

**Endodontic management of dilacerated radix paramolaris in mandibular third molar**

<sup>1</sup>Garima Garima, Manav Rachna Dental College, Surajkund Road, Faridabad

<sup>2</sup>Tushar Kohli, Manav Rachna Dental College, Surajkund Road, Faridabad

<sup>3</sup>Namrata Mehta, Manav Rachna Dental College, Surajkund Road, Faridabad

<sup>4</sup>Deepti Sreen, Manav Rachna Dental College, Surajkund Road, Faridabad

<sup>5</sup>Alpa Gupta, Manav Rachna Dental College, Surajkund Road, Faridabad

**Corresponding Author:** Garima Garima, Manav Rachna Dental College, Surajkund Road, Faridabad

**Citation of this Article:** Garima Garima, Tushar Kohli, Namrata Mehta, Deepti Sreen, Alpa Gupta, “Endodontic management of dilacerated radix paramolaris in mandibular third molar”, IJDSIR- December - 2020, Vol. – 3, Issue - 6, P. No. 171 – 173.

**Copyright:** © 2020, Garima Garima, et al. This is an open access journal and article distributed under the terms of the creative commons attribution noncommercial License. Which allows others to remix, tweak, and build upon the work non commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Type of Publication:** Case Report

**Conflicts of Interest:** Nil

**Abstract**

Endodontic treatments of third molars are considered challenging because of their location, aberrant anatomy, and unpredictable eruption patterns. Curved roots are common in third molars. Radix is one of the most common anatomic variation in mandibular molars and the root is termed paramolaris when it is positioned mesiobuccally. The following article presents a case report of the endodontic treatment of a mandibular third molar with severely curved radix paramolaris root.

**Introduction**

Endodontic management of third molars often proves to be challenging because of the peculiar positioning of the tooth that leads to poor vision and accessibility. (1) The anatomical variations often found in third molars are curved roots, bayonet roots, fused canals, C-shaped canals. The prevalence of curved canals has been found to be in the range of 3.3% to 30.92% which is relatively

higher in mandibular third molars, as compared to maxillary molars. The increased root curvature poses great difficulty in optimal cleaning, shaping and obturation of the curved canal. (2,3)

The unique morphology of dilacerated root canals often pose utmost challenges in their endodontic management. Common causes of failures in such cases are primarily related to procedural errors such as ledges, fractured instruments, canal blockages, zip and elbow creations. Proper knowledge of dental anatomy and its variations is essential for the success of endodontic treatment. (4)

An additional third root, first mentioned by Carabelli, is called the radix. Radix Entomolaris is located distolingually and Paramolaris (RP) is located mesiobuccally. (5) When these supernumerary roots are present, complete diagnosis and treatment plan is imperative for proper holistic management. The aetiology behind the formation of RE and RP is not well know,

however recent data suggests racial genetic factors contribution to the formation of radix. (6)

The presence of a RE or a RP has clinical implications in endodontic treatment. Clinicians should take into consideration the presence of such anatomical variations, because an inaccurate diagnosis of these supernumerary roots may lead to complications or a missed canal during root canal therapy. (7) The present case report showcases successful management of mandibular third molar with a severely curved radix paramolaris.

### Case report

A 36 year old female patient reported to the OPD with the complaint of pain in lower right back tooth region. Clinical and radiographic examination revealed cariously exposed pulp and the tooth was sensitive to percussion. An extra root on the mesial side, with a sharp bend, was evident on the radiograph. (Fig 1)

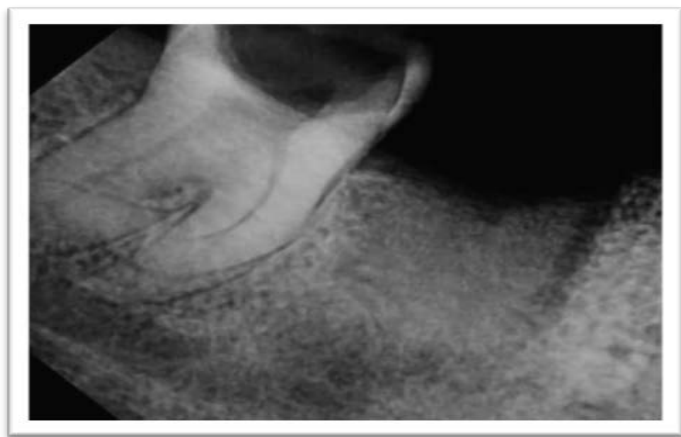


Fig 1.

