TWO ROOTED MAXILLARY LATERAL INCISOR-REPORT OF A RARE CASE

Case Report

Huma Iftikhar¹, Boris Saha², S.K. Mishra³
Department of Conservative Dentistry & Endodontics
Dr. Z.A. Dental College, Aligarh Muslim University, Aligarh

ABSTRACT:

Maxillary lateral incisors are generally considered as a tooth with a single root and single canal. This is not true in all cases as case reports have advocated maxillary lateral incisors showing two roots with two or three root canals, Thorough knowledge of the internal and external dental anatomy and its variations is essential for a successful endodontic treatment. This case report deals with the periapical surgery in a two rooted maxillary lateral incisor along with the central incisor.

Key words:

Abnormal morphology,
Two roots, Lateral incisor,
Periapical surgery

Source of support : Nil

Conflict of interest: None

INTRODUCTION : Most endodontic literature project maxillary lateral incisor as a tooth with a single root and single canal. (1-3) However, morphological variations for these teeth include the presence of two, [4, 5] three, [6, 7] four, [8] and even five canals, [9] usually associated with the occurrence of traumatic stimuli during tooth development process. [10] Other morphological variations have also been reported such as dens invagination, [9, 11] radicular groove, [12] and fusion. [13] The clinician should always be aware of the possible anatomical variations of the teeth and try to judge their location, length and relationship to one another accurately.

Generally, it is considered that the pulp chamber of maxillary lateral incisor is wider mesio distally than buccolingually. Cross section at the Cement enamel junction (CEJ) shows a pulp chamber centred in the root; and its shape may be triangular, oval, or round. From the CEJ, the pulp canal usually becomes round in cross section in the midroot and apical areas. The lingual shoulder of dentin must be removed before instruments are used to explore the canals. This case reports a successful periapical surgery of maxillary lateral incisor with two roots and two canals along with a central incisor. Previous endodontic treatment failed because failure to recognize the two separate root canals of lateral incisor. Afterwards the second root was detected during surgery and it was treated with proper precaution.

CASE REPORT : A 17-year-old male was referred to the department of conservative dentistry and endodontics at Dr Z. Ahmad dental college and hospital with a history of mild pain and swelling in the upper left lateral incisor of 15 days duration. Dental history revealed incomplete root canal treatment done past 12 months ago with a history of trauma. Extraoral examination revealed no palpable lymph nodes while the face was bilaterally symmetrical, and lips were competent. Medical and family history was non-contributory. Clinical examination showed a sinus in relation to tooth 21 and 22. Temporary restorative material was seen in the incisal aspect of the tooth. Radiographic examination revealed periapical radiolucency with respect to tooth number 21 and 22.

Figure Preoperative radiograph

Biochemical and haematological investigations were normal. IOPA radiograph Figure 1 showed circumscribed radiolucency measuring 5 mm×7 mm in diameter at the apex of the tooth. A clinical diagnosis of chronic apical abscess was established.

In view of the clinical symptoms and large periapical pathology, a surgical endodontic treatment was planned to curette the granulomatous tissue and locate, debride and obturate the missing canal. Under local anaesthesia and rubber dam isolation, access to the pulp chamber was achieved with round bur. Biomechanical preparation was done with 1 % NaOCl solution and the canal were explored with a size 8 K file, the working length was determined by Electronic apex locator (RootZx 2, Morita MfgCorp, Japan) at 20mm of central incisor and 18mm buccal and 16mm palatal of the lateral incisor. In the Lateral incisor both the canals were cleaned and shaped upto size 30k master apical hand nickel titanium file and step back were done. A full-thickness mucoperiosteal flap was reflected on the facial aspects under local anaesthesia. Labially bony window was enlarged with respect to the periapical area of 21 & 22. In the periradicular area, the granulomatous tissue was carefully curetted. (Fig 2). The apex of the tooth was not resected as per the new protocol. Canals were obturated by lateral condensation method (Figure 3). Sutures were placed across the flap for soft tissue apposition (Figure 4). Sutures were removed after 5 days.

Figure Flap was raised, bony window was enlarged, & periapical curettage was done.

Figure Canals obturated

Follow up radiograph post 12 months shows complete healing of periradicular area.

Figure Sutures placed

Figure 5 Follow up radiograph after 12 months showing complete healing of periapical area.

DISCUSSION : The present case report demonstrates a rare case of maxillary lateral incisor teeth with two separate roots and two root canals. Successful endodontic treatment depends upon proper debridement and hermetic seal. Accessory root canals that are not cleaned and obturated might provide a source of persistent irritation, compromising the long-term success of the root canal therapy. The aetiology of the anomaly is unknown, an in growth of tissue from Hertwig's epithelial root sheath (HERS) has been claimed as a possible cause.[15] It is presumed that at the time of root formation the surface of the root or the forming periodontium (HERS) suffered some traumatic injury, and, as a result of that, a radicular shaped accessory formation developed. Presence of supernumerary root has a genetic penetrance. [16] Radiographic examination is an important part in diagnosis and treatment planning.[17] Periapical radiographs with variations of angulation can be obtained to increase their accuracy in identifying anatomical anomalies.[18] Cemento enamel Junction is an important landmark for locating pulp chamber and orifices.[19] Palpation of the attached gingival aids to determine the root location and direction. Considering the fact that so much of aberrations exist in these teeth, it becomes mandatory that when a patient comes with persistent pain or sensitivity to hot and cold after root canal treatment, the clinician must suspect the presence of missed canals. [20]

CONCLUSION : Although it is considered a rare developmental dental anomaly with low prevalence, the occurrence of accessory root deserves attention in clinical practice. The importance of careful preoperative evaluation especially radiographs and different diagnostic resources

available cannot be overemphasized. This case report shows us the importance of correct diagnosis in the endodontic practice for proper treatment planning.

CONSENT : A written informed consent was obtained from the patient's parents for the publication of this case report and disclosure of images.

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Dr. Huma Iftekhhar

Department of Conservative Dentistry
& Endodontics, Dr. Z.A. Dental College,
Aligarh Muslim University, Aligarh
Email: huma.iftekhhar@yahoo.com