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RADIX ENTOMOLARIS- A CASE REPORT

Endodontic

Kanika Jain Post graduate student Santosh Dental College, Ghaziabad.

Santoshni Samal* Post graduate student SCB dental college and hospital ,Cuttack *Corresponding Author

Vijayadhar Bhatt Professor and Head Department of Conservative Dentistry and Endodontics, Santosh Dental College, Ghaziabad.

Aakriti Senior Lecturer, Department of Conservative Dentistry and Endodontics, Santosh Dental College, Ghaziabad.

ABSTRACT

Root canal treatment failures are problematic for both the clinicians as well as patient. A major cause of such failures is due to lack of knowledge of root canal anomalies which in turn leads to canals that are missed in due course of instrumentations and are left undebrided. Radix entomolaris is one such anomaly. Normally the permanent mandibular first molars has only two roots but in this anomaly , they may have one extra root either present buccally or lingually .This report is an effort to understand the prevalence, morphology , clinical approach and management of Radix Entomolaris which will leads to a successful root canal treatment.

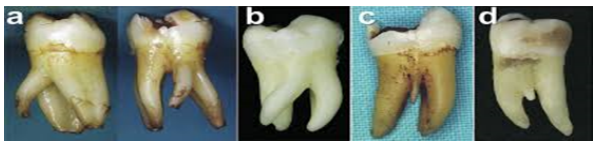
KEYWORDS

Radix Entomolaris (RE), anomaly, morphology

INTRODUCTION

To achieve optimum result in root canal treatment, knowledge of various anomalies of root canal system is of paramount importance. Lack of knowledge of anomalies of root canal system results in missing canals , which leads to inadequate removal of pulp from the canals. This incomplete removal of pulp from canals surely leads to failure of root canal treatment. Out of various anomalies of root canal system, one anomaly stands out and that is presence of Radix Entomolaris.

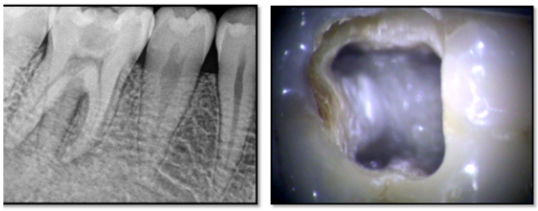
This radix entomolaris is the presence of extra root distolinguallyin mandibular molars, mainly in first molars. Although Radix entomolarisis (RE) considered an Asiatic trait with high prevalence and eumorephic root morphology in certain races such as Chinese, Taiwanese, Koreans, the incidence of RE among Indian population is found to be very low and only 0.2%. However, few studies have reported higher prevalence of 2.19 – 13.3%[1],among Indian population. This RE poses a serious challenge to the dental operator. So, proper knowledge of locating, instrumenting and obturation of such a canal is of extreme importance. This case report deals with such a case of Radix Entomolaris.



CASE REPORT

A 28-year-old male patient reported to the Department Conservative Dentistry and Endodontics in Santosh Dental College Ghaziabad with pain in lower right back tooth region. This pain was severe throbbing type which aggravated on taking cold food and persisted even after removal of stimulus. While doing intraoral examination, it revealed a big carious lesion present on the occlusal aspect of the right mandibular first molar.

On radiographic examination, a big carious lesion was seen involving the pulp . When another radiograph was taken with a SLOB rule, the presence of extra root between mesial and distal root could also be seen in that radiograph. Then the tooth was diagnosed with irreversible pulpitis w.r.t tooth number 46.



The patient was informed about the problem, treatment and prognosis of the tooth and after obtaining his consent , the root canal treatment of the respective tooth was started.

The right mandibular first molar was anaesthetized using 2ml of 2% lidocaine containing 1:200,000 epinephrine (LOX 2%, Neon laboratories Ltd., Mumbai, India). Caries were excavated and access preparation was done with an endo access bur no. 1 (Dentsply, Switzerland) and canal orifices are located using DG-16 endodontic explorer. After removing roof of pulp chamber two mesial canals were found. On the distal side one canal was located slightly buccally and another one was found slightly on the lingual side .The shape of access cavity was of trapezoidal form. The patency of canal was checked with 15 number K-file (Mani, Japan) and working length was determined radiographically. Then , further root canal preparation was done using K files to prepare a glide path for the rotary instrumentation. During cleaning and shaping, the root canals were irrigated using 2.5% sodium hypochlorite solution (UPS HygeinesPvt Ltd, Mumbai, India) to remove organic debris and lubricated with glyde (Dentsply, Switzerland). All canals were enlarged upto 4% ,#25Hyflex CM files (coletene, Switzerland). Obturation was perfomed with initially taking corresponding guttapercha points (coletene, Switzerland) and taking a master cone radiograph. Then, selected guttaperchacones were coated with resin based sealer (Ammdent, Amritchem&Min.Ag., Mohali) and placed in canals and were sealed. Access preparation was then restored with composite resin followed by a Porcelain fused to metal crown.

