

## **RADIX ENTOMOLARIS**

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### **INTRODUCTION**

One of the anatomical variant found in a permanent mandibular molar is Radix Entomolaris (RE) and was first described by Carabelli. It is an additional or extra third root. It is characterized by the presence of an additional or extra third root, which is typically found disto-lingually. When it is present buccally, it is called paramolaris.

The success of a root canal treatment demands a proper knowledge and understanding of the unusual root canal morphology. This case report discusses the endodontic treatment of a mandibular molar with Radix Entomolaris.

### **CASE REPORT**

A 26 year old female reported with pain in the mandibular right first molar (46) for more than 2 weeks. The tooth was sensitive to percussion. Radiographically, there was evidence of periapical radiolucency and also the presence of an additional distal root outline was noticed. Inferior alveolar nerve block anesthesia (2% Lignocaine with 1:200000 epinephrines) was given.

Following rubber dam isolation, access cavity preparation was done via endo-access bur and canal orifices were found with a DG 16 endodontic explorer. Upon opening the pulp chamber, 4 distinct canal orifices were found. Initial negotiation of the root canals were performed with a K-file ISO #10. The working length of these canals were measured with the help of an apex locator (J. Morita) Root ZX and confirmed using radiographs taken at different horizontal angulations.

The canals were cleaned with NaOCl (5.25%) + EDTA and shaped with K files and Neo Endo rotary files. Irrigation was done with ASEP RC, a 2% chlorhexidine gluconate solution. The CHX irrigation of the root canal ensures acceptable antimicrobial activity. A dressing of CaOH paste was placed and the patient was recalled 7 days later.

At the end of 2nd appointment the patient was asymptomatic. Temporary restoration was removed and irrigation was done with copious amounts of 3% NaOCl and 17% EDTA acid. The canals were then flushed with sterile saline. Master cones were selected by placing cones according to the size of the last finishing file used to the working length and was confirmed radiographically. Canals were thoroughly dried with paper points and obturation (using single cone technique) was done.

A)



B)



C)



D)



E)



F)



**A) Access opening showing the distolingual orifice in the mandibular right first molar**

**B) Master Cone Radiograph C, D) Post Obturation Radiograph**

**E, F) Post Endodontic Restoration**

## DISCUSSION

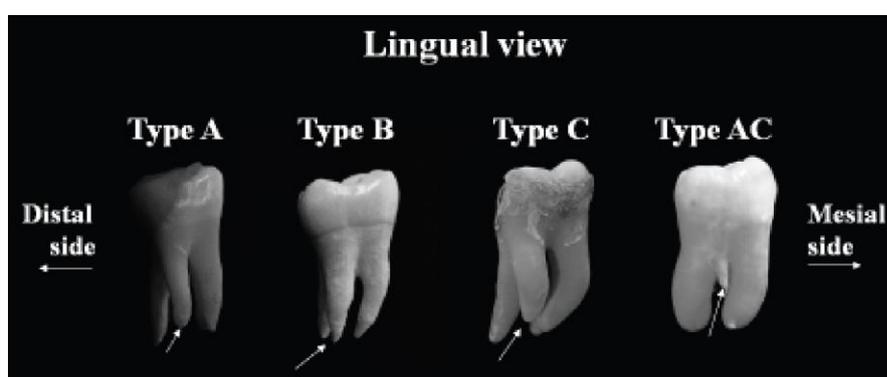
Ribeiro & Consolaro (1997) classification for RE

Type I - A straight root/root canal,

Type II - An initially curved entrance and the continuation as a straight root/root canals,

Type III - An initial curve in the coronal third of the root canal and a second buccally orientated curve starting from the middle to apical third.

*Carlsen and Alexandersen Classification :*



Type A depicts a lower first molar with two normal distal roots along with a radix which is distally located

Type B depicts molars with one normal distal root and a distally situated cervical part of the radix.

Type C the cervical part is located mesially,

Type AC is a more or less central location between the distal and mesial roots

This classification helps in the identification of separate and non-separate RE.

A proper diagnosis can prevent complications or missing a canal during the root canal treatment. An inaccurate diagnosis may occur on the radiograph due to superimposition of the distobuccal root over the radix as they are mostly located in the same plane.

A second radiograph should be taken with a different angle to see the RE .

A dark line on the pulp chamber floor can indicate the precise location of the RE canal orifice

Once relocation and enlargement of the orifice of the RE are done, initial root canal exploration with small files (size 10 or 8) should be done along with radiographic assessment of root canal length and curvature determination

## CONCLUSION

Proper interpretation of radiographs help to identify the root canal anatomy and any variations that are present in it. A straight-line access and glide path must be given attention. In the case of a Radix Entomolaris, the conventional access cavity opening must be modified to a trapezoidal form in order to properly locate the distolingually located canal orifice of the extra root.

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