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Extracting the Unexpected: A 35-mm Curved Nail as an Intraocular Foreign Body

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Patient: Male, 31-year-old
Final Diagnosis: Post-traumatic endophthalmitis secondary to a full-thickness corneal laceration with a retained IOFB following a delayed presentation
Symptoms: Eye pain
Clinical Procedure: —
Specialty: Ophthalmology

Objective: Unusual clinical course

Background: Management of posterior segment intraocular foreign bodies is challenging, requiring the preservation of ocular integrity and restoring vision. Traumatic endophthalmitis occurs in 7% to 13% of penetrating injuries, particularly with coexisting intraocular foreign bodies. Managing posterior segment intraocular foreign bodies poses significant challenges due to their complex clinical presentation and the need to achieve multiple goals during treatment. This unusual case of a large metallic intraocular foreign body associated with traumatic cataract, retinal detachment, and endophthalmitis underscores the challenges of diagnosis and management.

Case Report: A 31-year-old man presented with pain and vision loss in the left eye 7 days after penetrating trauma by a metallic foreign body. Examination showed visual acuity 20/20 (logMAR 0.00) in the right eye and hand movement (logMAR 3) in the left. There was a full-thickness inferior 2-mm corneal laceration with iris incarceration, anterior chamber reaction with fibrinous exudation, and a traumatic cataract, with no retinal view. Imaging confirmed the presence of an intraocular foreign body and endophthalmitis with an associated rhegmatogenous retinal detachment at the time of vitrectomy. The 35-mm foreign body was successfully removed. However, the intraocular foreign body was not detected initially on B-scan ultrasonography, reflecting the diagnostic and therapeutic challenges, as well as the importance of computed tomography imaging.

Conclusions: This case report highlights the complexity of managing a large retained intraocular foreign body, underscoring the rarity of its size, complicated by endophthalmitis, traumatic cataract, and rhegmatogenous retinal detachment, emphasizing the importance of multimodal imaging, individualized treatment approaches, and continued research to improve management of similar conditions.

Keywords: Cataract • Endophthalmitis • Eye Injuries, Penetrating • Intraocular Foreign Bodies • Retinal Detachment • Vitrectomy

Full-text PDF: https://www.amjcaserep.com/abstract/index/idArt/953181

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Introduction

Post-traumatic endophthalmitis is a serious complication resulting from open-globe injuries [1]. Physical effects of the trauma have a significant impact on visual function in addition to the virulent organisms causing post-traumatic endophthalmitis; thus, the outcome for this type of endophthalmitis is significantly worse than that of postoperative endophthalmitis [1,2].

Ocular traumas, especially those involving intraocular foreign bodies, can lead to severe consequences such as endophthalmitis, phthisis bulbi, and permanent vision loss [3]. Several studies have demonstrated the factors influencing prognosis, including the type of injury, microbiological virulence, presence or absence of intraocular foreign bodies and retinal detachment, as well as the interval between injury and treatment [1,2,4,5]. A thorough ophthalmic examination is essential for the detection of intraocular foreign bodies, as clinical findings can provide the first indication of their presence. However, in cases where the initial ophthalmic evaluation is inconclusive or cannot be adequately performed because of trauma-related factors, radiological assessment plays a crucial role in establishing an accurate diagnosis and determining the location, size, and characteristics of the foreign body [6,7].

Managing posterior segment intraocular foreign bodies poses significant challenges due to their complex clinical presentation and the need to achieve multiple goals during treatment, involving preservation of ocular integrity, removal of the foreign body, and optimizing the functional visual recovery. At present, pars plana vitrectomy is regarded as the preferred technique for managing disorders of the posterior segment, including those complicated by retained intraocular foreign bodies [8]. Similar cases reported in the literature have described retinal detachment, traumatic cataract, and infectious endophthalmitis as frequent complications of delayed intraocular foreign body presentation, often associated with poor visual prognosis. Nevertheless, several studies demonstrated that prompt pars plana vitrectomy, intravitreal antibiotic administration, and appropriate retinal repair techniques can improve anatomical integrity and visual outcomes in these complex injuries [9-11]. Therefore, we present a complex case of a large intraocular foreign body associated with traumatic cataract, retinal detachment, and endophthalmitis following delayed presentation of an open-globe injury, highlighting the diagnostic and therapeutic challenges.

