

Rescue Through endodontic Treatment of Maxillary Third Molar with Four Canals

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INTRODUCTION

Third molar teeth are always susceptible to dental decay due to their most posterior location and wrinkled occlusal anatomy, which would favour plaque accumulation and obstruct the proper access to the tooth surface for optimal cleaning. This is true despite the educational efforts and oral hygiene programmes organised by many dental associations to improve oral and dental health. In addition, they frequently have irregular eruption patterns in the oral cavity, which increases their risk of developing periodontal and gingival illnesses as well as tooth decay.

The main objective of modern dentistry practise is to keep all of the teeth's functional parts, including the third molars. Maintaining such teeth in specific clinical circumstances is even more crucial if they are to act as the practical abutment for fixed prostheses.

The maxillary third molars' root and root canal morphology indicates a higher propensity for anomalies in the number of roots or canal configuration. The maxillary third molars have one to five roots per tooth and one to six enclosed root canals, according to reports. However, the single, double, and three rooted variations with one to four root canals, either distinct or fused, are thought to be the most prevalent.

Few studies examined the occurrence of second mesiobuccal canal (MB2) in third molar teeth. Green found that the prevalence of MB2 in MB root of maxillary third molars was 37% in which 25% of the MB2 were type II and 12% were type IV¹. In an in vitro investigation of 50 maxillary third molars, Pecora et al. found that 68% of MB2 canals have root canal type I, while root canals types IV and V were only presented in 14% and 18%, respectively². In 1999, Stropko evaluated the endodontic treatment of 20 maxillary third molar teeth, and found only 20% of the study subjects having an MB2 in which all of them where joined and ended in a single foramen³.

CASE REPORT

A 30-years-old female reported to the department of conservative dentistry, with a chief complaint of sensitivity in upperleft molar region . On clinical examination, it was observed that the maxillary left third molar had an occlusalcaries .Conventional intraoral periapical radiograph failed to provide adequate information regarding the canal configuration and all the roots looked fused and their outline were not clear.

Rhomboidal shape access was made to gain entry to the pulp chamber after administration of local anesthesia (2% lignocaine with 1:1,00000 epinephrine).In order to get access and show the mesially situated and mesially sloped MB2canal, the mesial marginal ridge was violated. The dentinal shelves that cover the expected MB2 canal orifice were removed by brushing slowly-moving burs (Brasseler, Savannah, GA, USA) against the MB. Intermittent irrigation with a 5.2% sodium hypochlorite (NaOCl) solution was utilised. Using nonactive ultrasonic tip MB2 orifice was located . The patency of all the four root canals was checked with #10 K file (Kerr USA). The working length was determined by CanalPro(Coltene , Germany) apex locator for all the four root canals and confirmed by a radiograph (Figure 2). The root canals were cleaned and shaped by rotary nickel-titanium NT Rainbow S instruments (Dentsply, Maillefer) using Glyde (Dentsply, Maillefer) as a lubricant. During the cleaning and shaping

process, the canals were successively irrigated with 5.2% NaOCl and 17% ethylnediaminetetraacetic acid (EDTA). A check radiograph was done to assess the fit after selected master GP were inserted into each canal. The canals were completely dried and coated with Adseal(META BIOMED) resin based root canal sealer .Obturation was carried out using the adequate GP points. Immediate post obturationradiograph(Figure 4) showed well obturated root canals .The access cavity was restored with posterior composite resin .



Fig 1 :Pre operative

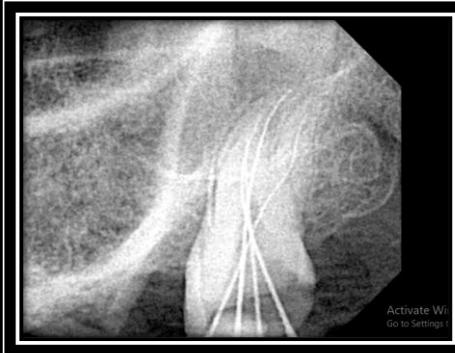


Fig 2 : Working length determination



Fig 3 : Inverse View

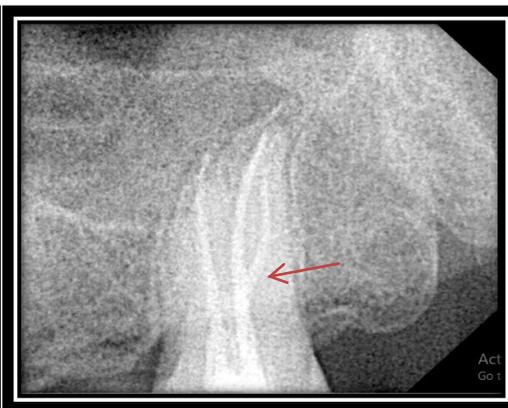


Fig 4 : Post Operative

DISCUSSION

Any tooth may experience rare variations in morphology and anatomy. The root and canal anatomy of the maxillary third molar is among the most intricate. Numerous discussions and investigations have focused on the possibility of an MB2 canal in the MB root of the maxillary third molars.

The occurrence of MB2 in the MB root of maxillary molars was researched in 1999 by John J. Stropko. A greater understanding of roots and root canal configuration is now feasible thanks to the development of more modern imaging techniques, such as CBCT. Specific tools are needed with the routine use of the DOM to improve the efficiency of the clinical practise. The MB2 orifice in the case study at hand was concealed by the dentin's fine shelves, necessitating the use of a troughing procedure. Most MB2 canals needed to be located, which can be done with either burs or ultrasonic devices. Even for a competent endodontist, navigating the MB2 canal can be exceedingly difficult. The issue is made worse because the MB2 canal is smaller and frequently more calcified than the MBI⁵. The access needs to be rhomboidal in shape to enable the requisite mesially directed shaping for its position and instrumentation.

Precision is improved and the chance of complications like ledges and perforations is decreased when ultrasonic instruments are used under magnification.

CONCLUSION

The root and canal anatomy of the maxillary third molar is among the most intricate. Numerous discussions and investigations have focused on the possibility of an MB2 canal in the MB root of the maxillary third molars.



An explanation for endodontic failure in maxillary molars is an inability to recognise and treat MB2 canals. More hidden MB2 canals were found in endodontically retreated teeth than in teeth that had only been treated once, indicating that failing to treat MB2 canals already present has a worse prognosis⁴. In conjunction with the dental operating microscope, use of current diagnostic aid like CBCT, a rhomboidal access preparation, specific burs and newer set of ultrasonic instruments is highly recommended to enhance the visualization of canal orifices systems. The use of ultrasonic tips under the magnification of dental operating microscope may be more conservative and it allows us for clear visualization of the pulpal floor as well as the missed root canal orifice.

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