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Case Report

Tooth fragment embedded in the lower lip after dental trauma: case reports

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Abstract – Dental traumas are reasonably common, especially in children and adolescents. This report describes two cases in which dental fragments were embedded in the lip soft tissue. Radiographs confirmed the presence of this foreign-body, which were surgically removed under a local anesthesia. Early diagnosis and surgical removal of theses fragments could prevent undesirable foreign-body reaction and scarring. The need in such cases for taking routine facial soft tissue radiographs and chest rx-ray before stating treatment is emphasized.

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Key words: dental fragments; lip; dental trauma; teeth fractures; inclusion

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One of the most frequent facial traumas corresponds to the damage caused to the teeth and their support structures. These traumas may be the result of many factors, such as: falls, assaults, traffic, sports and work accidents and others. In regards to these factors, falls account for the most frequent incident (1–3).

A proper diagnosis and care of dental injuries is a considerable factor in the comprehensive practice of dentistry. The appropriate initial attendance of patients suffering dental trauma is an important component, mainly in children and adolescents, because of the physical and emotion involvement of both the patient and their family (4). This is particularly true if the maxillary anterior dentition is involved because the patient's esthetics may be temporarily affected.

The occurrence of dental trauma depends on the impact energy and direction of the causal agent, on the location of the incidence and on the health of support structures from the involved teeth. Many studies have suggested the higher prevalence of the incisors traumas among childhood and adolescence (5), which can range from 10 to 20%, according to sex and age of patients (6–8). The reason for the increased vulnerability of the maxillary incisors is because of the projection of anterior teeth and to the short labial lip that do not protect adequately these teeth. These risk factors should be considered in the incidence and severity of these traumas, as they can range from concussion to tooth loss (2).

The incisors, particularly when fractured, are quite often the cause of laceration of soft tissue at the time of trauma. When soft tissue is lacerated, attention should be paid to fractured or missing teeth. If laceration and bleeding make the clinical examination difficult, a simple soft tissue radiograph helps in the detection of included tooth fragments. The immediate attendance of patients suffering from dental trauma should also be considered, once it can be associated with a possible dental fragment inclusion in injured peripheral tissues and with facial fractures.

This paper describes two cases of facial trauma in which the patients suffered concomitantly dental trauma involving teeth fractures. The aim of the reported cases was to point out the importance of

the initial clinical and radiological attendance in these patients to carry out a proper diagnosis of possible tooth fragments embedded in lip tissues after dental trauma.

Case reports

Case 1

A 10-year-old white male, was attended to the Oral and Maxillofacial Surgery Department at the Piracicaba Dental School (Unicamp), complaining of a firm mass in the lower lip which was sensitive to touch. His parents accounted that he fell while riding a bike about three months earlier and fractured his maxillary central right incisor with lip lacerations and facial abrasions. The patient reported that he had been promptly evaluated and attended in a hospital environment in respect to this facial injury.

On inspection an inconspicuous scar on the left inner aspect of the lip vermilion was noticed. A firm nodule, white in color, measuring approximately 1 cm in diameter in the same region was palpated. (Fig. 1). Intra-oral examination revealed an Ellis Class II (9) fracture of the permanent right maxillary central incisor, which was absent of any color disturbance (Fig. 2). All maxillary incisors teeth responded promptly to the pulp tests. The periapical radiograph of the maxillary central incisors showed no root fractures or pathological alteration in their apical regions (Fig. 3). Because of the history reported by the patient about his previous facial trauma, a mandibular and lateral soft tissue Rx-ray were obtained and a radiopaque fragment was noted on the soft tissue radiograph. These radiograph images were compatible with a dental fragment included in the lip tissues (Figs 4 and 5).

Fig. 1. The initial attendance showed a firm nodule, white in color, measuring approximately 1 cm in diameter in the right lower lip patient.

Fig. 2. An intraoral examination revealed a fracture of the permanent right maxillary central incisor with no color disturbance.

