CASE REPORT

Multiple foreign bodies in the facial region from a penetrating stab injury

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SUMMARY

Penetrating injuries can lead to multiple retained foreign bodies. To present a case of a penetrating stab injury on to the right orbital region of a 37-year-old woman which resulted in lacerations on both eyelids, loss of vision in addition to the retention of glass particle and woven artificial hair strands at the anterior end of the floor of the orbit. The woven artificial hair strand, being flexible in nature, was apparently logged in by the penetrating force of the broken glass used as the stab injury object. Under local anaesthesia, a gentle intermittent pull on one hair strand led to the dislodgement of a piece of broken glass particle along with the other end of the hair strand. The resultant wound was repaired. Stab injuries can result in retained multiple foreign bodies. This possibility should be considered during assessment and management of facial injuries to avoid complications of retention.

BACKGROUND**Introduction**

The appearance of retained foreign bodies may pose a challenge to the maxillofacial surgeon due to the involvement of vital structures and blood vessels. These retained foreign bodies may be placed superficially or deep within the tissues. Following facial trauma, foreign bodies like grit particles, wooden pieces, thorns, pebbles and glass particles may get embedded into deeper facial tissues.¹ Radiographically, it could be radiolucent ones like wooden substance,² blade of grass³ and gauze material,⁴ or

Figure 2 Injury to right eye.

radiopaque ones like knife blade,⁵ root canal filling material,⁶ pebble¹ and broken tips of probe.⁷ Sometimes, these are detected only accidentally with radiographs or when patient presents with some signs and symptoms like pain, pus discharge or sinus formation.¹ Small wounds of the eyelids and periorbital tissue are often associated with retained foreign bodies that may not be detected during initial examination.¹ Thus, the aim of this manuscript is to present a rare case of woman with multiple foreign objects of woven artificial hair strand and broken glass logged into the anterior part of the floor of the right orbit and maxillary sinus from a stab injury, which were removed under local anaesthesia in an outpatient setting.

Penetrating injuries to the facial region can lead to multiple foreign bodies being retained at the site of injury. Considering this possibility during the assessment and management of facial injuries can prevent complications associated with retention of foreign bodies.

CASE PRESENTATION

This 37-year-old woman was referred to the maxillofacial department with a history of a stab injury on her face with a broken glass inflicted by her biological sister during a conflict the previous day. After the incident, she was treated in a health facility where suturing was done for the lacerations sustained. The retention of two weaved strands of artificial hair lying on her cheek from the right infra orbital region led to her referral to the maxillofacial clinic. Extraoral examination revealed a middle-aged woman, not in any respiratory distress but quite anxious due to the facial condition and inability to see with the right eye. There was sutured

Figure 1 Hair strand in situ.

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Figure 3 Radiograph: true lateral view.

laceration on the right upper eyelid and a deep-jagged laceration on the medial part of the lower eyelid with a firm tenderness on palpation. Protruding from the lower eyelid wound were two strands of weaved artificial hair, each located on both sides of a diagonal laceration on the right cheek (figure 1). The right eye was edematous, erythematous (figure 2) and though the various range of the eye movements were intact, the patient could not see with it. The patient was then referred for ophthalmologist review to ascertain the state of the affected eye and the report indicated the right eye to be non-viable with an irreversible cornea damage. The investigation done was plain radiographs. The patient could not afford a CT. A true lateral (figure 3) and occipitomenal view (figure 4) of the skull showed an irregular outline of radiopacity just inferior to the lower right orbital rim with the lower end protruding into the right maxillary sinus. After a clinical assessment of the facial region with respect to the retained hair strands on the cheek, the presenting history, a diagnosis of foreign body was made and a decision to remove

Figure 4 Radiograph: occipitomenal view.

Video 1 Dislodgement process.

it under local anaesthesia was concluded. The procedure was made explicit to the patient and consent was obtained. With the patient well seated, infiltrative anaesthesia was performed and one of the woven artificial hair strands (held with an artery clip) was gently and gradually pulled intermittently outwards until the whole length of the hair strand came out (video 1) with a piece of broken glass (retained after the stab injury (figure 5)). The glass particle was irregular in shape and the hair strand was similar to other hair strands on the patient's head (figure 6). The wound was examined and irrigated with normal saline and surgical repair was carried out (figure 7). The post op reviews showed no associated complications.

