

## Retained Metallic Foreign Body in Cheek: A Diagnostic and Surgical Challenge

Varsha Sunil Manekar, Ankush Chavan

### ABSTRACT

Foreign body lodged in the soft tissue is fairly common in the vehicular or industrial accidents. Traumatic injuries in orofacial region often drive foreign bodies in the soft tissues. The immediate closure of the soft tissue wounds become the emergency treatment for the control of bleeding. The foreign body may sometimes remain unnoticed. The purpose of reporting this unusual case of metallic foreign object in the cheek is to highlight the difficulties in detection of foreign bodies and discuss its clinical management. We also discuss the usefulness of various imaging modalities for assessment of its nature, location, size, shape and relation to vital structures.

**Keywords:** Metallic, Foreign body, CT scan, Penetrating wound.

**How to cite this article:** Manekar VS, Chavan A. Retained Metallic Foreign Body in Cheek: A Diagnostic and Surgical Challenge. *Int J Head Neck Surg* 2013;4(2):107-109.

**Source of support:** Nil

**Conflict of interest:** None declared

### INTRODUCTION

Traumatic injuries in orofacial region often drive foreign bodies in the soft tissues. They are secondary to penetrating or abrasive trauma resulting in bleeding and deep wound. The immediate closure of the soft tissue wounds is the emergency treatment for the control of bleeding. The foreign body may sometimes remain unnoticed. These retained foreign bodies which are often missed at initial evaluation result in inflammation, pus discharge, toxicity and delayed healing of wounds. The identification is difficult with clinical evaluation and routine radiographs. Uses of diagnostic aids like ultrasonography, CT scan, MRI are better tools. They can identify and locate the retained body. The size, shape, radiopacity, surface, proximity to vital structures, depth of position can be clearly assessed with these. The difficulty in surgical access and proximity to the adjacent vital structures like major vessels, nerves, sinus causes the removal of foreign body a challenging surgery. There may be further trauma and loss of tissue during the surgical removal. The presence of granuloma, fibrosis increases the surgical difficulty. The purpose of reporting this unusual case of metallic foreign object in the cheek is to highlight the difficulties in detection of foreign bodies and discuss its clinical management.

### CASE REPORT

This case report is of a young man working in small industrial unit. He suffered an accident with heavy machine leading to a deep cut on face and profuse bleeding. He was treated in

emergency room for bleeding control and wound closure. He was unaware of penetrated object. This occurred 6 months back and the wound was already cicatrized. Fig. 1 shows the transverse scar on cheek, the site of entry of the object. He reported to our OPD with complaint of persistent pain, swelling, and discomfort, in spite of healed wound. OPG, and modified PA view showed the radiopaque linear foreign body in the maxillary region. Figure 2 shows the linear radiopaque object in posterior maxilla on OPG. Figure 3 shows the radiopaque wide object in soft tissue of cheek. The CT scan was taken for localization and assessment of size and shape. Figure 4 shows CT image showing the rectangular radiopaque object on buccal side of maxillary teeth. From the history of breakage of high speed revolving lathe wheel was the cause of the penetrating injury on face. Hence, the foreign body was assumed as the piece of lathe. The CT scan was very helpful in localizing as well as assessing its size and shape. The metallic piece was elongated, rectangular shape in the fibrosed left cheek. It was not clinically palpable. Patient received tetanus toxoid and antibiotics, was operated under local anesthesia through intraoral approach and as day care surgery. The blunt dissection was done after transverse mucosal incision along the occlusal surface on cheek mucosa. The wound was explored for presence and localization of the object. The object was detached from its soft tissue covering and removed with hemostat (Fig. 5). The wound was irrigated and sutured. Figures 6 and 7 show the object dissected out from both sides, around 25 by 10 mm. It was rectangular piece of lathe with serrated surface irregular margins, and thickness of 5 mm the wound healed uneventfully.