Case Report

A 31-year-old man presented to our ophthalmology emergency department in August 2025 with left eye pain and loss of vision 7 days after sustaining a penetrating trauma with a large metallic object.

Examination of the patient revealed full extraocular motility. Visual acuity was 20/20 (logMAR 0.00) in the right eye and hand movement (logMAR 3) in the left eye, with a mid-dilated, non-reactive pupil. Anterior segment examination of the left eye showed conjunctival injection, an inferior 2-mm full-thickness corneal laceration at 6 o'clock reaching the limbus and incarcerated by iris tissue, with negative Seidel test, anterior chamber reaction with +4 cells, and fibrinous exudation associated with traumatic cataract and a violated posterior lens capsule. The view of the fundus was obscured. The patient was protected with a clear eye shield and sent to our radiology department to rule out the presence of intraocular foreign bodies.

A computed tomography (CT) scan of the brain and orbit revealed a large left intraocular semicircular well-defined object seen obliquely. Visualization of the foreign body was partially limited by the artifact; however, there were no intracranial abnormalities (**Figure 1A-1D**). Furthermore, gentle B-scan ultrasonography (US) was done, indicating dense vitreous opacities, and an orbital X-ray was obtained (**Figure 2A, 2B**).

The patient was diagnosed with post-traumatic endophthalmitis secondary to a full-thickness corneal laceration with a retained intraocular foreign body following a delayed presentation. Thus, primary repair included a 2-mm corneal wound suturing and intravitreal injection of antibiotics. Accordingly, the surgical retina team was consulted for further management and surgical intervention was subsequently planned for the left-eye intraocular foreign body with possible intra-orbital foreign body, traumatic cataract, and endophthalmitis.

Conjunctival peritomy under general anesthesia was performed intraoperatively, demonstrating a clear exam up to the equators, without evidence of perforation. Lens removal was performed, followed by pars plana vitrectomy, which revealed a rhegmatogenous retinal detachment with a large break. Isolation of the foreign body was subsequently carried out (**Figure 3A, 3B**). After shaving, perfluorocarbon liquid was injected with enlargement of the scleral wound up to 7 mm, followed by extracting a large curved metallic nail measuring approximately 35 mm using forceps (**Figure 4A, 4B**). We performed surgical inferior peripheral iridotomy with a 360-degree endo-laser. Fluid air exchange was followed by injection of silicone oil 1300 centistokes. Closure of all wounds and sclerotomy with intravenous antibiotic injection to the vitreous cavity. The complete surgical technique is demonstrated in **Video 1**.

Postoperatively, the patient reported no pain, and he had visual acuity of counting fingers (logMAR 2) with intraocular

