Efficacy of Light Cured Obturation in vitro

Authors: Umar Malik-DS3, David E Jaramillo, DDS, Endodontics

Objectives: To determine the efficacy of endodontic treatment planning, we need to understand endodontic sealers' biological and physiochemical properties. The goal is to draw a comparison between OdneFill (Odne Inc. Gettysburg, PA USA) and conventional endodontic sealers, namely Endo Sequence BC Sealer (BC, Brasseler USA), and AH Plus (Dentsply International Inc., York, PA, USA). There is a need for further in vitro and in vivo work to confirm the sustainability of OdneFill. This study applies a comprehensive approach to determine the efficacy of OdneFill to obturate root canals and compare the results with Endo Sequence BC Sealer and AH Plus. The techniques of obturating the canals with the mentioned materials will also be a focus of the study.

Experimental Methods: 3-D Printed #19 Molar Models were utilized with the Mesio-Buccal and Mesio-Lingual canals prepared to 25mm Endodontic files. The canals were irrigated with both NaOCl and EDTA. Thirty teeth were obturated with BC Sealer, AH plus, and Odne Fill. Radiographs were taken post-instrumentation, pre-obturation and post-obturation. The radiographs were standardized with a custom-designed prefabricated apparatus. The radiograph parameters were voltage at 70kvp, current at 10mA, and exposure time at 0.54 seconds.

Results: The results indicated that OdneFill has an adverse reaction, producing a precipitate with NaOCl within prepared canals. The canals must effectively be dried with paper points before obturating with Odne Fill. The results showed that the apical condensation and the overall fill with Odne Fill were successful, barring the minor distortion within the canals due to the curing Tip. Furthermore, the apical condensation of Endo Sequence BC Sealer compared to AH Plus indicates a denser fill with reduced presence of voids within the root canal system.

Conclusion: OdneFill as an obturating material shows success within the in vitro study models; further studies would help to assess more successful applications of OdneFill with in-vivo practice.

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