

# Unusual foreign bodies in the orofacial soft tissue spaces: A report of three cases

SB Aregbesola, VI Ugboko

Department of Oral and Maxillofacial Surgery and Oral Pathology, Faculty of Dentistry, Obafemi Awolowo University, Ile-Ife, Nigeria

## Abstract

The ingestion and inhalation of foreign bodies with their associated morbidity and mortality have been widely reported in the literature. However, reports on foreign body impaction in the orofacial region are comparatively fewer. Three unusual cases of foreign body impaction into the buccal and submasseteric spaces are presented. The three patients were adults and they presented with history of painful facial swelling associated with limited mouth opening. Plain skull radiographs revealed the foreign bodies within the facial soft tissue spaces in two patients while it was not helpful in the third patient. Surgical explorations of the left buccal, left submasseteric and the right buccal spaces led to the retrieval of the foreign bodies. Prompt diagnosis and surgical removal of such foreign bodies will greatly minimize the associated complications which may include; cellulitis, facial abscess, allergic reactions, necrotizing fasciitis and osteomyelitis.

**Key words:** Facial soft tissue infection, foreign bodies, orofacial soft tissue spaces, trismus

**Date of Acceptance:** 12-Aug-2012

## Introduction

The impaction of foreign bodies in the oral and maxillofacial region is not uncommon.<sup>[1]</sup> This may present a diagnostic challenge to the Maxillofacial Surgeon<sup>[2]</sup> due to many factors such as the size and the type of the object, the difficult access and proximity of the foreign body to vital structures.<sup>[3]</sup> Foreign body impaction in the oral and maxillofacial region may result from trauma or may be iatrogenic. There have been reports of traumatic impaction of toothbrush,<sup>[4]</sup> vegetative<sup>[5]</sup> and metallic objects<sup>[6]</sup> in the literature. The reported case of traumatic impaction of toothbrush in the oropharynx was in a child,<sup>[4]</sup> while those with vegetative<sup>[5]</sup> and metallic<sup>[6]</sup> foreign bodies in the orofacial region were adults. Foreign bodies may be dormant and remain in the soft tissue for years without causing damage to adjacent structures.<sup>[7]</sup> However, some can produce chronic inflammatory reactions and be a source of infection.<sup>[8]</sup> Hence their identification and removal from the tissue is often necessary. In this series,

the authors documents three unusual cases of foreign body impaction in the orofacial soft tissue spaces and highlight the challenges encountered in their management. Consents were obtained from the patients prior to the case reports.

## Case Reports

### Case 1

A 45-year old woman presented with a 10-week history of painful left cheek swelling associated with trismus. She claimed that while brushing her teeth ten weeks earlier, she received a blow on her face while mediating in an altercation between two young men and the toothbrush held in her mouth got broken. She however could not ascertain that all the pieces of the toothbrush were retrieved. The patient attended two other clinics prior to presentation, where she had facial incision and drainage done and was placed on

### Address for correspondence:

Dr. Stephen B. Aregbesola,  
Department of Oral and Maxillofacial  
Surgery and Oral Pathology, Faculty of Dentistry,  
Obafemi Awolowo University, P.O. Box 1399, Ile-Ife, Nigeria.  
E-mail: tttaegbs@yahoo.com

### Access this article online

Quick Response Code:



Website: [www.njcponline.com](http://www.njcponline.com)

DOI: 10.4103/1119-3077.113469

PMID: \*\*\*\*\*

antibiotics and analgesics. On examination, the left buccal swelling was brawny hard, slightly tender with scanty pus discharge from the previous left facial incision. There was trismus with an interincisal mouth opening of 12 mm. Figure 1 shows the left buccal swelling due to foreign body impaction in a 45-years old woman.

Plain skull radiograph revealed the radio-opaque filaments of the toothbrush [Figure 2]. A diagnosis of left buccal space infection secondary to traumatic impaction of toothbrush filament was made. The treatment plan was to remove the foreign body under local anaesthesia. Local anaesthesia was administered, an intraoral left buccal incision made, and the buccal space was explored using blunt dissection. The complete head of an adult size toothbrush measuring 1.5 cm by 4.5 cm was retrieved. [Figures 3 and 4] are pictures showing the toothbrush removed from the buccal space of the patient. The space was thoroughly debrided and closed primarily with 3.0 silk sutures. The patient's mouth opening immediately improved. She was placed on oral ciprofloxacin; 500 mg 12 hourly for 5 days and oral metronidazole; 400 mg 8 hourly for 5 days. Postoperative recovery was uneventful and full mouth opening was thereafter achieved following jaw exercises.



**Figure 1:** Skull X-ray showing the radio-opaque filamentous foreign body



**Figure 3:** A complete head of an adult toothbrush retrieved from the left buccal space 10 weeks after its impaction

## Case 2

A 33-year old man presented with a 2-week history of toothache from the left mandibular third molar. Pain was initially mild but became severe 3 days later. The patient had attempted extraction of the tooth elsewhere resulting in fracture of the molar tooth and the surgical instrument used. The instrument was left in the dentoalveolar tissues. The past medical and dental history was not contributory. On examination, there was moderate and tender mandibular swelling involving the left submasseteric region with palpable and acutely tender left submandibular lymph nodes. The temporomandibular joints were bilaterally palpable and there was trismus with an interincisal mouth opening of 25 mm.

