Case Report

Displacement of tooth fragments to the lower lip: a report of a case presenting an immediate diagnostic approach

Pektas ZÖ, Kircelli BH, Uslu H. Displacement of tooth fragments to the lower lip: a report of a case presenting an immediate diagnostic approach.

Abstract – Dentoalveolar injuries are common and are caused by many factors with falls accounting for the most frequent one. Dental trauma requires a special consideration when dental fractures accompany soft-tissue lacerations. Dental fragments occasionally penetrate into soft tissues and may cause severe complications. A thorough clinical examination with soft-tissue radiographs could provide an early diagnosis and surgical removal. This case report presents an immediate diagnosis and management of displaced tooth fragments to the lower lip following a dental trauma.

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Dentoalveolar complex injuries are common and are caused by many factors including falls, assaults, vehicle accidents, sports, and work-related injuries. These injuries may also occur during convulsive seizures in drug misuse, epilepsy, and can also be caused by a laryngoscope during endotracheal intubation for general anesthesia (1). Among these incidents, falls account for the most common etiologic factor (2–4). The pattern and the frequency of dentoalveolar injuries are variable and are highly dependent on the age and gender of the patient at the time of trauma, type of etiologic mechanism, location of the incidence, direction and the energy of impact, and the periodontal health of involved teeth. As well as the etiologic factors, the type of dentofacial injury is also related with the age and gender. The exarticulations and luxations are more common in deciduous dentition while the incidence of crown and crown-root fractures are higher in permanent dentition (2).

An accurate diagnosis and efficient management is of importance in dental injuries, this is particularly true when maxillary anterior dentition is involved in pediatric population because of its detrimental effects on child's and parent's emotional and physical status. The incidence of incisor fractures has been reported between 10% and 20% of all dental traumas and mostly occurs in children between 7 and 10 years of age (5). A fractured incisor accompanying the soft-tissue edema and a laceration especially involving the lip subsequent to a dentofacial trauma should alert the physician to a possible displacement of the tooth fragments to the soft tissues. This paper describes an immediate diagnostic approach in a patient presenting with a fractured incisor and a lower lip laceration following an orofacial injury.

Case report

A 14-year-old boy was referred to the Oral and Maxillofacial Department, Baskent University, Adana Teaching and Medical Research Center, by the Emergency Unit following a dentoalveolar injury in which his parent reported a fall 2-h before their attendance while he was running. An extraoral

Fig. 1. The initial referral by Emergency Unit showing lower lip lacerations and facial abrasion.

Fig. 2. An intraoral view of fractured permanent left maxillary central incisor with enamel, dentin, and pulp involvement.

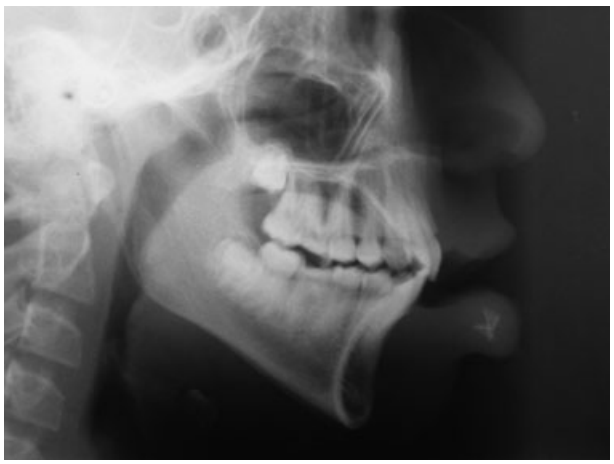

Fig. 3. The lateral cephalometric radiograph revealing radiopaque tooth fragments embedded in the lower lip.

examination showed lower lip lacerations and facial abrasions which were initially treated with primary suturing with black silk and wound dressing by the

