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# Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology

journal homepage: [www.elsevier.com/locate/jomsmmp](http://www.elsevier.com/locate/jomsmmp)



## Case Report

# Unusual foreign body in maxillary sinus causing traumatic optic neuropathy: A case report



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## ARTICLE INFO

### Article history:

Received 12 August 2014

Received in revised form

10 November 2014

Accepted 26 November 2014

Available online 2 January 2015

### Keywords:

Maxilla

Foreign body

Trauma

Optic neuropathy

## ABSTRACT

Maxillary foreign bodies are usually not uncommon but may remain unnoticed. Unnoticed foreign bodies may lead to chronic sinusitis. Large foreign bodies may also lead to traumatic optic neuropathy by entering into the orbit. We here present a case of large foreign body of maxillary sinus secondary to trauma leading to multiple fractures of facial bony framework along with traumatic optic neuropathy.

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## 1. Introduction

Foreign bodies in the maxilla are usually not uncommon. Maxillary sinus foreign bodies result either from penetrating injury or due to some dental procedure. These foreign bodies must be removed immediately but if left unattended can lead to features of chronic sinusitis. The dental foreign bodies include dental implants, dental fillings or tooth roots. Non dental foreign bodies are implanted either as a result of trauma or intentionally due to some psychiatric illness through the oroantral communication [1].

The foreign bodies that remain confined to the maxillary sinus can cause symptoms of sinusitis but the foreign bodies that injure the orbital floor can lead to traumatic optic neuropathy leading to visual loss. Here we present a case of unusual foreign body in maxillary sinus implanted as a result of trauma, which was missed by primary physician due to lack of imaging and lead to visual compromise.

<sup>☆</sup> Asian AOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

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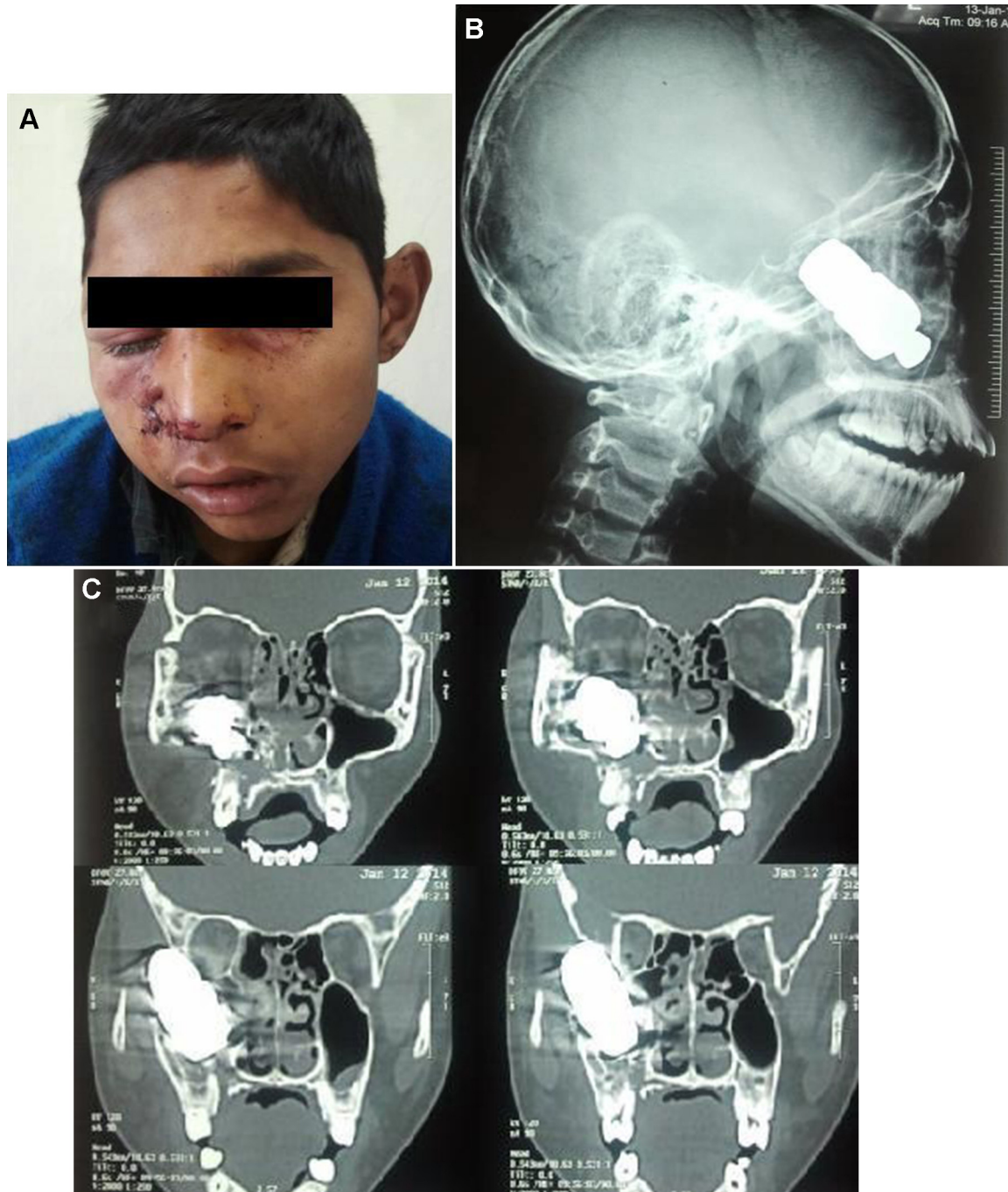
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## 2. Case report

