of eugenol on the canal walls appeared to have an adverse effect on post retention (Khan et al., 2001). The phenolic compound of eugenol (2-methoxy-4-allylphenol) can interfere with composite resin polymerisation by scavenging or inhibiting free radical production (Taj et al., 1990).

OBJECTIVE
To evaluate the effect of eugenol-based root canal sealer (Roths 801, Int. Chicago) on shear bond strength of a glass reinforced fibre post system when cemented with RelyX Unicem luting cement at three different root regions.

MATERIALS AND METHODS

RESULTS AND DISCUSSION

Table 1. Summary of data presented ANOVA test of shear bond strength of glass reinforced fibre post for different site, sealer and luting cement

<table>
<thead>
<tr>
<th></th>
<th>Sealer</th>
<th>Bonding Cements</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Postore 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Root 1</td>
<td>12.075</td>
<td>1.000</td>
<td>21.750</td>
<td>0.01</td>
</tr>
<tr>
<td>Root 2</td>
<td>8.312</td>
<td>1.000</td>
<td>29.750</td>
<td>0.12</td>
</tr>
</tbody>
</table>

These results indicated significant main effect for the type of two sealer and three different root regions. The chemical composition of the sealer and surface area of the dentine wall had an influence on post bond strength.

The results from group with eugenol-based sealer, in which the bond strength decreased significantly in the coronal and middle site areas after 7 days are in agreement with previous study (Menzies et al., 2008). They found gap in the bond interface in group with eugenol-based sealer when scanned under scanning electron microscope, possibly because reaction of composite resin and dentine adhesive agents was inhibited by the hydrophobic properties of the eugenol-based-containing filling cement, which tends to protonate and block the reactivity of radical responsible for polymerization of methacrylates (Paul and Schumacher, 1987). Significantly lower value from the apical test group in comparison with the coronal group may be the result of poor polymerization associated with the eugenol group in the coronal site. The means of amount of residual eugenol (Kap et al., 2001) remain in the region as its extent of the post is in close contact with the remaining sealer.

The means for the coronal sections was significantly higher than the means of the middle and apical sections. This is due to the number and size of dentinal tubules decreases moving from the coronal to the apical root region (Ferran et al., 2000).

In other studies, Schiavelli et al. (1998), concluded that the sealer type had no effect on post retention because of the mechanical removal of eugenol contaminated dentin layer during post space preparation prior to post cementation. However, due to the presence of fluids inside the dentinal tubules, the eugenol released penetrates the dentine and tends to concentrate at the tooth-adhesive interface (Gans and Jung, 1998).

CONCLUSIONS

Roths 801 significantly decreased the shear bond strength of a glass reinforced fibre post system when cemented with RelyX Unicem luting cement at coronal and apical sites except at middle site. Bond strength glass reinforced fibre post decreased from coronal to apical in both groups.

ACKNOWLEDGEMENT

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REFERENCES