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Case report

RETAINED LARGE METALLIC SCREW WITH MANDIBULAR FRACTURE AFTER PENETRATING MAXILLOFACIAL TRAUMA

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ABSTRACT

Accidental penetrating injury to neck is uncommon. Because of location of important vital structures, any injury in this area should be timely diagnosed and managed. Over the years a remarkable number of changes have occurred in the treatment paradigm of such injuries. An evolution from no treatment, to routine exploration and now to selective exploration has occurred because of better diagnostic and surgical skills. We report an interesting unusual case of removal of 10cm metallic screw from the mandibular area and neck area. Close proximity of such a rigid and sharp metallic body to neurovascular structures, airway and esophagus, posed a unique management challenge.

Keywords: Retained metallic screw, Penetrating mandible injury, Traumatic neck injury

INTRODUCTION

In developing nations, like India, facial fractures (open and closed) are most commonly caused by road traffic accident ^[1]. These facial open wounds are usually contaminated with dust, cement or glass particles. Large foreign bodies like metallic screw are rare to encounter. Such retained foreign bodies which track down to neck, from gingiva buccal sulcus, are difficult to diagnose and manage. Most of the penetrating wounds to neck are caused by gun shot or stab by sharp object ^[2]. It's important to understand the mechanism of penetration for delineating the extent of injury. The mortality in such cases is higher because of major arterial or laryngeal injury ^[3].

CASE REPORT

This is a case of 46-year-old male who presented to emergency department with complaints of pain and bleeding from the oral cavity following a roadside accident. He was riding a two-wheeler and had a head on collision with a standing trolley. There was no

history of loss of consciousness, convulsions or incontinence. On examination, he had multiple full thickness lacerations over upper lip, anterior tongue and lower gingivobuccal sulcus. The patient was unable to occlude his teeth properly. There was extensive bleeding from the oral cavity and facial lacerations. There was loss of left side lower canine, premolar and first molar. He had fracture of left parasymphiseal area of mandible and a round foreign body was visible in lower buccoalveolar sulcus. After stabilization, CT Face with multiplanar images and 3D reconstruction was done. CT was suggestive of segmental fracture of left parasymphiseal area with alveolar ridge loss with foreign body measuring 10 x 1.5cm in the left buccoalveolar sulcus till the supraclavicular area (Fig 1). On coronal and axial images it was found that trachea and esophagus were not pierced and the metallic body was lateral to midline (Fig -2). X ray neck lateral view showed the length and direction of foreign body (Fig -3). After

ENT consultation, the patient was taken up for removal of foreign body, and fracture fixation.

Fibreoptic nasal intubation was done. Torn tongue was repaired in layers. The metallic screw was visible in left buccoalveolar groove and was extracted with the help of forceps. The tract in the neck was selectively explored through buccoalveolar laceration. The tract was confirmed to be in subcutaneous plane and no vital structures were damaged. The tract was washed with betadine and saline.

The mandibular fracture was exposed and rigidly fixed with mini plates (Fig 4). The tract was kept open for drainage and secondary healing. Postoperative period was uneventful. All wounds healed well and patient was discharged on 5th day.



Fig 1: Preoperative picture showing lip laceration

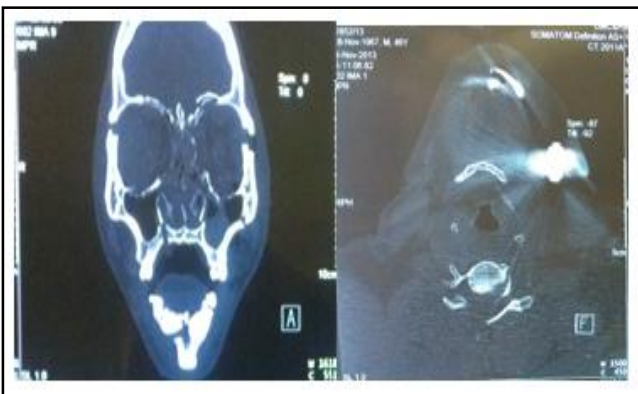


Fig 2: coronal and axial CT



Fig 3: soft tissue X ray neck (lateral view)