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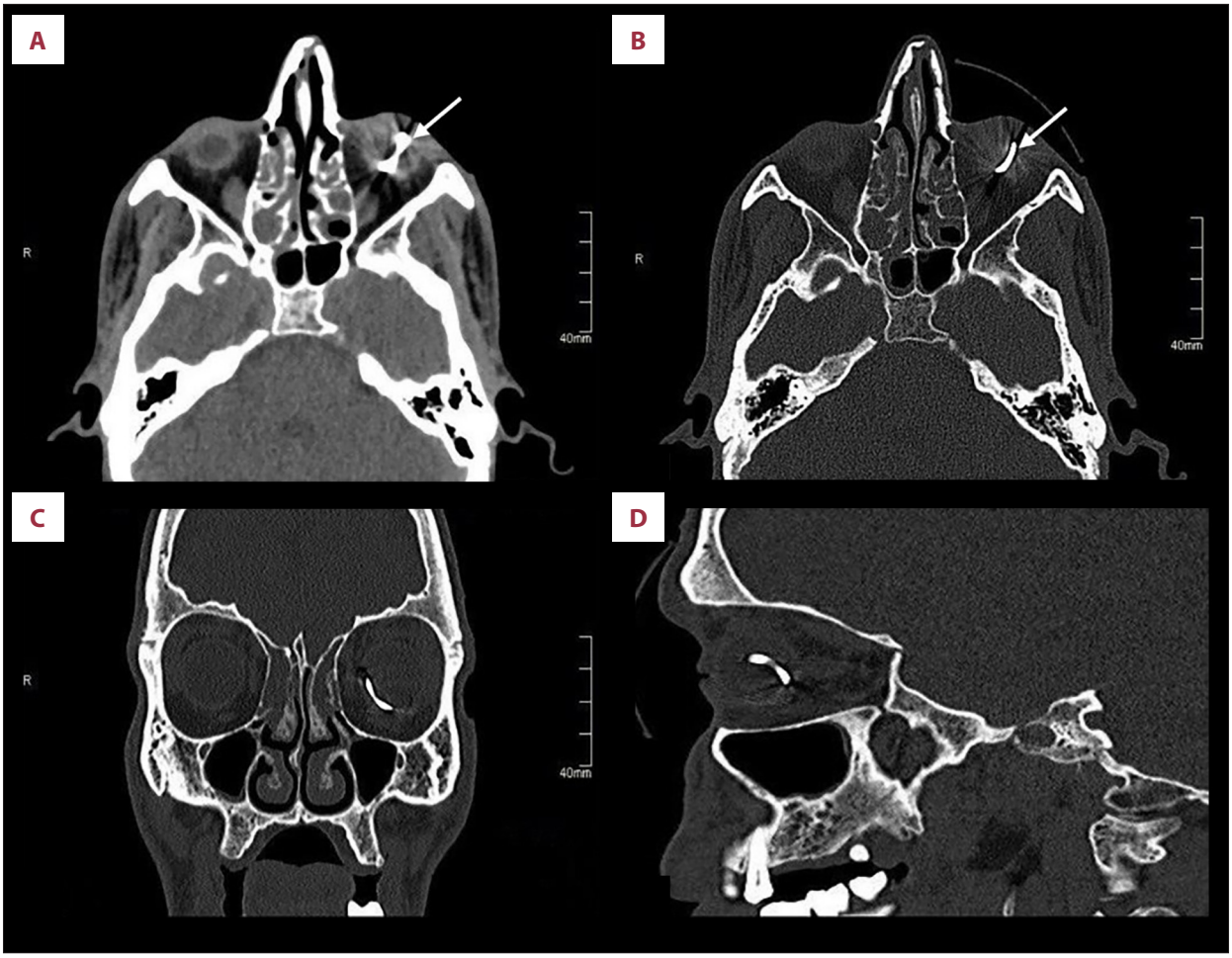

Figure 1. Computed tomography images without contrast of an intraocular radio-opaque semicircular object positioned obliquely. (**A, B**) Axial view showing the semicircular intraocular foreign body in the left eye (white arrow). (**C**) Coronal view. (**D**) Sagittal view.

