

Dilacerated impacted maxillary central incisors- Report of Two Cases

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Abstract

Trauma to the primary incisors is common. Avulsion and intrusion injuries can result in severe sequelae in the permanent dentition. The main reason for the post traumatic impaction of the central incisor is the dilaceration which result in aesthetic & dental complications in the patient. This article discusses two types of impacted central incisors and their diagnosis. The tooth was completely upside down with the crown facing towards the nasal floor and the root towards the alveolar process with severe dilaceration in both cases. Surgical exposure of the impacted tooth and orthodontic traction is the most commonly adopted treatment plan for the post traumatic impacted tooth.

Keywords: Impacted and inverted Central Incisor, Dilaceration, Trauma, Dental Pathology

Introduction

Trauma to the primary maxillary incisors is relatively common and their successors are at risk of complication due to the close proximity of the permanent tooth germ with the apex of the primary teeth. Developmental disturbances as a result of trauma in the permanent tooth depends on the severity of trauma and the age at which trauma occurs. Severe sequelae have been reported with avulsion and intrusion injuries.¹

Dilaceration of maxillary central incisors is relatively uncommon and if occurs, is often related to the trauma to their predecessor tooth at a younger age. In about 50 percentage of the dilacerated cases, the tooth tends to

remain impacted.² Frequency of maxillary impaction varies from 0.006% to 0.2%.

Impacted maxillary incisors affects both facial and dental aesthetics.³ They result in malocclusion like mesial angulation of adjacent teeth, midline deviation and consequently reduced arch perimeter. The early and prompt diagnosis is crucial to provide an essential treatment plan and outcome for the patient.² The treatment depends on the dilaceration and position of the tooth. Radiographic diagnosis plays an inevitable role in the treatment plan. Newer techniques, including as computed tomography (CBCT), aid in determining the precise spatial relationship of the impacted dilacerated tooth.¹

This case report includes description of two cases of impacted and dilacerated maxillary central incisors as a result of trauma to the primary incisors.

Case Description

Case 1

A healthy 8-year-old boy reported to the outpatient department of pediatric and preventive dentistry, Government Dental college and research institute Bangalore, with chief complaint of un-erupted left maxillary central incisor. The medical and dental history showed signs of previous trauma and presence of supernumerary teeth hindering the eruption was ruled out. Clinical examination showed that the patient was in the early mixed dentition, with a bilateral Class I molar relationship with normal overjet and overbite and a good lower-arch length. However, the permanent maxillary left lateral incisor showed a deviated path of eruption into the space present for the presence of the left permanent maxillary central incisor (Figure 1). Panoramic radiograph was taken which appeared to confirm the clinical diagnosis. The left maxillary central incisor was impacted in an unfavorable horizontal

direction in relation to the occlusal plane with the incisal edge at the level of the cervical third of right maxillary central incisor (Figure 2). In addition, the need for Cone beam Computed Tomography (CBCT) was warranted to ascertain the tooth position accurately. It was observed from the CBCT that tooth in question showed abnormal deviation from the normal path of eruption with the presence of palatal surface visible from a labial segmental view and also longitudinal sectional images showed the presence of root dilaceration and incomplete root ends was also observed. Cross sectional image indicated the inversion of maxillary incisor as observed by the morphology of the pulp chamber in the cross section when compared with the adjacent normal right central incisor. (Figure 3,4)

Case 2

A healthy 8-year-old boy reported to the outpatient department of pediatric and preventive dentistry, Government Dental college and research institute Bangalore, with chief complaint of missing upper left front tooth. History revealed trauma at the age of 4 years. The child had fallen from the bicycle and the tooth was extracted due to intrusive injury. Clinical examination showed that the child was in early mixed dentition with class 1 molar relation and adequate arch perimeter. Left maxillary central incisor was missing and right maxillary central incisor was partially erupted (Figure 5). A peri apical radiograph was taken. It showed the absence of any supernumerary teeth hindering the eruption. The radiograph also revealed that the unerupted central incisor was positioned in unfavorable horizontal direction at the apex of right central and lateral incisors. A CBCT image was taken to ascertain the exact location of the impacted teeth. It revealed that the tooth altered from the normal path way

of eruption. The tooth was dilacerated and palatally impacted. The root apex was closed. (Figure 6,7)

Discussion

Impaction of the permanent central incisor is very rare in clinical practice and the treatment is complex. They are diagnosed early in mixed dentition due to the concerns of parents on non-eruption of the anterior teeth.⁴