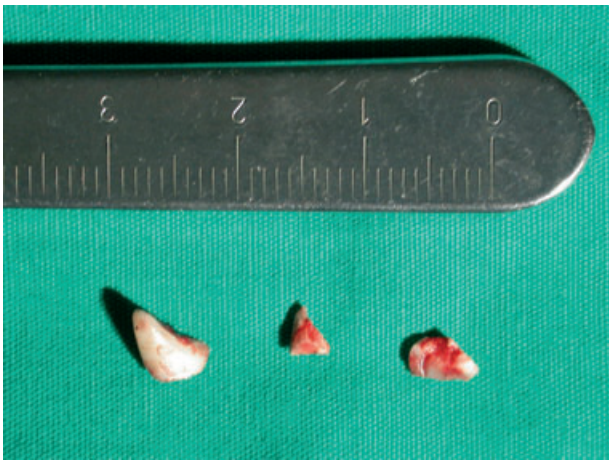

Fig. 4. Excised dental fragments.

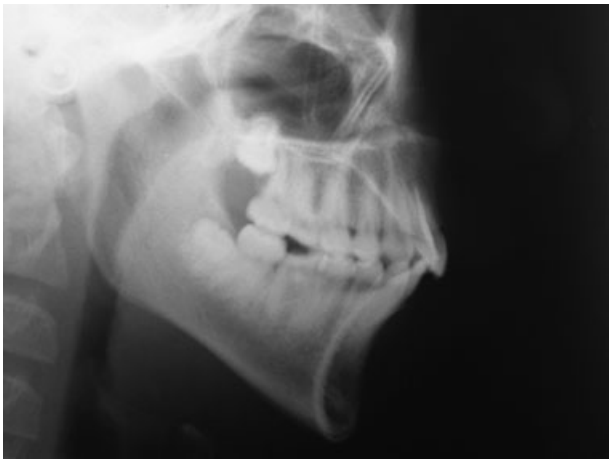

Fig. 5. A postoperative lateral cephalometric radiograph revealing the complete removal.

Emergency Unit (Fig. 1). A thorough intraoral examination revealed a fracture of the permanent left maxillary central incisor involving the enamel and dentin with pulp exposure (Fig. 2). There was neither evidence of root fracture nor pathological periapical alteration determined by a periapical radiograph. He did not experience a loss of consciousness but he was unaware of the fractured tooth fragments. Considering the soft-tissue edema and the fractured crown with the patient history, a lateral cephalometric radiograph was obtained. Radiopaque tooth fragments embedded in the lower lip were observed (Fig. 3). The surgical excision of the fragments was considered under local anesthesia. Following administration of 2 cm^3 Ultracaine® D-S (Aventis Pharma, Istanbul, Turkey) in a 4% solution with 1:200 000 epinephrine, the silk sutures were removed and the soft-tissue exploration was performed with blunt dissection in the lacerated lip

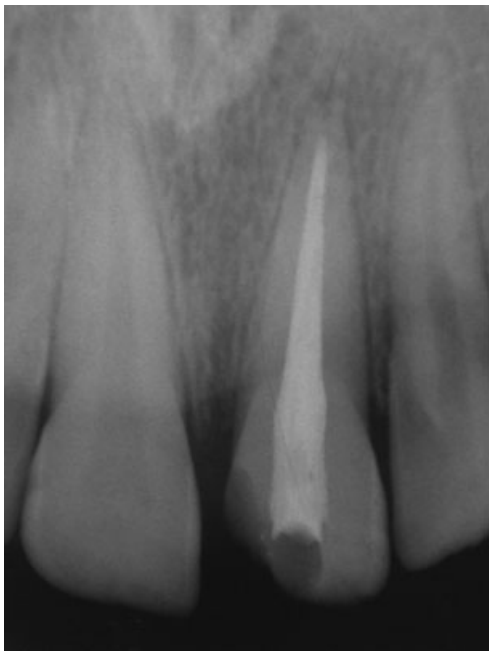

Fig. 6. Endodontic therapy following a failed pulp capping with calcium hydroxide-containing agent.

