

The radix Entomolaris in mandibular first molars: A Case Report

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Abstract- In order to recognise variations in the anatomy, such as extra canals and roots, the clinician's understanding and familiarity with root canal anatomy is essential. The anatomical variety of permanent mandibular first teeth is well documented. The majority of first molars in the mandible have two roots, two mesial canals, and one distal canal. Radix Entomolaris (RE), a further third root situated distolingually in mandibular molars, primarily first molars.

Keywords: Entomolaris, Root canal treatment, First Molar

Introduction

The primary goal of root canal therapy is full obturation, which both stops the development of any periapical pathology and speeds up the healing of any existing endodontic pathology. This is done after meticulous mechanical and chemical shaping and cleaning of the whole pulp canal chamber. Therefore, for the effective completion of endodontic therapy, it is crucial for the practitioner to be conversant with and cognizant of the atypical canal anatomy.¹The anatomical variety of permanent mandibular first teeth is well documented. The majority of first molars in the mandible have two roots, two mesial canals, and one distal canal.²The mesial root often has two root canals that lead to two separate apical foramina (59.5%). At the root tip, in 40.5% of cases, they combine to form a single foramen. One kidney-shaped root canal typically exists in the distal root, while two distal canals may exist if the opening is unusually small and round. The number of roots may vary, just like the number of root canals. Radix Entomolaris (RE) is a third root that was originally stated in the literature by Carabelli .Distolingually, this extra root is seen in the mandibular molars, primarily the first molar. Radix Paramolaris (RP), a further root at the mesiobuccal side, is so named.²

Case Report

A 20 year female patient reported to the Department of Conservative dentistry and Endodontics with chief complaint of pain and sensitivity in the lower right back teeth. Clinical examination revealed caries in the right mandibular first molar tooth 46. Radiographic examination revealed radiolucency involving the pulp with respect to tooth 46. The tooth was diagnosed with irreversible pulpitis based on clinical and radiographic findings. Endodontic treatment was suggested to the patient. Using 1.8ml of 2% lignocaine and a 1:80,000 dosage of adrenaline, the mandibular nerve was blocked. A dentin overhang was seen disto-lingually, three canal orifices were first found on the pulpal floor, and the access cavity was constructed. The distal root's canal orifice was also noted to be distobuccally placed, which in accordance with the law of orifice location suggests the existence of a second canal orifice disto-lingually. Thus, to facilitate the placement of the fourth canal opening, the triangular access chamber was transformed into a trapezoidal shape. Clinical examination revealed mesio-lingual, disto-buccal, mesio-lingual, and orifices. The radiograph clearly showed the existence of radix entomolaris. ProTaper rotary files were used for instrumentation, and all of the canals received intermittent irrigation with 1% sodium hypochlorite. An image of the master cone was obtained. AH Plus sealant and ProTaper gutta percha points were used to obturate the root canals.



Fig 1: Pre-Operative



Fig 2: Post-Operative

Discussion

The outcome of root canal therapy is determined by the clinical trinity of accurate diagnosis, sufficient chemomechanical preparation, and three-dimensional obturation. One of the most crucial aspects to the success of the endodontic procedure is the first stage of the endodontic triad, or accurate diagnosis. Negligence in the removal of pulpal tissue and microorganisms from all pulp canals is one of the main causes of root canal treatment failure. Therefore, a proper radiographic diagnosis is essential to the effectiveness of endodontic therapy.³ Therefore, radiographs were collected at several angles to reduce the possibility of "missed canals". In the Indian population, the prevalence of radix entomolaris is less than 5%, and such cases are rarely seen while receiving dental care. Although the precise cause of radix entomolaris is still unknown, some writers speculate that it may be caused by a disruption during odontogenesis or by the high level of genetic penetrance. A minimum of two angulated diagnostic radiographs are required, in addition to a thorough clinical examination, to prevent any iatrogenic errors. It is possible to prepare a modified trapezoidal access cavity and look for additional canal orifices if RE is identified before beginning endodontic therapy.⁴ A thorough understanding of the law of symmetry will allow you to identify the missed canal using a variety of techniques, including cone beam computed tomography imaging, visualising the dentinal map and canal bleeding points using magnification, ultrasonic tips, staining the chamber floor with 1% methylene blue dye, performing the champagne bubble test, and staining the chamber floor with methylene blue dye.

De Moor et al. examined the morphology of the radix entomolaris and found that these canals were typically bent. The establishment of straight-line access and preparation of gliding path must therefore be prioritised in order to avoid procedural errors after first root canal exploration with tiny files (size 10 or less), together with radiographic working length and curvature determination.⁵

Conclusion

According to various populations, radix entomolaris occurs somewhere between 0.2 and 32% of the time. For an appropriate treatment to be carried out, it is essential to identify the precise kind or characteristic of the RE in terms of curvature and conformation. As a result, the management of such instances necessitates the use of diagnostic equipment and endodontic expertise by judges. The radiograph should be carefully interpreted utilising various horizontal cone projections and cutting-edge equipment like CBCT to help identify them. Using tools like magnification aids, orifice locators, and flexible files, the additional canal and root can be managed once they have been identified.

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