

EFFECT OF INTRACANAL MEDICATIONS ON THE ADAPTABILITY OF TWO ROOT CANAL SEALERS

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ABSTRACT

The use of intracanal medication to disinfect the root canal system has been advocated to increase the success of root canal therapy. However, antimicrobial agents may alter the properties of root canal dentin and consequently influence the adaptability of some root canal sealers. Thus, the aim of this study was to evaluate the effect of calcium hydroxide paste and 2% chlorhexidine gel when used as intracanal medications on the adaptability of resin-based (AH plus) and silicon-based (Roekoseal) root canal sealers. The root canals of 21 extracted single rooted teeth were instrumented using Protaper rotary system and widened to the same size. The teeth were randomly divided into three groups; group I: no medication (control), group II: calcium hydroxide paste was used as intracanal medication for two weeks and group III: 2% chlorhexidine gel was the selected intracanal medication for the same period. After 14 days, the medications were removed from the canals using copious irrigation with distilled water. Three teeth from each group were longitudinally split and the dentin surface was traced for elemental analysis using EDAX. The remaining teeth in each group were subdivided into two subgroups and obturated using lateral condensation technique of gutta percha. Subgroup A: obturation was done using AH plus sealer and in subgroup B: the root canals were obturated using Rokoseal sealer. The roots were then cut horizontally at the coronal, middle and apical levels and examined under SEM to evaluate the adaptability of the sealers to the canal walls. Furthermore, the wettability of the sealers to medicated dentin was evaluated through measuring the contact angle. EDAX tracing revealed the presence of calcium, phosphorus and oxygen in all samples by different percentages; however, sodium was detected in samples premedicated with 2% chlorhexidine. SEM study showed that silicone based sealer had better adaptation than the resin based one, in particular, the premedicated specimen with chlorhexidine gel. However, the statistical analysis of contact angles of AH Plus and Roekoseal sealers to dentine surfaces before and after application of medicaments showed insignificant difference. Thus, it was concluded that although Ca (OH)₂ and CHX, have an effect on mineral contents of radicular dentine, the adaptability of the used sealers was not significantly affected.

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