A 14-year-old boy (Fig. 1A) presented to our trauma center with history of fall from height 14–15 h before presentation. The trauma remained unnoticed for 3 h. After that the patient was taken to a nearby health center where primary medical care including intramuscular tetanus toxoid was given and a lacerated wound over cheek was sutured. The patient was then referred to our institute. On presentation, patient was fully conscious. There was a 3 cm × 2 cm sutured wound over right cheek involving the ala of nose and nasolabial groove. Patient had ptosis, periorbital edema and decreased vision on the right side. On examination, there was finger counting close to face, complete extraocular movements and mid dilated, sluggishly reacting pupil. Relative afferent papillary defect (RAPD) was present. Best corrected visual acuity (BCVA) was 6/60. Visual evoked potentials (VEP) revealed increased latency and decreased amplitude of P<sub>3</sub> wave. In view of indirect optic nerve injury (IONI) intravenous methylprednisolone was started. Routine X-rays and non contrast computed tomography (NCCT) of nose, paranasal sinuses and orbit were ordered. On radiology a radioopaque foreign body was visualized in right maxillary sinus causing fracture of anterior maxillary wall, orbital floor, lateral orbital wall and skull base (Fig. 1B and C). Patient was planned for exploration and foreign body removal and later reconstruction of walls of orbit and maxilla as second stage by plastic surgery team in view of infection. In view of the large foreign body and a lacerated wound on the anterior wall of maxilla, the approach of

surgery was decided through the entry site only. Previously applied sutures were removed. Anterior maxillary wall was shattered. A metallic foreign body was seen in the antrum lying in a superolateral direction and in the retro-orbital space fracturing lateral and inferior orbital wall (Fig. 2A). With gradual manipulation, the foreign body was removed by rocking movements and the fractured loose bony fragments were removed. It was a 5 cm × 2 cm metallic screw (Fig. 2B) used for fittings in water pipelines. The cavity was thoroughly washed with saline and povidone iodine. The alar cartilage was exposed. The cheek flap was refashioned and sutured to cover the exposed alar cartilage. There was an anterior cheek skin defect of ~3 cm × 2 cm. He was given intravenous antibiotics.

The patient was observed for 72 h for any signs of meningitis or CSF leak in view of skull base fracture. Then the patient was taken up for reconstruction surgery by plastic surgery team. The bony reconstruction of anterior maxillary wall, inferior and lateral orbital wall was done using calvarial bone graft. Skin defect was repaired by cheek advancement flap. Post-operative period was uneventful. Patient received methylprednisolone injection 1 g once daily for 5 days and then was switched over to oral steroids. Patient was discharged after 2 weeks in a good condition (Fig. 2C). Visual acuity at time of discharge was 6/18. Patient is being regularly followed up and during the recent visit (6 months following surgery) visual status is 6/18.



**Fig. 1.** (A) Patient at presentation with right ptosis and sutured wound over cheek. (B) Plain X ray showing radio opaque foreign body in right maxillary sinus. (C) Non contrast computed tomography of paranasal sinuses revealing foreign body and fracture of maxillary walls and inferior orbital wall.

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