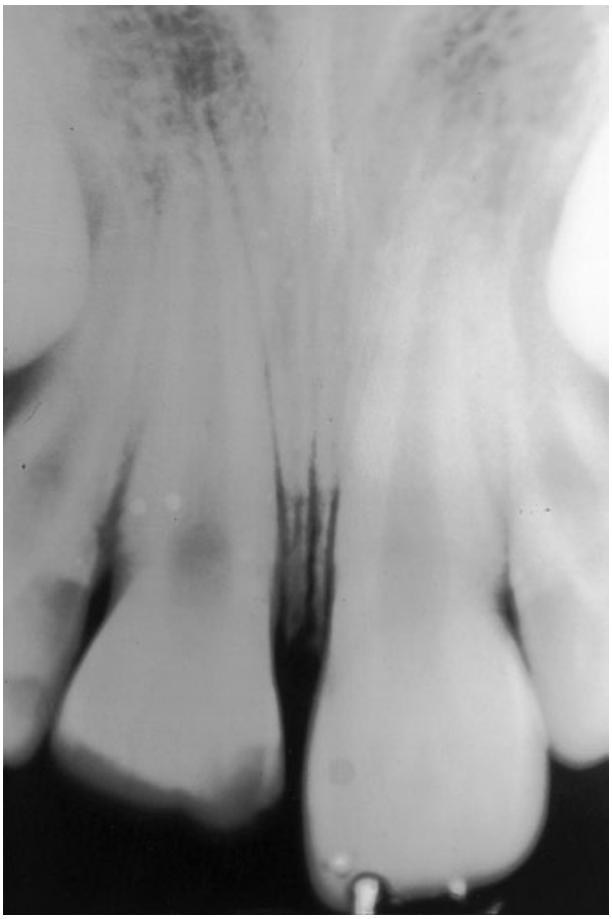

Fig. 3. The initial periapical radiograph of the maxillary central incisors showed no root fractures or pathological alteration in their apical regions.

The patient was submitted to a surgical excision of the fragment under a local anesthesia. For this

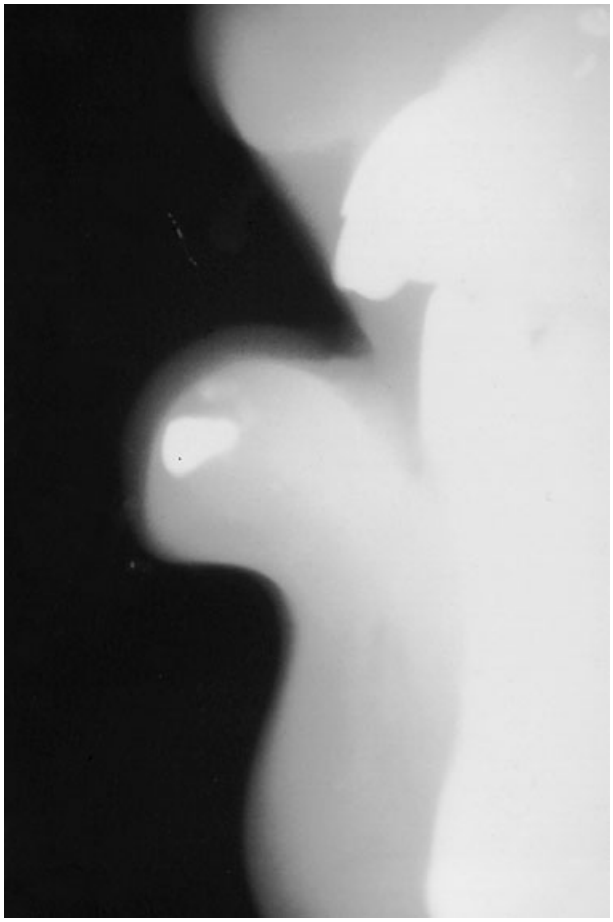

Fig. 4. The preoperative lateral X-ray of the soft tissues showed a radiopaque image included in the lower lip tissues.

