CASE REPORT

Sequelae of dental trauma: the malformed tooth

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SUMMARY

Here, we report a case of 10-year-old boy who came with a complaint of missing upper front teeth and was also concerned about his aesthetics. Significant history of trauma was present in his toddler period. Diagnosis of malformed upper right central incisor (11) by radiological investigations was carried out. Surgery was performed and there was removal of the impacted malformed upper right central incisor (11). Healing was uneventful. The patient is under follow-up for aesthetic rehabilitation to be carried out.

Figure 2 Orthopantomogram showing the radiopaque tooth-like tissue.

BACKGROUND

The epidemic of general injuries is among the most neglected health problems of the 21st century and the importance of traumatic dental injuries (TDI) has attracted little attention. Oral injuries are the fourth most common area of bodily injuries among 7-year-olds to 30-year-olds.¹

Traumatic injury is a distressing experience on the physical level, but it may also have an effect on emotional as well as psychological levels.² Moreover, TDI may result in pain, loss of function and could adversely affect developing malocclusion and aesthetics. These situations could have a negative effect on children's lives.

We decided to write this up because upper central incisors are the teeth most frequently affected by trauma due to their position in the mouth, being less protected than others and also it is to bring to the knowledge of the general readers that trauma to the primary teeth will cause a disastrous effect on permanent teeth.

CASE PRESENTATION

A 10-year-old boy reported to the department with missing upper front teeth (figure 1). A history of trauma was revealed at the age of 14–16 months. The medical history was not significant. However, the family history was not contributory in relation to missing permanent lower central incisors (31,41). On intraoral examination, we found that

the upper left central incisor was proclined (21) and drifted upper right lateral incisor (12) at the position of upper right central incisor (11). The child was in his mixed dentition period. Apart from this, we also found that the permanent lower right and left central incisors were congenitally missing. A retained deciduous lower left central incisor (71) was present at their place.

INVESTIGATIONS

An orthopantomogram was taken which showed that a radiopaque tooth-like tissue was present near the apical 2/3rd root of the upper left central incisor (figure 2). No tooth buds were seen in the anterior region for lower central incisors.

However, later intraoral periapical radiograph (IOPAR) confirmed these findings (figure 3).

Figure 1 Extraoral photograph.

Figure 3 Intraoral periapical radiograph showing the absence of lower central incisors.

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Figure 4 Exposure of the malformed tooth.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis includes any supernumerary teeth, cysts, odontogenic/non-odontogenic tumours, ectopic eruption and compound odontoma.

TREATMENT

Surgical extraction of the tooth was planned. The patient was kept on analgesics and antibiotics 1 day prior to surgery. Local anaesthetic sensitivity test was performed before administering local anaesthesia. Bilateral infraorbital and nasopalatine nerve blocks were given to anaesthetise the surgical area. A trapezoidal incision was given from distal end of the upper right lateral incisor (12) to the distal end of upper left central incisor (21). The flap was raised using crevicular incision. The defect was located with the help of a spoon excavator and then extended with the help of a bone cutting bur. On exposure, a tooth-like hard tissue was seen (figure 4) which was extracted using cryer's elevator (figure 5). The extraction site was then irrigated (figure 6) and sutured (figure 7). The patient is now under follow-up.

OUTCOME AND FOLLOW-UP

The surgical wound healed uneventfully and the patient is under follow-up.

DISCUSSION

From birth, a child is exposed to traumatic episodes, which, depending on the energy of the impact, can result in injuries

Figure 5 Extracted tooth.

Figure 6 Extraction site after tooth removal.

which may range in severity from minor problems to life-threatening cases.³

In children up to 2 years, intrusion and avulsion are the most severe injuries, since, during this period, the child learns to crawl, stand, walk and run that can affect the developing tooth germ.^{4 5} During this period, calcification of incisal and medium third of enamel matrix of the permanent tooth germ takes place. Traumatic displacement of the root of the primary tooth may affect the development of the permanent tooth germ, by altering the secretory phase of the ameloblast, leaving a defect known as circular enamel hypoplasia. Hypoplasia, including enamel discolouration and/or enamel defects are the most frequent malformation sequelae of traumatic injuries to primary dentition.^{4 6-8}

Andreasen *et al*⁹ described the most common sequelae to primary tooth trauma as yellow or white discolouration, white yellowish-brown discolouration of enamel with hypoplasia, crown dilaceration, odontoma-like malformation, root duplication, vestibular root angulation, lateral root angulation or dilacerations, partial or complete arrest of root formation, sequestration of entire tooth germ and ectopic, premature or delayed eruption or impaction.

Intrusive luxation of a primary incisor often results in it being driven deeply into the alveolar bone, invading the follicle of the permanent germ, which lies palatally or lingually in proximity to the primary incisor root¹⁰ and possibly destroying the enamel matrix, depending on the severity of the intrusion.^{11 6} As ameloblasts are irreplaceable and no further cell division occurs after completion of enamel formation, localised arrest of crown development is likely to occur after trauma.⁹

The age at which trauma takes place mainly explains the sequelae noted in permanent dentition. Formation of the tooth germ of upper central incisors usually takes place at 20 weeks of gestation, and calcification begins at the age of 3-4 months.¹²

Figure 7 Suturing the area.

Therefore, orofacial trauma at the age of 14–16 months, as in this case, could lead to malformation of tooth. However, the missing of lower central incisors can also be attributed to a history of trauma; however, there was no crypt or malformed tooth bud present in that area. Hence, the history of missing lower central incisors can be of idiopathic or genetic origin.

Learning points

- ▶ Dental trauma in children and adolescents is a serious dental public health problem which should not be overlooked by the parents.
- ▶ The anterior teeth are the most commonly traumatised teeth due to their proclined position.
- ▶ Evaluation of family history is very important to be conclusive about the aetiology of the condition.

Competing interests None.

Patient consent Obtained.

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