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REVIEWER'S REPORT

Manuscript No.: IJAR-53148 Date: 06/08/2025

Title: MANDIBULAR MOLAR WITH RADIX ENTOMOLARIS AND MIDDLE MESIAL CANAL : A RARE CLINICAL ENCOUNTER

Recommendation:

Accept as it is .....Yes.....
Accept after minor revision.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality	•			
Techn. Quality	•			
Clarity	•			
Significance	•			

Reviewer Name: Dr. Sireesha Kuruganti **Date:** 06/08/2025

Reviewer's Comment for Publication.

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

The manuscript is well-structured and provides a detailed account of a rare clinical case. The authors effectively used existing literature to support their findings and classify the anatomical variations observed. The use of clear language and a logical flow makes the report easy to follow. The clinical management described is appropriate and aligns with established endodontic principles. The authors correctly emphasize the importance of advanced diagnostic and magnification aids in successfully managing such complex cases.

Detailed Reviewer's Report

In-depth Review of "MANDIBULAR MOLAR WITH RADIX ENTOMOLARIS AND MIDDLE MESIAL CANAL: A RARE CLINICAL ENCOUNTER"

1. Title:

The title is clear and accurately reflects the content of the manuscript, which is a case report on a rare dental anatomical variation.

2. Abstract:

The abstract effectively summarizes the case report. It correctly identifies the rare combination of a radix entomolaris (RE) and a middle mesial canal (MMC) in a mandibular first molar. It emphasizes that this anatomical variation requires meticulous diagnostic evaluation and careful endodontic management. The abstract also highlights the importance of using advanced technology such as microscopes, loupes, and cone-beam computed tomography (CBCT) to enhance treatment success.

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3. Introduction:
* The introduction establishes the importance of understanding dental anatomy and its variations for successful endodontic treatment.
* It correctly identifies incomplete instrumentation, improper cleaning, and faulty obturation as primary causes of endodontic treatment failure. It also states that untreated root canals, particularly those with anatomical abnormalities, are a frequent cause of failure because the operator is unaware of their existence.
* The manuscript accurately defines radix entomolaris (RE) as an additional distolingual (DL) root in mandibular molars, first mentioned by Carabelli in 1844.
* It correctly defines radix paramolaris as an extra mesiobuccal (MB) root in mandibular molars.
* The introduction mentions that the presence of a middle mesial canal (MMC) was first reported by Vertucci and Williams in 1974.
4. Case Report:
* The case report provides a clear, step-by-step account of the clinical encounter.
* A 35-year-old female patient presented with pain in the lower left back teeth region. The patient's medical history was non-contributory.
* Clinical examination revealed a tooth-colored restoration on the left mandibular first molar (tooth 36), which was tender on percussion. The tooth showed a delayed response to an electric pulp test.
* A preoperative radiograph revealed radiolucency under the restoration, approaching the pulp, and slight widening of the periodontal space around the mesial root's apex. An additional distal root was also observed.
* The final diagnosis was symptomatic irreversible pulpitis with apical periodontitis, and the tooth was identified as having a radix entomolaris.
* Non-surgical endodontic treatment was planned, followed by crown placement.
* The use of CBCT was considered only if the case could not be managed with magnification aids and digital radiography.
* The procedure details are well-documented, including anesthesia with 2% lignocaine with 1:80000 adrenaline, access cavity preparation, and canal identification using a dental loupe and a DG-16 explorer.
* Four orifices (MB, ML, DB, and DL) were initially found, with a middle mesial canal (MMC) orifice discovered later along the line connecting the MB and ML orifices.
* The working length was determined with an electronic apex locator and confirmed with radiographs.
* Cleaning and shaping of the five canals were performed with Protaper gold files, and the MMC was observed to join the MB canal at its middle third.
* The case report mentions the irrigants used (3% sodium hypochlorite and 17% EDTA) and the placement of calcium hydroxide as an intracanal medicament.
* The second appointment involved further irrigation, and single-cone obturation was performed with AH Plus sealer.
* Post-endodontic restoration was completed with composite. The patient was asymptomatic at a one-week review.
5. Discussion:
* The discussion section provides further context on the anatomical variations.
* It clarifies that the occurrence of an additional lingual root was first noted by Carabelli (1844) and later labeled by Bolk (1915). De Moor et al. first mentioned the extra DL root and termed it RE.
* A study on the South Indian population by Chandra et al. found the prevalence of RE to be 13.3%.
* RE can be found on the first, second, and third mandibular molars, with the least frequent occurrence on the second molar.
* The manuscript mentions different classifications of RE by Carlsen and Alexandersen (1990) based on the location of its cervical part, by De Moor et al. (2004) based on root/canal curvature, and by Song et al. (2010) who added "Small" and "Conical" types.

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* It reiterates that the presence of an MMC was first reported by Vertucci and Williams (1974) and that its incidence is 2.6–10% in mandibular first molars.
* Pomeranz et al. classified MMCs into three categories: fin, confluent, and independent. The manuscript correctly identifies the MMC in this case as "confluent" because it joined one of the main canals, specifically the mesiobuccal canal.
* The RE in this case was classified as De Moor's Type I, characterized by a straight root and root canal.
* The discussion effectively links the case to existing literature and classifications, demonstrating a solid understanding of the subject matter.

6. Conclusion:

* The conclusion correctly emphasizes that identifying and negotiating additional canals require operator experience and a thorough understanding of anatomical variations.
* It highlights that failure to detect and treat extra root canals can significantly impact endodontic treatment outcomes.
* The conclusion reinforces the value of 3D imaging tools like CBCT and magnifying tools like loupes and microscopes for the correct diagnosis and effective treatment of such complex morphologies.

Overall Assessment:

The manuscript is well-structured and provides a detailed account of a rare clinical case. The authors effectively used existing literature to support their findings and classify the anatomical variations observed. The use of clear language and a logical flow makes the report easy to follow. The clinical management described is appropriate and aligns with established endodontic principles. The authors correctly emphasize the importance of advanced diagnostic and magnification aids in successfully managing such complex cases.