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Case Report

# RADIX PARAMOLARIS IN MANDIBULAR FIRST MOLAR AND ITS MANAGEMENT: A CASE REPORT

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### ABSTRACT

**Aim:** To present case of mandibular first molar with additional mesiobuccal root ( Radix paramolaris, RP) and to add literature on the incidence of this anatomical feature.

**Anatomical Variation:** It is known that mandibular first molar can display several anatomical variations like the number of root canals and the roots vary. An additional third root first mentioned in the literature by Carrebelli, is called the radix entomolaris and radix paramolaris. Radix paramolaris supernumerary root is located mesiobuccally in mandibular molars, mainly first molars.

**Methodology:** As far the access was concerned, entering the root canal in the RP required a modification of access cavity. After scouting of the root canals and flaring of coronal third with gates glidden burs in a crown down mode, radiographically length was determined and Apex locator Elements diagnostic unit used to confirm the working length. The root canals were prepared using protaper files (Dentsply Mellefer) to complete the cleaning and shaping. The root canals were filled with gutta percha and AH Plus sealer.

**Conclusion:** The high incidence of fourth root and root canal and is essential for clinician to carefully interpret the radiographs and diagnose the extra rooted canals,

**Keywords:** Radix paramolaris, mandibular first molar, anatomical variation of mesial root, modified access cavity.

### INTRODUCTION

It is of utmost importance that the clinician be familiar with roots and root canal anatomy. The main objective of root canal treatment is thorough mechanical and chemical cleansing of the entire pulp canal system and its complete obturation with inert filling material and a coronal filling preventing the ingress of microorganisms<sup>1,10</sup>.

It is known that mandibular first molar can display several anatomical variations like the number of root canals and the roots vary. An additional third root first mentioned in the literature by Carrebelli, is called the radix entomolaris and radix paramolaris. Radix paramolaris supernumerary root is located mesiobuccally in mandibular molars, mainly first molars<sup>2</sup>.

This extra root is typically smaller than the mesiolingual root and is usually curved, requiring special attention when root canal treatment is being considered. The prevalence varies in different races and populations and can range from 3% in Caucasians to about 20% in Mongoloid groups. The

identification of external morphology of these lingual or buccal supernumerary roots have been described by Carlesen and Lexandersen<sup>1,8</sup>.

The Cone Beam Computed Tomography (CBCT) potentially provides dentistry with practical tool for non invasive and 3dimensional (3D) construction imaging for use in endodontic application. When present complete diagnosis and treatment plan is necessary and clinician should take it as additional canal to fill<sup>3,4</sup>.

### CASE REPORT

A 25 year old female patient came for endodontic treatment of mandibular first molar. On clinical examination the tooth was deeply carious and was effected by irreversible pulpitis. The radiographs interpreted to confirm the additional root. The tooth was isolated with rubber dam access opening done after removal of caries. The conventional triangular access opening modified to buccally extended cavity in order to locate and open the orifice of the mesiobuccally located Radix Paramolaris. After scouting of the root canals and flaring of

coronal third with gates glidden burs in a crown down mode, radiographically length was determined and Apex locator Elements diagnostic unit used to confirm the working length. The root canals were prepared using protaper files (Dentsply Mellefer) to complete the cleaning and shaping. During root canal preparation RC Prep was used and root canals were irrigated with NaOCl solution (2.5%). The root canals were filled with gutta percha and AH Plus sealer the coronal restoration done with composite restoration. Radiographs were taken to check the complete filling of root canals.

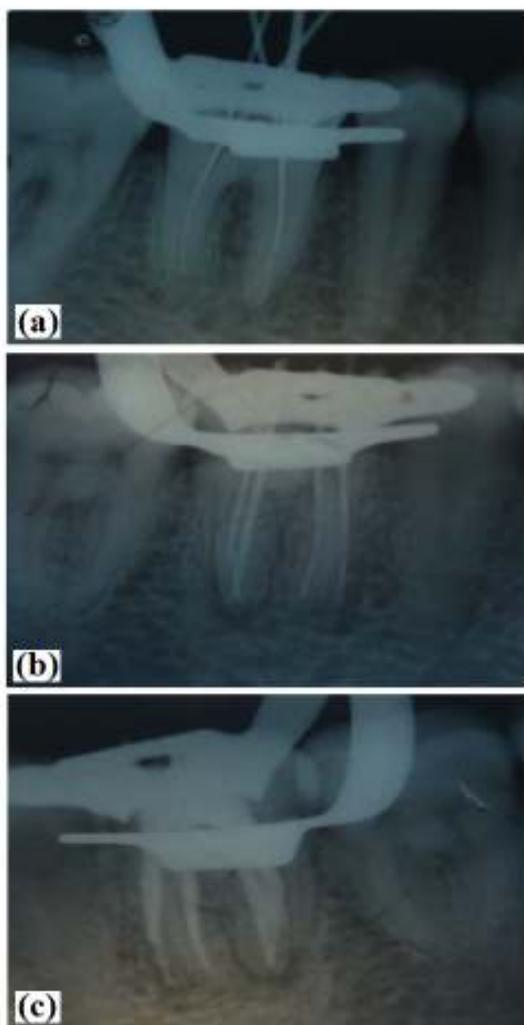


Figure 1: Radiographic presentation of radix paramolaris (a) working length determination (b) Master cone IOPA shows extra root (c) obturation radiograph shows definite separate roots.

## DISCUSSION

Variation in mesial root canal may be identified through careful reading of angled radiograph and interpretation of radiographs. However the using of buccal object rule using two radiographs at different horizontal angulation may suffice to determine the position of lingual root<sup>12</sup>.

The Radix Paramolaris is located mesiobuccally with its coronal third completely or partially attached to the distal root. **Location:** The RP located mesiobuccally as with RE. The dimensions of RP vary from mature root with a root canal to a

short conical extension. This additional root can be separate or non separate.

**Classification:** Carlsen and Alexandersen described two different types.

Type A- In which the cervical part is located on the mesial root complex.

Type B- In which the cervical part is located centrally between mesial and distal root complex<sup>1</sup>.

**External Morphology:** Additional cusp may or may not be present. If present can suspect extra root but it is not always true<sup>5</sup>.

**Incidence:** The buccally located RP and the occurrence is very rare and occurs less frequently than RE. The prevalence of RP as observed by Visser was found to be 0% for the first mandibular molar. 0.5% for the second and 2% for the third molar. Other studies however reported RP in first mandibular molar<sup>1</sup>.

With mesiobuccally located orifices of the Radix paramolaris Type-A RP category is seen in this case report. Modification of the classical triangular opening cavity to more buccally extended below the cusps in order to better locate and access the root canal is essentially straight line access must be established.<sup>11</sup>Based on the present finding literature and incidence, very less of Radix Paramolaris (RP) were found in mandibular first molars and the proper diagnosis and treatment is must<sup>7,9</sup>.

## CONCLUSION

The high incidence of fourth root and root canal and is essential for clinician to carefully interpret the radiographs and diagnose the extra rooted canals, to properly clean and shape the root canal system. Seal it 3 dimensionally (3D) to obtain the higher success rate.

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