



Case report

Orbital foreign body- Study of a case series

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Abstract

Background: Orbital foreign bodies (OFBs) may remain in the orbital cavity for considerable time and manifest with secondary complications. **Objective:** To report five consecutive cases of orbital trauma with OFBs, who presented at our institute from Jan 2010 to Dec 2013. **Cases:** The first case of our series with a non-specific history of injury had a chronic granulomatous discharging sinus in the left upper eyelid and an intact globe. The second case, with an injury to the left lower eyelid following an assault, presented late and the manifestations were similar to that of the first case. The third case, of a road traffic accident, had sustained multiple facial and periocular injuries. The nature of all of three OFBs was uncertain by CT- scan, till surgical exploration. The fourth case had sustained injury to his left eye by a flying metal object. X-ray was sufficient to detect the OFB, but as scleral penetration was associated, management was complex. The fifth case had a nonspecific history of injury and the manifestation was similar to that of the first case. The surgical exploration revealed multiple OFB (wood). **Conclusion:** The OFBs pose difficult diagnostic and therapeutic challenges. Management of such cases, at times, calls for innovation in decision making and formulation of strategies.

Keywords: Orbit, foreign body, history, imaging, exploration

Introduction

Ocular injuries are common in OFB, but occasionally, in spite of deep OFB, there is no ocular damage and they may remain in the orbital cavity for a longer period and later manifest with complications. History may be nonspecific, whereas investigations may be of little help. Clinical suspicion and judgment are very important aspects in the diagnosis and management (Betharia et al, 1989). Here,

we present five cases of orbital trauma with OFBs, where diagnosis was not confirmed until surgical exploration.

Case reports

Case 1

A 10-year male reported to the outpatient department (OPD) with a painless swelling and purulent discharge of the outer third of the left upper lid (LUL), since the last two months, following a history of fall from a tree. Despite the medical aid after CT-orbit, which was done elsewhere, little improvement was noticed. Examination showed, left eye (LE) visual acuity (V/A) 20/80 with pin hole (Ph) of 20/20, mechanical ptosis with a non-

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tender, firm, immobile swelling above the lateral third of left lower lid (LUL) with a discharging sinus and granulation tissue (Figure 1a). The rest of the anterior segment (AS) and posterior segment (PS) were normal for both eyes (BE). A fresh X-ray of the orbit was found unremarkable, and our radiologists agreed with the previous CT reporting (Figure 1b). MRI was deferred because of financial constraints.



Figure 1a: swelling with discharging sinus.



Figure 1b: CT suggesting pneumo-orbit, but no OFB.

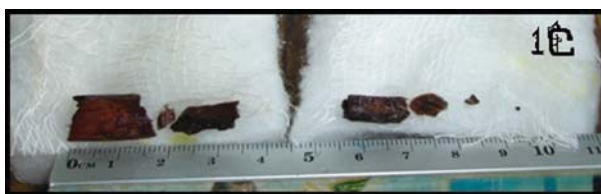


Figure 1c: Recovered OFB (wood).

It was diagnosed provisionally as orbital granuloma, and was started with broad-spectrum antibiotics (BSA) and non-steroidal anti-inflammatory drugs (NSAIDs). A multidisciplinary approach with pediatrician, plastic surgeon, orthopedician and anesthetist consultations were done. After explaining the procedure and possible consequences, we obtained a written consent for exploration under general anesthesia (GA). Meticulous dissection

of the wound was carried out respecting the anatomical landmarks. Unexpectedly, multiple pieces of wood was recovered from the orbit (Figure 1c), and the pus present was sent for culture and sensitivity. The wound was closed in layers following a thorough search for any residual OFB, sinus wall curette, granulation excision, and antibiotic lavage. BSA and NSAID were continued for one week. An uneventful recovery and a good functional and cosmetic outcome were achieved.

Case 2

A 28 year male came to the OPD with complaint of a swelling and a purulent discharge from the lateral third of the left lower lid (LLL) since two months. One year ago, he was hit by an iron rod while driving by an assailant from outside his car. The windshield and the dark goggles he wore, had broken into parts, and the treatment was focused to the head injury only. Examination revealed unaided V/A 20/20 with normal AS and PS BE, a non tender firm mass with a discharging sinus and granulation tissue at the outer third of the LLL with minimal cicatricial ectropion. A CT-orbit showed a small radio-opaque shadow infero-lateral to the globe (Figure 2a) which later confirmed as a single, sharp, tinted-glass FB on exploration under GA (Figure 2b). The rest of the intraoperative and postoperative management was same as in Case 1. An uneventful recovery with a good final cosmesis was achieved.

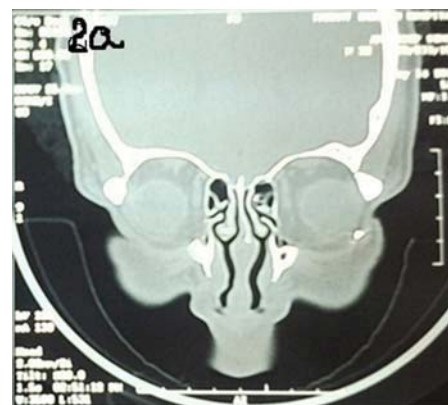


Figure 2a: CT showing OFB.