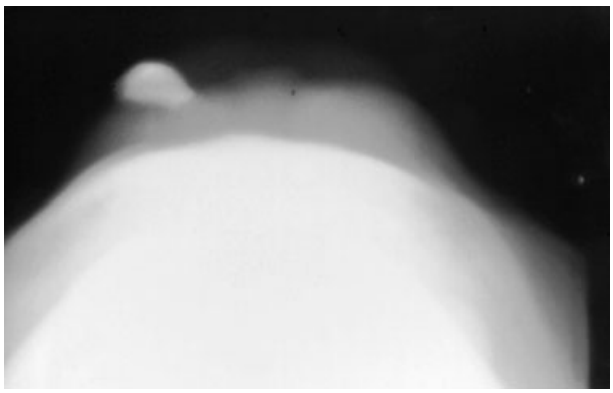

Fig. 5. The preoperative axial X-ray of the soft tissues showed a radiopaque image included in the lower lip tissues.

procedure 1.0 cc of lidocaine in a 2% solution with 1:1 00 000[1] epinephrine was administered in the area of lip tumefaction. The lower lip was incised

[1]Xylocaína 2% - Astra Química Farmacêutica Ltda.

Fig. 6. Incision and exposure of the dental fragment.

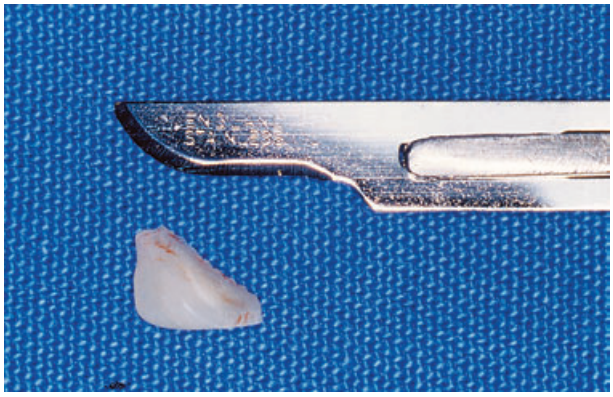

Fig. 7. Dental fragment identified and removed.

and the supposed dental fragment was identified and gently removed (Figs 6 and 7). Immediately after the surgical procedure an another lateral soft tissue radiograph was obtained to confirm that the lower lip was free of any remaining fragments. (Fig. 8). A 4-0 black silk suture was placed to re-approximate the tissue. No antibiotic treatment was given after the surgery. The patient was seen two weeks postoperatively and the healing was uneventful. The broken right incisor tooth had been reshaped some days after surgery (Fig. 9).

Case 2

A 17-year-old white male, was attended in the Urgency Department of the Santa Casa de Jacareí Hospital with various lacerations and abrasions on the facial region because of a bicycle accident. An intra-oral examination showed that the mandibular right canine tooth was missed and the others anterior teeth had been fractured and mobiles. On the urgency initial attendance the patient was treated about his oral and facial injuries. In a following second evaluation the patient was attended

Fig. 8. The postoperative X-ray showed no radiopaque image.

by an Oral and Maxillofacial surgeon, complaining about an increased volume in the menton region. After the physical and radiographic evaluation added to the trauma history reported by the patient, became possible to concluded the presence of dental fragment embedded in the lip soft tissues (Figs 10 and 11).

The patient was oriented and submitted to a surgical excision of the dental fragment and curettage (Figs 12 and 13). Although the photographic documentation was not taken in the only one patient's postoperative follow-up, the surgical procedure as the follow-up too were absent of any problems and demonstrated a good healing of the surrounding tissues.

Discussion

The damage caused to the teeth and their support structures correspond to one of the most frequent traumas to the maxillofacial region. Frequently, these traumas occur separately; however, they can be associated to other fractures and soft tissue lacerations, mainly in the oral regions.

Fig. 9. The right maxillary incisor restored.

These injuries can occur along the entire life, caused by different factors with falls being the most frequent etiology, predominantly in males and in the first decade of life (10–12), as was showed in the previous reported cases.

