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Intralenticular foreign body: a case report

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Abstract

Background: To highlight the presentation, diagnosis, and management of a case of intralenticular foreign body.
Case report: A 51-year-old man with no known medical illness was referred for alleged metallic foreign body in the right eye while grinding a metal. Upon examination, visual acuity was 6/30 and 6/6 in the right and left eye, respectively. There was a self-sealed corneal laceration wound with an embedded metallic foreign body paracentrally at 5 o'clock, posterior synechiae, and traumatic cataract. Computed tomography of the orbit showed a hyperdense lesion in the lens. After removal of the foreign body, phacoemulsification with intraocular lens implantation, and corneal suturing, a postoperative computed tomography scan showed no signs of the hyperdense foreign body. The patient achieved a final best-corrected visual acuity of 6/7.5.
Conclusion: Penetrating eye injuries can lead to severe morbidity. Prompt diagnosis and early management, including imaging, are crucial in managing this type of injury.

Keywords: intralenticular foreign body, metallic foreign body, penetrating injury, traumatic cataract

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Badan asing intralentikular: laporan kes

Abstrak

Latar belakang: Untuk menekankan pembentangan, diagnosis dan pengurusan kes badan asing intralentikular.
Laporan kes: Seorang lelaki berumur 51 tahun tanpa penyakit perubatan yang diketahui, telah dirujuk kerana disyaki benda asing logam memasuki mata kanan semasa mengisar logam. Setelah pemeriksaan, ketajaman penglihatan adalah 6/30 dan 6/6 di mata kanan dan kiri, masing-masing. Terdapat luka laserasi kornea yang tertutup sendiri dengan bendasing logam tertanam secara para-pusat pada kedudukan jam 5, sinekia posterior, dan katarak trauma. Tomografi berkomputer orbit menunjukkan lesi hiperdensiti di dalam kanta. Selepas penyingkiran badan asing, fakoemulsifikasi dengan implantasi kanta intraokular, dan jahitan kornea dilakukan, imbasan tomografi berkomputer selepas pembedahan menunjukkan tiada tanda kehadiran badan asing hiperdensiti. Pesakit mencapai ketajaman penglihatan terbaik akhir sebanyak 6/7.5.
Kesimpulan: Kecederaan mata tertusuk boleh membawa kepada morbiditi yang teruk. bagi pesakit. Diagnosis segera dan pengurusan awal, termasuk pengimejan, adalah penting dalam menguruskan jenis kecederaan ini.

Introduction

Trauma can lead to a wide spectrum of injuries to the eye. Penetrating ocular injury with an intraocular foreign body can lead to significant morbidity and vision loss. Reported cases of intralenticular foreign bodies are rare.

Case report

A 51-year-old man with no known medical illness was referred by a primary clinic for alleged metallic foreign body entering the right eye while grinding metal 4 days prior. Upon examination, visual acuity was 6/30 in the right eye (pinhole 6/12) and 6/6 in the left eye. There was a self-sealed corneal laceration wound with an embedded metallic foreign body paracentrally at 5 o'clock in the right cornea. The anterior chamber was deep with cells of 2+. There was posterior synechiae formation with traumatic cataract (Fig. 1). Gonioscopy and fundus examination were unremarkable. B-scan did not show any hyperechoic lesions or loculation. An urgent computed tomography (CT) scan of the orbit showed a hyperdense lesion in the lens suggestive of intralenticular metallic foreign body.

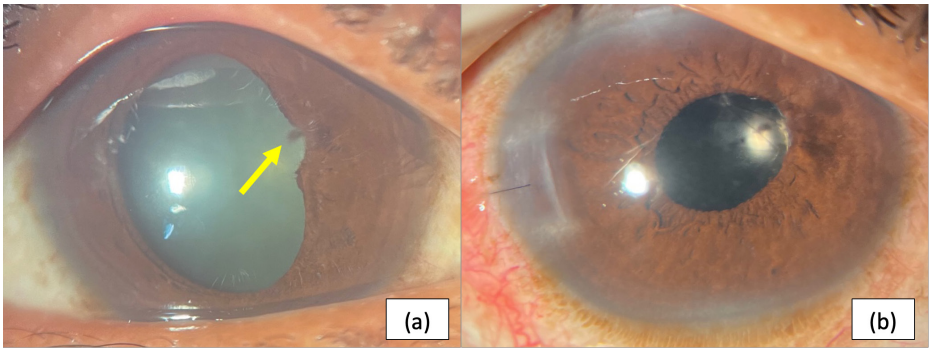

Fig. 1. (a) Preoperative anterior segment photo showing a self-sealed corneal laceration wound with embedded metallic foreign body, with posterior synechiae formation seen upon dilatation. *(b)* Postoperative anterior segment photo showing a round pupil and absence cornea foreign body was being removed.

