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Delayed removal of a primary incisor embedded in the upper lip after dental trauma: a case report about the importance of soft tissue examination

CASE REPORT

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Abstract – This article describes a child patient who initially had inadequate treatment and suffered concomitant soft tissue trauma involving complete displacement of a primary central incisor into the lip tissue. The primary tooth was subsequently removed by surgery under general anesthesia. Despite the delay in diagnosis, there was an excellent outcome following removal of the embedded tooth. This paper again emphasizes the importance of an accurate history, physical, and radiographic evaluation of these patients in the acute phase. The importance of soft tissue inspection even in cases that are presented late for dental trauma management is also highlighted. This case shows that educated emergency room staff preferably including an oral and maxillofacial surgeon is required for a proper emergency management in orofacial traumas.

Most of the orofacial traumas result in dental injuries (1). A wide range of sequelae may follow traumatic injuries and are often associated with soft tissue injuries. It has been reported that 62.8% of all patients treated in a hospital emergency department for oral injuries had laceration of the lip (2). Therefore, soft tissue edema and laceration, especially involving the lip, should alert the physician to a possible displacement of the tooth or its fragments into the soft tissues (3). The importance of the first examination with proper baseline radiograms has been emphasized in scientific investigations and case reports (4–6). Although the emergency care of dental injuries is well established among dentists, the diagnosis can be easily overlooked in primary survey (7, 8).

This article describes a child patient who initially had inadequate treatment and suffered concomitant soft tissue trauma involving complete displacement of a primary central incisor into the lip tissue. The aim of this case report is to point out the importance of the initial clinical examination and radiological investigation in these patients to carry out a proper diagnosis of possible tooth or tooth fragments embedded in the lip tissues after trauma.

Case presentation

A 4-year-old male patient referred to the Pediatric Dental Care Consultation Unit from the Plastic Surgery Department at Faculty of Medicine of Uludag University for clinical examination of his upper lip with the presence of a suspicious mass in the upper lip beneath mucosa. The medical history was non-contributory. The mother reported that her child sustained orofacial trauma 24 months ago when he was 2 years old due to a simple fall on the floor at home (face downwards), which caused bleeding from a laceration in the upper lip, but did not recall the presence of any trauma to primary teeth at the time of injury. The mother immediately sought help at the emergency department of a nearby children hospital. Initial examination of the child was performed by a pediatrician. General findings such as headache, consciousness, and nausea were evaluated. Intraoral investigation was limited with the inspection of damage to oral mucosa and laceration of the lip. Then the child was treated by the resident pediatric surgeon and the soft tissue wound was sutured. Systemic antibiotics were also prescribed. However, initial periapical

radiograph was taken before the surgical treatment. According to the radiological investigation, it was decided that the entire crown of primary central incisor was intruded. Neither a treatment was suggested nor was a referral to a dentist recommended. Since then, the child complained of painless mass in the upper lip, and intermittent fistula on the anterior vestibular sulcus. The child had surgery twice at the Children's Hospital for the treatment of the mass and intraoral fistula.

During our extraoral examination, 24 months later, a swelling around the midline region of the upper lip was noticed. Upon stretching the upper lip, a hard mass was palpated. Intraoral examination showed that one of the anterior primary teeth was absent. Based on clinical examination and the investigation of previous periapical radiograph (Fig. 1), it was decided that the primary incisor displaced completely from its socket and embedded into the upper lip mucosa. As the child's behaviors were anxious, neither intraoral photographs nor a soft tissue radiogram could be taken.

Under general anesthesia, intraoral views were taken (Fig. 2) and then an oblique incision was made in the upper lip, the tooth was removed surgically including the fibrous tissue nearby (Figs 3 and 4). The incision was sutured with 6.0 polyglactic acid (Vicryl® Medsurge Ind, Adyar, India) sutures. Systemic penicillin (amoxicillin 50 mg kg^{-1}, three times a day for 5 days) was prescribed to the patient as recommended (9). Following the day after the surgery, the child was discharged. The patient was scheduled for follow up at 1 week and thereafter at 1, 3, 6, and 12 months. At the first follow up, healing of the lip wound was uneventful, and the patient did not have any complaints.

Fig. 1. The periapical radiograph of the superposed anterior primary teeth embedded into the upper lip (indicated by a solid arrow).

