Dental Traumatology

Dental Traumatology 2011; 27: 309-313; doi: 10.1111/j.1600-9657.2011.00994.x

Tooth embedded in tongue following firearm trauma: report of two cases

CASE REPORT

Thiago de Santana Santos^{1,2}, Auremir Rocha Melo¹, Roberto Tiago Alves Pinheiro², Antonio Azoubel Antunes³, Ricardo Wathson Feitosa de Carvalho¹, Edwaldo Dourado⁴

¹Oral and Maxillofacial Surgery, Post-Graduate Program of Pernambuco Dentistry College, Camaragibe, Pernambuco; ²Oral and Maxillofacial Surgery of Restauração Hospital, Recife, Pernambuco; ³Oral and Maxillofacial Surgery, Post-Graduate Program of São Paulo Dentistry College, Ribeirão Preto, São Paulo; ⁴Oral and Maxillofacial Surgery, Post-Graduate Program of Pernambuco Dentistry College, Camaragibe, Pernambuco, Brazil

Correspondence to: Thiago de Santana Santos, Pernambuco Dental School (FOP/ UPE), Av. General Newton Cavalcanti, 1650, Camaragibe, Pernambuco 54753-220, Brazil Tel.: +55 81 3416 4074 Fax: +55 81 3416 4068 e-mail: thiago.ctbmf@yahoo.com.br Accepted 15 January, 2011 **Abstract** – Injuries caused by projectiles from firearms involve diverse patterns of dentoalveolar trauma due to the different types of wound and extent of tissue damage. This article reports two cases in which tooth fragments were embedded in the tongue following aggression from a firearm projectile in the facial region. Radiographs confirmed the presence of foreign bodies, which were surgically removed under local anesthesia. When dentoalveolar trauma occurs in facial injuries, both hard and soft tissues must be carefully examined to avoid overlooking embedded tooth fragments not located immediately in the soft tissue.

Foreign bodies in the tongue are not common. A number of studies have reported foreign bodies such as fish bones (1), incisor fragments (2–4), broken tooth fragments (3, 5–8), fragments of a tobacco pipe (9), broken bur (10), a metallic fragment from an umbrella (11), and firearm projectiles (12).

The extent of dental trauma depends on the impact energy and direction of the causal agent, as well as the location of the incident and the health of the support structures of the involved teeth. Such trauma often occurs in an isolated fashion. However, it may also be associated with other fractures and soft tissue lacerations in the oral region. 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 embedded tooth fragments (3).

This paper reports two cases of dentoalveolar trauma by a firearm projectile in which a tooth was embedded in the tongue and surgically removed from the soft tissue under local anesthesia.

Case reports

Case 1

A 35-year-old black male visited the Oral and Maxillofacial Department of the Dental School of the Universidade de Pernambuco (Brazil) complaining of a firm mass in the tongue that was sensitive to the touch. The patient also reported a previous infection in the region treated with penicillin. The history revealed that the patient had been the victim of an assault 4 months earlier and suffered a firearm shot to the face. At the time, he was admitted to the emergency room of a hospital, where he received primary care. The wounds were sutured, including a laceration of the tongue, and the patient was discharged the following day.

Upon inspection, an inconspicuous scar on the dorsal portion of the tongue was noticed. A firm nodule with a normal pink color that measured approximately 1 cm in diameter was palpated in this region (Fig. 1). The intraoral examination revealed an edentulous region in the posterior left mandible, which the patient reported as



Fig. 1. The initial examination revealed a firm nodule, which was a normal pink color that measured approximately 1 cm in diameter on the dorsal portion of the tongue.

having occurred following the traumatic injury (Fig. 2). An anteroposterior mandibular radiograph revealed a radiopaque structure in the tongue that was similar to a tooth in the region of the maxillary central incisors (Fig. 3).

The patient underwent surgical excision of the fragment under local anesthesia; 1.0 cc lidocaine in 2% solution with 1:100 000 epinephrine was administered to the area of tumefaction. The tongue was incised. The premolar fragment was identified and carefully removed (Figs 4 and 5). A 4-0 black nylon suture was placed to re-approximate the tissue. No antibiotic treatment was prescribed after the surgery, as there were no signs of infection and due care had been taken during the surgery



Fig. 3. In the anteroposterior mandibular radiograph, a radiopaque structure similar to a tooth was noted in the region of the maxillary central incisors (red arrow).



