Non-Surgical Endodontic Retreatment of a Maxillary First Molar with Resorcin-Formalin Obstruction and MB2 Canal Identification: A Case Report

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Abstract

This case report describes the non-surgical endodontic retreatment of a maxillary first molar (tooth 3) presenting with persistent discomfort despite prior root canal therapy. The challenges included the removal of resorcin-formalin obturation material, identification of a calcified second mesiobuccal (MB2) canal, and achieving optimal canal disinfection and sealing.

A three-appointment protocol was implemented, involving stepwise removal of the resorcin formalin material using ultrasonic tips under a dental operating microscope, followed by biomechanical preparation with rotary instrumentation and irrigation with sodium hypochlorite and EDTA. Calcium hydroxide was placed as an intracanal medicament to enhance disinfection. Final obturation was performed with gutta-percha and resin-based sealer.

Radiographic and clinical evaluation at a three-year follow-up demonstrated complete periapical healing and functional preservation of the tooth, confirming the long-term success of the retreatment. This report highlights the clinical approach to managing resorcin-formalin-treated canals, the importance of MB2 identification in maxillary molars, and the role of meticulous instrumentation and irrigation in overcoming complex anatomical and material challenges.

This case underscores the significance of advanced endodontic techniques in achieving predictable outcomes in retreatment cases.

Keywords

Endodontic retreatment, Resorcin-formalin cement, MB2 canal, Dust marking technique, Endodontic microscope.