Many factors can cause these traumas occurring directly or indirectly on the dental structures. The maxillary anterior teeth position and projection, and the labial competence are important factors for this occurrence. Dearing in 1984 (8) investigated whether children with an increased overjet, with or without a short upper lip, could be considered at risk for dental injuries. The study indicated that children between 7 and 10 years of age who have an increased overjet of 6 mm or more, along with less than one-half of their maxillary central incisors covered by the upper lip at rest, may be regarded as at risk patients. The author suggested the parameters to select the patients-risk that have or not to initiate the earlier orthodontic treatment on mixed dentition (2, 8, 10).

Usually a fractured or missed incisor does not pose any problem in diagnosis. However, when this situation is added to a soft tissue laceration, attention should be paid to whereabouts of the teeth. Tooth fragments embedded in soft tissue may not be easily detectable clinically. If laceration and bleeding make the clinical examination difficult, a simple soft tissue and occlusal radiographs help in detection of included tooth fragments in the oral regions.

The proper radiographic evaluation of the patients that missed partially or totally their teeth after maxillofacial 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. Their worst complication is the aspiration of foreign bodies that can lead the patient to a variety of chronic airway problems and death, if not precociously diagnosed

Fig. 10. The preoperative intraoral examination.

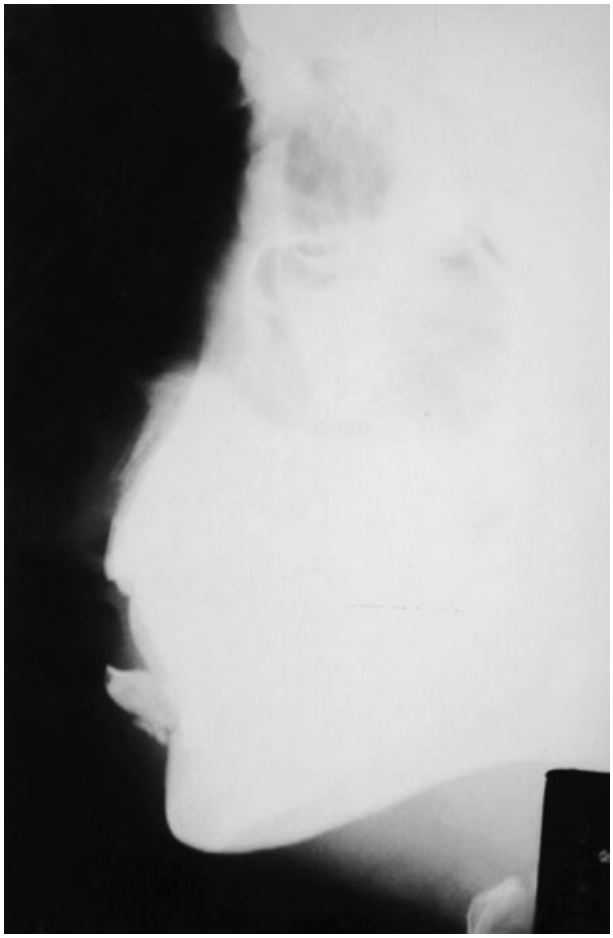

Fig. 11. The preoperative lateral X-ray showed an radiopaque image compatible with a teeth included in the surrounding tissues.

(13). Another important factor is the differential diagnosis, mainly in delayed traumas, because the radiographic image of dental fragments included in the mouth floor can be similar to the sialolithiasis of the salivary glands. However, in almost of cases, the sum of clinical data added to radiographic findings lead to a conclusive diagnosis.

