

Long-standing retention of a large intraconal wooden foreign body associated with a discharging fistula and inflammation in a Burkinabe patient

Gilbert Batioka Bonsaana¹ , Mikdad Abubakari Robilu² and Edmund Muonir Der³

Authors Affiliations:

1. Department of Ophthalmology, School of Medicine, University for Development Studies, Tamale Teaching Hospital, Tamale, Ghana,
2. Department of Pathology, Tamale Teaching Hospital, Tamale, Ghana,
3. Department of Pathology, School of Medicine, University for Development Studies, Tamale Teaching Hospital, Tamale, Ghana

Correspondence:

Gilbert Batioka Bonsaana
gbonaana@uds.edu.gh

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ABSTRACT

A high index of suspicion and early intervention could avert loss of vision and other complications associated with organic intraorbital foreign bodies, which are often difficult to diagnose with radiographs. We report the case of a 12-year-old female with a large intraconal wooden foreign body that had remained quiescent for one year following left orbital trauma. She complained of a history of gradual loss of vision, painful proptosis, and discharging orbital fistula for three months prior to presentation. Orbital ultrasonography and CT scan failed to show an intraorbital abscess or foreign body. However, an explorative orbitotomy revealed an intraconal foreign body measuring 5x1x0.2cm with associated granulomatous inflammation. Her psychological symptoms improved following surgery, though her vision remained unchanged.

Introduction

Intraorbital foreign bodies are within the orbit but outside the eyeball.^[1,2] Foreign bodies inside the orbital cavity are rare. Depending on their nature and size, they can cause serious complications.^[1] Wooden foreign bodies are notorious for remaining quiescent for long periods before presenting with various complications. The entry wound may often be small, self-sealing, and typically extra-marginal. Wooden foreign bodies also show a propensity to break during attempted removal. Detection of intraorbital foreign bodies requires a high index of suspicion and detailed history-taking.^[3] Intraorbital wood is often not detected by standard diagnostic radiography such as computed tomography (CT) scan. The presence of an intraorbital mass with a discharging sinus should evoke suspicion of a retained organic foreign body, regardless of the time interval between the trauma and current presentation.^[4] Here, the authors described the case of painful proptosis and loss of vision associated with a discharging orbital fistula following trauma to the left orbit.

Case Report

A 12-year-old, an otherwise healthy black female from Ouagadougou, Burkina Faso, presented with a penetrating injury to the inferolateral aspect of the left

orbit. She had a history of falling onto a piece of wood (a stick) the previous year. She was attended to in a hospital in Ouagadougou, with surgical removal of multiple wooden foreign bodies from the left orbit. The patient was doing well until six months following the surgery when she started experiencing severe pain in the affected eye associated with headache, protrusion of the left eye, and discharge from the inferolateral periorbital region (Figure 1). She was re-admitted at the same hospital and managed with intravenous antibiotics and analgesics. The pain and discharge improved, but there was persistent proptosis. She

self-referred one year after the original trauma to Tamale Teaching Hospital (TTH) Eye Clinic in Tamale, Ghana, following several failed traditional/herbal treatments over three months.

On examination, the patient's general condition was satisfactory. The vision was 6/6 in the right eye, and no perception of light (NPL) in the left eye. The intra-ocular pressure was 14 mmHg and 18 mmHg in the right and left eye, respectively. There was a discharging fistula 3 mm below the lower lid margin of the left eye and 4 mm medial to the lateral canthus from a self-sealed wound, probably the entry wound (Figure 1). There was limited adduction of the left globe (Figure 2A), normal abduction (Figure 2B), and limited inferior- and supraduction of the left globe (Figures 3A and 3B) associated with proptosis of 4 cm measured with a ruler from the orbital rim at the lateral canthus. The orbital rim was palpable with no discontinuity or crepitus. No orbital mass was palpable. There was a relative afferent pupillary defect grade IV (RAPD IV, fixed dilated pupil) in the left eye; the lens and vitreous were clear, and there were no retinal, vascular, or choroidal abnormalities. The cup/disc ratio (CDR) was 0.3, with a normal macular reflex. The anterior and posterior segments of the right eye were normal.

Orbital ultrasonography did not indicate a foreign body or orbital abscess in the left orbit. Both eyeballs had normal ultrasonographic features. A contrast-enhanced CT scan of the head and orbit showed anterior displacement of the left globe, causing proptosis without features of an



Figure 1. Patient with the eyes in the primary position. The arrow shows proptosis and discharging fistula of the left orbit



Figure 2A. Patient with the eyes in the right gaze. The arrow shows limited adduction of the left eye, i.e. left eye remains central and not crossing the midline.



Figure 2B. Patient with the eyes in the left gaze. The arrow shows full abduction of the left eye.

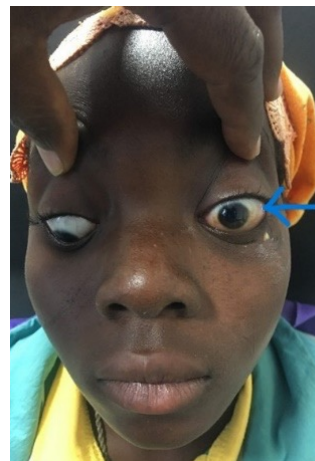


Figure 3A. Patient with the eyes in the down gaze. The arrow shows limited inferior-duction of the left eye, i.e. remains central and not crossing the midline.

