

Decreased Vision Following Eye Trauma

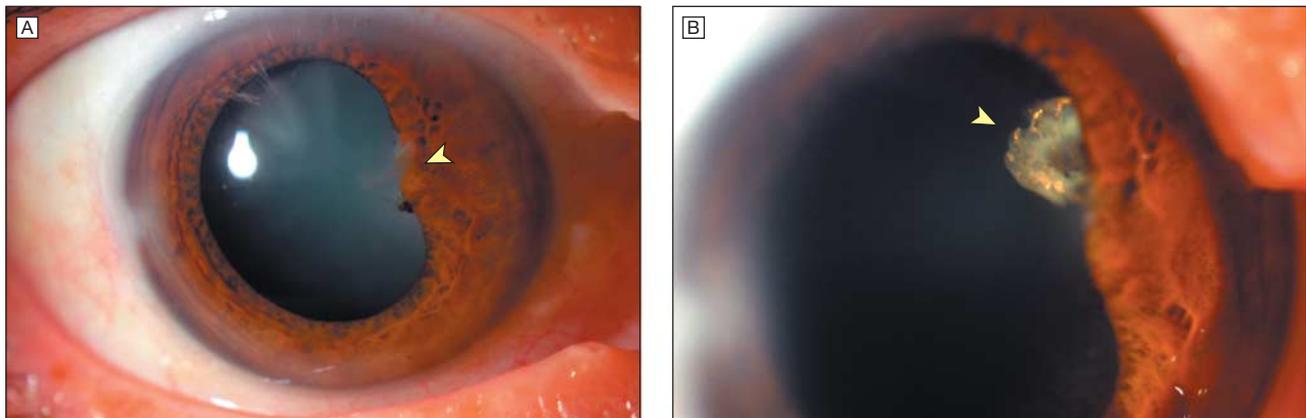


Figure 1. A, Slit-lamp image of the dilated right eye demonstrating iris synechiae underlying a faint, self-sealing full-thickness corneal wound (arrowhead) (original magnification $\times 1.0$). B, Slit-lamp image on adduction of the dilated right eye, revealing a golden, intraocular foreign body within the lens (arrowhead) (original magnification $\times 1.6$).

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A 52-YEAR-OLD MAN PRESENTED TO THE EMERGENCY DEPARTMENT (ED) FOR evaluation after several days of increasingly blurred vision in the right eye. Nine days earlier, while he was operating an asphalt reclamation machine, the patient reported the sensation of an object striking his right eye, but he had no acute pain or change in vision. He was not wearing eye protection at the time. One day after the trauma occurred, the patient visited his primary care physician and was prescribed topical antibiotics. His past medical and ophthalmological histories were unremarkable. On examination in the emergency department, the best corrected visual acuities were 20/100 in the right eye and 20/20 in the left eye. Dilated, slit-lamp examination of the right eye revealed a self-sealing, full-thickness corneal wound and an area of iris irregularity (iris synechiae formation) (FIGURE 1A), minimal anterior chamber inflammation, and early cataract formation. On adduction of the eye, a large, glistening, variegated intraocular foreign body was seen encased entirely in the crystalline lens (Figure 1B). There were no additional findings in the vitreous or retina on dilated examination, including no signs of endophthalmitis. Examination results of the left eye were unremarkable.

What Would You Do Next?

- Apply topical steroid drops and call ophthalmologist for ED consultation
- Continue to apply topical antibiotics and call ophthalmologist for ED consultation
- Do nothing but refer to ophthalmologist within the next day
- Obtain imaging (orbital computed tomography [CT]) and call ophthalmologist for ED consultation

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Diagnosis

Intraocular foreign body (intralenticular) associated with traumatic cataract

What to Do Next

D. Obtain orbital CT and call ophthalmologist for ED consultation.

The key clinical features in this case are the history of trauma and presence of a healed full-thickness corneal laceration on slit-lamp examination. These features indicate penetration of the globe, and an ophthalmologist should be consulted to perform a dilated eye examination. Timely imaging is indicated to exclude an intraocular foreign body (IOFB) or multiple IOFBs, because this diagnosis generally requires prompt surgical intervention.

