Unusual Foreign Body in Mid Face

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Received: 5 April 2011 / Accepted: 11 January 2012 / Published online: 16 March 2012
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Abstract Cases of foreign bodies in the antrum and nasal cavity are reported in the literature but the size and location of foreign body in this case made it unique and challenging. A large exploded fragment was successfully removed through Lefort I osteotomy approach. Foreign bodies in maxilla and antrum can be removed by different approaches: Caldwell-Luc operation, nasal and antral endoscopic surgery. The foreign body was lying horizontally in posterior maxilla occupying both the maxillary sinuses and nasal cavity. The foreign body was so big in size that the nasal endoscopic approach and Caldwell-Luc operation might be inadequate for its retrieval.

Keywords Foreign body in the maxilla · Lefort I osteotomy

Introduction

Explosions are infrequent civilian occurrences and when injury occurs by this mechanism the patient is invariably wounded by multiple sources. The term missile may be described as any one variety of an object moving through the air and striking a target. These small moving objects with sufficient speed penetrate the body. The penetrating wounds are caused by the missiles of low impact velocity

in which a small point of entry is found with the missile embedded in the tissue and hence no exit point.

A case of foreign body in the maxilla due to civilian bomb blast is presented here. Many foreign bodies have been described in the literature. But the size and location of the foreign body in this case made it a unique case and challenge for its removal. The foreign body appeared to be lying in posterior maxilla horizontally, occupying both, the maxillary sinus and nasal cavity. Any approach other than Lefort I osteotomy would have been inappropriate as the foreign body was lying horizontally. Appropriate approach and meticulous treatment planning is the key or success in such cases.

Case Report

A 55-years-old male, sustained civilian bomb blast injury 4 years ago in Gadchiroli district India. Detailed information of the blast is not available. The patient sustained a penetrating injury, by direct contact with the exploded fragment. There was no accompanying injury to the cervical spine, chest, or any other long bone fracture.

Primary management was done at a rural hospital and the wound at the right cheek region was sutured. Three months later, the patient started complaining of nasal blockage and nasal discharge and heaviness in the mid face region. The patient reported to a higher centre, where a diagnosis of a foreign body in the maxilla was made. The first attempt for retrieval of the foreign body at that time failed as the surgeons tried it through the transnasal approach. The reason for failure is not exactly known. It can be argued that visualization of the entire foreign body was not possible by this approach. For a period of about 3 years, the patient did not seek any treatment, although he

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was symptomatic. There is no specific reason for the delay in removal of the foreign body; it could be the low socioeconomic status.

The patient then reported to our centre with the complaint of foul smell, pain in the mid face region, difficulty in deglutition and sensation of burning at the time of respiration.

The patient's extra oral examination revealed scar on the right cheek region of 1×1 cm size. Movements of the TMJ were normal with no other facial deformity.

Intra orally the occlusion was normal with missing upper anterior teeth. Foreign body was not visible intra orally as well as extra orally. There was a palpable bony defect of 1×1 cm size at the right zygomatic buttress region. The ear and throat examination was normal.

Radiographic examination was done. The waters view showed a radio-opaque object of about 7×2 cm size (Fig. 1), extending from the right zygomatic buttress to the left zygomatic buttress region. Some serrations were also seen radiographically. The lateral skull radiograph showed a foreign body of 2×1 cm size (Fig. 2). C.T. scan showed the areas of cavitations around the foreign body. Nasal endoscopy revealed metallic plate in the posterior part of the nasal cavity, perforating the nasal septum. As it was a long standing foreign body, which was secondarily infected, there was bony resorption of the medial wall of the maxillary sinus with some granulation tissue around the foreign body. Some amount of mobility was also present.

Fig. 1 Waters view showing a radio opaque object of about 7×2 cm size

Fig. 2 Lateral skull radiograph showing a foreign body of 2×1 cm size

Fig. 3 Lefort 1 down fracture visualizing foreign body

Operative Procedure

The patient was posted for surgery under general anesthesia. Oral intubation was done with a flexo metallic endotracheal tube. Approaches like lateral approach from the lateral wall of maxilla would have failed as the size of foreign body is very large and its transverse removal is not possible. Previous failure of the transnasal approach made the authors use a Lefort I down fracture access osteotomy. Another reason for this was the foreign body lying more posteriorly in the nasopharynx. After giving degloving incision osteotomy cuts were made, and the pterygoid disjunction was done, the maxilla was down fractured at Lefort I level. The foreign body was visualized lying in both the maxillary sinuses, nasal cavity, horizontally from one side to the other (Fig. 3). Granulation tissue was seen more

Fig. 4 Radiograph showing repositioning of Lefort 1 osteotomy by miniplates after removal of foreign body

at the central part, i.e., around the septum. It was bleeding heavily. The foreign body was removed carefully with the help of a hemostat and thorough debridement was done bony margins of the cavitation were irregular. The maxilla was repositioned and stabilized with the help of miniplates (Fig. 4). Examination of the foreign body revealed a metallic piece of 7 cm × 2 cm × 1 cm size with multiple threads on it (Fig. 5). The weight of the body was 145 g.

Discussion

Many cases of the foreign body in the middle third of face, especially antrum and nasal cavity, are reported in the literature [1–5]. The foreign bodies of the middle third of the face can be classified as:

1. Traumatic foreign bodies, e.g., air gun bullet, missile foreign body, etc. [1].
2. Iatrogenic foreign bodies, e.g., tooth, dental burs, broken forceps, root canal instruments [4, 5].

In the present case the site of entry of the foreign body was through the cheek and right zygomatic buttress region which was penetrating in nature and the site of exit was not present, because of low velocity. The path of penetration was horizontal.

Fig. 5 Metallic piece of 7 cm × 2 cm × 1 cm size with multiple threads on it

Transverse injuries of the mid face are not usually accompanied by complete separation of the maxilla from the base of the skull. It is not unusual to see a wide missile tract passing through both the antra and nasal cavity whereas the tooth bearing area remains relatively undisturbed.

The maxillofacial region is different in many ways from other parts of the body. There are no larger muscle masses in which the effect of cavitations are so damaging.

In this case the series of radiographs taken at right angles to each other and C.T. scan proved to be helpful diagnostic tools to determine the size and exact position of the foreign body.

The removal of such a big foreign body requires meticulous planning with multidisciplinary approach. It should be remembered that for retrieval of a foreign body of this size the approach need not be conservative. Lefort I access osteotomy of the maxilla proved to be an appropriate approach for the removal of such a big foreign body without damaging other major structures. The foreign body was retained in the patient's body for 4 years after the accident. During the initial period such foreign bodies are not infected in nature. However, as it was lying in the upper respiratory tract, it got infected and became symptomatic. Authors recommend the removal of foreign body in maxilla early as they are diagnosed. Removal of such foreign bodies is done for symptomatic reasons.

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