

CASE REPORT**UNUSUAL PRESENTATION OF 'U-SHAPED' IMPACTED MAXILLARY CENTRAL INCISOR WITH INTRANASAL ROOT: SUCCESSFUL SURGICAL MANAGEMENT****Prashant A. Punde¹, Nilesh M. Patil¹, Renuka L. Pawar².****ABSTRACT**

BACKGROUND: Dilacerations is a tooth deformity characterized by an angulation between crown and root causing non-eruption of the tooth. It generally occurs following trauma to the deciduous dentition apices of which lie close to the permanent tooth buds. According to Neville, maxillary and mandibular incisors contribute only approximately to 1% of the incidence of dilacerated teeth.

CASE DETAILS: A 15 year old male patient reported with chief complaint of missing anterior teeth in the left side of maxillary arch. Radiographic evaluation showed impacted maxillary left central incisor. The radiograph depicted very unusual extreme curve in the root of the same tooth giving it characteristic U-morphology. The root of this tooth was curving into the nasal cavity. Due to extreme curve, surgical removal was suggested by orthodontist. Surgically removing this highly placed tooth with apex into nasal cavity was a surgical challenge. This was done effectively by removing the tooth under local anesthesia itself.

CONCLUSION: U-shaped morphology in single rooted tooth is observed very rarely. This root curvature predisposes to fracture of root during surgical removal. Proper surgical protocol is to be followed during surgical removal of a tooth with such extreme root curvature to prevent fracture of the root and accidental displacement of the tooth into nasal cavity.

KEYWORDS: U-shaped root, impacted tooth, intranasal root, dilacerations.

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INTRODUCTION

Dilacerations is defined as a distorted root form, and it can occur from any distortion of the crown relative to the root (1, 2). This sort of lesion in a permanent tooth is caused by some trauma to the corresponding deciduous tooth (usually upper and lower incisors) (3–5). The severity of the lesion on a permanent tooth depends on the developmental stage of the tooth, the force of impaction and the direction the force of the trauma was applied with respect to the permanent tooth (6, 7). The trauma usually responsible for this type of lesion is frequent traumatic intrusion or avulsion during childhood, that usually have occurs before 4 years of age. Less frequently, the bend in root develops

secondary to the presence of an adjacent cyst, tumor or odontogenic hamartoma, e.g. odontoma, supernumerary tooth, etc (8).

It has been emphasized by van Gool that such an injury to permanent tooth, resulting in dilacerations, often follows traumatic injury to deciduous predecessor in which tooth is driven apically into the jaw. He has discussed this condition in detail and reported 18 such cases (10).

Determining prognosis and designing a treatment plan for a dilacerated impacted tooth are often difficult tasks. The dilemma facing clinicians is whether to adopt orthodontic eruption or surgical removal of these teeth. In this article, we are present a case of extremely dilacerated root

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of maxillary central incisor, which is attributed as very rare 'U-shape' morphology to the tooth.

CASE REPORT

A 15 years old male patient reported with missing upper front teeth on left side. His mother revealed he had history of trauma when he was 4 years old. The trauma resulted in intrusion of deciduous teeth in same region, as recalled by the patient. Family history was insignificant. General examination did not reveal any bone disorder or respiratory difficulty. Intraoral examination revealed missing 21, 23. Labial aspect of 22 was present in the edentulous space in the abnormal orientation. On palpation, labial bulge was seen near the floor of his nose on the left side. Intraoral periapical radiographs did not give exact picture of impacted tooth configuration due to unfavorable location. Thus, IOPA were insignificant and did not show complete tooth. Thus, orthopentamogram (Figure 1) and lateral cephalogram were advised which revealed impacted 21, 23 and horizontally placed 22. Lateral cephalogram revealed highly placed 21 at the floor of the nose. The root of 21 was seen extremely curved and the apex of the tooth was placed inside the nasal cavity on lateral cephalogram (Figure 2). Orthodontic opinion was advised. Due to unfavorable extreme curvature, surgical removal of 21 was planned. The position of the tooth was confirmed by labial bulge high in labial vestibule.