Fig. 4. The tooth fragment was identified and carefully removed.



Fig. 2. The intra-oral examination revealed an edentulous region in the posterior left mandible, where the patient reported the traumatic injury had occurred.



Fig. 5. The tooth fragment was identified and removed.

with regard to antisepsis and asepsis. The patient did not return for follow up.

Case 2

A 34-year-old white male visited the Oral and Maxillofacial Department of the Dental School of the Universidade de Pernambuco (Brazil) complaining of a hard region in the tongue that was sensitive to the touch. The history revealed that the patient had been the victim of an assault 6 months prior to this presentation and suffered a firearm injury to the face. At that time, he was admitted to the emergency room of a local hospital, where he received primary care. The wounds were sutured, including a laceration on the tongue, and the patient was discharged the same day.

Upon inspection, a white scar was noticed on the ventral portion of the tongue. Palpation revealed a hardened surface in the ventral region without any change in volume (Fig. 6). A panoramic radiograph revealed several radiopaque structures in the right mandible, which suggested the presence of bullet fragments (Fig. 7). An occlusal radiograph was performed and radiopaque structures that were similar to tooth and bullet fragments were noted (Fig. 8).

The patient underwent surgical excision of the fragments under local anesthesia. For this purpose, 1.0 cc lidocaine in 2% solution with 1:100 000 epinephrine was administered to the ventral area of the tongue. A traction suture was placed at the apex of the tongue to aid in securing it during the procedure. An incision was made and the crown fragment of a tooth was identified and carefully removed (Figs 9 and 10). A 4-0 black silk suture was placed to re-approximate the tissue (Fig. 11). Due to the same reasons as those mentioned in Case 1, antibiotic therapy was not instituted. The patient did not return for follow-up.



Fig. 7. Panoramic radiograph showing radiopaque structures in the right mandible of Case 2, which suggested the presence of bullet fragments.



Fig. 8. An occlusal radiograph from Case 2 showing radiopaque structures that were similar to both tooth and bullet fragments.



Fig. 6. A traction suture and white scar on the ventral portion of the tongue.



Fig. 9. Incision and exposure of the tooth fragment from Case 2



Fig. 10. The tooth fragment was identified and removed in Case 2.



Fig. 11. Black silk suture used to close the wound in Case 2.

Discussion

Dentoalveolar injuries can occur at any time in life and are caused by multiple factors. Falls constitute the most frequent etiology, and dental trauma occurs predominantly in males, as well as in the first decade of life (3, 13). However, the cases reported here do not corroborate these observations, and both cases involved the uncommon occurrence of a tooth embedded in the tongue following a firearm injury.

The extent of the injury inflicted by a projectile from a firearm depends on a number of factors, such as size, shape, velocity, the point of entry, the soft and hard tissues penetrated, deflection, fragmentation, and the area in which the projectile was lodged or exited the body (14). The patients in the cases described here reported being victims of a firearm shot from a medium-range distance, with no mandibular fractures; dentoalveolar

trauma had occurred with the avulsed tooth becoming a secondary projectile that subsequently became embedded in the tongue.

Foreign bodies in a mobile tongue are rare, as such bodies are commonly lodged superficially and are easily removed by either the patients themselves or general practitioners (1). However, lacerations to the tongue are common due to injuries from a bite or a foreign body (3). Thus, there may be no history that is suggestive of a foreign body in the tongue, as demonstrated by both cases reported here (1, 3).

The complications that can arise from an embedded tooth fragment may be serious and include infection, damaged vascular and nerve sheaths and even aspiration of the overlooked fragment when it has not been adequately located and treated. Therefore, radiographs of the soft structures are fundamental to finding and removing an embedded tooth (3, 4). In the cases reported here, the anteroposterior radiograph of the mandible in Patient 1 allowed the identification of a radiopaque structure within the tongue, which had a similar morphology to a tooth crown. Together with the patient history, the diagnosis was made without further imaging examinations.

