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Case Report

Dentistry Section

A Case of Impacted Foreign Body in Zygomatic Region- A Missed Diagnosis

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ABSTRACT

Foreign body impaction in the soft tissues is not uncommon following maxillofacial trauma. Traumatic injuries in this region often cause penetrative injury of the soft tissues. Immediate closure of the soft tissue wound becomes the primary management strategy for control of haemorrhage. Foreign bodies may sometimes remain unnoticed in these wounds. Here, the authors present a case of retained metallic foreign body in the left zygomatic region in a 21-year-old male patient with history of simple slip and fall from staircase at home. Clinical evaluation and primary management of the facial wounds were done in a nearby healthcare centre by a general physician where the facial wounds were closed primarily using cyanoacrylate tissue glue to control the bleeding. Further, on clinical and radiographic examination by an oral maxillofacial surgeon, a 2×1 cm metallic foreign body was noted in the left zygomatic region. Immediate surgical removal under local anaesthesia was planned and performed. The purpose of reporting this case is to highlight the importance of thorough clinical and radiographic assessment as well as the need for an oral maxillofacial surgeon for prompt assessment, diagnosis, and management of these facial injuries.

Keywords: Foreign body impaction, Maxillofacial trauma, Radiography

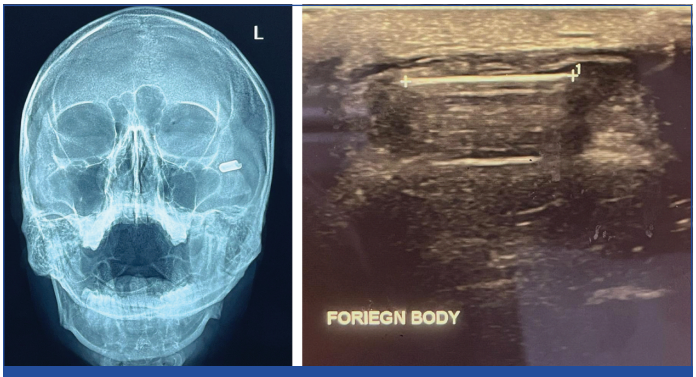
CASE REPORT

A 21-year-old male presented to the Department of Oral and Maxillofacial Surgery with complaints of pain and swelling in the left cheek region following facial injury. The patient gave a history of slip and fall at home in the stairs from a height of approximately four feet following which the patient had pain and diffuse bleeding from wounds in the left cheek region. The patient had visited a local healthcare centre where primary management of facial wounds was done using tissue adhesive cyanoacrylate glue.

The patient was neurologically stable. On local examination, the patient's face was apparently symmetrical; there was severe tenderness and mild oedema in relation to left malar region with evidence of abrasive injuries. No palpable step deformity/segmental mobility were present in maxillofacial region. The patient had mild restriction in mouth opening (35 mm). Intraoral examination revealed stable dental occlusion.

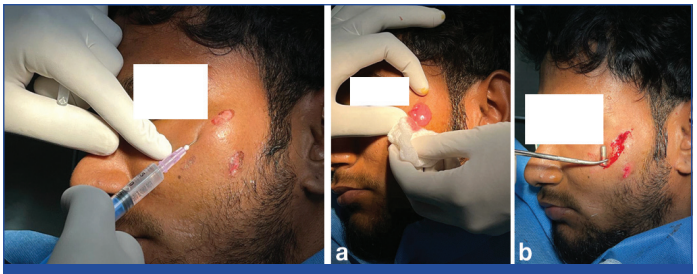
With the above clinical findings, the patient was suspected to have left zygoma fracture and was advised X-ray paranasal sinus view. Radiographic examination revealed no fractures in the maxillofacial region but showed a 2×1 cm radiopacity near the left body of zygoma [Table/Fig-1].

This raised suspicion for the presence of foreign body and hence, the patient was advised ultrasound which revealed a well-defined linear hyper echoic lesion suggestive of foreign body with haematoma in deep subcutaneous planes of left maxillary region [Table/Fig-2].



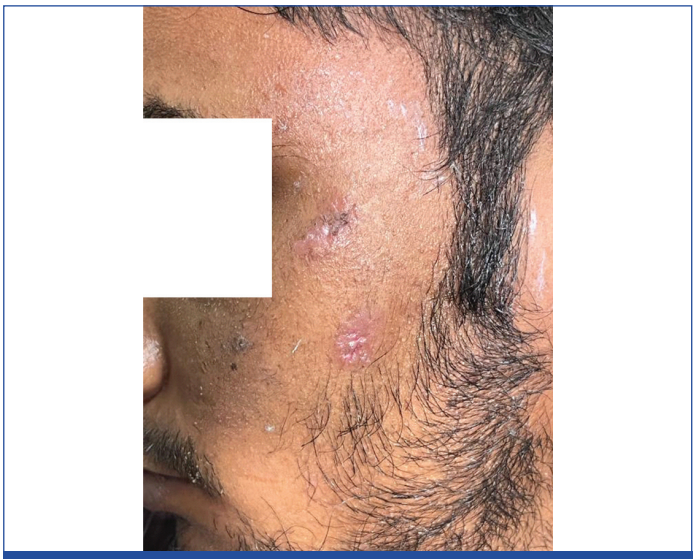
[Table/Fig-1]: X-ray paranasal sinus.
[Table/Fig-2]: Ultrasound left zygomatic region. (Images from left to right)

Immediate surgical removal under local anaesthesia was planned. Through the primarily closed wound in the left zygomatic region, access was gained [Table/Fig-3]. Haematoma was drained following which a 2×1 cm metallic plug was identified and removed [Table/Fig-4a,b].



