Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Ophthalmology

Air in the Orbit: Could it be a Wooden Intraorbital Foreign Body?

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DOI: https://doi.org/10.36347/sjmcr.2025.v13i05.080 | **Received:** 12.04.2025 | **Accepted:** 17.05.2025 | **Published:** 21.05.2025

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Abstract **Case Report**

Background: We are reporting this case to reitrate the importance of maintaining high index of suspicion for wooden intraorbital foreign bodies in cases of intraorbital inflammation or infection. The case highlights the value of providing adequate clinical details when requesting radiological investigations and to carefully interpret investigations against the clinical scenario. ***Case Presentation:*** A young patient presented with features of worsening orbital cellulitis following a fall over a bush. Initial assessment suspected posterior ruptured globe and a request was sent electronically for Computerized Tomography of brain and orbit for right eye trauma. The Computarized Tomography showed translucent area in medial orbit, which was interpreted as air, and an indented globe. The initial exploration showed only bits of vegetative matter and an intact globe. Due to worsening orbital cellulitis in the following twenty four hours, the case was discussed with the radiologist with possibility of wooden intraorbital foreign body. A Magnetic Resonance Imaging scan of brain and orbit was performed which revealed four centimetre wooden foreign body indenting the globe medially. The surgical technique was planned accordingly. The wooden foreign body was successfully removed.. The patient subsequently fully recovered following completing the antibiotic course. ***Conclusion:*** This case highlights the importance of including a wooden foreign body in the differential diagnosis in cases of worsening orbital infection and inflammation. A high index of suspicion at presentation should especially be maintained in trauma cases to avoid delay to diagnosis. Liaising with the radiologist is crucial to obtain best quality imaging in order to guide management.

Keywords: Wooden Intraocular Foreign Body, Air in the Orbit, Orbital Cellulitis.

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BACKGROUND

Intraorbital wooden foreign bodies are relatively rare [1]. They present as a diagnostic challenge causing delayed diagnosis and therefore high risk of severe complications, such as orbital cellulitis and abscess formation, extraocular muscle damage and brain abscess. Therefore, it is potentially sight and life threatening [2].

The diagnosis may be missed due to a number of factors. These include an overlooked history of trauma, the trivial nature of the trauma reported and time interval between the initial trauma and presentation. The radiological diagnosis itself is not definitive as wood unlike metal is difficult to detect with certainty unless clinically suspected. This case presents an example that intraorbital wooden foreign bodies continue to present a diagnostic challenge in modern medicine.

CASE PRESENTATION

A young patient presented with one day history of worsening right eye swelling, pain and blurred vision following a trip over a bush the previous day, having fallen face first. There was no previous history of any eye problems, and prior to the accident the patient had excellent vision in both eyes. On examination, the right eye showed tense periorbital oedema and erythema, chemosis, and subconjunctival haemorrhage. No eyelids lacerations. Visual acuity right counting fingers, left 6/6. Right restricted horizontal and vertical gaze. Right globe appeared distorted inferiorly. However, right anterior segment and pupil appeared intact. Provisional diagnosis of right posterior rupture globe made. The patient was admitted for examination under anaesthesia, Intravenous antibiotics commenced as per protocol. A Computerized Tomography scan request sent electronically stating the following: “Right eye trauma, for CT brain and orbit”.

Computerized Tomography showed air in the medial orbit and indented globe. Examination under anaesthesia showed right nasal conjunctiva vertical laceration with visible medial bony margin. Multiple bits of vegetative matter removed from the conjunctiva. The globe was intact. Intravenous antibiotics continued. However, right orbital cellulitis worsened overnight. An urgent orbit consult requested.

The case was discussed with the radiologist and the possibility of missed wooden orbital foreign body was raised. Magnetic Resonance imaging scan on brain and orbits was requested to obtain more detailed views of the globe and orbital structures in order to determine the best surgical approach. It was reported as wooden foreign body indenting the globe. In theatre, a four centimetre wooden foreign body with overlying vegetative matter removed. Globe remained intact. Subsequently the right eye fully recovered with full ocular movements and 6/5 visual acuity.

DISCUSSION

Wooden Intra-orbital foreign bodies are often associated in literature with words like: missed, unusual, misdiagnosed, dilemma, occult [2-5]. Wood porous consistency and organic nature good medium for microbial agents [2, 3]. It must be detected and removed as they can cause severe inflammation and infection that is sight and, potentially, life threatening.

Typical scenarios are a fall on a pencil, broken toy, bush or a chopstick. Also, a hit by a wooden stick or a branch. However, history is not always directly suggestive especially in case of children or adults under influence of intoxicants. Time interval from initial trauma can vary leading to variable presentations such as persistent pain, ptosis, ophthalmoplegia, proptosis, discharging sinus and brain abscess[2-6].

Scleral coat and globe motility are protective in low velocity injuries. High index of suspicion needs to be maintained no matter how trivial the trauma seems. Detailed history of trauma in patients presenting with orbital inflammation or infection should always be made.

Image detection assists in planning the best surgical approach and anticipating complications. However, wood has variable appearances and can be easily overlooked. Appearance is influenced by time since trauma. Dry wood mimics air, wet air mimics soft tissue or muscle. Cases with longer interval since trauma could present as an orbital mass due to foreign body granuloma. Appearance can also vary according to type of wood and coatings and imaging settings. Magnetic Resonance Imaging scan should be performed in cases of high suspicion when Computerized Tomography is negative [8].

CONCLUSION

Wooden Intraorbital foreign bodies can still be initially missed despite modern imaging technique. Timely diagnosis therefore relies on maintain high index of suspicion at the initial assessment. Poor information exchange between physicians could result in delayed diagnoses [9].

Acknowledgment: This report was conducted without any external funding.

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