Comment

Any patient who presents with a history of ocular trauma with findings suggestive of a full-thickness laceration (open globe) should undergo ophthalmic evaluation and imaging, preferably by high-resolution CT,¹ to exclude an IOFB that may not be visible clinically. The differential diagnosis of vision loss following eye trauma is broad and includes closed globe injury such as a corneal or conjunctival abrasion, nonintraocular foreign body such as a corneal or conjunctival foreign body, traumatic cataract from blunt force trauma or direct lens penetration, and inflammation or infection. Inflammation and infection may be associated with both open and closed globe injuries.

High-resolution orbital CT is preferred due to its superior sensitivity to localize potential IOFBs.¹ Furthermore, orbital CT can highlight the metallic character of an IOFB, which may be helpful in preoperative planning for surgical removal. Magnetic resonance imaging is contraindicated because movement of a metallic IOFB may induce further ocular injury. An IOFB may not be visible during clinical examination due to media opacities such as cataract and hemorrhage and due to its location. Retained IOFBs should be removed promptly, due to risk of en-

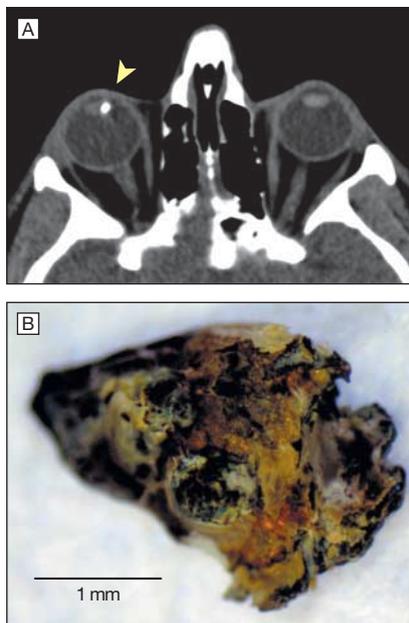


Figure 2. A, Orbital computed tomography image demonstrating a metallic-appearing foreign body lodged within the lens of the right eye (arrowhead). B, 3-mm intralenticular foreign body submitted as a gross pathological specimen.

dophthalmitis,² possible metallic retinal toxicity,³ risk for retinal detachment or proliferative vitreoretinopathy,⁴ inflammation, cataract, glaucoma, and permanent vision loss.⁵⁻⁸ For these reasons, prompt imaging and dilated eye examination by an ophthalmologist are crucial.

The patient reported a clear history of working with metal, operating machinery (implies high-speed injury), feeling an object strike the eye, and subsequent gradual vision loss. During his primary care visit, the patient's eye was not dilated and no images were obtained. Given the patient's history, orbital CT imaging ordered by the primary care physician (or ED physician) would be appropriate even prior to ophthalmology consultation. It would be premature to prescribe topical steroids or antibiotics for this patient without ophthalmology consultation. Prompt examination (same day) by an ophthalmologist is important to assess for other possible consequences of ocular trauma. In this case, the patient visited the ED at a separate institution due to worsening vision.

Orbital CT (FIGURE 2) revealed an intralenticular foreign body, confirming the diagnosis. Observation alone would not solve the problem: the traumatic cataract was causing progressive vision loss. Due to the potential toxicity of a large, nonsterile, metallic foreign body and visual impairment due to the associated traumatic cataract, foreign body removal, cataract extraction, and an intraocular lens implantation were performed 3 weeks after the initial injury.⁹ A 3-mm metallic foreign body was removed. The patient was treated with topical and subconjunctival antibiotics and steroids. Six weeks later, the best-corrected visual acuity improved to 20/20⁻³; no inflammation or infection was noted.

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