

BILATERAL ENTO MOLARIS: A CASE REPORT

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ABSTRACT

Aim: To present a case of a mandibular first molar with an additional distolingual root [radix entomolaris (RE)].

Summary: A 20-year-old male individual was referred for root canal treatment of the right mandibular first molar (tooth 46) and left mandibular first molar (tooth 36). After clinical and radiographic examination, symptomatic irreversible pulpitis was diagnosed. Three periapical radiographs with different horizontal angulations revealed the presence of an additional distolingual root. This extra root, termed Radix Entomolaris. The prevalence of these three-rooted mandibular first molars appears to be less than 3% in African populations, not to exceed 4.2% in Caucasians, to be less than 5% in Eurasian and Asian populations, and to be higher than 5% (even up to 40%) in populations with Mongolian traits. The conventional access opening was done, and four root canals were found. All canals were instrumented with new nickel–titanium (NiTi) files to reduce the risk of fractured instruments. After preparation, the root canals were filled using cold lateral condensation techniques.

KEYWORDS: Bilateral, Distolingual Root, Radix Entomolaris.

INTRODUCTION

A number of teeth do not respond to root canal treatment because of persistent infection caused by a missing canal and to failure to remove all the pulp tissue and microorganisms from the root canal system.^[1]

According to Weine, the main causes of endodontic failure are improper identification of canals, untreated major canals; incorrect canal instrumentation, incomplete obturation.^[2]

This will result in unsuccessful treatment and may be the origin of acute flare ups during and after treatment.^[2] Thus, an awareness and understanding of root canal anatomy is essential for improving the predictability of root canal treatment.^[3]

Mandibular first molar teeth display several anatomical variations. The major variant in this tooth type is the occurrence of a supernumerary (Disto-lingual [DL]) root. This was first mentioned in the literature by Carabelli (1844) and was later termed Radix Entomolaris (RE) (Bolk 1915). This extra root is usually smaller than the

Disto-buccal (DB) root and is normally curved; instrumentation and filling of this additional root can pose challenges (Gu et al. 2011). In rare cases, an additional root may occur at the Mesio-buccal (MB) side, this is called Radix Paramolaris (Calberson et al. 2007).^[4]

Here we discuss the bilateral management of Radix Entomolaris of mandibular first molar teeth.

CASE PRESENTATION

A 20 year old male patient reported to Department of Conservative Dentistry & Endodontics with a chief complaint of severe pain in the lower left and right back tooth region since one week. Pain was of sharp, throbbing, continuous in nature, aggravated on mastication with 36 and 46.

A diagnostic radiograph was taken it showed radiolucency involving pulp and periodontal ligament widening seen.

On observation of radiograph there appears to be an additional root bilaterally. Another radiograph has been

taking with mesial and distal angulations.(Figure- 1 to 6)



Figure-1: Normal shift iopar in relation to 36.



Figure-2: Distal shift iopar in relation to 36.



Figure-3: Mesial shift iopar in relation to 36.



Figure-4: Normal shift iopar in relation to 46.



Figure-5: Distal shift iopar in relation to 46.



Figure-6: Mesial shift iopar in relation to 46.

Local anesthesia was administered and the tooth was isolated under rubber dam. Access cavity preparation

was modified from a triangular to a trapezoidal form for proper accessibility of all the canals.(Figure – 7)



Figure-7: Access opening in relation to 36.

Working length was determined using digital radiograph and with the help of apex locator (Sybron endo). Cleaning and shaping of canals was performed with protaper rotary instruments in a step-down manner with Ethylenediamine tetraacetic acid (EDTA) and the canals were irrigated using sodium hypochlorite and normal

saline and final irrigation was done with chlorhexidine followed by obturation with cold lateral condensation with respect to 36 and 46 (Figure- 8 to 13). Post obturation restoration was done with composite. Follow-up done for three months revealed no signs and symptoms.



Figure-8: Working length determination in relation to 36.

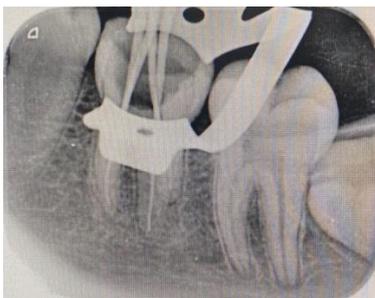


Figure-9: Master Cone in relation to 36.



Figure-10: obturation in relation to 36.

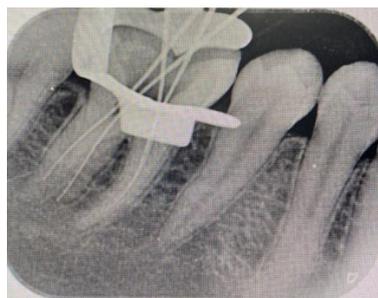


Figure-11: Working length determination in relation to 46.



Figure-12: Master Cone in relation to 46.



Figure-13: obturation in relation to 46.

DISCUSSION

Radix Entomolaris (RE) was first described by Carabelli. It is characterized by the presence of an additional or extra third root, which is typically found disto-lingually with its coronal third completely or partially fixed to the distal root.^[2,3]

In general, the RE is smaller than the distobuccal and mesial roots and can be separated from, or partially fused with, the other roots. According to the classification of De Moor et al. (2004), the RE could be classified into three groups on the basis of the root/root canal curve.^[2]

Type I refers to a straight root canal, type II refers to an initially curved entrance that continues as a straight canal and type III refers to an initial curve in the coronal third of the root canal and a second curve beginning in the middle and continuing to the apical third.^[2]

Radix entomolaris can be found in the first, second, and third mandibular molars. Radix Entomolaris is not very common in African, Eurasian, and Caucasian. Prevalence of RE, with a range from 2.19-13.3%, among the Indian population.

There is no significant difference was found in the prevalence of RE according to gender. Similarly no difference was found in the side of occurrence. The bilateral occurrence of RE is reported to vary from 37.14 to 67%.

Frequently for a correct diagnosis minimum of two diagnostic radiographs are necessary using buccal object rule. Even the presence of an extra cusp may sometimes indicate the presence of radix entomolaris.^[2,5]

Access cavity preparation should be modified usually from a triangular to a trapezoidal shape. The modification should be done following the dentinal map.^[2,10]

Advanced diagnostic aids help in the better identification and visualization of all the canals. The diagnosis and management of RE are of paramount importance from the point of endodontic success.^[2,10]

CONCLUSION

Clinicians should have the knowledge of variation in anatomy of mandibular permanent first molars, Proper interpretation of radiographs. Root canal treatment in teeth with extra roots can be challenging, but the inability to find root canals may cause failures.

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