

# Root Canal Treatment of Radix Entomolaris Mandibular First Molar in a Geriatric Patient - A Case Report

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## Introduction

The target of an endodontic treatment, is to prevent and intercept pulpal / periradicular pathosis, to conserve a tooth affected by pathosis and to prevent recontamination after the treatment. In order to do so, a sound knowledge of basic root and root canal morphology as well as possible variation in anatomy of the root canal system is important in doing a successful root canal treatment. Careful radiographic examination and thorough clinical exploration of the tooth being treated is important in order to negotiate all the canals during an endodontic treatment.

Mandibular molars sometimes present a variation called radix entomolaris, with the tooth having an extra root attached to its lingual aspect. This third lingual root, first mentioned in the literature by Carabelli<sup>[1]</sup> is called the radix entomolaris (RE).

So, understanding the presence of this root and the angulation of the root canal, plays a vital role in endodontic management of the tooth.

This case report describes the successful diagnosis and treatment of mandibular first molar of left side, ( that is tooth number 36) with a separate distal root.

## Case Report

A 78-year-old female patient reported to our hospital with severe pain and tenderness in mandibular left posterior region for 15 days. On clinical examination, deep caries was observed in tooth number 36 and proximal caries was observed in 35 and 37 as well. Radiographic examination confirmed that caries was approaching pulp in 36 which showed severe tenderness to percussion.

So, RCT was planned for 36 followed by which ret of 35 and restoration of 37 would be done.

Radiographic evaluation revealed the following-

1. Deep mesiodistal proximal decay in 36 involving pulp.

2. Angulated radiograph showed the presence of an extra distal root on the lingual aspect, confirming that it's a radix ento molar is tooth.

The tooth was isolated using rubber dam isolation and caries was excavated completely.

Access prep was done and pre-endodontic build up was done using liquid dam material. Proper tactile examination and detailed study of the preoperative radiograph proved to be helpful. 4 canals were negotiated using 8K and 10K files.

## Shaping Protocol

Coronal flaring was done using One flare file (Micromega, France).

10k file was used to instrument the canal till it became loose in all the canals.

Glide path preparation was done with the help of One G file (Micromega, France).

Shaping of the canals was done with 2 shape files (Micromega, France).

## Irrigation Protocol

Throughout shaping, 5.25% sodium hypochlorite was used after each file. Side vented 30 gauge needles were used for irrigation.

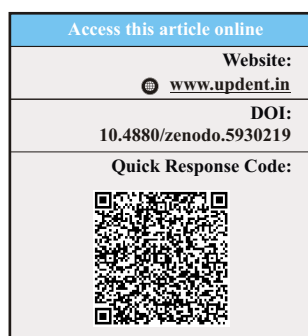
After shaping, the following protocol in each canal, was used for irrigation and activation of irrigants-

- 1). 17% EDTA – 1 ml per canal – ultrasonic activation with endoultra (vista).
- 2). Normal saline used to flush the canals.
- 3). 5.25 % sodium hypochlorite –ultrasonic activation. (4 such cycles repeated per canal)
- 4). Normal saline.

## Obturation Protocol

Canals were dried with paper points. Cone fit intra oral radiograph was made.

Canals were obturated with bio ceramic sealer – Ceraseal (meta-biomed) along with single cone. A lateral canal got filled up in relation with the distal canal which was observed on post-operative radiograph.



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### Post Endodontic Restoration

Core build up was done using heated composite.

Since there was a huge loss of tooth structure and we wanted to conserve the buccal & lingual tooth structure, an overlay was designed and bonded.



Figure 1. Pre-Operative

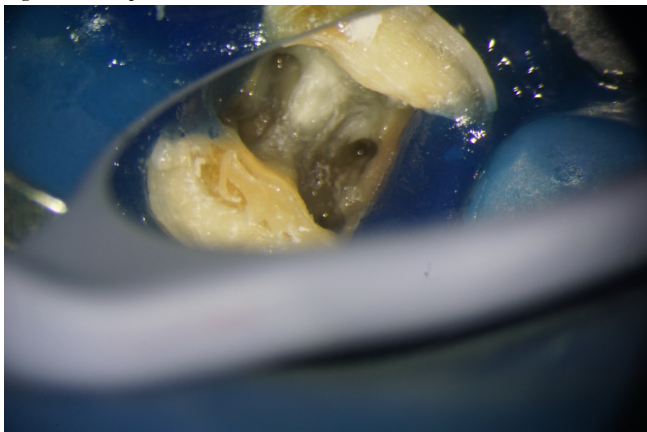


Figure 2. Caries Excavated, Isolation Done. Pre Endo Build Up Done with Liquid Dam.

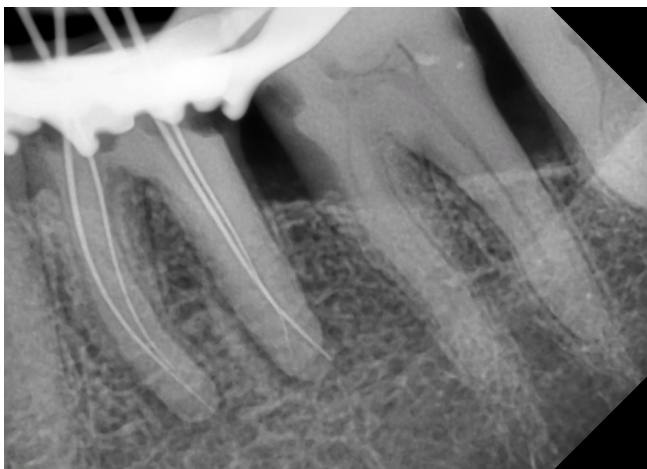


Figure 3. Working Length



4. Cone Fit



Figure 5. Obturation in Progress



Figure 6. Overlay



Figure 7. Overlay Bonded.

## Discussion

A sound knowledge of root canal anatomy and its variations is important for satisfactory management of a tooth endodontically.

RE (Radix Entomolaris), can be classified into four different types depending on the location of its cervical part<sup>[2]</sup>:

**(I) Type A:** The RE is located lingually to the distal root complex which has two cone-shaped macro structures.

**(II) Type B:** The RE is located lingually to the distal root complex which has one cone-shaped macro structures.

**(III) Type C:** The RE is located lingually to the mesial root complex.

**(IV) Type AC:** The RE is located lingually between the mesial and distal root complexes.

Angulated radiographs also play an important role in deciphering a lot of details about the canal anatomy. A good angulated pre-operative radiograph serves to be very helpful in endodontic treatment of such teeth.

Using magnification and good source of illumination helps in treating such teeth in a conservative manner, because of better visibility.

Irrigation plays a crucial role in proper cleaning of the root canal system. Thus, it's important to understand the actions of various irrigating solutions and their role in proper disinfection of canal systems.

## Conclusion

Awareness of the variations related to configuration of canals and types in mandibular molars is important for a clinician. Tactile examination under magnification serves to be really helpful in locating a canal and being as conservative as possible during an endodontic treatment. A good quality pre-operative radiograph is of high value during the root canal treatment.

## References

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