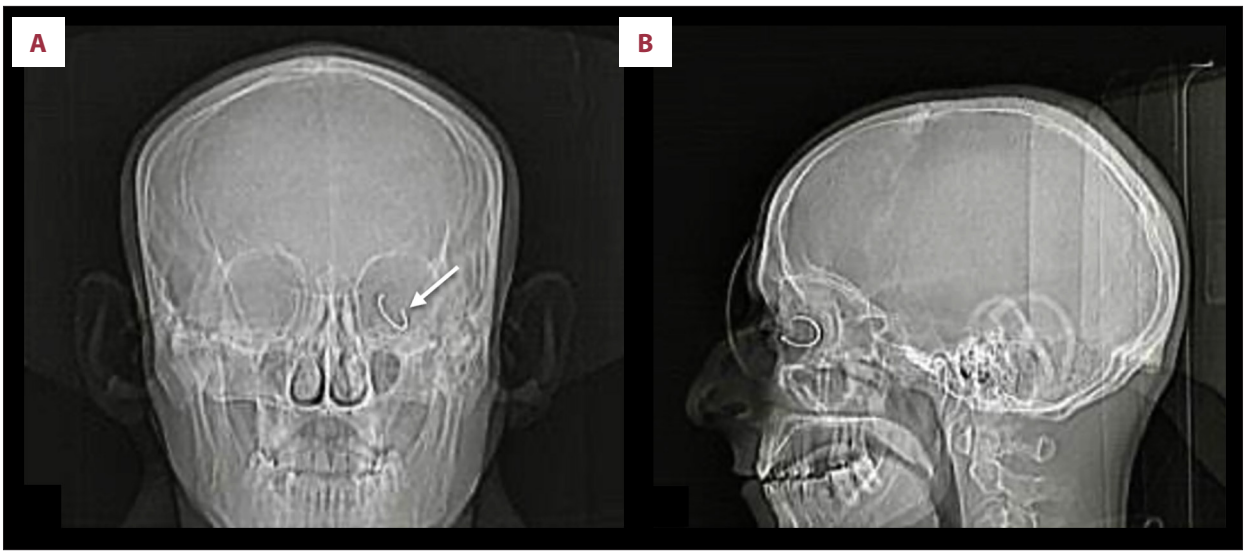

Figure 2. An obliquely oriented C-shaped foreign body is visible on the X-ray of the left orbit. (**A**) Anteroposterior view (white arrow). (**B**) Lateral view.

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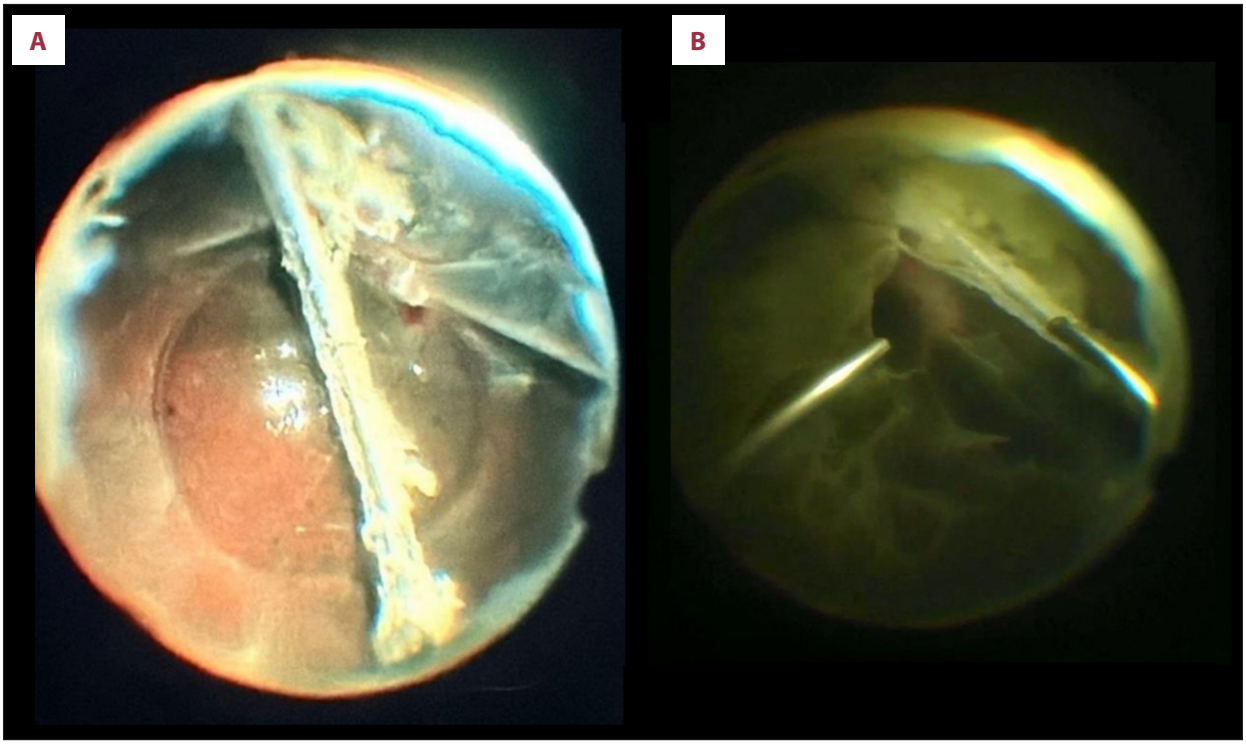