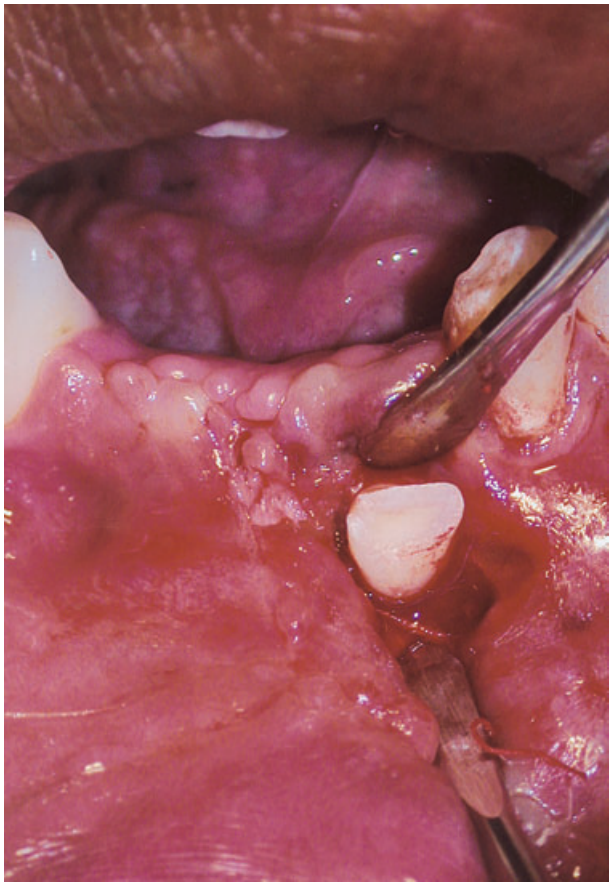

Fig. 12. Incision and exposure of the teeth.

The facial traumas are usually followed by damage of the surrounding soft tissue, changing from bruises to lengthened lacerations (14). In many cases, fragments are overlooked during soft tissue repair in general hospitals. The hospital dental surgeons may have a considerable role to play in alerting their medical colleagues to expect these foreign bodies in lip laceration involving fractured incisors. Failure to carefully examine and account for missed tooth structure at the time of treatment may have harmful sequelae.

The time passed from the inclusion to the diagnosis and treatment is directly related to a variety of complications. Losken and Auchincloss (15) divided the time of presentation of lip bites into the following three groups: group I, early lip bites, up to 24 h; group II, intermediate lip bites, seen between 24 h and before the wound has healed; and group III, late lip bites, seen after the bite has healed. It is suggested therefore that, when dealing with a bite wound, a thorough inspection of the wound be performed, including meticulous irrigation and curettage to try to remove any small, previously undetected fragments of foreign bodies.

Fig. 13. The teeth included in the surrounding tissue removed.

Small tooth fragments that are embedded in the lower lip are subjected to continuous movement as a result of contraction of the orbicularis oris muscle. In the cases described the attendance was delayed because of a mistake in the initial evaluation, leading the patient to feel discomfort and so seeking a second evaluation.

The bacterial flora of the mouth contains many virulent organisms. The result of failure to remove totally the portions of teeth embedded in the soft tissue may be breakdown of the suture line, persistent chronic infection and discharge, and a disfiguring fibrosis (16–18). Although, in the previous cases described dental fragments extrusions or infections are not presented, this complication may occur in very delayed cases. To our patients, antibiotic treatment had not been given, because of the absence of any previous signs of infection, so the surgical procedure, as the follow-up, did not present any sort of complication.

Many forms of dental fracture classifications can be used, but in this paper, to facilitated the description of the dental fractures, the Ellis' classification was used. In the first case the Ellis class II (9) was attributed to the incisor fracture, corresponding to an extensive fracture of the crown, involving considerable dentine, but not the dental pulp.

The treatment of choice for these cases consisted in the surgical excision. Depending on their size and on the time that they had been embedded in the tissue, fragments can be used to restore the remaining fractured tooth (18).

Finally, as shown in the literature and according to the cases reported, this paper emphasizes the importance of an accurate anamnese, physical and radiographic evaluation of these patients. Especially in the cases of dental traumas which presented together with facial injuries, both the hard tissue (bone and teeth) and adjacent soft tissue, might be carefully analyzed, even if sutured and treated by another health professional in the emergency care.

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