**Fig. 1:** Scar on the face, site of entry of metallic body

## DISCUSSION

Foreign bodies are often encountered by oral and maxillofacial surgeons and may present a diagnostic challenge, due to many factors such as the size of the object, the difficult access and a close anatomical relationship of the foreign body to vital structures.<sup>1,2</sup> Foreign bodies can

penetrate soft tissues through open wounds and lacerations sustained during trauma or by direct impact against them. Such wounds harboring foreign bodies may appear to be deceptively minor and may not be accompanied by any major symptoms. But if these foreign bodies are left undetected in the tissues they can result in serious consequence days, months



Fig. 2: OPG showing radiopaque image, elongated like nail



Fig. 5: The object while surgical removal, transorally



Fig. 3: Modified PA mandible, the radiopaque image in cheek

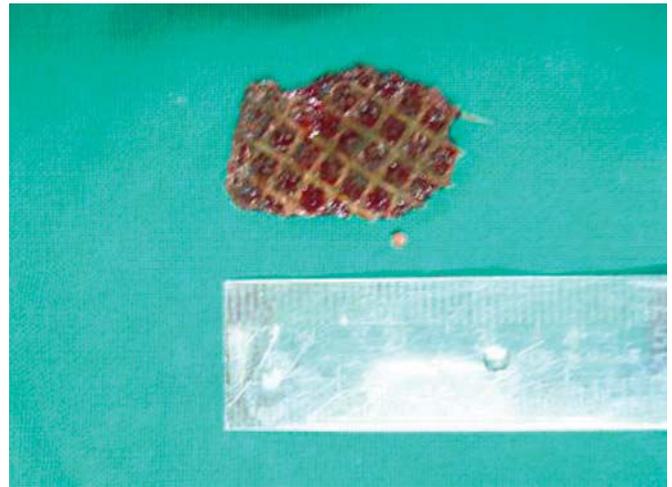


Fig. 6: The object from side 1

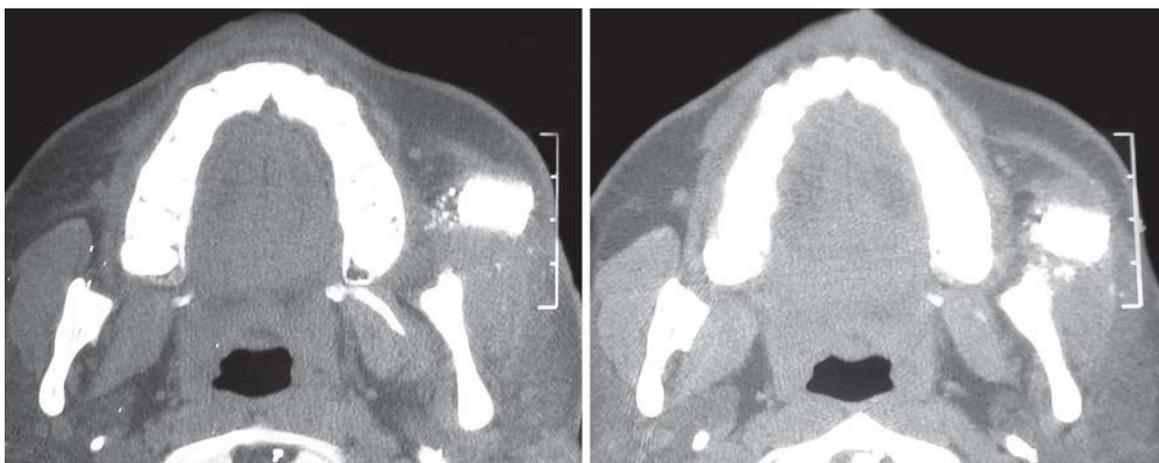


Fig. 4: CT scan showing rectangular radiopaque piece on buccal side of maxilla



**Fig. 7:** The object from other side

or even years after initial trauma.<sup>3</sup> Computed tomography is the imaging modality of choice for detection of the majority of foreign bodies.<sup>3,4</sup> The foreign body removal can be delayed in approximately one third of all foreign bodies, because they are initially radiologically missed or misdiagnosed.<sup>5</sup> Occasionally, foreign bodies may be retained for some time causing persistent and distressing symptoms.<sup>6</sup> It is often difficult to remove foreign bodies in the head and neck because they are usually near vital structures, or the difficult access.<sup>7</sup> The careful assessment is required for the identification and location of the retained foreign body, which is essential for the surgical removal. This may be sometimes difficult depending on type and location of wound, and the nature of foreign body. Reports suggest that ultrasound is a superior and better imaging modality than CT scan and MRI for foreign body detection in soft tissue. Ultrasound is both sensitive and specific in detecting wooden foreign body.<sup>8</sup> The use of the navigation systems for foreign bodies in facial region has been suggested, especially when implies in danger for important anatomical structures failure of previous attempts at removal the foreign body, the presence of multiple foreign bodies, the desire to achieve a minimally invasive access and to allow a quicker operation.<sup>8</sup>