[Table/Fig-3]: Access through existing primarily closed wound.
[Table/Fig-4]: a) Haematoma evacuation; b) Metallic plug removal. (Images from left to right)

Thorough irrigation was carried out with saline. After achieving haemostasis, the surgical site was closed using 5-0 vicryl and 6-0 ethilon. At one week follow-up, it was noted that the patient was pain free with satisfactory healing [Table/Fig-5].



[Table/Fig-5]: Post-op 7 days.

DISCUSSION

Maxillofacial injuries are seen in significant number of trauma patients. They can occur in isolation or in combination with other injuries, including spinal, abdominal, upper and lower body injuries [1]. Patients with maxillofacial injuries often have contaminated wounds due to the presence of foreign bodies [2]. Foreign body impaction can commonly occur following traumatic injuries of a penetrating nature. These foreign bodies penetrate into the soft tissues through injuries sustained during the trauma and can sometimes be difficult to identify. Depending on the aetiology of trauma, the type of foreign body and its location vary considerably. Different types and sizes of foreign bodies may get impacted in the maxillofacial region including glass, stones, wire, metal, wood, or pen cap [3].

Out of all the cases of impacted foreign bodies reported, about one-fourth is missed during preliminary examination due to their variable size, shape and/or deep location [4]. If left untreated, they have the risk of causing an array of complications ranging from simple infection to serious injury of adjacent structures [5]. Barros MA et al., described a case of an impacted foreign body in a patient with history of slip and fall from height during simple domestic activity [6]. Removal of the foreign body was performed under general anaesthesia. Kuang R et al., reported a case of 19-month-old child with history of penetrative injury to the face that subsequently led to the development of facial artery pseudoaneurysm [7]. In rare cases, foreign body injuries in the maxillofacial region can pose a serious threat to the patient, so a prompt initial treatment and appropriate management would increase the survival of this kind of patient [8]. Some of them may remain in situ for clinical reasons and removing them could bring more harm than benefits [9]. Wulkan M et al., reports common complications associated with the foreign body removal such as excessive haemorrhage, infection, pain, oedema, and trismus [10]. But most of the foreign bodies are removed before the onset of any serious complications. The preferred path of removal is usually along its path of entry [11].

Various imaging techniques can be used to identify the presence of impacted foreign bodies. The most commonly used modality in the head and neck region is plain radiography followed by Computed Tomography (CT), ultrasound and Magnetic Resonance Imaging (MRI). Plain radiographs have sensitivity of 69-90% for metallic foreign bodies and 71-77% for glass [12]. But when a foreign body is suspected to be in deeper plane with risk of injury to vital structures, it is advisable to get a CT scan done for accurate localisation and anatomic proximation. Recent reports have shown the advantage of helical CT scans to be as accurate as conventional CT scans, but with less radiation exposure for the patient [13].

In head and neck region, ultrasound is another useful imaging modality in identifying foreign bodies like wood. It can demonstrate wooden fragments as small as 2.5 mm with 87% sensitivity and 90% specificity [14]. When the presence of metallic foreign body is suspected, MRI should be avoided as the magnetic field associated with it may mobilise the foreign body leading to serious damage of surrounding tissues [15].

When there is a significant risk of injury to vital structures, navigation systems for the purpose of localisation of the foreign body has been suggested in the maxillofacial region [16]. In the present patient, plain radiograph was taken to rule out suspected zygoma fracture, which led to accidental finding of metallic foreign body in the cheek region. Additionally, the patient was advised ultrasound to identify the plane of involvement and its relative position from vital structures.

Removal of impacted foreign bodies in the superficial planes can be done under local anaesthesia and those in deeper planes may require removal under general anaesthesia. In the present case, removal of foreign body was performed under local anaesthesia as the foreign body was in the subcutaneous tissues without risk of injury to vital structures. In addition, surgical guides have also been used to assist in the removal of foreign bodies. Ma W et al., reported a case of a 11-year-old boy with extensive facial contusions who underwent emergency surgical removal of multiple impacted glass shards in the face [17]. Computed tomography scan taken after two months revealed two glass pieces left behind. Computer printed 3-dimensional digital guide was fabricated and used to precisely locate and successfully remove the foreign body.

The possibility of foreign body injury should be ruled out in any patient presenting with history of maxillofacial trauma. In the reported case, a simple slip and fall from stairs had resulted in a penetrative injury in the face, caused by a metallic plug with subsequent bleeding. Immediate primary care was given in a primary healthcare centre by a medical physician.

It has been observed that the knowledge regarding management of such maxillofacial injuries among medical professionals is not sufficient [18,19]. Due to the unavailability of specialists like oral and maxillofacial surgeons, these types of injuries in the face may remain undiagnosed. Hence, it is pertinent to mention that the availability of an oral and maxillofacial surgeon in any health care centre holds great significance for management of these injuries. However, such a need has been found to be low in many primary health care centres in South India [20]. Thus, this case report signifies the need for such professionals to identify, manage and provide adequate care for those individuals presenting with maxillofacial injuries.

CONCLUSION(S)

The possibility of foreign body injury should be ruled out in any patient presenting with a history of maxillofacial trauma. Radiographs are crucial elements for early diagnosis and proper management of these injuries. When required, advanced imaging modalities should be used. It is also important to emphasise the availability of an oral and maxillofacial surgeon in any health care centre would significantly reduce the chances of any misdiagnosis or missed diagnosis in a patient presenting with history of maxillofacial trauma, thereby avoiding unnecessary complications that may follow.

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