

## Constricted Pulp Chamber and Dilacerated Roots in Maxillary Wisdom – A New Challenge to Dentist!

“The secret of change is to focus all of your energy, not on fighting the old, but on building the new”.

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Maxillary third molars (MTMs) are the most distant teeth in the dental arch and are more prone to decay and get endodontically involved due to decreased efficiency of regular tooth brushing and increased plaque accumulation in that region [1]. Conservation of each and every functional component of dental arch and minimum intervention are the primary objectives of clinical dentistry today. Thus, 3rd molars are commonly scheduled for endodontic treatment now-a-days.

Since, MTMs are not just the miniature version of maxillary 1<sup>st</sup> molar, one has to be very careful while doing the access opening and locating distobuccal canal particularly to avoid perforation. A good periapical radiograph and use of magnification e.g. Endomicroscope can prevent such mishaps. In the present case, patient reported to our department with the chief complaint of pain in upper right back jaw region since 1 month. No associated swelling, sinus or pus drainage was seen. Past medical history was noncontributory. Periapical radiograph showed proximal caries involving pulp, widening of periodontal ligament and dilacerated roots with #1 (Figure 1). It was diagnosed as chronic symptomatic apical periodontitis with #1.



**Figure 1:** Pre-operative radiograph of right MTM.

Local anaesthesia (LOX 2%; Neon, India) and rubber dam isolation was performed. Caries excavation and pre-endodontic filling was done with nanohybrid composite with #1. Access cavity was prepared under endomicroscope (3D Medisys Exports, India) targeting the palatal canal orifice first and then it was carefully extended towards the mesiobuccal canal following the dentinal map. Copious irrigation with 5% sodium hypochlorite (Hyposept, India) was performed in between. While doing this, the third canal orifice of distobuccal canal was located in the center of the tooth across the line connecting the palatal and mesiobuccal canal. When connected all the canal orifices by an imaginary line, it appeared like a letter forming 'C' (Figure 2). Working length was determined by using apex locator & confirming it with radiograph (Figure 3).



**Figure 2:** Access Cavity.



**Figure 3:** Working length determination.

Hamasha., *et al.* [2], Malčić., *et al.* [3] and Miloglu., *et al.* [4] reported incidence of dilacerated root in MTMs of 1.33%, 8.1% and 7.4% respectively. Considering the dilaceration of roots of the present case, pre-curved 2% #10 K file (Mani, inc, Japan) along with RC Help gel (Prime Dent, India) was introduced in the canal and filing was done until it become super loose. In this way, the glide path was prepared using 2% # 15 and 20 K file. Canals were irrigated with 5% sodium hypochlorite and normal saline after every change of file.

Chemo-mechanical preparation was performed using Protaper Next files (Dentsply, Maillefer), RC-Help (Prime Dent, India) and torque controlled endodontic motor (X- Smart; Dentsply Maillefer) at speed 300 rpm and torque 2.8 N/cm up to size X<sub>1</sub> with gentle touch and brush motion. Recapitulation was performed after every change of instrument followed by copious irrigation with normal saline and 5% sodium hypochlorite. Calcium hydroxide (RC-Cal, Prime Dent, India) was placed as intracanal medicament and patient was recalled after 21 days.

In next appointment, canals were re-accessed and intra-canal medicament was removed. Copious irrigation with sodium hypochlorite and normal saline was performed. Irrigation with 17% EDTA (Pulpdent, MA) along with ultrasonic activation was done. Obturation was performed using corresponding gutta percha and AH plus sealer. Post endodontic restoration was performed using nanohybrid composite (Figure 4) and patient was referred to Department of Prosthodontics for crown prosthesis.



**Figure 4:** Post-operative radiograph.

This article focuses mainly on constricted pulp chamber, unusual location of canal orifices and endodontic management of curved roots in maxillary 3<sup>rd</sup> molars as seen in the present case. Clinicians are advised to be concerned about this.

### Bibliography

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