Case Report

Unusual Intra-Orbital Foreign Body Removed by a Unique Surgical Approach

https://doi.org/10.47210/bjohns.2022.v30i3.850

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ABSTRACT

Introduction

A retained intra-orbital foreign body can give rise to serious complications. This case report highlights an interesting case where a metallic foreign body remained lodged inside the orbit for over a year, unbeknownst to the patient, and was eventually detected and surgically extracted.

Case Report

We report a case of a 57-year-old female who presented with mild pain of the left orbit following an injury with an umbrella after a fall one year ago. Following a near normal physical examination, on radiological evaluation we found a linear, presumably metallic foreign body lodged into the orbit, without piercing the globe. An inferolateral orbitotomy approach was used to gain adequate exposure and facilitate the removal of a 3.5 cm metallic remnant of an umbrella stick.

Discussion

The management of intra-orbital foreign bodies poses several challenges. The choice between conservative and surgical management is one of them. CT scan is the diagnostic tool of choice. When surgical removal is indicated, a suitably planned approach facilitates extraction of the foreign body with minimal morbidity. This rare case is testament to the fact that although it may not be part of their conventional realm, carefully selected intra-orbital foreign bodies can be efficiently managed surgically by ENT professionals.

Keywords

Foreign Bodies; Orbit; Orbitotomy

An intra-orbital foreign body is defined as a foreign body which is situated within the orbit but outside the globe.[1] On the basis of their composition, the intra-operative foreign bodies are variously categorized as metallic, inorganic non-metallic, and organic.[2] A retained intra-orbital foreign body can give rise to several serious complications, the worse being loss of the eye. Here, we report a case of a piece of a broken umbrella stick, which was lodged into the orbit and remained undetected for a year, before being finally noticed and surgically removed.

Case Report

A 57-year-old female presented with complains of diffuse pain of the left eye since a year. She revealed that a broken umbrella stick had been accidentally lodged into the left side of her face a year ago, which had allegedly been removed shortly after the accident. On examination, no obvious swelling, scar or secondary skin changes were noted. The facial symmetry was maintained. Localized tenderness was present over the infraorbital rim at the junction of the medial two-third with the lateral third. Visual acuity and extra-ocular movements were normal.

Upon suspecting a foreign body, the patient was made to undergo radiological investigations. X-ray nose and paranasal sinuses revealed a linear, presumably metallic foreign body piercing the infraorbital rim (Fig. 1A). CT

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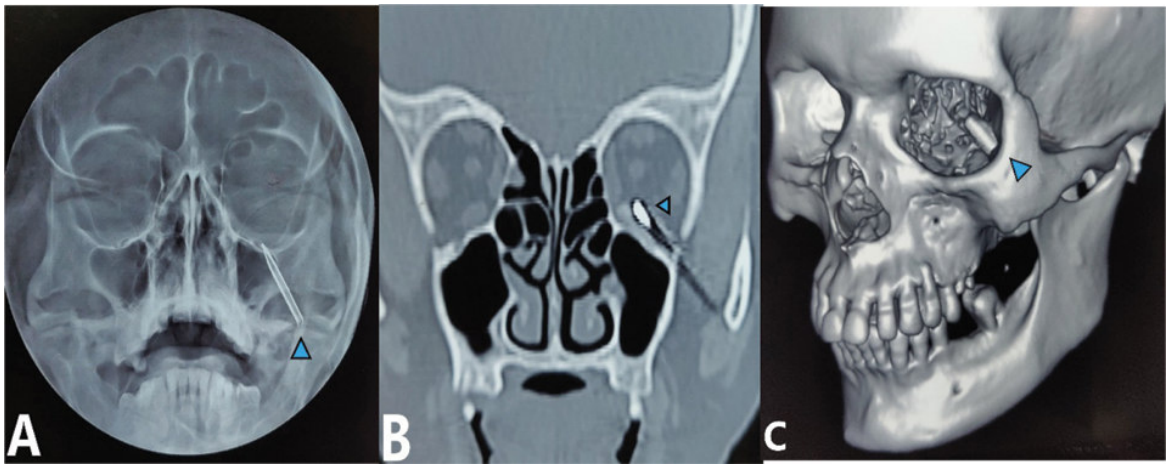

Fig. 1. (A) X-ray, (B) CT scan and (C) CT face with 3D reconstruction, showing the intra-orbital foreign body (highlighted by arrowhead)

scan confirmed the X-ray findings and further clarified that the foreign body was not entering the maxillary sinus, but was located posterior to the posterior wall of maxillary sinus, and below the zygomatic arch (Fig. 1B). CT Face with 3D Reconstruction revealed a gory image of a large part of the foreign body going into the orbit, through its inferolateral aspect (Fig. 1C).

The patient was taken up for surgery under general anaesthesia. The approach to the foreign body was through an inferolateral orbitotomy. An S-shaped incision was given, below the lateral third of the eyebrow and extending laterally along the superior part of zygomatic process. The skin flaps were raised such that the underlying bones were exposed (Fig. 2A). The periosteum was reflected using an elevator. The osteotomes were drilled and bony incisions were given superior to the frontozygomatic suture, on the temporal process of zygomatic bone and near the zygomaticomaxillary suture, enabling the separation of the zygomatic bone, thereby enabling direct access to the lodged foreign body. A metallic foreign body, which measured 3.5cm, the remnant of an umbrella stick, was successfully removed. Bony fixation was done with titanium screws and plates (Fig. 2B).

