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Case Report

Endodontic management of last molar: A case report

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Abstract

Wisdom teeth, which are the last molars to emerge, can also undergo a root canal therapy (RCT). An infection can be avoided and a tooth can be saved using RCT, a routine surgery. This case report shows how to manage upper last molar root canal therapy endodontically and comprehend their clinical morphology.

Keywords: Wisdom tooth, Endodontic file, Root canal, Canal configuration.

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1. Introduction

In order to preserve third molars as a functional part of the dental arch, endodontic treatment is typically required due to restorative and prosthetic considerations. Third molar anatomy, however, has been characterized as uncertain. In today's dental practice, there is a noticeable trend toward tooth retention rather than extraction. Third molars are therefore more frequently treated endodontically, particularly if they are to be suitable abutments for fixed prostheses.[1]

For root canal therapy to be successful, all root canals must be located and navigated before chemo-mechanical debridement.[2] An operator who is well-versed in root canal morphology is necessary due to anatomical differences and odd root patterns.[3]

Third molars have not been covered by many of the authors who have previously examined the anatomy of root canals. Pineda and Kuttler investigated the mesial and distal roots of mandibular third molars as well as the mesiobuccal (MB) root of maxillary third molars utilizing radiography techniques.[4]

Green focused his research on the mesial root of mandibular third molars and the MB root of maxillary third molars, describing the quantity of apical foramina and main canals in each.[5] In the United States, Sidow and colleagues described the morphology of third molars.[6] In the Burmese population, Ng and colleagues conducted research on maxillary molars, especially third molars.[7,8] According to several research, root canal techniques can differ based on a person's race and location.[9,10,11]

2. Case Report

A 28-year-old man arrived at Bareilly International University's Department of Conservative Dentistry and Endodontics in Bareilly, Uttar Pradesh, India, complaining of a two-day-old, spontaneous toothache in his left posterior maxilla. When you sleep, the ache gets worse.

For the previous two months, the patient's history revealed sporadic pain in the same tooth in response to heat and cold stimuli. The patient's medical background was unimportant. Upon clinical examination, the upper left last molar (#28) was found to be mesio-occlusally carious and painful when percussioned. Periodontal probing was within physiological bounds, and the tooth was immobile. An excruciating pain that persisted for almost a minute was caused by vitality testing of the affected tooth using heated gutta-percha (Dentsply Maillefer, Ballaigues, Switzerland) and pulpoflourane (Steptodont, France). On this test, adjacent teeth behaved properly.

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A preoperative radiograph revealed mesial caries involving pulp horn and periodontal ligament widening in relation to the mesiobuccal root. Radiograph didn't reveal any unusual morphology.(**Figure 1**a)

A diagnosis of symptomatic irreversible pulpitis with symptomaticapical periodontitis was made after clinical and radiographic examination and endodontic treatment was suggested to the patient.

Isolation using a rubber dam was accomplished following the administration of local anesthesia (1.8 ml of 2% lignocaine with 1:100,000 epinephrine). After the removal of caries, an endodontic access cavity was created. A single root with two mesial and distal canals is seen upon clinical examination.(**Figure 1**b) Following the radiography approach (IOPA) for determining working lengths, protapernickle-titanium rotary files (DentsplyMaillefer) were used to construct root canals using a crown down technique. Gutta-percha (Dentsply Maillefer) and root canal sealer (Endomethasone N, Septodont) were used for obturation. (**Figure 1**c) Resin composite was used to reconstruct the tooth, and the patient was advised to get a PFM crown. (**Figure 1**d)

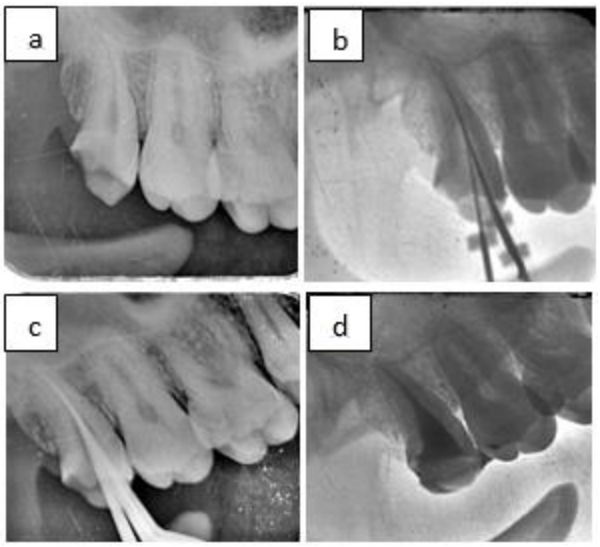

Figure 1

3. Discussion

In addition to their abnormal occlusal structure and variable root morphology, third molar teeth may be difficult for dentists to treat endodontically because of their placement within the jaw, which makes them difficult to access. Third molars with pulpal involvement are extracted without fail and are rarely given root canal treatment consideration.[12] However, in order for these teeth to remain in the dental arch, endodontic treatment is frequently necessary due to restorative concerns.[13] For endodontic therapy to be successful, it is therefore essential to understand the root canal anatomy of these teeth.[14] To successfully execute cleaning and shaping, operators need to understand the intricacy of the root canal system.[15]

3.1. Maxillary third molar

The internal anatomy of maxillary third molars is particularly complex, whereby three roots are commonly fused, exhibiting a wide variation in canal number and type.[16] It has been reported that 15% of the studied maxillary molars had only one root, 32% two, 45% three, and 7% four roots.[17] Te number of canals ranged from 1 to 6 in single-rooted teeth, 3 to 5 in double-rooted, 2 to 5 and 4 to 5 in teeth with three and four roots respectively.[18]

Ng and colleagues studied the maxillary molars in Burmese population and found that only a quarter of the maxillary third molars had three roots, the rest had a single/fused roots.[19]

Only about 51% of Tai maxillary molars had three distinct roots, according to a research on the teeth; the other half had conical or merged roots. Most of the distal and palatal roots had type I, whereas 28.6% of mesio-buccal roots with two canals were type II and IV.[20]

3.2. Mandibular third molars

Mandibular third molar teeth, which are the last teeth in the dental arch, have been linked to notable differences in root patterns and canal systems.[21] There are usually two roots and two canals visible, but occasionally there are three or more canals35. A morphological description of third molars in the US population was given by one study.[22] The majority (77%) of mandibular third molars were found to have two roots, whereas 17% only showed one. For teeth with one, two, three, and four roots, the number of canals varied from one to three, two to six, three to five, and four to five, correspondingly.[23]

According to another study on Burmese mandibular molars, the percentage of mandibular third molars with one, two, three, or four canals was 3.7%, 55.6%, 37%, and 3.7%, respectively.[24] According to a follow-up research on Tai mandibular molars, 11% of mandibular third molars had a single C-shaped root, 20% had fused roots, and 68% had two separate roots.[25]

4. Conclusion

Overall, the case reports' findings were in line with those of prior research. Third molar root canal configurations vary widely, and it is important for a clinician to know these in case they are not detected by radiography.

5. Source of Funding

None.

6. Conflict of Interest

None.

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