

An intraorbital metallic foreign body

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A 30-year-old male presented with diplopia for 20 days post occupational accident involving left side of his nose, while he was working with a nail gun. He was fully conscious and did not have any neurological deficits. Patient narrated the mechanism of injury and was sure that the nail fell down after hitting the left side of his nose. He had normal vision, but extra ocular movements were restricted and painful. Computed tomography (CT) scan revealed a curved metal object lodged in the posterior aspect of the left orbit extending diagonally from medial wall to the anterior-superior aspect of the orbital roof. The object was removed via a small surgical approach, inflicting least possible surgical trauma. Post surgery, the patient recovered with complete resolution of diplopia. The original aspects of this case are the lack of signs of a foreign body entry and its relative harmlessness in spite of its large size.

Key words: Diplopia, image intensifier, nail gun, orbital foreign body

Penetrating orbito-cranial injuries are common in military practice, but are very rare in civilian life, where they are predominantly accidental injuries. They may result in severe structural and functional damage to the eye or other orbital contents. The management and prognosis depend on the

composition and location of the foreign body as well as the possible presence of secondary infection. An intra-orbital foreign body is an object that lies within the orbit but outside the ocular globe. Projectiles were classified as metallic, nonmetallic organic (wood) and nonmetallic inorganic (glass, plastic, fiberglass, or concrete).^[1]

An inert, well-tolerated metallic foreign body located deep in the posterior orbit with no functional deficit may be conservatively managed with observation and appropriate supportive care whereas organic matter, such as wood and vegetable matter, is poorly tolerated, triggers an intense inflammatory reaction and needs to be removed.^[2] Surgery is planned on the basis of the size and nature of the foreign body, the location (anterior or posterior orbit), and the presence of other injuries or foreign body-related complications (such as optic nerve compression, infections and extraocular muscle involvement).^[3]

Case Report

A 30-year-old male presented with diplopia in left eye for 20 days following occupational accident over the left side of his nose. The chief complaint of the patient was binocular diplopia in primary gaze. He being a carpenter by profession, sustained the injury while working with a nail gun, as one of the nails had been wrongly placed and bounced off the concrete wall and hit the left lateral aspect of his nose, leaving a small laceration, which had healed by the time he presented. The left eye was congested with hyperglobus and the extra-ocular movements were restricted and painful [Fig. 1]. Patient had normal vision. Injury to the left eye was ruled out by the ophthalmologist. A provisional diagnosis of orbital floor fracture with entrapment of orbital tissue, with or without a retained foreign body was made. Occipito-mental view 10° and 30° radiographs were taken, revealing the presence of a metallic foreign body [Fig. 2].

The exact site and position of the foreign body was confirmed by a computed tomography (CT) scan, a metallic foreign body lodged in the left orbit without any bone injury and settled in the posterior part of the orbit [Fig. 3a and b]. Retrospectively, the patient was examined for the wound of entry. There was a faint scar over the left lateral aspect of the nose [Fig. 1].

The high velocity sharp projectile had pierced the skin of left lateral side of the nose and into the supporting tissues of the eye and lodged in the posterior aspect of the orbit. Patient was informed about the foreign body present in his left eye and the treatment options. A decision was made to remove the

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Figure 1: Congestion and hyperglobus of left eye (Arrow showing a faint scar indicating point of entry)