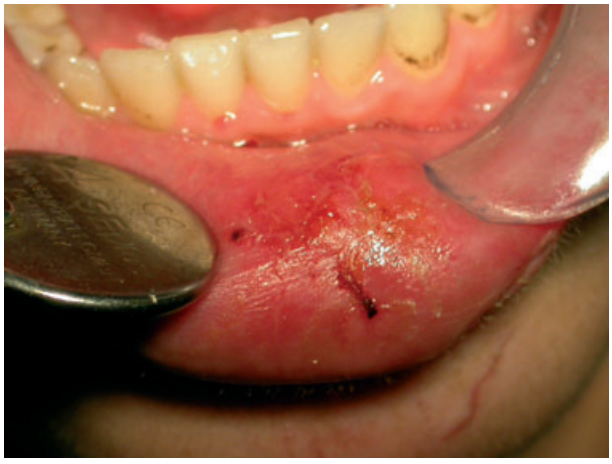

Fig. 7. Postoperative view after 1 week showing uneventful healing of lower lip lacerations.

area without an incision. The dental fragments were identified and carefully removed as three pieces (Fig. 4). A final lateral cephalometric radiograph was obtained to confirm the complete surgical excision (Fig. 5). The labial laceration was re-approximated and sutured with a 3-0 vicryl. The pulp capping with a calcium hydroxide-containing agent was attempted although a further endodontic treatment was required because of the progressive signs for pulp necrosis (Fig. 6). The crown was restored with composite resin and sutures were removed on the sixth postoperative day. The healing period was uneventful (Fig. 7).

Discussion

Dentofacial trauma requires a thorough clinical and radiographical evaluation in a multidisciplinary fashion. Airway control, cervical spine stabilization, cardiovascular resuscitation and evaluation of major organ systems comprise the initial treatment of multiply injured patient and these urgent circumstances may frequently lead to an insufficient orodental consideration. As a result, evaluation of the dental injury is delayed or may be overlooked.

Tooth fragments that are embedded in the soft tissues act as foreign bodies and may result in the breakdown of the suture line, persistent chronic infection and discharge and disfiguring fibrosis. They are also subjected to continuous movement because of the contraction of the orbicularis oris muscle when they are embedded in the lower lip and might be displaced in an unpredictable direction beyond the point of entry (6). Unrecognized avulsed or fractured teeth may cause more severe complications including bronchopulmonary complications with aspiration, obstruction, or erosion of the gastrointestinal tract with swallowing, arterial fistulae, mandibular infections, vascular, or nerve injuries (7–9). Remsen et al. also reported a number of serious complications such as aortoesophageal fistula, carotid artery injury, mediastinitis, suppurative pericarditis, and paraesophageal or retropharyngeal abscess (8). They reviewed 321 cases presenting with penetrating foreign bodies of the upper aerodigestive tract which was swallowed, become lodged in the pharynx, or esophagus, and eventually eroded through the wall of the viscus into surrounding structures. Seventeen out of these 321 cases involved teeth or dental appliances. Again da Silva et al. indicated the importance of an accurate physical and radiographic evaluation of dental trauma in a recent paper in which they present surgical excision of tooth fragments displaced to the lower lip in two cases (10). These fragments were also considered to complicate the differential diagnosis especially in delayed traumas together with the aforementioned sequelae (10).

Even if an adequate clinical examination of dentofacial injury is often hindered by soft-tissue edema and bleeding, and is frequently performed under less-than-optimal circumstances, a soft-tissue laceration associated with a dental injury should always alert the physician to the presence of dental fragment inclusion to the peripheral tissues. In this respect, a plain soft-tissue radiograph frequently helps to rule out this possibility as presented in this case report. Besides, further diagnostic surveys should be performed if the plain radiographs fail to identify the inclusion, ingestion, or aspiration of these fragments. Also, this paper emphasizes the

significant role of the dental surgeon consultation before the soft-tissue repair in all orofacial injuries.

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