

Root Canal Treated Mandibular Molar: Radix Entomolaris

Somnath Chakraborty¹, Pradeep Rastogi², Shalini Sharma³, Chandan Agali⁴

1- Post Graduate Student, Dept of Pedodontics, Seema Dental College & Hospital, Rishikesh. 2- Professor & HOD, Dept of Pedodontics, Seema Dental College & Hospital, Rishikesh. 3- Professor, Dept of Pedodontics, Seema Dental College & Hospital, Rishikesh. 4- Reader, Teerthanker Mahaveer Dental College & Research Centre, Moradabad.

Correspondence to:
Dr. Somnath Chakraborty, Post Graduate Student,
Dept of Pedodontics, Seema Dental College &
Hospital, Rishikesh.
Contact Us: www.ijohmr.com

ABSTRACT

Pediatric dentistry not only deals with teeth and gums but to all those structures that are undiagnosed, access problem and that is why often remained hidden. The presence of supernumerary tooth in oral cavity or, the presence of extra root in molars is due to anatomic root variation. Usually, mandibular molars have two roots with three canals (mesiobuccal, mesiolingual & distal) but in few teeth, the number of roots and canals vary. The term “Radix entomolaris” which means presence of an ‘extra third root’ or ‘disto lingual root’ in mandibular first molar and the presence of an extra root buccally to the mesial root is termed as Radix paramolaris (RP).

KEYWORDS: Anatomic variations, extra third root, four canals, radix entomolaris.

INTRODUCTION

The success of pediatric endodontic treatment entirely depends upon diagnosis followed by chemo mechanical preparation and selection of primary root canal filling material to obturate. The failure to diagnosis leads to primary endodontic treatment failure.¹ In the year 1844 first time in literature Carabelli mentioned the term “Radix entomolaris” which means presence of an ‘extra third root’ or ‘disto lingual root’ in mandibular first molar. The presence of an extra root buccally to the mesial root is termed as Radix paramolaris (RP) given by Bolk in 1915.^{1,2}

In African population the prevalence of RE was less than 3%, 4.2% in Caucasians, below 5% in Eurasian and Asian populations, was seen more than 5% in Mongolian populations and in Indian population it was found to be 5.97%. So RE presence in high frequency in these populations, it was considered to be a normal morphological variant.^{3,4} In this case report from a clinical point of view from diagnosis to treatment plan of RE are discussed.

CASE REPORT

A 12 year old female patient reported to the Department of Pedodontics & Preventive Dentistry, Seema Dental College & Hospital, Rishikesh, with a chief complaint of pain in her lower right tooth back region of mouth since 2 months. The patient gave a history of pain for the past two months, which had increased in intensity since two days. A radiograph was taken and found pulpal involvement was there. On keen observation, it was surprised to see an additional root found (Figure 1a). The presence of additional root was confirmed by object

localization radiographic method. The suggestive treatment plan root canal treatment was decided to perform. Local anesthesia was administered, and rubber dam was used for isolation. Access preparation was done with a medium sized round bur. The first distal canal was not found on the centre which clearly indicates that the other canal will be on the lingual side, so the access cavity was further modified from triangular shape to a trapezoidal and finally the fourth canal was located. DG-16 endodontic explorer was used for location of root canals and patency of the canals was confirmed with 15 number K – file (Mani, Japan), working length was determined radiographically (Figure 1b). Cleaning and shaping were done with hand ProTaper instruments in a step-down manner (Figure 1c). Glyde was used as a lubricant and the irrigants used were sodium hypochlorite, 2% chlorhexidine gluconate, and normal

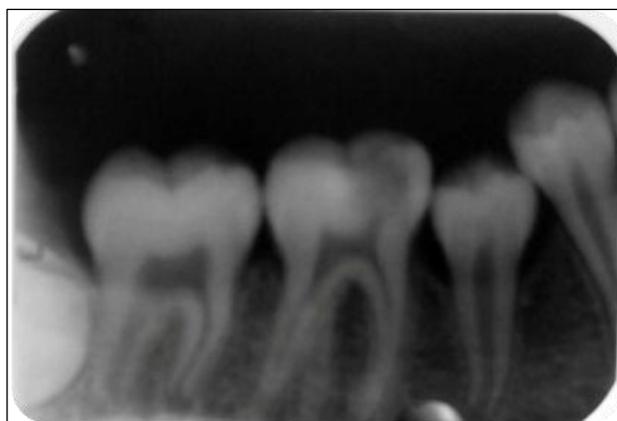


Fig- 1 a: PRE-OP

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Fig- 1 b: W/L DETERMINATION

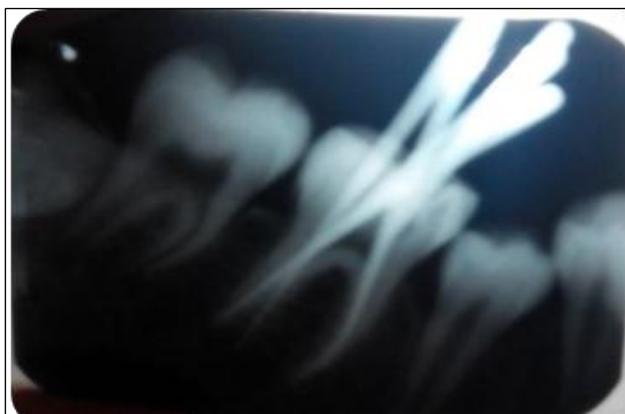


Fig- 1 c: MASTER CONE

saline. Obturation was done with 6% single cone technique (Figure 1d). Access cavity was restored with Zinc oxide eugenol cement, and a post-obturation radiograph was taken and the patient was advised to come for follow up after a week.



Fig - 1 d: OBTURATION

DISCUSSION

The exact etiology of RE/RP is still unknown. The external factors like racial genetic factors or penetration of an atavistic gene or involvement of polygenetic system during the processing of Odontogenesis might be one of the causes for formation of supernumerary root. More specifically, Sir Curzon stated that involvement of genes

are responsible for the development of certain traits such like “three-rooted molar”^{1,3}. Radix entomolaris is generally found distolingually and appears smaller, slightly curved which is partially fixed to the distal root and lies in the same transverse plane like that of other two roots. The dimension of RE can vary from a short conical extension to a mature root with normal length and root canals. It is cross-sectional and more circular than the distal root, projected lingually about 45° to the long axis of the tooth. Tratman stated that RE do have an extra root with orifice and apex and is not a division of distal root⁵. The presence of extra root found in mandibular first molars in Asians shows a bilateral occurrence. Sabala et al. stated that bilateral occurrence are not found in primary first mandibular molars with three roots and abnormal root morphologies are observed with indifferent frequency in contra lateral tooth⁶. Tu *et al.* found the bilateral occurrence of primary first molars (17.67%) less than the report by Song *et al.*^{7,8}. The presence of unilateral occurrence of three rooted primary mandibular first molars than permanent mandibular first molars is more observed in both Taiwan and Korean populations. De Moore *et al.* who found a disto lingual root (RE) in an extracted first molar teeth and gave the first morphologic classification of Radix entomolaris and he further divides its morphologic features into three types, existing upon the pattern of their curvature.

CONCLUSION

The practicing clinicians should know the literature of these unusual root morphologies in the primary and permanent mandibular first molars among children or in adults during their routine endodontic and extraction procedures. To achieve successful treatment it is suggested that prior starting root canal treatment or extraction, the clinicians are advised to take two intra oral peri apical radiograph to confirm presence of extra root or not.

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