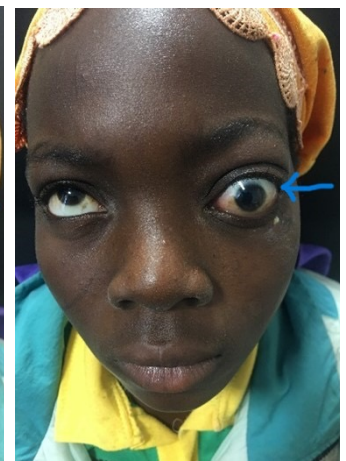


Figure 3B. Patient with the eyes in the up gaze. The arrow shows limited supra-duction of the left eye, i.e. fails to move upwards.



Figure 4. Photo displays the moment a piece of stick was retrieved from the left lateral intraconal area as indicated by the arrow.

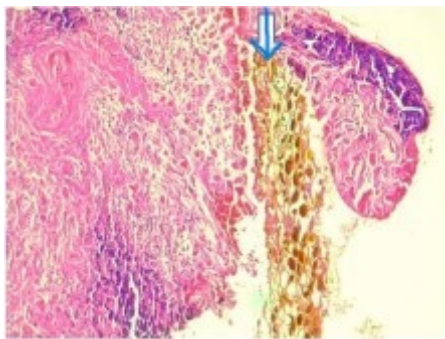


Figure 5. A section from the orbital mass showing the tract of the penetrating stick with associated granulomatous reaction as indicated by the white block arrow (X10).

intraorbital foreign body or abscess. There was, however, calcification and relative thickening of the left optic nerve. The imaged brain parenchyma appeared normal.

Surgical intervention was indicated due to the presence of proptosis, restricted ocular motility, signs of optic nerve compression, and discharging fistula, though there was no potential for improvement in vision. Explorative orbitotomy revealed a large wooden foreign body measuring 5x1x0.2 cm in the lateral intraconal area (Figure 4). It extended from the orbital apex to the posterior aspect of the globe adjacent to the full length of the intraorbital optic nerve. An incisional biopsy of the orbital tissue showed the tract of the penetrating foreign body with associated inflammatory reaction was taken and sent for histopathology (Figure 5). Post-operatively, the proptosis resolved, and the fistula closed; however, the vision remains NPL.

Discussion

Our patient presented with a penetrating left orbital injury from a wooden foreign body that became

embedded adjacent to the optic nerve. She presented over one year later with painful proptosis and loss of vision associated with a discharging orbital fistula at the entry wound, which had self-sealed following attempted surgical removal. Diagnosis of intraorbital foreign bodies requires a high index of suspicion, and a detailed history is essential.^[3] Srirangam et al. reported a case of an unusual intraorbital foreign body in which the point of entry was disproportionate to its size, trajectory, and final location in a symptomless patient.^[5] This report has some features in common with our case. Our patient was a child, and the details and extent of the injury may have been concealed for fear of punishment. Lefebvre et al. conclude that a presentation of decreased vision, decreased motility, or neurological abnormality, particularly in children, should alert a high index of suspicion of serious injury and/or retained foreign body.^[6]

An orbital CT scan is the imaging modality of choice for detecting and localizing orbital foreign bodies.^[3] Despite modern imaging methods, identifying and locating organic intraorbital foreign bodies is often difficult,^[7] unlike metallic foreign bodies.^[1] Sometimes, wooden foreign bodies appear as aerated structures with a visible linear course and geometric structure, alerting the clinician to the possibility of an occult wooden foreign body.^[6] In some cases, magnetic resonance imaging (MRI)^[5] is needed to rule out organic foreign bodies, which our patients cannot afford.

Early diagnosis, surgical exploration, and extraction of intraorbital foreign body, when indicated, significantly improve the outcome and the visual prognosis.^[3] Unfortunately, this patient presented with irreversible visual loss one year after the initial injury. An explorative orbitotomy may be done under general anaesthesia to reveal additional foreign bodies after what is thought to be an adequate investigation. This often resolves the preoperative concerns^[5] as pertains to this case. Unlike organic intraorbital foreign bodies, their nonorganic counterparts, such as metals, can be well tolerated and may not require surgical intervention despite proximity to essential structures.^[8,9] However, exceptions include copper materials, which have been reported to cause purulent inflammation; iron, which can cause siderosis; and lead, which can cause systemic toxicity.^[10,11]

Conclusion

Given the history of trauma by a stick, proptosis, restricted motility, signs of optic nerve compression, and orbital fistula, surgical intervention was indicated. A high index

of suspicion must always be entertained in such cases, and explorative orbitotomy should be performed early enough to protect sight. This case seeks to raise awareness about stick injuries in children and encourage early surgical intervention, which could save sight when there is a high index of suspicion. Many patients remain asymptomatic for years before presentation, as in this case.

Conflict of interests: None.

Contributions: GBB was the operating surgeon who conceptualised the idea and wrote the original draft. MAR prepared the histological slides. EMD reported the histological slides. All authors proofread and approved the manuscript. All images from the authors with permission from the patient.

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