ABSTRACT

Title

AN IN VITRO EVALUATION OF BACTERIAL LEAKAGE USING 3 DIFFERENT RETROGRADE FILLING MATERIALS -
A CONFOCAL LASER SCANNING MICROSCOPIC STUDY

Aim

To compare the bacterial leakage of 3 different retrograde filling materials using confocal laser scanning microscopy

Materials And Methods

In 100 maxillary root canal treated teeth, the retrograde preparation were done in 3 mm apically resected portion. The cavities were filled with Biodentine, Endosequence root repair material, MTA plus (n=20),40 teeth were taken as controls. In an experimental model, *Enterococcus faecalis* were inoculated in coronal portion, leakage in the material were checked through ELISA Reader and bacterial penetration into the dentinal tubules were confirmed with Confocal laser scanning microscope. The results were statistically analysed by One way Anova and Post hoc Tukey’s analysis with a significance level at p<0.05

Results

There is statistically significant difference in depth of penetration of *Enterococcus faecalis* into the dentinal tubules between Endosequence root repair material, Biodentine™ and MTA Plus™ (P value is < 0.05; ANOVA-Tukey HSD)
Conclusion

*EndoSequence® Root Repair Material™* (ERRM) showed better sealing ability than Biodentine™ and MTA Plus™. In this study, Confocal laser scanning microscope has been used to confirm bacterial penetration histologically, to overcome the limitations of dual chamber method. Further invivo studies has to be done to prove the efficacy of *EndoSequence® Root Repair Material™*.

Keywords

*Biodentine, Endosequence root repair material, MTA plus, Confocal Laser scanning microscope*