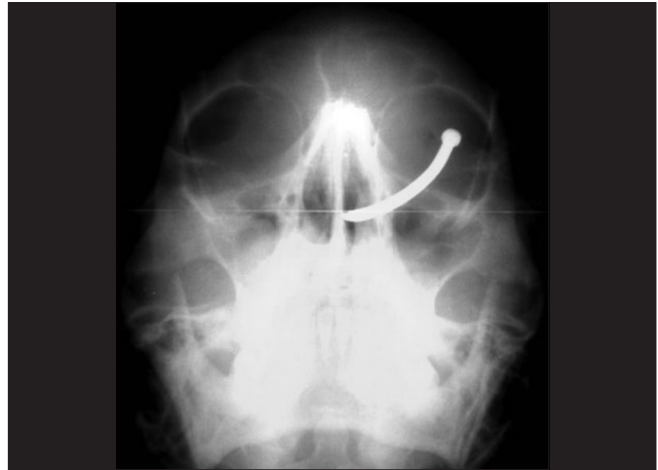


Figure 2: Occipito-mental view radiograph showing metallic foreign body

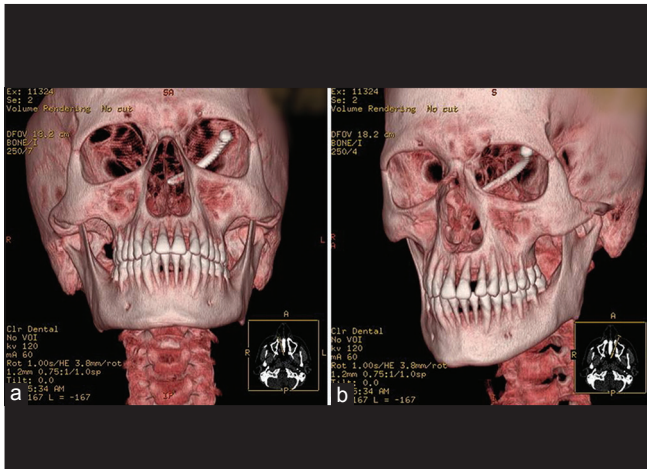


Figure 3: 3-dimensional CT scan pictures showing a metallic foreign body in the posterior part of left orbit (a) frontal view (b) 45° lateral view

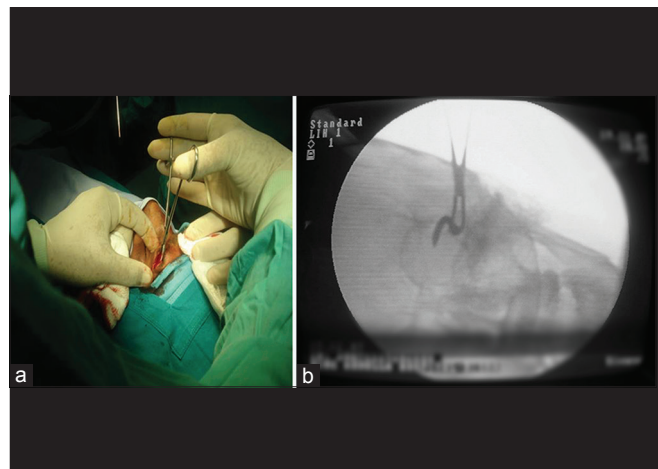


Figure 4: (a) Left lateral eyebrow incision and exploration (b) Image intensifier showing nail in the orbit

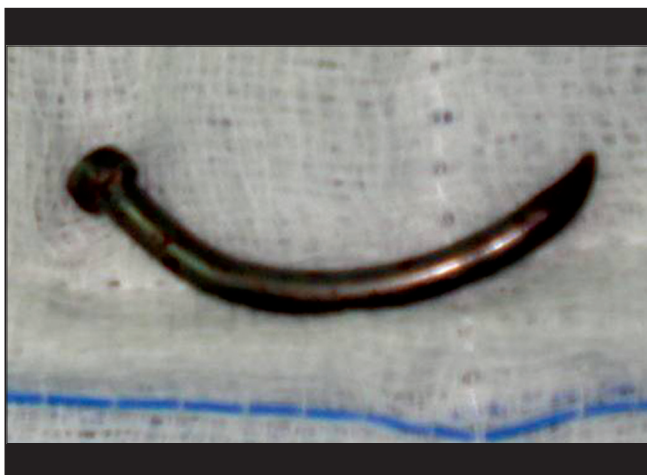


Figure 5: Metallic foreign body removed from the left orbit

foreign body. Under general anesthesia, Left lateral eyebrow incision was given exposing the supra-orbital margin and orbital roof [Fig. 4a]. Blunt dissection was done through the

orbital fat and other soft tissues and the nail head was detected using an image intensifier [Fig. 4b] which was removed along the axis of curvature of the nail without damaging the eye globe and adjacent tissues [Fig. 5]. Post surgery, the patient recovered with complete resolution of diplopia with normal extra ocular movements of the left eye.

