

RARE AND UNUSUAL PRESENTATION OF MAXILLARY LATERAL INCISOR WITH AN ACCESSORY ROOT

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Abstract:

Accessory roots are commonly seen in mandibular canines, premolars and molars, especially third molars. They are rarely found in maxillary or mandibular incisors. Presence of such anomaly complicates the endodontic treatment and hence, affects the prognosis. Management of such cases requires a comprehensive knowledge of the clinical entity as well as the problems associated with it. This report presents a case of maxillary right lateral incisor with an accessory root in a 14-year-old boy. The anomalous tooth was pulpally involved and treated conservatively by endodontic treatment. The accessory root was surgically removed and aesthetic rehabilitation was done with ceramic full coverage restoration.

Key Words: Accessory root, endodontic treatment, full coverage restoration, maxillary lateral incisor, surgical amputation.

Introduction

In pediatric dentistry, one can come across numerous anomalies in the size, shape, number, structure and eruption of teeth. These anomalies occur because the developing teeth are influenced by a complex interaction of genetic and environmental factors.¹ Identification of these anomalies is important to provide preventive or interceptive treatment at an appropriate age to prevent further complications.

Tooth development is a continuous process in which a number of physiologic growth processes and various morphologic stages interplay to achieve the tooth's final form and structure.

Any disturbances during the stage of morphodifferentiation may lead to the anomalies of shape and size of the tooth, including the occurrence of an accessory root.² The term supernumerary roots is also used in describing the development of an increased number of roots on a tooth compared with the classical description in dental anatomy.^{1,3}

The maxillary lateral incisor is located at a site of high embryological risk. Sometimes they may be congenitally absent or involved in fusion and gemination. Several times developmental anomalies have been found in this tooth, such as-peg-shaped, dens invaginatus/dens in dente, palato-radicular grooves and talon cusps.⁴ However, Presence of accessory root is rarely found.^{3,5} This paper presents an endodontic and surgical treatment of infected permanent maxillary lateral incisor with an accessory root in a young patient.

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Case Report:

A 14-year-old boy reported seeking treatment for his painful maxillary right lateral incisor. Patient had previous episodes of spontaneous pain associated with the tooth. He had reported to the local dentist one month ago for the same. After a month's time there was recurrence of pain. His medical and family history was non-contributory. Intraoral examination revealed the presence of an access opening done by the local dentist on permanent maxillary right lateral incisor. Vestibular tenderness was elicited on palpation and the right lateral incisor was tender to percussion. There was no associated mobility of the affected tooth. Intraoral periapical (IOPA) radiograph of the maxillary right lateral incisor revealed, presence of accessory root on the mesial aspect of the main root. It was starting at the cervical third and extending up to the apical third. There was a large periapical radiolucency involving apices of both the roots (Figure 1). Diagnosis of chronic periapical abscess with maxillary right lateral incisor was made. Treatment was planned as root canal therapy for the main root canal and considering the amount of bone loss around the accessory root, it was decided for its surgical amputation.

Endodontic procedure:

The maxillary right lateral incisor was isolated using rubber dam, after administration of local anesthesia. Access opening was modified and working length of the main root canal was determined. Shaping and cleaning of the canal was performed using endodontic K-files and H-files [MANI, INC. Utsunomiya, Tochigi, Japan]. Irrigation of the root canal at every step was done with 5.2% sodium hypochlorite and normal saline. The root

canal was dried and filled with a paste of calcium hydroxide powder [Deepashree products, Ratnagiri, India] mixed with saline; access cavity was sealed with cavit [3M ESPE AG, Seefeld, Germany] and was kept under observation for two weeks. Final obturation was done using endodontic sealer [Endoflux, Ammdent, Mohali, India] and gutta-percha [Dentsply, France, SAS] by lateral compaction technique (Figure 2). After root canal filling the access cavity was sealed by glass ionomer cement (GIC) [Ketac™ Molar Easymix, 3M ESPE AG, Seefeld, Germany].

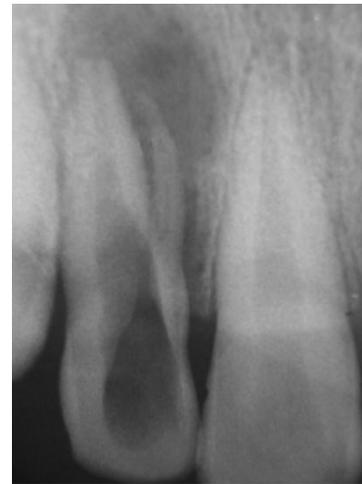


Figure 1: Preoperative IOPA radiograph.



Figure 2: Postoperative IOPA radiograph, after root canal filling.

Surgical intervention:

After administration of the local anesthesia, labial mucoperiosteal flap was reflected from left lateral incisor to right canine, with a releasing incision on right side. After gaining access to the accessory root area (Figure 3), the accessory root was amputated (Figure 4). The inflammatory lesion was thoroughly removed by curettage. The foramen corresponding to the accessory canal was sealed with GIC. The surgical site was irrigated with povidone iodine - saline solution. The flap was repositioned, approximated and closed with 3-0 silk sutures. One week later the sutures were removed, with normal healing being observed. The tooth was finally restored with ceramic full coverage restoration. The patient was followed-up for 6 months.

Discussion:

The etiology for accessory root formation remains unclear. However, several factors have been suggested for their occurrence. Such as, ingrowth of the tissue from Hertwig's epithelial root sheath (HERS).⁶ Kocsis and Marcsik⁷ presumed that, traumatic injury to the tooth during root development (HERS) resulting in a radicular shaped accessory formation. The most exaggerated form of a palatal (or lingual) radicular groove divides the tooth in to a main root and to a minor accessory root.⁸ According to Neville *et al.*³ presence of supernumerary root has a genetic penetrance. Maxillary incisor when presented with two roots or two root canals, consideration should be given to the presence of gemination, fusion, dens-in-dente, palatal/lingual radicular groove and some variation in the normal development of HERS.^{9,10}



Figure 3: Surgical area after reflection of mucoperiosteal flap, showing accessory root.



Figure 4: Surgically removed accessory root.

Gemination is division of a single tooth germ by an invagination, with resultant incomplete formation of two teeth. The term fusion refers to union of two normally separated tooth germs. These anomalies are usually characterized by the formation of a clinically wide tooth.¹ In the present case the treated lateral incisor crown had normal size and shape, when compared with the contra-lateral side. This ruled out gemination or fusion. On clinical examination there was no palatal/lingual groove associated with the involved tooth. As the patient reported with access cavity already prepared, presence of dens-in-dente could not be evaluated. However, the contra-lateral tooth was normal clinically and radiographically. Disturbance during normal development of HERS might have caused this anomaly.

Cases of maxillary lateral incisors with accessory root have been reported in the literature. Those teeth with pulpal involvement and apical periodontal inflammatory lesions, with or without palato-radicular groove were treated successfully by endodontic and surgical means.^{5,11-13} The accessory root doesn't contribute significantly to the support of the tooth, rather complicates the treatment.^{5,11} Hence, amputation of the accessory root and complete removal of all granulation tissue improves the healing process.

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