It is important to consider a wider differential diagnosis, particularly in cases with delayed trauma, as the radiographic image of dental fragments in the floor of the mouth may resemble sialolithiasis in the salivary glands. However, in most cases, the combined clinical data and radiographic findings lead to a conclusive diagnosis (3). Lin et al. (1) reported an uncommon case of a foreign body embedded in the tongue that masqueraded as a neoplasm. The patient had reported a 3-month history of an enlarged mass in the right anterior tongue with no history of trauma. After removal of the suspected tumor mass, it was discovered that a fish bone had been completely embedded in the tongue.

In the present investigation, the time elapsed between the trauma and surgical removal of the foreign body was 4 and 6 months in Cases 1 and 2, respectively. Ideally, the diagnosis and removal of a foreign body would be performed in the primary care setting to prevent possible complications, additional procedures, and the formation of scar tissue.

The bacterial flora of the mouth contains a large number of virulent organisms. Failure to completely remove any tooth fragments embedded in the soft tissue at the time of surgery may result in the breakdown of the suture thread, followed by persistent chronic infection with discharge and disfiguring fibrosis (15, 16). Despite the delayed removal of tooth fragments in the cases described here, there were no signs or symptoms of infection at the time of the definitive evaluation.

The cases reported here, as well as previous reports in the literature, demonstrate that there is no need for antibiotics to be prescribed in the postoperative period. This is obviously provided that the patient is free of signs and symptoms of infection at the time of the intervention (3, 4, 8). In the first case of the present study and in a report by Munerato et al. (4), a course of antibiotics had been administered prior to the surgical procedure, as the injury had been primarily infected. The cases reported here and those identified in the literature review demonstrate the importance of an accurate patient history, physical examination, and radiographic evaluation of such patients. When dentoalveolar trauma occurs in facial injuries, both hard and soft tissue structures must be examined carefully for evidence of embedded tooth fragments.

References

- Lin CJ, Su WF, Wang CH. A foreign body embedded in the mobile tongue masquerading as a neoplasm. Eur Arch Otorhinolaryngol 2003;260:277–9.
- 2. Hill FJ, Picton JF. Fractured incisor fragment in the tongue: a case report. Pediatr Dent 1981;3:337–8.
- 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;21:115–20.
- 4. Munerato MC, da Cunha FS, Tolotti A, Paiva RL. Tooth fragments lodged in the lower lip after traumatic dental injury: a case report. Dent Traumatol 2008;24:487–9.
- 5. McDonnell DG, McKiernan EX. Broken tooth fragments embedded in the tongue: a case report. Br J Oral Maxillofac Surg 1986;24:464–6.
- 6. Da Silva Schwengber GF, Cardoso M, De Souza Vieira R. Bonding of fractured permanent central incisor crown following radiographic localization of the tooth fragment in the lower lip: a case report. Dental Traumatol 2010;26:342–5.

- Pektas ZÖ, Kircelli BH, Uslu H. Displacement of tooth fragments to the lower lip: a report of a case presenting an immediate diagnostic approach. Dental Traumatol 2007;23:376–9.
- Taran A, Har-Shai Y, Ullmann Y, Laufer D, Peled IJ. Traumatic self-inflicted bite with embedded tooth fragments in the lower lip. Ann Plast Surg 1994;32:431–3.
- 9. Shugar MA, Kelly JH, Glinski EJ, Strome M. An unusual foreign body of the tongue masquerading as malignancy. Laryngoscope 1980;90:673–5.
- 10. Yamaoka M, Furusawa K. The location of a disposable broken bur in the tongue. Br Dent J 1993;175:55.
- da Silva EJ, Deng Y, Tumushime-Buturo CG. An unusual foreign body in the tongue. Br J Oral Maxillofac Surg 2000;38:241–2.
- Sharma PK, Songra AK, Ng SY. Intraoperative ultrasoundguided retrieval of an airgun pellet from the tongue: a case report. Br J Oral Maxillofac Surg 2002;40:153–5.
- Dewhurst SN, Mason C, Roberts GJ. Emergency treatment of orodental injuries: a review. Br J Oral Maxillofac Surg 1998;36:165–75.
- Marano PD, Smart EA. Gunshot wound of the oral cavity. Report of an unusual case. Oral Surg Oral Med Oral Pathol 1970;30:178–81.
- Chu FC, Yim TM, Wei SH. Clinical considerations for reattachment of tooth fragments. Quintessence Int 2000;31:385–91.
- Goldstein EJ. Bite wounds and infection. Clin Infect Dis 1992;14:633–8.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.