Fig 4: OPG showing mandibular fracture fixed with Plates

DISCUSSION

Worldwide, 5-10 % of all trauma patients have facial fractures [4]. Life-threatening injuries have been reported in 6.2% of facial fractures patients in a Taiwanese study, with mortality causes including hemorrhagic shock and compromised airway [5]. In our part of country, most commonly hurt maxillofacial patients are the ones on motorbike [1], as is the present case also. Facial fractures with large retained metallic screw in neck are rare to encounter. Though it might eventually turn out to be uneventful but because of vital structures like aero digestive tract, vessels and nerves in the surrounding area, this site is to be dealt with a great caution [6]. The sharp threads of the screw may pose danger during and after removal. Anatomically, neck is divided into three zones. Zone I is the horizontal area between the clavicle/suprasternal notch and the cricoid cartilage. The proximal common carotid, vertebral and subclavian arteries and the trachea, esophagus, thoracic duct and thymus are located in Zone I. Zone II is the area between the cricoid cartilage and the angle of the mandible. It contains the internal and external carotid arteries, jugular veins, pharynx, larynx, esophagus, recurrent laryngeal nerve, spinal cord, trachea, thyroid and parathyroids. Zone III is the area that lies between the angle of the mandible and the base of the skull. It has the distal extracranial carotid and the vertebral arteries and the uppermost segments of the jugular veins. In the present case, the injuries were confined to the lower face, Zone I and Zone II, without damaging major vessels, nerves as well as the aero digestive tract. The amount of tissue damage is depended on axis of weight transmission and direction of kinetic force of the foreign body

impaction^[7]. The foreign body in neck can easily cause vascular injury giving rise to absent pulses, absent arterial bleed and expanding hematoma. Previous literature suggests that an urgent CT scan with arteriography is must in such a case^[8,9]. Munera et al^[10] and Matsuyama et al^[11] suggested that in absence of angiography, suspected patients should undergo color Doppler or MRI

In the present case, vitals were stable and there was no active bleed from neck, buccalveolar sulcus or tongue and hard signs were not present, so only CT face with 3D reconstruction was done to see the extent of mandibular fracture and foreign body.

In the present case, we did early removal of the foreign body by extraction and then performed selective exploration of foreign body tract through the buccalveolar incision and already lacerated chin wound. The protocol for addressing neck injuries has changed in the recent time. Till 1990s, mandatory neck exploration was practiced in all penetrating neck injuries. It was reported by one series that it has negative findings in 57% cases^[12]. Sekharan et al^[13] and Mc Connell et al^[14] states that for penetrating neck trauma, there are various treatment option like conservative treatment, routine neck exploration, selective exploration and adjuvant invasive and non invasive assessment. The decision for operative choice depends on preoperative clinical presentation (hard signs), vitals, and amount of blood loss and CT / angiography findings. A patient in shock and bleeding neck wound should be managed with priority with blood transfusion, tracheostomy and ligation of vessels during surgery. Internal jugular vein injury, laryngeal, tracheal and esophageal tear should be repaired within 24 hours. Nason et al^[15] advocated the practice of early surgical treatment and intravenous antibiotic to these patients for preventing postoperative infection, necrosis and later on contracture development.

In our case, the mandibular fracture was internal reduced and rigidly fixed with plates after achieving class I dental occlusion. The teeth gap can be corrected on later sitting with dental implants.

CONCLUSION

Foreign bodies to neck through oral vestibule are rare and demand appropriate early diagnostic and management strategy. Selective conservative

approach for neck exploration can avoid surgical trauma and scarring of neck

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Conflict of Interest: Nil

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