Fig.1: Preoperative orthopentamogram

After achieving proper anaesthesia, crestal incision with two vertical releasing incisions was placed on edentulous alveolus. Full thickness

mucoperiosteal flap was reflected till the base of the pyriform aperture. Labial bulge was seen on the anterior aspect of maxilla just lateral to ANS. Round bur was used to expose the tooth. The root of 21 was travelling from labial aspect of alveolus into the nasal cavity with convexity facing labially (Figure 3). Bone-guttering was done to create purchase point, and the complete tooth was delivered (Figure 4). After thorough irrigation, the socket (Figure 5) was packed with abgel and closure was done using interrupted sutures. Pressure pack was placed, and the patient was put on antibiotics and analgesics.

Wound healing was evaluated on the 1st, 3rd & 7th postoperative days. No complications were encountered, and the wound healed uneventfully without any esthetic or orthodontic complications.

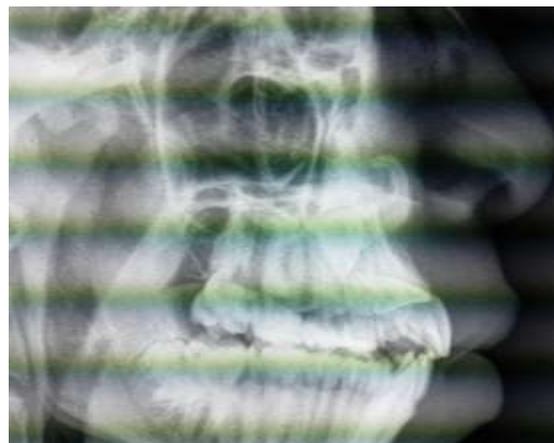


Fig. 2: lateral cephalogram showing curved root of 21 with intranasal apex



Fig. 3: The root of 21 was seen to be extremely curved with apex placed inside nasal cavity



Fig.4: ...extracted tooth specimen with U shape morphology of root



Fig. 5: Socket after tooth removal

DISCUSSION

According to Nevill, in one review of 1166 randomly selected patients, 176 dilacerated teeth were identified. The most commonly affected teeth are mandibular third molars, followed by maxillary second premolars and mandibular second molars. Of these teeth, maxillary and mandibular incisors are the least frequently affected representing approximately 1% of the series. (8).

If the trauma occurs while the crown of the permanent tooth is forming, enamel formation will be disturbed and there will be a defect in the crown of the permanent tooth (1). If the trauma

occurs after the crown is complete, the crown may be displaced relative to the root. Root formation may stop, leaving a permanently shortened root. More frequently, however, root formation continues, but the remaining portion of the root then forms at an angle to the traumatically displaced crown. If distortion of root position is severe enough, it is almost impossible for the crown to assume its proper position (1). The crown is usually dislocated forward with the palatal surface facing the vestibular site, the incisor border is turned up towards the anterior nasal bone; the root remains in its normal position. The curve or bend may occur anywhere along the length of root, depending on the amount of root formed when the injury occurred. (10)

There are currently contrasting opinions on both the therapeutic choice for cases of dilacerated teeth. The most commonly mentioned therapeutic solution in the literature is surgical extraction and substitution with Maryland-bridge or prosthetic/implants devices. This is most likely because of the technical difficulty involved in exposure and orthodontic alignment and the uncertain prognosis of such malformed teeth. Traumatically, displaced tooth in children should be repositioned as early as possible, so that when root formation does resume, distortion of the root position will be minimized.

Although orthodontic treatment has been reported in the literature, teeth with extremely dilacerated roots like the present case have to be removed surgically. Extreme curvature in the root is a surgical challenge for maxillofacial surgeon. Chances of root fracture increase in such cases. Root curving into nasal cavity will make the surgical removal more complicated with risk of intranasal displacement of the root. Surgical exposure of the tooth and bone removal also carries risk of damage to nasal vessels.

In this report, successful and careful management of curved root in nasal cavity has been documented. Utmost care was followed during bone removal and elevating the tooth. Crown of 21 was present in between buccal and lingual cortices. The tooth was not sectioned to prevent risk of root displacement into nasal cavity during elevation of crown portion or during sectioning. The dead space following extraction was packed using gelfoam for hemostasis to limit size of postoperative edema. Thus, we conclude

by stating that management of 'U shaped' impacted tooth is a very difficult challenge for surgeon, but with proper surgical principles & technique it can be managed successfully.

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