Foreign Bodies in Facial Trauma-Report of 3 Cases

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Abstract

Background Foreign bodies embedded deep in facial tissues presents a challenge to maxillofacial surgeons. Approximately one third of all foreign bodies are missed during initial examination. After facial trauma foreign bodies like grit particles, wooden pieces, thorns, pebbles, glass particles may get embedded into deeper facial tissues which are detected only accidentally either with the help of radiographs or at a later stage when patient presents with some signs & symptoms like pain, pus discharge, sinus formation etc. Trauma to maxillofacial region especially after road traffic accidents is one of major cause of embedment of foreign body, but many of these cases go unnoticed. This article contains 3 cases of foreign bodies embedded in facial tissues.

Conclusion Proper initial examination of facial lacerations with thorough debridement is very essential for finding embedded foreign bodies. Foreign bodies embedded in deeper tissues are missed by surgeon eyes, so whenever in doubt radiographs must be advised to rule out presence of foreign bodies.

Keywords Foreign body · Maxillofacial trauma · Infection · Grid particles

Introduction

Approximately one-third of all foreign bodies are missed during initial examination [1]. After facial trauma foreign bodies like grit particles, wooden pieces, thorns, pebbles, glass particles may get embedded into deeper facial tissues which are detected only accidentally either with the help of radiographs or at a later stage when patient presents with some signs and symptoms like pain, pus discharge, sinus formation, etc. Small wounds of the eyelids and periorbital tissue are often associated with retained foreign bodies that may not be detected during initial examination [2]. In such cases late complications such as infraorbital granuloma [3], osteomyelitis, disturbance of vision, brain abscess, and death [4] may occur.

We present 3 different cases of foreign bodies in facial region after maxillofacial trauma which were not diagnosed at the initial examination and were operated for the same when patient reported with signs and symptoms at a later stage. Paper highlights the need of thorough examination of facial lacerations with adequate debridement to rule out embedded foreign bodies.

Case Reports

Case 1

A 20 year male reported to department of Oral & Maxillofacial surgery, for evaluation of pain in right infraorbital region. Pain was dull, intermittent in nature since last 30 days. Patient gave a history of fall from motorcycle 5 years back and had a laceration in the same region. On inspection an oval shaped swelling approximately $6 \times 5 \times 2$ mm was present at inferolateral aspect of right

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eye. The swelling was nontender, firm in consistency. CT evaluation revealed a linear high density foreign body of 3 cm in right infraorbital region. Exploration of the area via infraorbital incision was undertaken under general anesthesia. A thorn was located buried in scar tissue at the level of infraorbital margin. Foreign body was retrieved along with surrounding granulation tissue. The thorn (wooden foreign body) was approximately 3 cm in length (Fig. 1).

Case 2

A 25 year old male sustained a laceration in left supra-orbital region after a fall 2 years back. Since then patient complains of recurrent swelling and intermittent pain in that region. An unsuccessful attempt of exploration of the site was done at some other center. When patient reported to our department inspection does not revealed any finding in supraorbital region, but on palpation a firm swelling approximately 1×1 cm can be palpated in lateral half of left supraorbital region. Radiographs, helped in locating a radio opaque foreign body in left supra orbital region. Then site was explored and foreign body (a pebble) was removed under general anesthesia (Fig. 2).

Case 3

A 32 year male with a sutured wound over right temporal region was referred to our emergency department for further management. Patient met a road traffic accident 1 day back. Patient was advised CT scan to rule out any head injury. CT findings revealed multiple high density foreign bodies of different sizes in right temporal region. The area was tender and continuous blood oozing was there from the sutured area. Patient was planned for exploration and retrieval of foreign bodies under general anesthesia. 16 glass particles of different sizes were removed. After confirming removal of all glass particles, wound was resutured. Postoperative radiographs ruled out presence of any remaining foreign body (Fig. 3).

Discussion

It is not easy for maxillofacial surgeon to diagnose the presence of foreign bodies at initial examination clinically. Approximately one-third of all foreign bodies are initially missed [5]. Many cases of embedded foreign bodies go unnoticed at initial examination and reveal their presence at a later stage when patient revisit the surgeon with some complaints with the associated area. Many a time's foreign

Fig. 1 **a** Preoperative photograph; **b** 3-D CT scan showing the thorn in the right infra orbital region; **c** intraoperative view of the thorn; **d** thorn removed along with surrounding lining

Fig. 2 Intraoperative photograph showing foreign body in the right supraorbital region

bodies are detected as an additional finding on radiographs, which were basically advised for ruling out bony injuries. Retained foreign bodies following penetrating trauma may

pose a difficult diagnostic problem [6]. The presence of a foreign body should be considered in any wound that continues to have purulent drainage, develops a chronic draining sinus, or when purulent drainage from an abscess yields sterile cultures. Even the presence of recurrent swelling, pain can be because of retained foreign body. The correct diagnosis of retained wooden foreign bodies becomes difficult because it may follow relatively minor trauma (small pricks) and may not be identified clinically [1] like in case 1 mentioned above. In case of wooden foreign body only 15% are well visualized on plain radiographs and are therefore often missed or misdiagnosed [7]. Grit particles, pebbles, stones, glass pieces being denser materials can be detected on plain radiographs, but wooden foreign bodies, bamboo sticks, thorns are best visualized by computed tomography [1]. We were able to make out presence of some foreign body (thorn) only after computed radiography in our first case. Deep foreign bodies are best visualized with CT imaging. If CT scan

Fig. 3 **a** Preoperative photograph; **b** CT scan showing the grid particles in the right temporal region; **c** intraoperative photograph; **d** 16 glass particles removed; **e** postoperative suturing

does not reveal a suspected wooden fragment, MRI should be carried out. Foreign body localization with ultra sound imaging is also well established [8, 9].

Foreign bodies are usually dirty and carry multiple microorganisms [10]. Infection associated with retained bodies in the facial region has been a notable feature of previous mentioned cases in literature [5]. Large sinus formation, pus discharge from the site can be unwanted consequences. So embedded foreign bodies in facial region should be immediately diagnosed and removed. Radiographs of deep facial lacerations should be taken to rule out embedded foreign bodies in deep facial tissues. One should suspect a foreign body when presented with a laceration blow by a wood or bamboo stick [11]. Previously mentioned cases in literature demonstrate a high index of suspicion for retained radiolucent foreign bodies after injury where there is possibility.

In our series we find difficulty in locating foreign body in first case. Clinical examination as well as plain radiograph was not useful. CT findings revealed the presence of foreign body. In our 3rd case proper initial examination would had easily located the foreign bodies because some glass particles were very superficial.

Proper initial examination of facial lacerations with thorough debridement is very essential for finding embedded foreign bodies. Foreign bodies embedded in deeper tissues are missed by surgeon eyes, so whenever in doubt radiographs must be advised to rule out presence of foreign bodies.

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