Figure 2b: Recovered OFB (glass).

Case 3

A 50-year old male was brought to the emergency department two hours after his head collided against the windshield of the car he was driving, with bleeding and pricking sensation from both the upper lids and forehead. Head and ENT-related injuries were ruled out by the respective specialties. Examination revealed unaided V/A 20/20, with normal anterior segment and posterior segment with multiple lacerated wounds in both the upper eye lids, eyebrows and forehead. The initial X-ray orbit was unremarkable. CT-orbit showed preseptal multiple radio opaque FB's of varying sizes (Figure 3a), later confirmed as glasses on exploration under GA (Figure 3b). Intra and postoperative management were same as for Case-1. The postoperative recovery and final cosmesis was acceptable.



Figure 3a: CT showing OFB.



Figure 3b: OFB (glass) retrieved.

Case 4

A 24 year male, ironsmith, reached the emergency department with pain, redness and diminution of vision R/E, after sustaining a trauma with a projectile pin at his workplace two hours back. Examination showed V/A in right eye to be 20/200, with Ph 20/40 and accurate projection of rays. A metallic pin was found embedded in the lower fornix, piercing the conjunctiva and possibly sclera (Figure 4a). Retina was found attached but preretinal bleed was seen infero-nasally. X-Ray orbit RE (Figure 4b) showed a metallic OFB, however, the depth of penetration was not possible to assess. Gentle ultrasonography B-Scan on closed lids showed a linear hyperechoic shadow minimally piercing the sclera infero-nasally, with preretinal bleeds. Due to lack of vitreoretinal surgical setup, it was required him to refer to a higher centre.



Figure 4a: Entry wound.

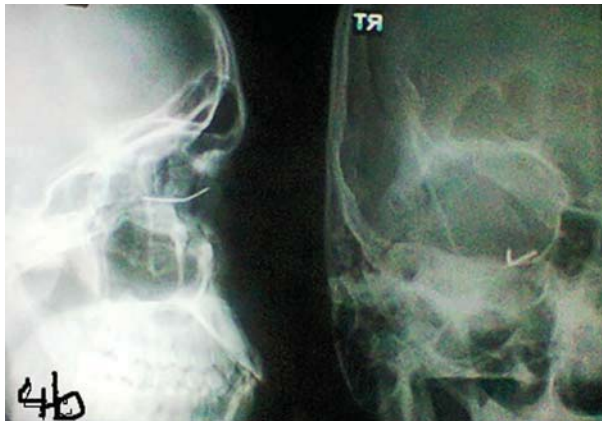


Figure 4b: X-ray.OFB (metallic pin) near globe.

Case 5

A 60-year male farmer presented at the emergency department with pain, watering, and a swelling around left eye since 15 days. A history of any injury or any medical aid received recently was excluded. Examination revealed orbital cellulitis with a discharging sinus stuffed with pieces of woods at left infero-medial orbit (Figure 5a). Best Corrected Visual Acuity of both eyes was 20/80, with grade three nuclear sclerosis, and unremarkable fundus. Imaging was deferred due to financial constraints. Plastic surgery and ENT opinion was taken before exploring the wound under GA, during which multiple wooden OFBs were removed (Figure 5b). Intra and post-operative management was the same as for Case 1. Although marked improvement noticed, he was unfortunately lost to follow-up.



Figure 5a: Entry wound.



Figure 5c: Recovered OFB (wood).

Discussion

OFB is usually related to high velocity trauma. However, at times, history can be confusing or misleading (Zhu Y et al, 2008). FB may remain in the orbit for a considerable time and manifests only when complications arise (e.g. visual loss, granuloma, chronic draining fistula or sinus) (Argin MA et al, 2006; Bard LA et al, 1964). Case 1, 2, 5 presented very late with non-specific history and considerable complications. Peculiar feature in our case series was that, there was no eyeball injury (except case 4) in spite of deep and large OFB. Woods and Glasses are the most common OFBs, but are most difficult to be localized by imaging owing to the radiolucent nature, as shown by Argin MA et al (2006); Bard LA et al (1964); Prazeres S et al (2009). Preference for MRI over CT is still controversial (Mauriello JA Jr et al, 1999; Fulcher TP et al, 2002; Lakshmanan A et al, 2008; Glatt HJ et al, 1990). We feel the radiation hazards to the globe, needs to be properly addressed especially where there is a need for serial imaging.

Conclusion

We emphasize the importance of meticulous history, clinical evaluation, multidisciplinary approach and proper anatomical knowledge in the diagnosis and management of OFB. Eye ball injury may or may not be associated. All



imaging techniques have their own limitations (cost, inaccuracy, radiation hazards), and hence complete dependency has to be restricted. Surgical exploration of the wound is essential to prevent complications, especially if there is clear-cut periocular entry wound and simultaneous high index of OFB suspicion.

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