Figure 3. Foreign body extraction during pars plana vitrectomy. (**A**) Foreign body isolation during pars plana vitrectomy using the ZEISS RESIGHT viewing system. (**B**) Bimanual dissection and release of the foreign body and associated fibrosis from the retina.

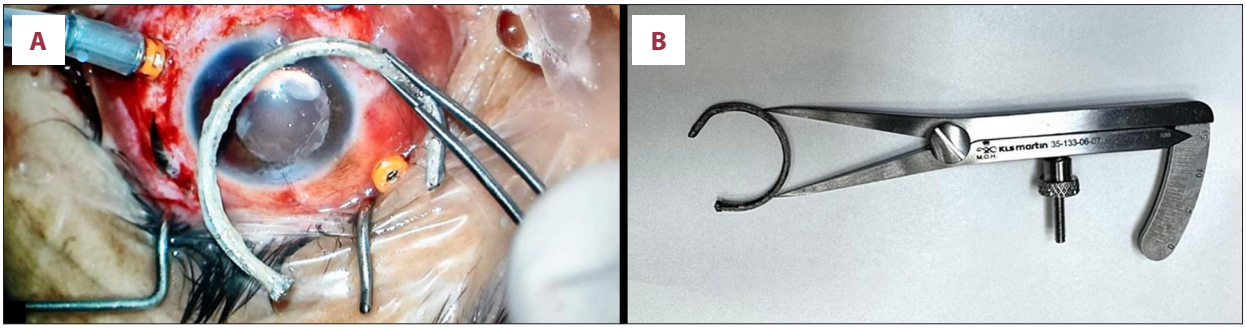

Figure 4. Metallic foreign body. (**A**) C-shaped foreign body visualized under Zeiss microscope. (**B**) The foreign body measured approximately 35 mm using a KLS Martin caliber.

Video 1. Step-by-step pars plana vitrectomy demonstrating removal of a large metallic intraocular foreign body followed by retinal detachment repair and silicone oil tamponade.

pressure (IOP) of 14 mm Hg. The AS view showed a clear cornea with loose corneal sutures, silicone oil bubble in the anterior chamber with patent peripheral iridotomy and aphakia. B-scan US demonstrated a flat retina under silicone oil. Eventually, the corneal sutures were removed, and topical antibiotic eye drops along with continued tapering of topical steroid drops were prescribed. The patient was instructed to maintain a strict face-down position until review in the clinic for further follow-up.

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After 2 weeks, the visual acuity declined to light perception due to the formation of a pupillary membrane, which was treated with topical steroids along with the aphakic status of the lens and the presence of silicone oil in the vitreous cavity.

While the long-term visual prognosis remains uncertain due to the extent of ocular trauma, future management may include silicone oil removal and consideration of secondary intraocular lens implantation. These interventions may offer additional visual rehabilitation depending on the final anatomical and functional outcomes.

Discussion

Traumatic endophthalmitis has been reported in approximately 7% of penetrating ocular injuries, with the incidence increasing to 13% when an intraocular foreign body is present [5]. However, the incidence is higher in young men, particularly those residing in rural areas or working in high-risk environments [12].

