

Case Report

Radix entomolaris in mandibular first molars—an endodontic challenge

Ramta Bansal*, Sunandan Mittal, MDS**, Tarun Kumar, MDS†, Dilpreet Kaur*

*Postgraduate Student, **Professor and Head, †Professor, Department of Conservative Dentistry and Endodontics, Dasmesh Institute of Research and Dental Sciences, Faridkot, Punjab.

Abstract

Awareness of morphological variations of the tooth can contribute to the successful outcome of the endodontic treatment. The morphological variations of the mandibular first molar radix entomolaris (RE) in terms of root inclination and root canal curvature demand careful clinical approach to avoid procedural errors during endodontic therapy. This paper describes 2 case reports of mandibular first molar with RE.

Keywords: Anatomical variations, endodontic treatment, mandibular molar, radix entomolaris

INTRODUCTION

Mandibular first molar can display several anatomical variations. Fabra-Campos^{1,2} and Bond³ reported presence of 3 mesial canals and Stroner⁴ noted the presence of 3 distal canals. Likewise the number of roots may also vary. An additional third root, first mentioned in the literature by Carabelli in 1844,⁵ is called radix entomolaris (RE).⁶ This supernumerary root is located distolingually in mandibular molars, mainly first molars (can be found on first, second, and third mandibular molar, occurring least frequently on second molar).⁷ Bilateral occurrence of RE ranges from 50% to 67%.⁸

A classification by Carlsen and Alexandersen describes 4 types of RE according to location of the cervical part of RE which allows for the identification of separate and non-separate RE.^{9,10}

Type A and Type B refer to distally located cervical part of RE with 2 normal and 1 normal distal root components, respectively. Type C is a mesially located cervical part. Type AC is a central location, between the distal and mesial root components.¹⁰

According to classification of De Moor et al, based on the curvature of separate RE variants in bucco-lingual orientation, 3 types can be identified.¹¹ Type I refers to straight root/root canal, Type II refers to an initially curved entrance

which continues as a straight root/root canal. Type III refers to an initial curve in coronal third of the root canal and a second curve beginning in the middle and continuing to apical third. This paper presents 2 cases of permanent mandibular first molars with RE.

CASE REPORT

Case 1

Twenty-three year old male was referred for endodontic treatment of the mandibular left first molar. An initial access opening had already been performed by the referring dentist. Radiographic examination showed periapical radiolucency in distal root. Adjacent to distinct distal root, projection lines of the periodontal ligament indicated a strong curvature of (one of) the distal root(s) to the mesial (Figure 1).

The canal lengths were determined radiographically with K file ISO 15 size (Figure 2). Insertion of the file in the distolingual canal showed a more lingually oriented access inclination. On removal of the file, the tip was deformed with a strong curvature to the mesial. This, together with the different access inclinations between the 2 distal canals, indicated the presence of 2 separate distal roots.

Biomechanical preparation was done up to master apical K file ISO No. 25 along with irrigation with 2.5% sodium hypochlorite. Coronal enlargement was done with Gates Glidden drills No. 3. At next appointment after ensuring proper fit of master cone (Figure 3), obturation was done with Gutta Percha points using latero-vertical obturation technique and zinc oxide eugenol sealer (Figure 4).

Correspondence: Dr. Ramta Bansal, Postgraduate Student, Department of Conservative Dentistry and Endodontics, Dasmesh Institute of Research and Dental Sciences, Faridkot, Punjab.

E-mail: dr_aditya82@rediffmail.com

Received: 28.07.2011

Accepted: 29.08.2011



Figure 1 Diagnostic radiograph of mandibular left first molar.

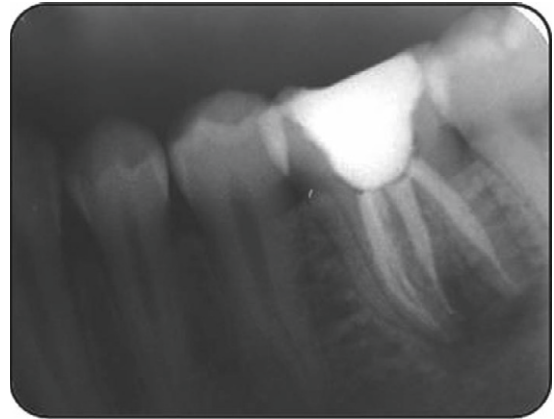


Figure 4 Post-obturation radiograph of mandibular left first molar.

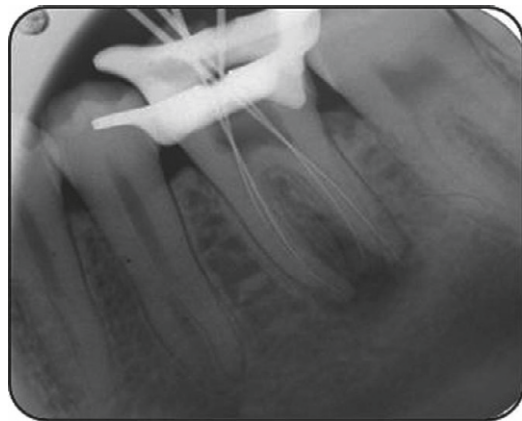


Figure 2 Working length radiograph of mandibular left first molar.



Figure 5 Radiograph showing full coverage crown.

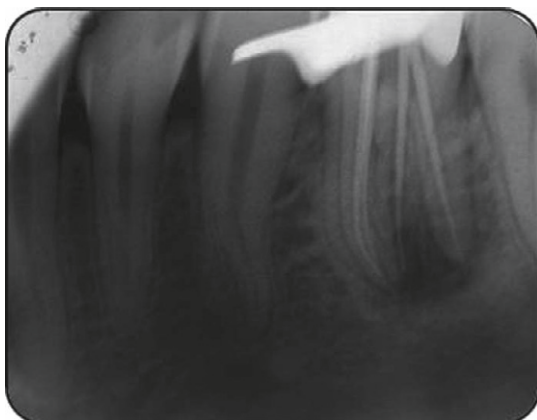


Figure 3 Master cone radiograph of mandibular left first molar.

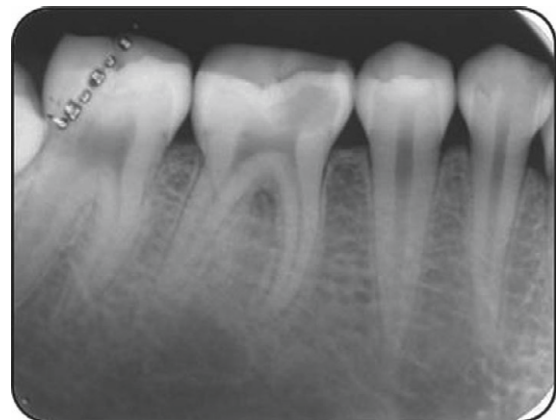


Figure 6 Diagnostic radiograph of mandibular right first molar.

Full veneer porcelain fused to metal crown was given as extracoronal restoration (Figure 5).

Case 2

An 18-years-old male came for endodontic treatment of mandibular right first molar with acute irreversible pulpitis.

Radiograph of mandibular right first molar showed a small root, toward the mesial side of distinct distal root (Figure 6).

After anesthetizing the tooth, access preparation was done and canal orifices were located. The fourth disto-lingual canal orifice was present far from distal root canal orifices. The canal lengths were determined radiographically with K file

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