

Endodontic Treatment of Mandibular Second Molar with Diversed Root Canal Anatomy

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Abstract:- It is well known that mandibular second molar root canal anatomy varies greatly. The present case report describes the variation in second mandibular molar. Variation may not always take the shape of additional canals; it may also take the form of fewer or smaller canals than what is typical. When the pulpal floor was examined with an endodontic explorer, a single round hole was visible in the floor of the pulp chamber. To confirm the existence of an independent single canal, many angulated radiographs were taken. Until F5, Protaper NiTi instruments (Maillefer, Dentsply) were used for individual canal preparation. Obturation was accomplished using the lateral condensation technique and the sealapex sealer.

A successful root canal procedure depends on knowing how many root canals are present in the tooth. Some teeth may have more canals than usual, while others may have less canals than usual. A solitary canal in the second tooth on the mandible should be quickly identified. By removing the necessity to remove unnecessary tooth material in order to find additional canals, single canal identification aids in the preservation of tooth structure.

I. INTRODUCTION

One of the human body's most intricate anatomical structures is the root canal system. A good grasp of tooth anatomy is a must for successful root canal therapy over the long run. Before beginning endodontic therapy, it is important to understand the tooth's morphology, any differences in its root structure, shape, and information about the number of orifices and canal arrangement¹.

The mandibular first molar typically has two well defined roots: a distal root with one or two canals, and a mesial root with two canals. The clinician should be

informed that fewer roots or canals could exist, however this is a possibility. A maxillary first molar with a single root and single canal was described by Gopikrishna et al.². A mandibular first molar with two roots and two root canals was recently described by Krithikadatta et al.³. Reporting the unusual architecture of a mandibular first molar with a single root and single canal is the main goal of this essay.

II. CASE REPORT

In this article, we report a case of endodontic management of a mandibular second molar with a single conical root and a single canal. Intraoral examination showed tooth #37 with deep occlusal caries. Patient's informed consent was obtained before executing the treatment plan

The pre operative radiograph revealed a fused conical root. Hence, multiple preoperative radiographs in various angulations were taken, that revealed a single root and a single root canal. Standard access cavity was prepared that uncovered a huge canal orifice at the center of the pulp chamber. The canal patency was established with a suitable ISO K file. Working length was determined using 65K file, with the help of electronic apex locator (Coltene Canal Pro) and confirmed using a radiograph. Following irrigation with 5.25% NaOCl, shaping of the canal was performed using was performed using ProTaper Gold rotary files (Dentsply Maillefer) and final irrigation was done using ethylenediaminetetraacetic acid (EDTA). Recapitulation and verification of canal patency were performed throughout the treatment. As the canal was large, lateral condensation with GP points was done for a good obturation. The obturation was further confirmed with a radiograph [Figure 4]. Postobturation restoration was done with light cure composite [Figure 5].

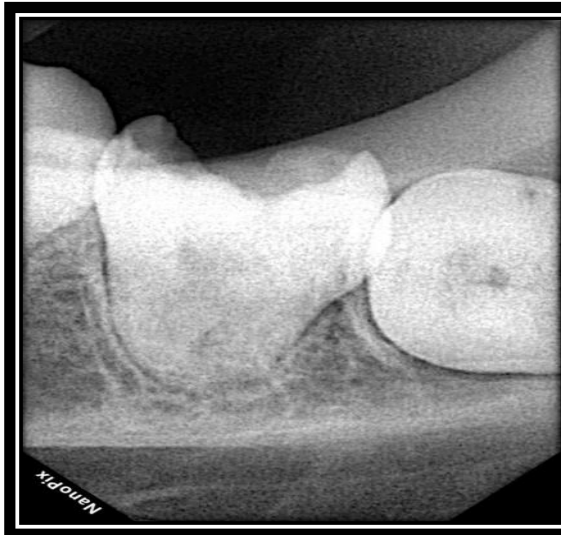


Fig 1: PRE Operative

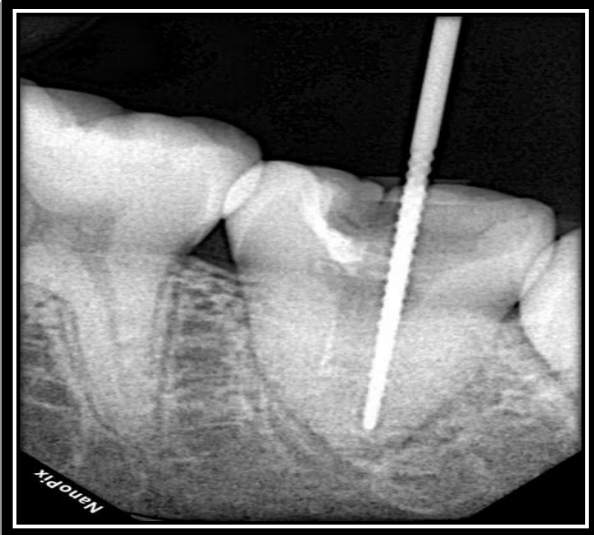


Fig 2: WORKING LENGTH



Fig. 3: Calcium Hydroxide Dressing

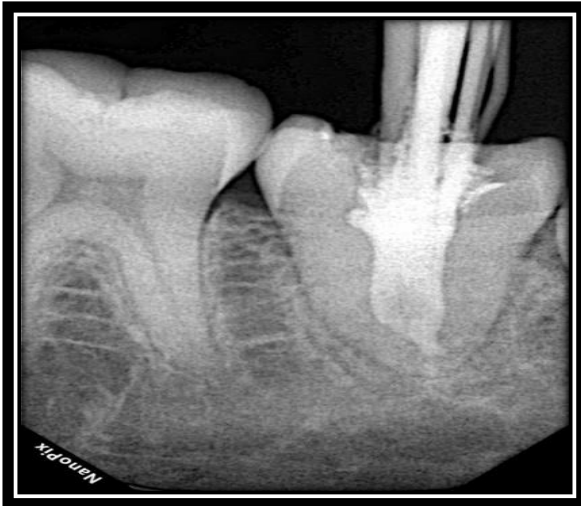


Fig. 4: Master Cone



Fig. 5: POST OPERATIVE

III. DISCUSSION

On the basis of preoperative radiographs, anatomical variation such as fusion, germination, or anomalies in the roots may frequently be diagnosed. A tooth with a c-shaped canal system may always have a fused root that has a longitudinal groove running through it on radiographs.

Initial interpretations of the radiographs in this case indicated the presence of a single root with a wide canal gap, suggesting that the canals may be configured in a C-shaped fashion. Following the creation of the access cavity, the pulpal floor was observed, and just one canal with a round aperture was found, suggesting the presence of a single canal. More examination of the pulpal floor failed to turn up any additional orifice openings. These teeth's root canals were broad and tapered, and irrigation and biomechanical preparation were used to guarantee that all debris was removed. GP points and a resin-based sealant were used to obturate the canal using the lateral condensation approach. Here, we compactly obturated using standard GP points and ProTaper GP as the master cone. A well-obturated canal was visible on a postobturation radiograph.

IV. CONCLUSION

Knowledge and recognition of canal configuration can facilitate more effective canal identification and unnecessary removal of healthy tooth structure in an attempt to search for missing canals. The anomalies in the root canal morphology need not always be extra canals. It can also be in the form of fused or fewer canals. From a clinical standpoint, when an unusual anatomic form is encountered, multiple angled radiographs and careful inspection of the will reveal more details of the anatomy of the root canal system.

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