Our patient presented unusually late, with traumatic cataract, posterior capsule rupture, and rhegmatogenous retinal detachment, predicted a poor visual prognosis. Notably, the large metallic intraocular foreign body was initially missed on the B-scan US, emphasizing the critical role of CT for diagnosis and the need for interpretation. B-scan, CT-scan, and magnetic resonance imaging (MRI) have been used to detect and diagnose intraocular foreign bodies. The appropriate imaging modality for visualization and localization depends on the suspected nature and location of the intraocular foreign body. CT is considered the imaging modality of choice for suspected intraocular foreign bodies because of its high sensitivity and specificity for detecting metallic and radiopaque foreign bodies, rapid acquisition time, and ability to precisely localize the foreign body and assess associated orbital injuries [13,14]. In contrast, MRI is generally contraindicated in suspected metallic intraocular foreign bodies because of the risk of foreign body migration and ocular tissue damage caused by the magnetic field [15]. Furthermore, although B-scan US can assist in detecting vitreoretinal complications, its diagnostic accuracy may be limited in open-globe injuries due to severe media opacity, intraocular air, and distorted ocular anatomy, and large metallic artifacts can further reduce the image quality; therefore, it requires sophisticated machinery and skilled operators to distinguish artifacts from intraocular foreign bodies. In addition, direct probe pressure on the injured eye can exacerbate the wound leakage and increase the risk of extrusion of intraocular contents [16]. As reported in earlier studies, CT imaging demonstrates substantially greater sensitivity in detecting intraocular foreign bodies (94.9%) compared with B-scan US (51.9%) [17].

Regarding management, evidence suggests that early surgical repair, ideally within 24 hours, is associated with better visual prognosis, provided no intraocular foreign bodies or lens rupture is involved [1,18,19]. Nevertheless, our patient's delayed presentation and the complex clinical findings required individualized surgical planning. The extracted metallic intraocular foreign body, a curved nail, measured approximately 35 mm, a large size that is rarely reported in the literature [20-23]. As described in a previous cohort study, the size of the adult human eye measures around 24.2 mm (transverse) × 23.7 mm (sagittal) × 22.0-24.8 mm (axial), with no significant variation between sexes or age groups. However, the transverse diameter can range from 21 mm to 27 mm [24]. Notably, the length of the retained intraocular foreign body exceeded the average dimensions of the adult globe and even surpassed the upper limit of the reported transverse diameter. This striking size discrepancy underscores the exceptional nature of this case and highlights the rarity of successful retention and subsequent surgical extraction of an intraocular foreign body whose dimensions exceed those of the ocular globe itself. Furthermore, this large foreign body entered through a small 2-mm corneal wound, illustrating the unpredictable dynamics of penetrating trauma.

However, despite the patient's delayed presentation, the prompt administration of intravenous antibiotic and immediate removal of the intraocular foreign body with the treatment of existing retinal detachment and removing the cataract resulted in effective resolution of the endophthalmitis. Nevertheless, the postoperative vision remained poor, likely due to the aphakic status of the lens along with the presence of silicone oil in the vitreous cavity and the subsequent development of a pupillary membrane.

Conclusions

This case report underscores the complexity of managing a large retained intraocular foreign body associated with endophthalmitis, traumatic cataract, and rhegmatogenous retinal detachment, and emphasizes the value of comprehensive multimodal radiological imaging. The decision to perform vitrectomy should be individualized, considering each patient's specific presentation and clinical needs. Further research is warranted to optimize the management of similar challenging conditions.

Institution Where Work Was Done

Ohud Hospital, Medina, Saudi Arabia.

Consent Statement

The authors clarify that they have obtained all appropriate patient consent forms. In the form, the patient has given consent

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for the use of images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published, and due to efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Declaration of Figures' Authenticity

All figures submitted have been created by the authors who confirm that the images are original with no duplication and have not been previously published in whole or in part.

