

CASE REPORT

Impacted Maxillary Central Incisor With Dilaceration

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ABSTRACT:

Maxillary central incisor impactions occur infrequently. Their origins include various local causes, such as odontoma, supernumerary teeth, and space loss. Dilaceration is one of the causes of permanent maxillary incisor eruption failure. It is a developmental distortion of the form of a tooth that commonly occurs in permanent incisors as result of trauma to the primary predecessors whose apices lie close to the permanent tooth germ. A case of impacted maxillary left central incisor with dilaceration in a young patient is presented.

Key words: Impacted tooth, dilaceration, odontome.

INTRODUCTION

Impacted or clinically missing maxillary incisors can have a major impact on dental and facial aesthetics of an individual. Although impaction of permanent tooth is rarely diagnosed during the mixed dentition period, an impacted central incisor is usually diagnosed accurately when there is delay in the eruption of tooth.

The maxillary incisor is considered unerupted when:

1. there is no history of previous extraction
2. eruption of contra-lateral incisor has occurred 6 months earlier^{1,2,3} or if both incisors are unerupted and the lower incisors have erupted one year previously³
3. a deviation from the normal sequence of eruption e.g., lateral incisors erupt before the central incisors^{2,3}
4. maxillary incisors are still unerupted 6 months after the normal eruption date⁴

The possible causes of upper maxillary incisors failing to erupt include:

1. presence of supernumeraries - a common cause of failure of eruption⁵ 42% to 61.5% of midline

supernumeraries were associated with unerupted permanent incisors.^{6,7,8,9} Maxillary incisors that fail to erupt due to supernumeraries have better prognosis than those with other etiology⁵

2. retained deciduous teeth^{8,10}
3. dilaceration of the permanent maxillary incisor - 22% resulted from trauma to the deciduous predecessor and the remaining 71% were probably developmental in origin¹¹
4. ankylosis, where the root of the maxillary incisor becomes fused to the alveolar bone¹²
5. dense mucoperiosteum can occur during development or due to formation of scar tissue following surgery¹²
6. thickened or enlarged follicles around the unerupted incisor crown¹³
7. ectopic development - severe malposition and/or impaction against another tooth may inhibit the permanent incisor from erupting¹⁴
8. Pathology - cysts and odontomes may prevent eruption of a permanent incisor^{5,15}
9. generalized delay or failure of eruption - certain conditions like cleidocranial dysostosis, gingival fibromatosis and some clefts of lip and palate¹⁶

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Treatment alternatives for an impacted central incisor include:

1. Extraction of the impacted central incisor and restoration with a bridge or an implant later when growth had ceased.
2. Extraction of the impacted central incisor and closure of the space substituting the lateral incisor for the central incisor with subsequent prosthetic restoration.
3. Surgical exposure, orthodontic space opening and traction of the impacted central incisor into proper position.¹⁷

CASE REPORT

An 11-year-old boy reported to the department of oral medicine and radiology, Mamata dental college and hospital for a regular dental check up. Past medical history revealed a history of trauma when he was 6 years old resulting in avulsion of deciduous maxillary left central incisor for which medical consultation was sought but dental consultation was not considered. Family history was uneventful.

Intraoral examination revealed clinically missing permanent maxillary left central incisor and an erupting left maxillary canine (Fig 1). Further intraoral palpation revealed a hard swelling in the mucogingival junction in relation to the left maxillary lateral incisor. Intraoral periapical radiograph revealed an impacted permanent left maxillary lateral incisor with a surrounding follicular space. The impacted tooth was located between the roots of permanent left maxillary lateral incisor and right central incisor. The right maxillary central incisor was tipped distally but there was no evidence of root resorption (Fig 2). The maxillary occlusal view revealed an impacted permanent left maxillary central incisor with a dilacerated root (Fig 3). Panoramic radiograph did not show any additional details (Fig 4).

The treatment suggested was surgical removal of impacted permanent maxillary left central incisor and prosthetic rehabilitation of permanent left maxillary lateral incisor to improve esthetics. However the patient agreed for surgical removal but did not want prosthetic intervention as he was

satisfied with his dental esthetics. The impacted permanent maxillary left central incisor was surgically removed. The surgically removed tooth showed dilacerated root. (Fig5)

DISCUSSION

The most commonly found impacted teeth are the third molars, maxillary canines, first and second premolars.^{18,19} The incidence of maxillary central incisor impaction is rare and few cases have been reported with various etiological factors postulated. The most common factor is trauma to the deciduous incisor with a number of varying factors influencing the underlying permanent tooth: spatial relationship, patient's age at the time of trauma, developing stage of tooth bud and the severity of the injury.^{20,21}

Trauma may result in the deflection or displacement of the permanent tooth bud, alter the eruption pathway resulting in premature, delayed, ectopic or non eruption of the tooth, dilacerated or impaired root development. Formation of odontome or sequestration of the entire permanent tooth germ is also possible.^{22,23,24} Dilacerated impacted permanent incisor reported in this case has an irregular surface of enamel which can also be attributed to the trauma resulting in the disturbance of amelogenesis.

CONCLUSION

Trauma to the primary maxillary anterior teeth may affect the eruption of the underlying permanent teeth. Unerupted maxillary incisors should be detected early and managed accordingly. The diagnosis can be made with a thorough history and appropriate radiographs. Depending on the position, prognosis of the tooth and patient's esthetic requirement appropriate treatment plan should be carried out.

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Fig. 1: Intraoral photograph showing missing permanent maxillary left central incisor and an erupting left maxillary canine



Fig. 2: Intraoral periapical radiograph showing impacted permanent maxillary left central incisor

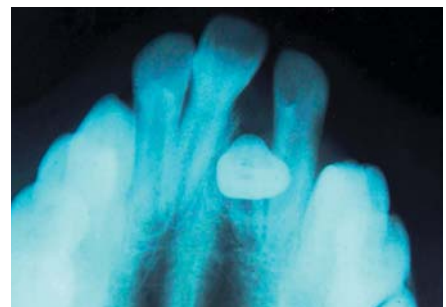


Fig. 3: Maxillary occlusal radiograph showing impacted permanent maxillary left central incisor with dilacerated root.

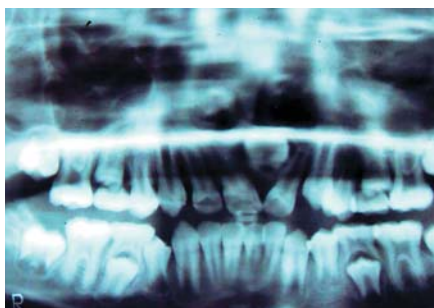


Fig. 4: Panoramic radiograph showing impacted permanent maxillary left central incisor



Fig. 5: Extracted tooth showing dilacerated root