The impacted central incisors can be classified as

A. Labially impacted

- labially inclined
- labially horizontal
- labially inverted

B. Palatally impacted

- Palatally horizontal
- Palatally inclined

C. vertically impacted⁵

In the case report the first case is a labially inverted central incisor and the second case is palatally horizontal central incisor. The most common cause for the impaction of central incisors is dilaceration as a consequence of injury to its predecessor.⁶ Dilaceration of crown is more common than the root dilaceration as a result of trauma.² When the trauma occurs at the age of 2-3 years, the crown dilaceration is more likely to occur as the permanent tooth germ lies palatally at the apex of the primary incisor and the injury will affect the buccal surface of the crown. If the injury occurs at the age of 4-5 years, the impact of the force is transferred to the Hertwig's epithelial root sheath of the permanent tooth and would likely result in root dilaceration.⁷ Dilacerated impacted central incisors require monitoring and multidisciplinary approach. The newer diagnostic aids like CBCT will help to ascertain the exact position of the impacted tooth and help to generate treatment plan.¹ The direction and position of the impacted tooth, degree of dilaceration, degree of root formation and availability of

space influence the prognosis of the treatment.⁷ Surgical exposure of the impacted tooth and orthodontic traction is the most commonly adopted treatment plan for the post traumatic impacted tooth.^{8,9} Periapical health and good periodontal health can be maintained by slow orthodontic traction.¹⁰ However severely inverted and dilacerated teeth is challenging to the clinicians and orthodontic alignment of such teeth has technical difficulties. Therefore, surgical removal is indicated in those teeth.⁵

Conclusion

Dilacerated and impacted maxillary central incisors are not common, early diagnosis and continuous monitoring are crucial for post traumatic impacted teeth. The treatment of such teeth is complex, as, it has to be carefully designed and needs corporation from the several specialties to achieve the final outcome.

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Legends Figures

Figure 1: Intra oral photograph showing missing maxillary left central incisor.



Figure 2: OPG showing the inverted, dilacerated left maxillary central incisor.

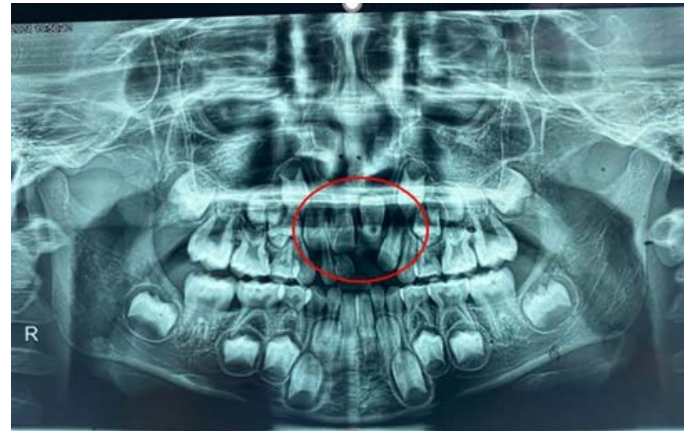


Figure 3 and Figure 4: CBCT showing the inverted, dilacerated left maxillary incisor.

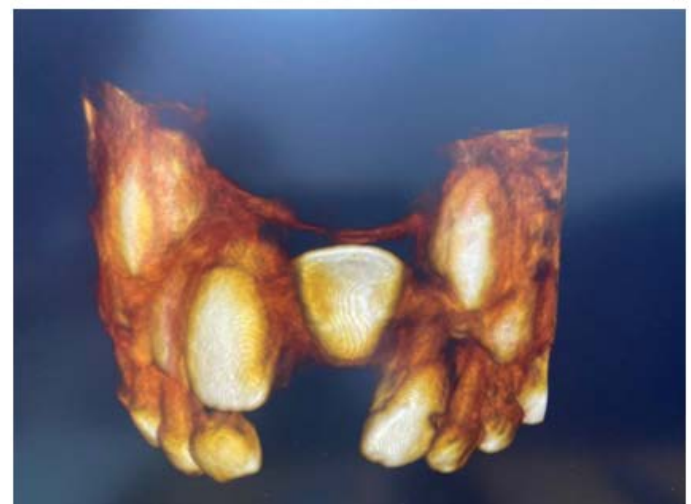


Figure 5: Intra oral photograph showing missing maxillary left central incisor.



Figure 6 and Figure 7: CBCT showing the inverted, dilacerated left maxillary incisor.

