



ROOT CANAL TREATMENT OF MESIALLY TILTED MANDIBULAR THIRD MOLAR USING HYFLEX EDM - A CASE REPORT

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Abstract:

This case demonstrate root canal therapy of 3-canal mesially tilted mandibular third molar. Acute exacerbation was noted on previous intervention. Three canals (mesiobuccal, mesiolingual and distal) were identified. Clinician need to be aware of the variations in the root canal anatomy of third molar. During clinical examination, the dental practitioner should identify the extension of decay and possibility for restoration, mouth opening and accessibility and future involvement as a functional component in a proposed treatment plan. For instance, tilted third molars either mesially or distally might be a risk factor for iatrogenic mishaps.

Keywords: endodontic treatment, tilted molar, neohybrid

I. Introduction

Third molar teeth always are prone to dental decay due to their most posterior location and wrinkled occlusal anatomy that would favor plaque accumulation and obscure the proper access to the tooth surface for optimum cleaning. Apart from that, they usually appear in the oral cavity with abnormal eruption patterns, which also make them more susceptible to dental decay, as well as gingival and periodontal diseases. Owing to these detrimental complications, extraction of third molar teeth usually is considered as a common dental procedure.

Minimum intervention and retaining every functional component of the dental arch, including third molars, are the principle goals of contemporary dental practice. In some clinical situations, the retention of a third molar would be essential if the tooth is functional and/or would serve as a convenient abutment for future fixed or removable prosthetic restoration. As such, third molar teeth scheduled for endodontic therapy should be treated thoroughly to

ensure the complete elimination of the inflamed dental pulp and microbial irritants from the root canal system that, if left, would impair the clinical outcomes of the proposed treatment plan.

Before commencing endodontic treatment in third molar teeth, a meticulous understanding of their root and root canal anatomical variations and their endodontic implications is of prime importance. In this article, the external and internal radicular anatomical variations reported in previous laboratory and clinical investigations are discussed. In addition, the treatment strategies and recommended guidelines that should be followed during endodontic treatment of third molars are described^{1,2}.

II. CASE REPORT

A 29-years old male patient presented with the history of pain in mandibular left posterior tooth region. Pre-operative radiograph demonstrated decayed and mesially tilted third molar (Fig 1). Access opening was done under local anaesthesia. On access,

three canals were identified. Copious irrigation with sodium hypochlorite and saline was done and canals were cleaned with 5.25% sodium hypochlorite and saline. A combination of electronic apex locator (Dentsply) and periapical radiographs were used to estimate working lengths (Fig 2). The Master apical file size was an Hyflex #25 taper .06. Copious irrigation with 5% sodium hypochlorite was performed during shaping and cleaning procedure.

On subsequent appointment, the canals again, Bio Mechanical Preparation (BMP) was done using Glyde (Dentsply) as a chelating agent and irrigation was alternated using Sodium Hypochlorite (NaOCl 3%) and normal saline. Chlorhexidine (Dentachlor 2%) was used as a final rinse. Canals were dried with paper points, coated with Sealapex (Kerr Manufacturing Co.) and obturated using single cone technique (Fig 3). After endodontic retreatment, the tooth was restored with composite resin (Filtek Z250; 3M ESPE, St Paul, MN), which was clinically adequate (Fig 4).



Figure 1:



Figure 2:



Figure 3:



Figure 4:

III. DISCUSSION

The morphological features and position of mandibular third molars always are unpredictable, and vary among different individuals. Mandibular third molars may have one to four roots, and similar to maxillary third molars, the number of encased root canals has been reported between one and six. However, the single and double-rooted variants encasing two or three root canals are considered the most common. Third molar teeth are subject to many dental complications because of their most posterior location, aberrant occlusal anatomy and abnormal eruption patterns. Owing to these anatomical limitations, their extraction remains the treatment of choice for many dental practitioners. Despite being a common dental procedure, minimum intervention and retaining every functional component of the dental arch are of prime importance in contemporary dental practice.

Besides their existence as a functional component in the dental arch, third molars may serve as a

convenient abutment for a prosthetic restoration, and potentially reliable candidates for auto-transplantation. Therefore, whenever indicated, the retention of third molars should be preferred. However, due to anatomical challenges, an accurate perception and absolute clinical thoroughness are warranted to avoid the occurrence of serious complications while commencing endodontic treatment in third molar teeth³.

Maxillary and mandibular third molars usually are tilted in distal and mesial directions, respectively. During access cavity preparation of mandibular third molars, care should be taken to place the handpiece at the long axis of the tooth to avoid mesial perforation at the cervical portion of the crown. In some cases, the mandibular third molar is tilted mesially and slightly below the occlusal plane of the neighboring tooth that would complicate the placement of the bur at the long axis. This would require distal shifting of the access cavity preparation to avoid mesial perforation.

Access cavity preparation of a mesially tilted mandibular third molar. The handpiece should be at the long axis of the tooth (Fig 5 red and yellow lines). Inability to obtain a straight line access to the root canals would increase the risk for cervical perforation. In cases where a straight line access cannot be achieved, a slight distal shifting of the access cavity would prevent the risk for perforation⁴.

IV. CONCLUSION

Whenever indicated, the retention of third molars should be preferred. However, due to anatomical challenges, an accurate perception and absolute

clinical thoroughness are warranted to avoid the occurrence of serious complications while commencing endodontic treatment in third molar teeth⁴. Mandibular third molar considered a vestigial organ when fully emerged does work as a natural component of occlusion, a sound abutment for partial denture or a bridge or as an orthodontically repositioned tooth. It also serves for autogenous transplantation. Third molars are known to have the most unusual anatomy among human teeth. Restorative, prosthetic, and orthodontic considerations often require endodontic treatment of third molars in order for them to be retained as functional components of the dental arch⁵.

REFERENCES

1. Woelfel JB, Scheid RC. Dental anatomy Its relevance to dentistry. 6th ed. Philadelphia: Lippincott Williams and Wilkins; 2002. p. 178-220.
2. Westesson PL, Carlsson LE. Anatomy of mandibular third molars. A comparison between radiographic appearance and clinical observations. Oral Surg Oral Med Oral Pathol 1980;49:90-4.
3. Sidow SJ, West LA, Liewehr FR, Loushine RJ. Root canal morphology of human maxillary and mandibular third molars. J Endod 2000;26:675-8
4. Ahmed HM. Management of third molar teeth from an endodontic perspective. Eur J Gen Dent 2012;1:148-60.
5. Grover A K, Grover S K. Mandibular third molar- Endodontic Perspective.