

INTRALENTICULAR FOREIGN BODY: A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT

The purpose of this case was to review the reported cases and provide a better understanding of patients with intralenticular foreign bodies (FBs)¹ and also, including clinical presentation, diagnosis, management, and visual outcome. A 5-year-old male child was referred by the ophthalmologist with suspected intraocular FB. Under slit-lamp examination, a full-thickness corneal wound with generalized corneal edema was revealed. The anterior chamber was deep with cells and the lens appeared hazy suggesting acute cataract formation. B-scan ultrasonography was performed which shows a well-defined, linear echogenic foreign body within the lens which cast significant posterior acoustic shadowing. The lens appears echogenic suggestive of rapid cataract formation. The patient underwent surgical treatment on the next day he presented to OPD which shows a pointed part of the pencil within the eye and is completely embedded in the lens; the lens and FB were removed together during the operation. In addition to the case report, some 29 previously reported cases of intralenticular FB are reviewed here. Patient demographics, time and course of management, and visual outcome are all summarized and compared.

Introduction

Ocular trauma is one of the grave conditions that one can experience during their lifetime. Early detection and proper treatment is necessary to salvage the orbit. Otherwise penetrating ocular injury with an intraocular foreign body (FB) can lead to severe complications. eg, blindness, infection/ inflammatory change without appropriate diagnosis and treatment.² Usually, FBs are detected through slit-lamp examination,³ although some must need to be confirmed with B-scan ultrasonography or computed tomography (CT).⁴ Here, we report⁵ a case of intralenticular FB which is a rare condition. In this case, the severe inflammatory changes, painful condition and concealed location limited the proper detection on any examination; its existence and exact location were verified on ultrasound.^{7,8,9} In addition, we also reviewed reported intralenticular metallic FB cases with their clinical management and prognosis.

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Case Report

A 5-year-old male incurred a right-eye injury while having a fight with his friend. His parents rushed to the nearby general practitioner who applied stitches over the site of active bleed. After three days he visited an ophthalmologist. Under slit-lamp examination, a full-thickness corneal wound with diffuse corneal edema was revealed and lens appears diffusely hazy showing cataract formation, however no definite foreign body was detected on examination due to obscuration with cataract. The Seidel test indicates no active oozing from the wound. Depigmentation occurred in the corresponding iris, and there was a penetrating hole. There was a strong suspicion that the FB had penetrated the cornea and iris and ruptured the anterior capsule of the lens. The anterior chamber was deep with cells, and the lens was hazy. The vitreous and fundus were normal during indirect ophthalmoscopic examination. Ultrasonography was

performed, which shows a well-defined, linear echogenic foreign body within the anterior chamber in the lens which cast significant posterior acoustic shadowing (Fig.1). The lens appears thickened suggestive of cataract formation. There was marked

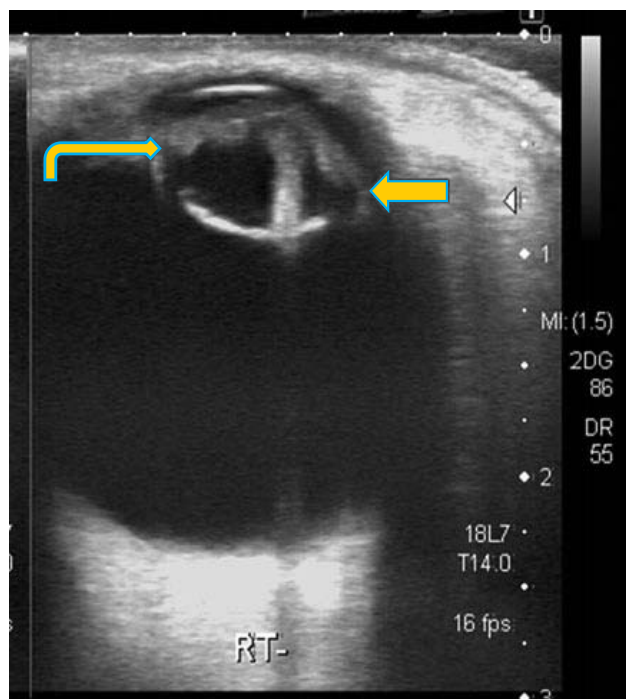


Figure 1: Ultrasound right eye shows linear echogenic foreign body (lead pencil tip) with significant posterior acoustic shadowing. (yellow arrow) Echogenic and thickened lens surface suggestive of cataract changes (curved arrow).

thickening of anterior chamber and visual acuity has been reduced to hand perception, however vitreous and posterior chamber appears intact. No evidence of vitreous/retinal detachment or hemorrhage identified. Intraocular pressure was 10 and 15 mmHg in the right and left eyes, respectively. The patient was taken to the operation theatre, and the intraoperative foreign body was removed with subsequent lensectomy and capsulectomy (Fig. 2). The intraocular lens (IOL) was implanted in the capsular bag. The patient was treated with topical antibiotics and steroids which completely calmed the inflammatory reaction. Intraocular pressure gets within normal limits with slow improvement in visual acuity. Two months postoperatively, right-eye visual acuity has improved to 20/25. Ultrasound eye was performed which showed no abnormality (Fig. 3).

