CORONAL MICROLEAKAGE OF DIFFERENT POST SYSTEMS USED

IN ENDODONTICALLY TREATED TEETH

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ABSTRACT

Objective: The purpose of this study was to investigate the effectiveness of two different traditional luting cements and one adhesive system on the microleakage in endodontically treated teeth restored with different post systems.

Methods: A total of seventy single- rooted mandibular premolar teeth were selected and endodontically treated with standard root length of 14 mm. The teeth were then randomly divided into three groups, two of them consist of 30 teeth and were restored with two different post systems; Fiber Lux ParaPost (F), and ParaPost XH (P). Then each group was subdivided into 3 subgroups of 10 teeth, each one cemented with different luting agents; RelyX™ U100 Self-Adhesive Universal Resin Cement (R), Elite Zinc Phosphate Cement (ZP), and Fuji I- Glass Ionomer Luting Cement (GI). For the third main group which consisted of 10 teeth, only endodontic treatment was done to it and was made as the control group (RCT).

All the samples were then restored with a composite core (Synergy D6 universal composite, Coltene/Whaledent, USA) and then thermocycled. All the specimens were coated with a double layer of nail varnish to cover the entire root surface except for 2mm around the coronal orifice, covered with a tin foil and the apical foramen was sealed with sticky wax. The specimens were immersed in 2% solution of methylene blue dye for 24 hours. The specimens were then cross sectioned perpendicular to the long axis of the root into discs 1mm thick starting from the coronal part and descending corono-apically up to a total of 6 mm. The microleakage was evaluated by investigating the coronal surface of each section under a stereomicroscope (Olympus, Japan) and the data were analyzed with Kruskal–Wallis test and Mann-Whitney U test.

Results: For different types of cements**,** there was significant differences in microleakage between them and RCT group (p=0.018). Pairwise comparison showed that significant difference in microleakage was only found between glass ionomer cement groups and root canal treatment group (control group) p=0.03 but no significant difference between the other pairs. For post systems, there is a significant difference in microleakage between Fiber Lux ParaPost and ParaPost XH and RCT group (p=0.005).

Conclusions: There was statistically significant difference in coronal microleakage between different types of post systems. However, there was no statistically significant difference in coronal microleakage between the different types of cements.

DECLARATION

I certify that this research is based on my own independent work, except where acknowledged in the text or by reference. No part of this work has been submitted for any degree or diploma to this or any other university.

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