Intra-oral examination revealed an acutely inflamed and hyperemic gingiva in relation to the fractured left mandibular third molar, acutely tender swelling buccal to the left mandibular molars with obliteration of the buccal sulcus. All other teeth were present.



**Figure 2:** Intraoral site where the head of the toothbrush was retrieved



**Figure 4:** Oblique lateral skull X-ray showing a radio-opaque foreign body

The plain skull radiograph revealed a radio-opaque foreign body (the retained tip of the fractured instrument) as well as the retained roots of the left mandibular third molar shown as Figure 5. A diagnosis of submasseteric abscess in relation to the left mandibular third molar with retained foreign body was made. The patient received oral Metronidazole; 400 mg 8 hourly for 7 days and oral Augmentin; 625 mg 8 hourly for 7 days.

The retained left mandibular third molar was surgically extracted under local anaesthesia and a metallic object measuring 0.5 cm by 2.7 cm was retrieved from the submasseteric space. The space was thoroughly debrided and closure done with 3.0 silk sutures. The patient had uneventful postoperative recovery. Figure 6 shows the metallic foreign body extracted from the submasseteric space.

### Case 3

A 29-year old man presented with a 4-week history of a painful right cheek swelling associated with limited mouth opening. He was involved in a lone road traffic crash and fell off his motorcycle into a ditch containing wooden sticks. One of the sticks pierced through his cheek. He claimed that part of the stick was removed at the clinic where he sought initial treatment. He was also given some medications at the clinic.

On examination, there was a diffuse, hard and slightly tender right cheek swelling with trismus and interincisal mouth



**Figure 5:** The broken instrument impacted in the left submasseteric space



**Figure 7:** An intraoperative picture showing the retained wooden stick

opening of 30 mm. The foreign body was not radio-opaque and was not visible on the plain skull radiographs. The right buccal space was explored under local anaesthesia through an extraoral approach and a dark wooden stick, measuring 2.5 cm by 6.5 cm was retrieved. Figures 7 and 8 show the dark wooden stick removed from the right buccal space. The facial wound was debrided and closed in layers with 3.0 vicryl and 3.0 nylon sutures. The patient was placed on oral ciprofloxacin; 500 mg 12 hourly for 7 days. He had an uneventful post-operative recovery.

### Discussion

Foreign bodies may be ingested, inserted into a body cavity, especially by children<sup>[4]</sup> or impacted into the body tissue following a traumatic or iatrogenic injury. The diagnosis and early detection of foreign bodies are usually based on the patient's history, clinical examination and the various radiological imaging methods such as the plain radiographs, computed tomography, magnetic resonance imaging and ultrasound.



**Figure 6:** The retrieved foreign body and the original handle of the instrument



**Figure 8:** The retrieved wooden stick

A toothbrush is an important commodity of everyday use. Its use is worldwide regardless of age, gender and race. Many people would not imagine the risk that may be associated with its use. Cases of accidental swallowing of a toothbrush have been reported.<sup>[9,10]</sup> One of the two reference cases required a laparoscopy to remove the toothbrush from the stomach.<sup>[10]</sup> Rare instances of a toothbrush foreign body causing severe oropharyngeal injury have also been documented in children<sup>[4]</sup>

The orofacial soft tissue spaces are potential anatomic spaces between deep fascial layers, they are bounded by bones, muscles or salivary glands and mostly filled with loose connective tissue. These have been variously classified into the suprahyoid and infrahyoid groups. The buccal and submasseteric spaces are examples of the suprahyoid fascial spaces. The impaction of a foreign body may induce an inflammatory reaction, resulting in the fascial space being invaded by inflammatory enzymes with subsequent formation of inflammatory exudates or abscess. Case 1 presented an initial diagnostic challenge because the patient's history offered absolutely no suggestion of a foreign body impaction. She was unaware that the head of her toothbrush was retained in her face. There was no obvious intraoral left buccal wound or scar to suggest a penetrating injury, possibly due to the complete mucosal healing. However, the unusual hard and tender buccal swelling that dated back to the time of the injury led to the suspicion of a possible foreign body impaction and this was revealed by the plain radiograph as radio-opaque filaments [Figure 2].

Case 2 was a patient referred after an attempted tooth extraction. There was a fracture of the tooth as well as the retention of the broken working end of a surgical instrument used during the attempted extraction shown on radiograph in [Figure 5].

