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Comparison of sealer penetration by using different irrigation techniques – an *in vitro* study

Prabu Mahin Syed Ismail

Ibn Sina National College for Medical Studies, KSA

Introduction: The main goal of root canal treatment is to eliminate the microorganisms particularly in the apical third area and to prevent re-infection. To achieve these goals, the instrumentation must be combined with adequate irrigation.

Aim: To compare sealer penetration by using different irrigation techniques i.e., apical negative pressure irrigation, Passive Ultrasonic Irrigation (PUI) and combination of apical negative pressure irrigation and PUI.

Materials & Methods: A total of 48 single rooted maxillary central incisors were taken. Access cavity was prepared and biomechanical preparation was done. The samples were randomly assigned into three experimental groups based on the final irrigation technique used. Group I: Apical negative pressure (Endovac), Group II: PUI, Group III: Combination of apical negative pressure and PUI. All the samples were obturated using AH plus sealer and the sections were observed under confocal laser scanning microscope to evaluate the percentage and maximum depth of sealer penetration at 1mm, 3mm and 5mm levels. Statistical analysis was done by using two-way ANOVA and Tukey's post-hoc test to compare the percentage and maximum depth of sealer penetration.

Results: Combination group resulted in better sealer penetration at 1mm and 3mm from the working length than the Endovac and PUI group. However, the Endovac group showed significantly better sealer penetration at 1mm from the working length when compared with PUI. There was no significant difference in sealer penetration at 5mm level between PUI and combination group.

Conclusion: Combination group was the only group to achieve better sealer penetration at 1mm and 3mm levels from the working length

Biography

Prabu Mahin Syed Ismail currently works as an Assistant Professor at Ibn Sina National College for Medical Studies, Jeddah, Saudi Arabia from 2014. He worked as a Senior Lecturer at Priyadarshini Dental College and Hospital, Pandur, India from 2010 to 2014. He taught undergraduate classes in Conservative Dentistry and Endodontics as a part of the PG (MDS) programme at the Faculty of Dental Sciences of Sri Ramachandra University.

mahin_1973@yahoo.com

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