Figure 5 Hair strand and glass particle at injury site.

Figure 6 Foreign bodies: hair strand and glass particle.

INVESTIGATIONS

Plain radiograph: true lateral view and occipitomental view of the skull.

TREATMENT

With the patient well seated, infiltrative anaesthesia was performed and one of the woven artificial hair strands (held with an artery clip) was gently and gradually pulled intermittently outwards until the whole length of the hair strand came out with a piece of broken glass (retained after the stab injury).

OUTCOME AND FOLLOW-UP

Postoperative reviews showed no associated complications.

DISCUSSION

Retained foreign bodies are not easily detected at initial examination of facial injuries as it has been found that about one-third of foreign bodies are missed.⁸ 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 signs and symptoms in the associated area.¹ In this case presented, the retained visible woven hair strands were the primary reason for presentation while the glass particle was hidden within the tissues.

Retained foreign bodies following penetrating trauma may pose a difficult diagnostic problem,² due to several factors such as the difficult access, the inflammatory response of the tissues around, the size of the object and a close anatomic relationship to vital structures, which may put patients' lives at risk.⁵ This patient had the glass particle hidden within the right anterior part of floor of orbit with the inferior end within the right maxillary sinus while the hair strands were the only visible objects. The cause of the retention of the woven artificial hair on the face was not initially clear. Although the patient had similar strands on her hair the flexible nature of the strands further posed a challenge to the cause of the retention. The mechanism that introduced the woven artificial hair strands into the anterior part of the floor of the orbit through the lower orbital region is not

Figure 7 Postoperative view.

clear but it is most likely that the hair was on the path of penetration of the broken glass at the time of the stab injury.

Locating the exact position of a foreign object can be a challenge to the management. Plain radiographs could be useful for radiopaque objects but for others like wooden foreign bodies, it was demonstrated that radiograph failed to reveal the retained wooden foreign bodies in all surgically confirmed patients.⁹ Radiograph was a useful tool to detect the presence of the glass particle in this case as it appeared radiopaque.

Although CT imaging should be the basic diagnostic technique, giving the great variety associated with radiological appearances,¹⁰ the patient could not afford a CT. The health services in our setting are paid for directly by the beneficiaries. The decision to carry out the surgical intervention was based on the sound clinical health of the patient, and the superficial location of the foreign object which reduced the risk of profuse bleeding. This is line with a report that concluded that patients with knife injuries to the face with no definite signs of vascular injury can be safely and accurately managed on the basis of physical examination and plain-film radiography.¹¹

Removal of retained foreign bodies in the maxillofacial region may not follow a structured pattern due to varied mechanisms of injury, different length and shapes of the objects,⁵ closeness to large blood vessels and the varied extent of damage of the facial tissues. However, precise localisation and reasonable surgical approaches¹² should be adopted to limit the risk of morbidity and mortality. More modern methods involve the use of navigation-assisted endoscopic surgery,^{12–14} in the head and neck region especially for foreign bodies adjacent to large vessels. The patient in this article had the retained broken glass particle dislodged in the course of removing the woven hair strand. This appeared coincidental because the exact position of the hair strand and the wedging effect on the glass particle was not located on plain radiograph. This presents the limitation of plain radiograph in detecting non-radiopaque objects. The glass object was not visible clinically but on radiograph prior to surgical intervention. However, the presenting history of being stabbed on the face with a broken glass justified the presence of the retained glass particle.

CONCLUSION

Facial trauma, especially stab injuries, can lead to retained multiple foreign bodies. It becomes imperative to note this possibility during the assessment and management of penetrating facial injuries in order to reduce complications associated with foreign body retention.

Learning points

- Stab injuries can result in severe injuries in the maxillofacial region.
- Multiple foreign bodies could be found in a single injury site.
- Plain radiographs are still useful tools for detecting radiopaque foreign bodies.
- Prompt intervention prevent complications associated with foreign body retention.

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