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Survival of *Enterococcus faecalis* in infected dentinal tubules after root canal filling with different root canal sealers

Aim To investigate the ability of different endodontic sealers and calcium hydroxide to eliminate bacteria from experimentally infected dentinal tubules.

Methodology Fifty-six human root segments, with a length of 7 mm, were enlarged to size 2 (ISO size 90) Largo® Peeso Reamer. After treatment with 17% EDTA and 5% NaOCl for 4 min each, the specimens were infected with *Enterococcus faecalis* for 3 weeks. The roots were divided into eight groups and filled with gutta-percha and AH Plus (group AH); Grossman's sealer (GS); Ketac-Endo (KE); Apexit (AP); RoekoSeal Automix (RSA); RoekoSeal Automix with an experimental primer (RP), or calcium hydroxide (CH) only. One group of specimens was left unfilled as a control (CT). Following storage in humid conditions for 7 days, the root canals were instrumented with new sterile Largo® Peeso Reamers size 2. Dentine samples from each canal were then collected into 2 mL of transport medium using sterile size 5 (ISO size 150) Largo® Peeso Reamer. The samples were serially diluted, plated and incubated. The number of colony-forming units (CFU) was determined for each dentine sample.

Results The mean log CFU in all test groups was significantly lower than that in the CT group. Root filling with AH and GS eliminated bacteria (mean CFU = 0) from the dentinal tubules. The mean log CFU for the CH group (0.53) was lower than that of KE, AP, RSA and RP (1.94, 1.4, 1.357 and 1.457, respectively); the difference was not statistically significant except for the KE group.

Conclusions AH Plus and Grossman's sealer were effective in eliminating *E. faecalis* from dentinal tubules. Other endodontic sealers, as well as calcium hydroxide reduced but did not effectively eliminate bacteria from the infected dentinal tubules.