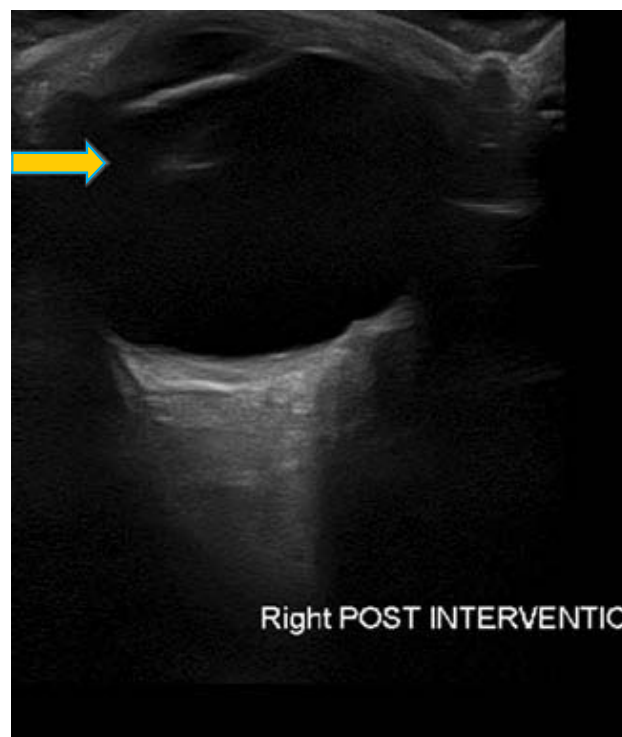


Figure 2: Post-operative ultrasound shows successful removal of foreign body followed by new intraocular lens placement.



Figure 3: Intraoperative image shows lead pencil nip in lens.

Discussion

Intralenticular foreign bodies represent approximately 10% of all intraocular foreign bodies.¹¹ Most common types of intralenticular foreign bodies include wood, metallic fragments, other substances such as lead which is rare but have been documented in the lens in one of the case reports.^{3,12,13} Other foreign bodies include glass, stone, eyelashes, and various types of vegetable matter.⁶ Management of ILFBs should include consideration of at least four major points:^{4,5,14}

- Whether to remove or simply observe the intralenticular foreign body
- Pre-operative planning and work-up
- Methods and surgical techniques for removal (including whether or not to remove the crystalline lens)
- Considerations for visual rehabilitation, including timing and placement of an intraocular lens

Not all ILFBs require surgical removal. There are case reports of no intervention without sequelae for many decades.^{8,11,15,16} Rarely, a small foreign body can perforate the cornea and the anterior lens capsule and become lodged within the lens. If the foreign body is not composed of a ferric or cupric material and the anterior lens capsule seals the perforation site, the foreign body may be retained within the lens without significant complication. Intralenticular foreign bodies may cause cataract formation in some cases but do not always lead to lens opacification. Additionally, suspected high-percentage (esp. >85%) copper should not be left in the eye due to the devastating effects of chalcosis. Vegetable matter causes significant inflammatory response and risk of endophthalmitis and should be removed from the eye.⁸

When the decision has been made to remove the foreign body, the surgeon should seek radiological investigation ie B scan or CT images with fine cuts to localize a suspected metallic foreign body and ruling out a posterior piece thereof to evaluate the extent of anatomic disruption caused by the ILFB in preparation for surgery. Some combination of pre-operative imaging will allow evaluation of the condition

of the posterior capsule and the possibility of posterior foreign body or injury. Intralenticular FBs comprise a small portion of intraocular FBs.^{4,1} The most common age at presentation is 30 years; nearly all patients are male(99/100); most FBs are metallic (65/100). The cornea is the most frequent FB entry site (80/100), although sclera (10/100) and limbus (2/100) were also reported. Seventy five% of patients were diagnosed at the time of injury, 20% had FBs that remained undetected for years (1.5 - 60 years), and few had no definite history of eye trauma.^{4,2} The time interval between injury and surgery differed widely, ranging from 2 days to 45 years. Intralenticular FBs comprise a small portion of intraocular FBs.¹⁷ Few of the patients did not receive operations because the FB did not cause any ocular complications and vision was unaffected. Taken together, these reports emphasize that intralenticular FBs might not cause significant ocular discomfort at the time of injury and, in some cases, can be tolerated for years without causing symptoms. The most common indication for surgery was cataracts. The nature of the cataracts varied greatly; some cases were total and some localized, and development was immediate or over several days or months. In other cases, the lens remained clear for >10 years. Other indications for surgery included anterior uveitis, glaucoma, lens subluxation, and ocular siderosis.^{17,13,18,19} When making decisions regarding surgery, factors including FB characteristics, infection possibility, ocular complications, associated injuries, and patient's personal considerations were all assessed. The best timing of operation in intralenticular FB differs in each condition. Arora et al. emphasize that the decision to remove intralenticular FB with cataract should be based on the degree of cataract; any complication, especially uveitis or glaucoma; and the patient's visual needs. A small intralenticular FB with capsular tear and a localized lenticular opacity may be left undisturbed and closely followed up for the development of any complication. In the event of the development of problems of free floating lens matter in the anterior chamber, uveitis, or raised intraocular pressure, surgical intervention should be undertaken.^{4,17}

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