After anaesthetizing the tooth, access preparation was done with endo-access bur and canal orifices were located with DG 16 endodontic explorer. Initial negotiation of the root canals was conformed with K-file 10. The canal lengths were determined radio graphically with K file ISO 15 size and correlated with an electronic apex locator. (Fig 2)

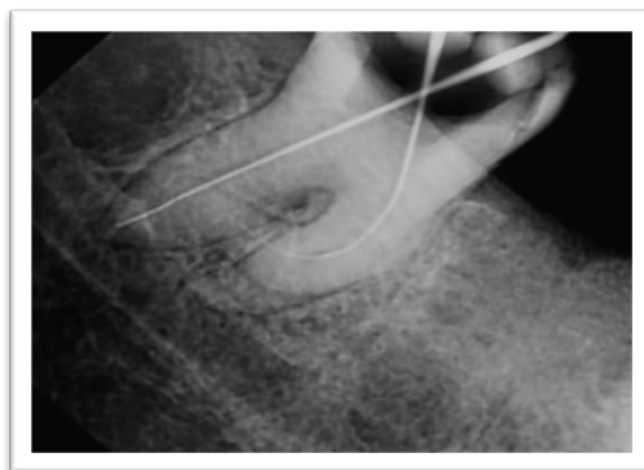


Fig 2

Canals were cleaned properly with 3% sodium hypochlorite along with EDTA and shaped with rotary instrumentation (NeoEndo) till 25.4%. (Fig 3)

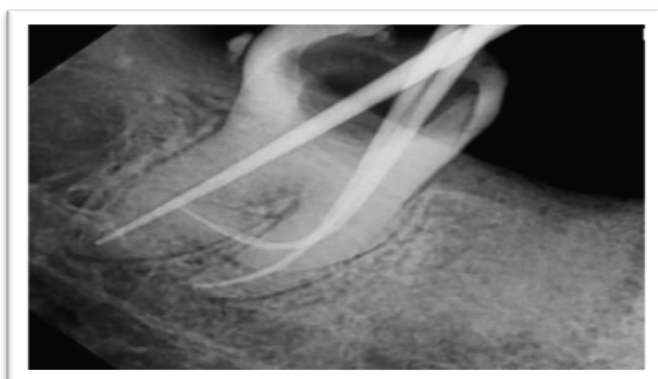


Fig 3

Master cone radiograph revealed proper fitting of cones. Canals were dried with paper point and obturation done by using gutta percha and AH plus sealer. (Fig 4)



Fig 4.

## Discussion

The presence of an RE or an RP has clinical implications in endodontic treatment. An accurate diagnosis of these supernumerary roots can avoid complications or a 'missed canal' during root canal treatment. A thorough inspection of the preoperative radiographs taken at multiple angulations helps to reveal the presence of the extra root. (8)

A severe root inclination or canal curvature, especially in the apical third can cause shaping aberrations such as straightening of the root canal or a ledge, with root canal transportation and loss of working length resulting. The use of flexible nickel-titanium rotary files allows a more centered preparation shape with restricted enlargement of the coronal canal third and orifice relocation. (4,9)

The initial diagnosis of a radix entomolaris or paramolaris before root canal treatment is important to facilitate the treatment procedure, in order to avoid subsequent failure of the root canal treatment due to missed canals. (10) In the current case report, the severe curvature of the supernumerary root was evident on the preoperative radiograph, that helped the clinician to decide the protocol for a successful endodontic treatment outcome.

## Conclusion

With the help of proper protocol for treatment and using flexible rotary systems, even most severely curved canals can be negotiated and treated successfully as in the present case report.

## References

1. H. M. A. Ahmed, "Management of third molar teeth from an endodontic perspective, " *European Journal of General Dentistry*, vol. 1, no. 3, p. 148, 2012.
2. S. W. Schneider, "A comparison of canal preparations in straight and curved root canals, " *Oral Surgery, Oral Medicine, and Oral Pathology*, vol. 32, no. 2, pp. 271–275, 1971.
3. J. Cosi é, N. Gali é, M. Vodanovi é et al., "An in vitro morphological investigation of the endodontic spaces of third molars," *Collegium Antropologicum*, vol. 37, no. 2, pp. 437–442, 2013.
4. H. Jafarzadeh and P. Abbott, "Dilaceration: review of an endodontic challenge, " *Journal of Endodontics*, vol. 33, no. 9, pp. 1025–1030, 2007.
5. De Souza-Freitas JA, Lopes ES, Casati-Alvares L. Anatomic variations of lower first permanent molar roots in two ethnic groups. *Oral Surg Oral Med Oral Pathol*, 1971; 31:274-278.
6. De Moor RJ, Deroose CA, Calberson FL. The radix entomolaris in mandibular first molars: an endodontic challenge. *Int Endod J*, 2004; 37:789-799.
7. Carlsen O, Alexandersen V. Radix paramolaris in permanent mandibular molars: identification and morphology. *Scand J Dent Res*, 1991; 99:189-195.
8. Calberson F, De Moor R, Deroose C. The radix entomolaris and paramolaris: Clinical approach in *Endodontics*. *J Endod*, 2007; 33:58-63.
9. Song JS, Kim SO, Choi BJ, Choi HJ, Son HK, Lee JH. Incidence and relationship of an additional root in the mandibular first permanent molar and primary molars. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*, 2009; 107:56-60
10. Loh HS. Incidence and features of three-rooted permanent mandibular molars. *Aus Dent J*, 1990; 35:434-437.