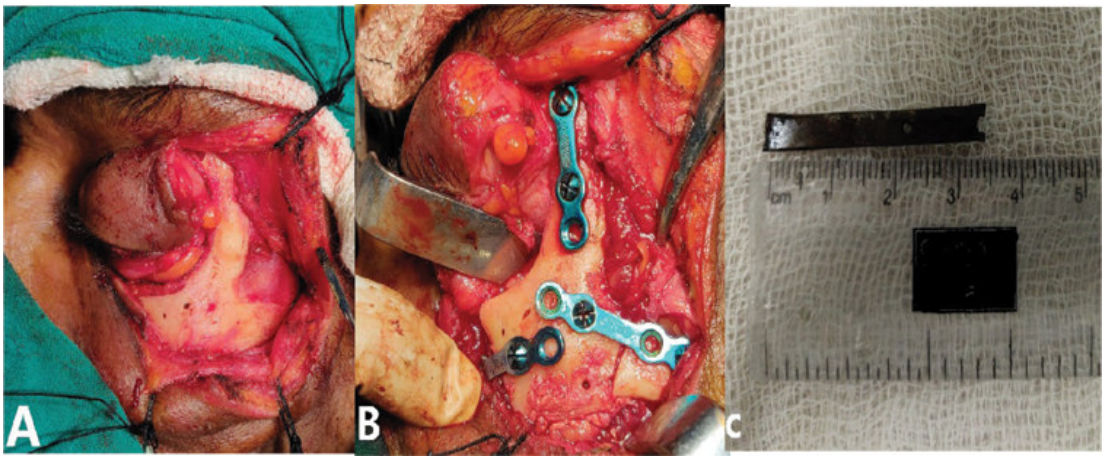

Fig. 2.(A) Exposed zygoma after raising flaps (B) Fixation using titanium screws and plates following foreign body removal (C) Surgically removed 3.5 cm broken piece of umbrella stick

Post operative period was unremarkable. The patient made an uneventful recovery with no change in vision or ocular motility.

Discussion

We report this case for various reasons. Firstly, the rare presentation of a broken piece of umbrella stick being lodged into the orbit, without the patient's awareness. Secondly, the delayed presentation of the patient (1 year post injury), with a closed entry point, which made it difficult to diagnose the foreign body and its location until radiological investigations were done. Thirdly, despite being a massive foreign body retained inside the orbit for an entire year, minimal symptoms were observed, and fourthly, because this was a rare case of an intra-orbital foreign body which was removed by ENT professionals.

Intra–orbital foreign body cases can be challenging, and detection and localization of the foreign body can often be elusive. Cases involving impacted object following penetrating facial injury must be examined clinically in a systematic manner.[3] CT scan is the gold standard imaging technique to detect orbital foreign body.[4] MRI is contraindicated in metallic foreign bodies as it may cause their migration and subsequent injury to surrounding structures.

The management of intra-orbital foreign bodies depends on the location and composition of the foreign body as well as the symptoms that it is causing, and the possible morbidity and complications associated with its surgical removal. General consensus advocates the immediate removal of organic foreign bodies in view of the risk of infection and inflammation that they carry.[1,5,6] However, inorganic foreign bodies are better tolerated. When dealing with asymptomatic inorganic foreign bodies, there is often a dilemma as to whether surgical removal should be resorted to or not. Ho et al, while reporting the outcomes of 50 eyes with conservatively managed metallic intra-orbital foreign bodies, concluded that retained intra-orbital foreign bodies typically have minimal adverse visual prognosis and are well-tolerated, and merit conservative management in the absence of specific indications for removal.[7] Siedlecki et al reported a case of metallic foreign body that became asymptomatically embedded adjacent to the optic nerve for over thirty years and concluded that despite proximity to important structures, intra-orbital metallic foreign bodies may not require surgical intervention.[8] However, in our case, since the foreign body was causing pain and was located relatively anteriorly, making it amenable to easy surgical retrieval, we deemed surgery as the appropriate management.

Various approaches have been devised for the successful removal of intra-orbital foreign bodies. The Krönlein-Reese-Berk orbitotomy provides good exposure of the posterior and lateral orbit, and is especially useful in cases of deeply penetrating metallic foreign bodies.[9] Varty et al describe a case of an intra-orbital wooden foreign body removed by this approach.[10] Ultimately, the choice of approach depends chiefly on the location of the intra-orbital foreign body and the surgeon's preference. Due to the unpredictable location and status of impaction of the foreign body, often improvisation of the approach and surgical technique may be warranted. Further, the management of intra-orbital foreign bodies provides an excellent opportunity for inter-disciplinary teamwork involving professionals from ENT, Ophthalmology, Neurosurgery and Maxillofacial surgery.

Conclusion

The detection of intra-orbital foreign bodies requires a high index of suspicion and the judicious use of radiological investigations. When surgical removal is indicated, a suitably planned approach facilitates extraction of the foreign body with minimal morbidity. This interesting and rare case is testament to the fact that although it may not be part of their conventional realm, carefully selected intra-orbital foreign bodies can be efficiently managed surgically by ENT professionals.

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