DISCUSSION

Prevalence of Radix Entomolaris

The presence of RE in the first mandibular molar is associated with certain ethic groups. In African population a maximum frequency of 3% is found, while in Eurasian and Indian population the frequency is less than 5%[2] .In population with mongoloid traits (such as Chinese, Eskimos, and American Indians) it ranges from 5 to 30%. In Caucasians, it is the rare trait having frequency of 3.4 to 4.2% and is considered to be unusual or dysmorphic root morphology[3] .Bilateral occurrence of RE ranges from 50 to 67%[3].

The exact cause of RE is still not known. Some says etiology behind the formation of RE is due to atavistic gene[4].In dysmorphic, supernumerary roots its formation is related to external factors during odontogenesis, or to penetrance of an atavistic gene or polygenetic system (atavism is the reappearance of trait after several generations of absence)[5].In eumorphic roots, racial genetic factors influences the more profound expression of particular genes that results in more pronounced phenotypic manifestations[6,7].

Morphology of Radix Entomolaris

The RE is located distolingually with its coronal third partially or

completely fixed to the distal root. The dimension of RE can vary from short conical extension to mature root with normal lengthy root canal.A classification given by Carlsen and Andresen based on location of cervical part. They are A,B,C,AC. Type A&B refers to distally located cervical part, Type C refers to mesially located cervical part and Type AC refers to the location of cervical part in central location in between the mesial and distal components[8].

In apical two third of RE, a moderate to severe mesially or distally oriented inclination can be present . In addition to this inclination the root can be straight or curved towards the lingual side. According to the classification given by De Moor et al , based on root curvature variants in buccolingual direction, Type 1 refers to straight root/ canals, Type 2 refers to curvature at the entrance of orifice and Type 3 refers to RE with two curvatures, one at the coronal and one at the middle third[9].

Clinical Approach

The presence of RE 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 preoperative radiographs and interpretation of particular marks or characteristics such as unclear view or outline of distal contour or the root canal can indicate presence of 'hidden ' RE. To reveal the RE, a second radiograph using same lingual apposite buccal (SLOB) rule should be taken from a more mesial or distal approach.

The location of orifice of root canal of RE has implication for opening access cavity. The orifice is located distolingually from the main canal in the distal root. An extension triangular cavity to distolingually results in rectangular or trapezoidal outline form. Visual aids such as loupes, intra oral camera, or dental microscope can be useful.

Some of the common problems encountered during treatment of RE are :

- Difficulty in radiographic interpretation.
- Inability to locate the fourth canal
- Modification in access cavity preparation
- Confusion in working length determination

Apart from these difficulties, clinicians are prone to commit some iatrogenic errors like straightening of canal resulting in loss of working length, ledge formation , zipping , transportation or even perforation.

CONCLUSION

Clinician should be aware of these anomalous root morphological variation of RE in terms of root inclination and root canal curvature. This particular variation Radix Entomolaris may be a challengefor the dental operators who do not have proper diagnostic aids and lack in proper knowledge of root canal anatomy. Pre-operative radiological assessment from different angles, clinical evaluation of root canal number and morphology using various diagnostic methodologies, proper access preparation and thorough examination of pulp to locate and debride all canals is important. So thorough knowledge of root canal anatomy and awareness of variations make treatment more successful and if the dental operator exhibits proper skills, these cases can be done with ease.

REFERENCES

1. Filip L.Calberson, RoelandJ.Moor, ChristopheA.Derooose. The Radix Entomolaris and Paramolaris: Clinical Approach in endodontics.JOE 2007;33:58-63.
2. Shailendra Gupta, Deepak Raisingani, Rishidev Yadav. The Radix Entomolaris and Paramolaris : A case report. J Int Oral Health 2011.
3. Ratnakar P.,Saraf PA, Patil TN. Endodontic management of Radix Entomolaris : case reports . JOE 2018;30:163-165.
4. Nageshbolla, Balaram D. Naik, Sarath raj kuvari. Radix Entomolaris : A case report. JOE.
5. Vertucci FJ, Williams RG. Root canal anatomy of the mandibular first molar.INJ Dent Assoc 1974;48:27-28.
6. Carleson O, AlexendraV. Radix Entomolaris : Identification and Morphology.ScanJ.Dent Res 1990;98:63-73.
7. ReiberoFC,Consolaro A. Importanciaclinica y antropolagica de la raizdistolingualenlos molars inferiors parameters. Endodoncia 1997;15:72-8.
8. Yew SC,Chan K.A retrospective study of endodontically treated mandibular first molars.J Endod1993;19:471-3.
9. Demoor, Deroose, Carleson. The Radix Entomolaris in mandibular first molars: an endodontic challenge. Int Endod J2004;37:789-99.