The foreign body can often modify the regional anatomy. Tissues can be damaged by gun-shot wounds, or altered by scarring after an operation that resulted in an iatrogenic foreign body.<sup>9</sup> The foreign bodies' removal in the facial region implies on danger of damaging important anatomical structures. Even if it's known the exact position from imaging data, the accurate reproduction of its position in the patient's body can be difficult if the foreign body is not adjacent to a definitive anatomical landmark. The search for a foreign body in a larger area rather than at a definite position increases the risk of damage to adjacent structures.<sup>10</sup>

In the reported case, the metallic object was retained in the cheek for 6 months after the closure of wound. The object was deep and with fibrosis around it, hence could not be palpable. Only CT scan could give the exact size, shape and location. The intraoral approach prevented further deterioration of ugly scar on face and under local anesthesia as day care surgery, was an advantage to patient. We emphasize on the thorough evaluation of cases of facial soft tissue injuries with CT scans for early and timely detection of foreign objects.

## REFERENCES

1. Auluck A, Behanan AG, Pai KM, Shetty C. Recurrent sinus of the cheek due to a retained foreign body: Report of an unusual case. *Br Dent J* 2005;198:337-39.
2. Yanay O, Vaughan DJ, Diab M, Brownstein D, Brogan TV. Retained wooden foreign body in a child's thigh complicated by severe necrotizing fasciitis: A case report and discussion of imaging modalities for early diagnosis. *Pediatr Emerg Care* 2001;17:354-55.
3. Van der Wal KG, Bourkes RJ. Intraorbital bamboo foreign body in a chronic stage: Case report. *Int J Oral Maxillofac Surg* 2000; 29:428-29.
4. Akuner M, Ajay A, Top H. A case of self-inflicted intraorbital injury: Wooden foreign body introduced into the ethmoidal sinus. *Ann Plast Surg* 1998;41:422-24.
5. Robinson PD, Rajayogeswaran V, Orr R. Unlikely foreign bodies in unusual facial sites. *Br J Oral Maxillofac Surg* 1997; 35:36-39.
6. Cameron M, Phillips B. Snookered facial infection secondary to occult foreign body. *Int J Oral Maxillofac Surg* 2006;35: 373-75.
7. Paoli JR, Dekeister C. A tooth in the orbit. *Br J Oral Maxillofac Surg* 2001;39(4):327.
8. Oikarinen KS, Nieminen TM, Makarauren 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.
9. 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;100:614-18.
10. Eggers G, Haag C, Hassfeld S. Image-guided removal of foreign bodies. *Br J Oral Maxillofac Surg* 2005:404-09.

## ABOUT THE AUTHORS

### Varsha Sunil Manekar (Corresponding Author)

Associate Professor and Head, Department of Oral and Maxillofacial Surgery, Government Dental College and Hospital, Mumbai, Maharashtra India, e-mail: varsha\_manekar@yahoo.co.in

### Ankush Chavan

Assistant Professor, Department of Oral and Maxillofacial Surgery Government Dental College and Hospital, Mumbai, Maharashtra, India