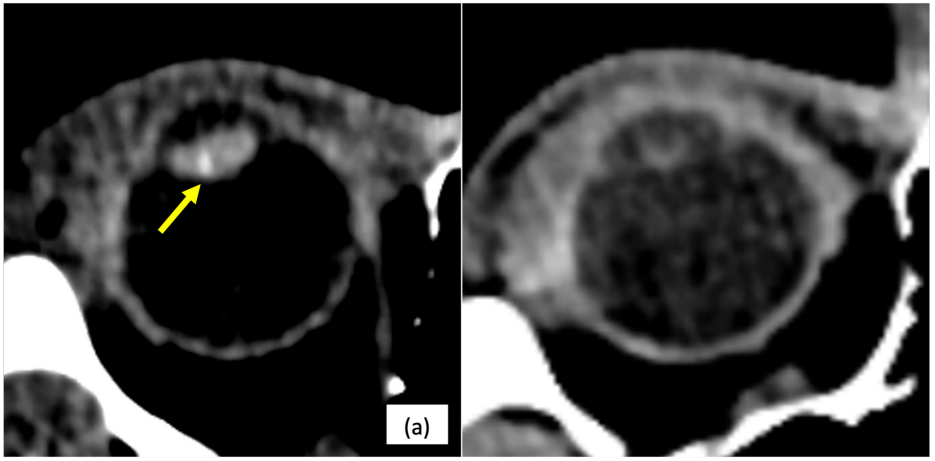

Fig. 2. (a) Preoeprative CT of the orbit showing a small hyperdense focus in keeping with an intralenticular foreign body. *(b)* Postoperative CT showing pseudophakia with no residual foreign body.

The patient underwent removal of the intralenticular and corneal foreign body followed by phacoemulsification with intraocular lens implantation and corneal suturing. A postoperative CT scan did not show any signs of the hyperdense foreign body. Four months post-surgery, the patient achieved good visual outcome with a final best-corrected visual acuity of 6/7.5 and refraction of +0.25/-1.25 x 180 in the right eye.

Discussion

Intralenticular foreign bodies are rare, accounting for approximately 7%–10% of all intraocular foreign body cases.[1] In a literature review, Lin *et al.* reported that intralenticular foreign body cases occured predominantly in males (96.4%), with the cornea being the most common entry site (85.7%). This is exactly our case, that of a male patient with the cornea as the entry site. In addition to the cornea, other entry sites for intralenticular foreign bodies are the sclera (7.1%) and the limbus (3.5%).[2]

The possible complications arising from intralenticular foreign bodies depend on the material, size, location where the foreign body is embedded, and other intraocular damage.[3] Complications may include cataract, glaucoma, uveitis, endophthalmitis, and intralenticular metallosis.[4]

Regarding materials, in the cases of iron-containing intralenticular foreign bodies, the sight-threatening complication is development of sideroris bulbi. It can present as iris heterochromia, anterior subcapsular cataract, secondary glaucoma, clumping of the retinal pigment epithelium, or retinal detachment.[5] Copper intralenticular foreign bodies have been reported to reduce the potential of toxicity to other ocular structures by inducing the formation of a fibrous capsule. However, severe ocular inflammation may still occur even if encapsulation does not occur. Other presentations of chalcalosis reported include Kayser-Fleischer ring, sunflower cataract, chorioretinal atrophy, focal pigmentary changes in the fundus, and endophthalmitis.[5-7] Bacterial or fungal infection are highly likely to occur if the foreign body is comprised of organic matter.[8]

In most reported cases, intralenticular foreign bodies were detected by slit-lamp examination (82.1%), although is some cases they were detected only via B-scan ultrasonography, CT scan, or even after surgery (17.9%).[2] Our patient presented with penetrating corneal wound, anterior uveitis, posterior synechiae with zonal cortical cataract formed from the side of the wound, suggesting foreign body. Although it could not be identified from B-scan ultrasonography, the CT scan was a crucial tool to localize and visualize the foreign body.[9]

The size of the intralenticular foreign body is one of the factors determining appropriate management. Small metallic foreign bodies that do not affect the visual axis, with no cataract formation, or any other intraocular damage may be observed after initial treatment with topical steroids. Medium to large metallic foreign bodies in the lens should be removed as soon as possible, as the risk of complications is much higher.[10] Conservative management is one of the options if none of the complications mentioned arises.[3] However, if there is any sign of ocular compromise, early surgical intervention is recommended to ensure good visual outcome and prevent long-term damage.[6]

About the surgical procedure in the presence of intralenticular foreign body, Arora *et al.* suggested a manually controlled removal of the foreign body under

visualization was favored. On top of that Arora *et al.* also suggested the use of Kelman-Mcpherson forceps for removal was found to be safer than the traditionally used magnets.[8] Keeny AH *et al.* highlighted extra precaution must be taken during removal of intralenticular foreign body without enlarging either the corneal or capsular wounds.[10] Lin *et al.* reported a total of 28 cases of intralenticular foreign body undergoing combined operations which include removal of foreign body, lens extraction, and intraocular lens implantation. The lens extraction method is chosen depending on the patient's age and density of the lens. If the lens is soft or the patient is young, lens aspiration/phaco-aspiration is performed, whereas lens expression/phacoemulsification is preferable for older patients with hard lenses.[2]

In our case, there was anterior uveitis and localized lenticular opacity affecting the patient's vision. Hence, early surgical intervention combining removal of the corneal and intralenticular foreign body, corneal suturing, lens aspiration and intraocular lens implantation was performed to prevent acute complications and long-term damage and to provide a good final visual outcome.

Conclusion

Workplace injuries, especially penetrating ocular injuries, can be devastating and lead to severe morbidity for the patient. Prompt diagnosis and early management, including imaging, are crucial in managing this type of injury.

Declarations

Informed consent for publication
The patient provided written informed consent for the publication of the clinical data and images contained in this report.

Competing interests
None to declare.

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None to declare.

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None to declare.

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