References:

1. Bhagat N, Nagori S, Zarbin M. Post-traumatic infectious endophthalmitis. Surv Ophthalmol. 2011;56:214-51
2. Safneck JR. Endophthalmitis: A review of recent trends. Saudi J Ophthalmol. 2012;26:181-89
3. Ripa M, Panos GD, Rejdak R, et al. Sympathetic ophthalmia after vitreoretinal surgery without antecedent history of trauma: A systematic review and meta-analysis. J Clin Med. 2023;12(6):2316
4. Verbraeken H, Rysselaere M. Post-traumatic endophthalmitis. Eur J Ophthalmol. 1994;4:1-5
5. Essex RW, Yi Q, Charles PG, et al. Post-traumatic endophthalmitis. Ophthalmology. 2004;111:2015-22
6. Mader TH, Werner RP, Chamberlain DG Corneal perforation and delayed anterior chamber collapse from a devil's club thorn. Cornea. 2008;27:961-62
7. Lee HJ, Jilani M, Frohman L, Baker S. CT of orbital trauma. Emerg Radiol. 2004;10:168-72
8. Toro MD, Nowomiejska K, Concilio M, et al. T-shaped pars plana scleral incision to remove large intraocular foreign body. Front Med (Lausanne). 2024;11:1399321
9. Ophthalmology Zhang Y, Zhang M, et al. Intraocular foreign bodies in China: Clinical characteristics, prognostic factors, and visual outcomes in 1,421 eyes. Am J Ophthalmol. 2011;152(1):66-73
10. Williams DF, Mieler WF, Abrams GW, Lewis H. Results and prognostic factors in penetrating ocular injuries with retained intraocular foreign bodies. Ophthalmology. 1988;95(7):911-16
11. Jonas JB, Knorr HLJ, Budde WM. Prognostic factors in ocular injuries caused by intraocular or retrobulbar foreign bodies. Ophthalmology. 2000;107(5):823-28
12. Patel SN, Langer PD, Zarbin MA, Bhagat N. Diagnostic value of clinical examination and radiographic imaging in identification of intraocular foreign bodies in open globe injury. Eur J Ophthalmol. 2012;22:259-68
13. Zhu L, Shen P, Lu H, Ocular trauma score in siderosis bulbi with retained intraocular foreign body. Medicine (Baltimore). 2015;94(39):e1533
14. Herrick RC, Hayman LA, Taber KH, Artifacts and pitfalls in MR imaging of the orbit: A clinical review. Radiographics. 1997;17:707-24
15. Radiology Loporchio D, Mukkamala L, Gorukanti K, et al. Intraocular foreign bodies: A review. Surv Ophthalmol. 2016;61(5):582-96
16. Valera-Cornejo D, García-Roa M, Ramírez-Neria P, et al. The role of various imaging techniques in identifying and locating intraocular foreign bodies related to open-globe injury: three case reports and literature review. Medwave. 2020;20(1):e7772
17. Lanzl IM, Hess U, Harms J. MRI for metallic foreign bodies? Ophthalmology. 1999;106(7):1232-33
18. Gokce G, Sobaci G, Ozgonul C. Post-traumatic endophthalmitis: A mini-review. Semin Ophthalmol. 2015;30(5-6):470-74
19. Silpa-Archa S, Dejkong A, Kumsiang K, et al. Poor prognostic factors in post-traumatic endophthalmitis following open globe injury. Int J Ophthalmol. 2020;13(12):1968-75
20. Jiang CH, Zhang MN. Traumatic endophthalmitis following penetrating ocular injuries with retained intraocular foreign bodies. Chin J Traumatol. 2003;6:167-70
21. Jonas JB, Budde WM. Early versus late removal of retained intraocular foreign bodies. Retina 1999;19:193-97
22. Chabbar I, Elhassan A, Berraho A. Traumatic endophthalmitis with intraocular metallic foreign body. Ophthalmology Journal. 2020;5:125-29
23. Gulati S, Hanebrink KA, Henry M, et al. Open globe injury and intraocular foreign body following crossbow-related penetrating ocular trauma. Am J Ophthalmol Case Rep. 2022;26:101441
24. Bekerman I, Gottlieb P, Vaiman M. Variations in eyeball diameters of the healthy adults. J Ophthalmol. 2014;2014:503645

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