Fig. 2. Intraoral view of the lip showing a hard mass and the opening of a recurrent fistula (indicated by solid arrows).

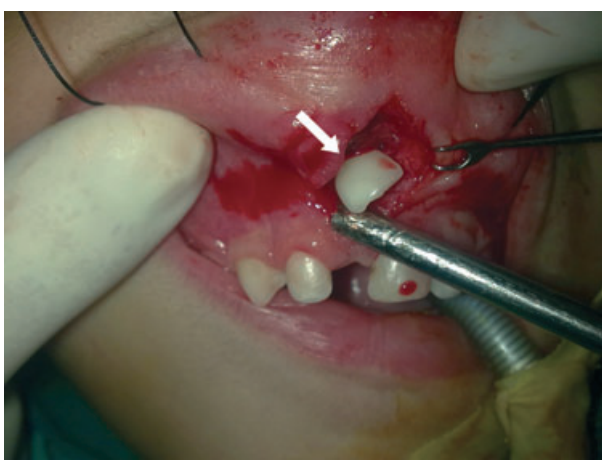

Fig. 3. Incision and exposure of the tooth.

Discussion

In this case, a 4-year-old boy who had lost his right primary central incisor due to a simple fall at home was presented. Accidents due to simple falls appear to be the most common factor in injuries of both primary and permanent dentitions (10). Subluxations and avulsions are the most frequent injuries, particularly in the primary dentition. The maxillary central incisors were the most frequently injured teeth in all studies regarding primary teeth (11, 12).

The patient's history and the findings of the clinical and radiographic examinations are the basis for proper evaluation of a traumatic injury. This includes a written notation of the child patient's chief complaint and intra- and extra-oral examinations which include soft tissues (and lips to rule out any possible penetration by foreign objects). Soft tissue injuries are observed in 22% of traumatized children and 50% of traumatized primary teeth (12). During intra-oral examination, the soft tissues in all areas of the mouth should be examined for the presence of wounds on the lips, tongue, palate, and floor

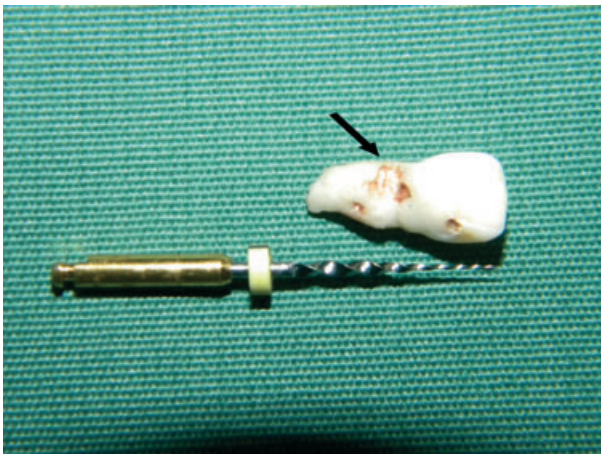

Fig. 4. Primary central incisor identified and removed. Note the signs of external resorption on the root surface (indicated by a solid arrow).

of the mouth. Usually, an avulsed primary incisor does not pose any problem in diagnosis. However, when this situation is combined with a soft tissue laceration, attention should be paid to whereabouts of the teeth. If laceration and bleeding make the clinical examination difficult, it is suggested that a through inspection and exploration of the wound should be performed, including meticulous irrigation and curettage to try to remove any small, previously undetected foreign bodies. Additionally, a simple soft tissue radiograph is very helpful to determine the presence of any foreign body in the oral regions (9). In this case, self-evidently, the complete trauma record including proper clinical and radiographic examinations of the patient was not obtained by the medical staff. Soft tissue laceration, bleeding, and contamination were determined at initial evaluation; however, re-examination and confirmation whether the presence of tooth fractures or missing teeth were not performed. The proper radiographic evaluation of the patients who missed their teeth partially or totally after orofacial trauma is extremely important as long as teeth and dental structures may become foreign bodies at risk for ingestion, inclusion in surrounding tissue or aspiration. A soft tissue radiograph, which was placed between the upper lip and the upper incisors with a radiographic exposure dose of 1/4th of that used for standard periapical radiographs, should have been taken at the initial examination to verify the possible presence of the object and avoid misdiagnosis. The evaluation of the standard periapical radiograph of the patient led to the misdiagnosis of the entire crown to appear totally intruded. Although the careful investigation of the periapical radiograph, the presence of a hard mass of the upper lip and the intermittent intraoral fistula indicated that the traumatized primary incisor had been superimposed with the neighboring anatomical regions and embedded in soft tissues of the upper lip after its avulsion. In emergency situations, however, the nature and complexity of the oral injuries, as well as unawareness of emergency department staff and pediatricians, may lead to overlooking of dental injuries (7, 8). In many cases, tooth or dental fragments are overlooked during soft tissue repair in emergency care units. As in this case, the resident hospital dentists may have a considerable role in alerting their medical colleagues about expecting a tooth or its fragments within lip tissues, especially if there is an avulsion type of dental trauma.