Discussion

We report this case for several reasons. First, a rare presentation with a nail in the orbit that the patient did not know. Secondly, the late presentation of the patient (20 days post injury) had camouflaged the entry wound which made the initial diagnosis difficult, until a radiograph was done. Thirdly, due to its peculiar point of entry (left lateral aspect of nose) through which the metallic foreign body could enter the posterior part of orbit and finally the mechanism of injury, the nail head piercing the soft tissues despite being blunt. This case is presented for its rarity. It is emphasized that even a tiny foreign body retained within the structures of the orbit can cause immediate or delayed complications including chronic orbital inflammation, osteomyelitis, thrombotic vasculitis, and diffuse infections in the form of septicopyaemia.^[4] The retained foreign bodies in

the orbit can also cause orbital hematoma, orbital cellulitis, ocular dysmotility, proptosis, orbital abscess, and blindness. Imaging is of crucial importance while managing foreign bodies which include CT and magnetic resonance imaging (MRI) scans and intra-operative image intensifiers, which help determine foreign body location and its topographic relationships with neighboring structures (e. g. eyeball and optic nerve).^[5] CT is considered to be the imaging modality of choice in evaluating orbital trauma.^[6] MRI is not preferred while dealing with intra-orbital metallic foreign bodies as they may cause even more tissue damage. The approach to remove orbital foreign bodies may vary on the position of the foreign bodies and surgeon's preference. A transcranial approach, is necessary to remove orbital foreign bodies that are not readily removable because of their location, this approach is most likely to minimize complications, although the approach calls for technical competence and is time-consuming.^[7] The Kroenlein-Reese-Berk orbitotomy provides a satisfactory access to the lateral and posterior orbit, which is of particular importance in the case of a deeply penetrating foreign body (metallic or glass). Kroenlein-Reese-Berk orbitotomy as it provides wider exposure of the orbital cavity and in fewer surgical complications.^[8] We used an lateral eyebrow approach to access the supra-orbital margin area and the superior-lateral aspect of the orbital roof, as the head of the nail (foreign body) was localized by the help of 3-dimensional CT pictures and with the aid of image intensifier (intra-operative). The approach we used was precise with less tissue loss and scarring when compared to transcranial approach and Kroenlein-Reese-Berk orbitotomy. This was possible as the foreign body was well localized pre-operative and even intra-operative by using different imaging modalities. Best outcome in managing orbital foreign bodies will be achieved by a through pre surgical work up which includes evaluation of

clinical signs and symptoms, deliberate use of different imaging modalities and to plan a appropriate surgical approach.

References

1. Moretti A, Laus M, Crescenzi D, Croce A. Peri-orbital foreign body: A case report. *J Med Case Rep* 2012;6:91.
2. Robert JP, Christopher Z, Gary JL Jr. Posterior intraorbital foreign body: Take it or leave it. *Open Reconstr Cosmet Surg* 2008;1:1-3.
3. Ho VT, McGuckin JF Jr, Smergel EM. Intraorbital wooden foreign body: CT and MR appearance. *AJNR Am J Neuroradiol* 1996;17:134-6.
4. Ho VH, Wilson MW, Fleming JC, Haik BG. Retained intraorbital metallic foreign bodies. *Ophthal Plast Reconstr Surg* 2004;20:232-6.
5. Weinacht S, Zaunbauer W, Gottlob I. Optic atrophy induced by an intraorbital wooden foreign body: The role of CT and MRI. *J Pediatr Ophthalmol Strabismus* 1998;35:179-81.
6. Etherington RJ, Hourihan MD. Localisation of intraocular and intraorbital foreign bodies using computed tomography. *Clin Radiol* 1989;40:610-4.
7. Chung IY, Seo SW, Han YS, Kim E, Jung JM. Penetrating retrobulbar orbital foreign body: A transcranial approach. *Yonsei Med J* 2007;48:328-30.
8. Markowski J, Dziubdziela W, Gierek T, Witkowska M, Mrukwa-Kominek E, Niedzielska I, *et al.* Intraorbital foreign bodies--5 own cases and review of literature: *Otolaryngol Pol* 2012;66:295-300.

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