Metallic instruments used in clinical practice may be subjected to considerable wear and may subsequently fracture. The removal of the broken instrument may be simple if the fractured part remains accessible, but this is not always the case.<sup>[11]</sup> This patient presented with an acute infection sequel to impaction of a foreign body. The lateral oblique radiograph of the skull confirmed the retained broken instrument as a radio-opaque foreign body which was clinically inaccessible. Unlike the present series where foreign bodies were retained in the buccal and submasseteric spaces, instrument breakage and retention in the temporomandibular joint has been reported.<sup>[12]</sup> The fractured metallic instrument was retained medial to the temporomandibular joint for ten years and resulted in persistent facial pain, intermittent temporomandibular joint swelling, trismus as well as contact metallic allergy. Clinical features such as pain, swelling and trismus appear to be common due to acute infections resulting from retained foreign bodies as observed in our reported cases.

The visibility of materials on plain radiographs depends on their ability to absorb x-rays, their density and the difference in density between them and the tissue in which they are embedded. Most foreign bodies are detectable by plain radiographs. However, wood is an organic material with a low density that is almost like those of soft tissue and as such wooden foreign bodies are usually not seen on plain radiographs unless they are associated with a radio-opaque substance.<sup>[13]</sup> This explains the reason why the wooden foreign body was not shown by the plain radiograph in the third patient. Wooden foreign bodies are best visualized with computed tomography (CT) and ultrasound imaging.<sup>[14]</sup>

The surgical removal of the foreign bodies in these three patients was done under local anaesthesia, two of them (cases 1 and 2) through intraoral approaches and the third (case 3) through an extraoral approach. Two of these patients (cases 1 and 3) experienced delays in the removal of the retained foreign bodies due to misdiagnosis at their first presentation in the hospital and the foreign bodies retention were complicated by facial abscesses. The timely removal of retained foreign bodies from the tissue is important in order to relieve the patient of all symptoms and also minimize possible complications; such as cellulitis, abscess, necrotizing fasciitis, foreign body allergic reaction and osteomyelitis.

This report documents these rare cases of retained foreign bodies in adult patients and also alerts clinicians to consider the possibility of a foreign body when confronted with an unusual swelling in the oral and maxillofacial region. Prompt diagnosis and surgical retrieval of the foreign bodies as well as appropriate antibiotic therapy immensely contributed to uneventful postoperative recovery in the three cases.

## References

1. Eggers G, Haag C, Hassfeld S. Image-guided removal of foreign bodies. *Br J Oral Maxillofac Surg* 2005;43:404-9.
2. Krimmel M, Cornelius CP, Stojadinovic S. Wooden foreign bodies in facial injury: A radiological pitfall. *Int J Oral Maxillofac Surg* 2001;30:445-7.
3. Holmes PJ, Miller JR, Gutta R, Louis PJ. Intraoperative imaging techniques: A guide to retrieval of foreign bodies. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2005;100:614-8.
4. Tanaka T, Sudo M, Iwai K. Penetrating injury to the pharynx by a toothbrush in a pediatric patient: A case report. *Auris Nasus Larynx* 2002;29:387-9.
5. Spengos MN. Roentgeno-Oddities. A pea in the cheek. *Oral Surg Oral Med Oral Pathol* 1977;43:320-1.
6. Dourado E, Gomes AC, Oliveira ED. Surgical removal of metallic foreign body in the face: Case report. *Odontologia Clin Cientff Recife* 2008;7:161-4.
7. Ebner F, Tolly E, Tritthart H. Uncommon intraspinal space occupying lesion (foreign body granuloma) in the lumbosacral region. *Neuroradiology* 1985;27:354-6.
8. Manthey DE, Storrow AB, Milbourn JM, Wagner BJ. Ultrasound versus radiography in the detection of soft tissue foreign bodies. *Ann Emerg Med* 1996;28:7-9.
9. Kirk AD, Bowers BA, Moylan JA, Meyers WC. Toothbrush swallowing. *Arch Surg* 1988;123:382-4.
10. Wishner JD, Rogers AM. Laparoscopic removal of a swallowed toothbrush. *Surg Endosc* 1997;11:472-3.

11. Chrcanovic BR, Menezes DC Jr, Custodio AL. Complication of local dental Anaesthesia - a broken needle in the pterygomandibular space. *Braz J Oral Sci* 2009;8:159-62.
12. Persson S, Gjerdet NR, Tornes K. Metal fragment in the temporomandibular joint: A case report. *Int J Oral Maxillofac Surg* 2003;32:653-5.
13. Anderson M, Newmeyer WL, Kilgore ES Jr. Diagnosis and treatment of retained foreign bodies in the hand. *Am J Surg* 1982;144:63-5.
14. Oikarinen KS, Nieminen TM, Makarainen H, Pyhtinen J. Visibility of foreign

bodies in soft tissue in plain radiographs, computed tomography, magnetic resonance imaging and ultrasound: An *in vitro* study. *Int J Oral Maxillofac Surg* 1993;22:119-24.

**How to cite this article:** Aregbesola SB, Ugboko VI. Unusual foreign bodies in the orofacial soft tissue spaces: A report of three cases. *Niger J Clin Pract* 2013;16:381-5.

**Source of Support:** Nil, **Conflict of Interest:** None declared.