In the case mentioned above, the proper treatment was delayed because of a misdiagnosis in the initial clinical evaluation, leading the patient to feel discomfort and therefore necessitating a second evaluation. Failure in careful examination may have harmful sequelae (4). The time delay between the inclusion into the lip and the diagnosis is directly related to a variety of complications. Tooth or tooth fragments that are embedded in the lip are subject to a continuous migration as a result of contraction of the orbicularis oris muscle, whereas in the case presented here, there was no displacement. Fibrotic tissue formation around the foreign object and chronic inflammatory reactions (oral fistulas and external root resorptions) can also be seen as in the case presented.

In our case, as there was no local or systemic sign of infection, antibiotic treatment had not been given before the surgery. However, postoperative systemic penicillin was prescribed to the patient as recommended (9). And, during the follow-up period, no infection was encountered.

All in all, as shown in the literature and depending on the cases reported, this article again emphasizes the importance of an accurate history, clinical, and radiographic evaluation of these patients in the acute phase. The presence of an oral and maxillofacial surgeon in trauma teams in hospitals is required and educated emergency room staff is needed for a proper emergency management in orofacial traumas. The importance of soft tissue inspection even in cases that are presented late for dental trauma management is also highlighted.

Conflict of Interest

We declare that we have no proprietary, financial, professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript.

References

1. Andreasen JO, Andreasen FM. Textbook and color atlas of traumatic injuries to the teeth, 3rd edn. Saint Louis: C.V. Mosby; 1997. p. 170–88.
2. O'Neil DW, Clark MV, Lowe JW, Harrington MS. Oral trauma in children: a hospital survey. Oral Surg Oral Med Oral Pathol 1989;68:691–6.
3. Pektas ZO, Kircelli BH, Uslu H. Displacement of tooth fragments to the lower lip: a report of a case presenting an immediate diagnostic approach. Dent Traumatol 2007;6:376–9.
4. Thor AL. Delayed removal of a fully intruded primary incisor through the nasal cavity: a case report. Dent Traumatol 2002;4:227–30.
5. da Silva AC, de Moraes M, Bastos EG, Moreira RW, Passeri LA. Tooth fragment embedded in the lower lip after dental trauma: case reports. Dent Traumatol 2005;2:115–20.
6. Al-Jundi SH. The importance of soft tissue examination in traumatic dental injuries: a case report. Dent Traumatol 2010;6:509–11.

7. Díaz J, Bustos L, Herrera S, Sepulveda J. Knowledge of the management of paediatric dental traumas by non-dental professionals in emergency rooms in South Araucanía, Temuco, Chile. Dent Traumatol 2009;6:611–9.
8. Andersson L, Al-Asfour A, Al-Jame Q. Knowledge of first-aid measures of avulsion and replantation of teeth: an interview of 221 Kuwaiti schoolchildren. Dent Traumatol 2006; 2:57–65.
9. Flores MT, Andreasen JO, Bakland LK, Feiglin B, Gutmann JL, Oikarinen K et al. Guidelines for the evaluation and management of traumatic dental injuries. Dent Traumatol 2001;4:145–8.
10. Bastone EB, Freer TJ, McNamara JR. Epidemiology of dental trauma: a review of the literature. Aust Dent J 2000;1:2–9.
11. Kargul B, Cağlar E, Tanboga I. Dental trauma in Turkish children, Istanbul. Dent Traumatol 2003;2:72–5.
12. Eyuboglu O, Yilmaz Y, Zehir C, Sahin H. A 6-year investigation into types of dental trauma treated in a paediatric dentistry clinic in Eastern Anatolia region, Turkey. Dent Traumatol 2009;1:110–4.