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INTRAOCULAR FOREIGN BODY-A CASE REPORT

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ABSTRACT
Intraocular foreign bodies are found most commonly in young adult males as a consequence of work accidents. This case illustrates the stereotypical history for a metallic IOFB-a young male who is hammering stone and feels something strike the eye. Based on the history alone, the possibility of an IOFB should be thoroughly investigated, or the diagnosis can easily be missed due to the sometimes underwhelming external clinical appearance.

INTRODUCTION

An intraocular foreign body (IOFB) is any material, organic or inorganic, which penetrates into the ocular tissue. Intraocular foreign bodies are important because they may result in poor vision and even loss of the eye. The complications of intraocular foreign bodies make it a grave ophthalmic emergency [1]. The foreign bodies may be classified as metallic or nonmetallic, with the metallic being divided into magnetic and nonmagnetic. They are also classified into toxic and nontoxic [2].

A good history and ocular examination are still the most important in the diagnosis of intraocular foreign bodies [3]. Radiological investigations such as plain X rays including the limbal ring sutured to the limbus, ocular ultrasonography, computed tomography and magnetic resonance imagery can be used in the localization of intraocular foreign bodies [4]. Most intraocular foreign bodies are found in young adult males as a consequence of work accidents. Clinical features associated with better visual acuity outcomes include better presenting visual acuity, absence of clinical endophthalmitis, culture of a nonvirulent organism, lack of retinal detachment, shorter wound length, the size and type of the foreign body, minimal involvement of other intraocular structures and the timing of surgery [5, 6].

CASE REPORT

A 40 year old male presented to us in April 2015 with a history of trauma to left eye four days back while working with hammer and chisel resulting in severe pain, tearing and diminution of vision.

On examination visual acuity was hand movement perception in left eye and 6/6 in right eye. Intra ocular tension measured digitally was markedly decreased in left eye. There was subconjunctival hemorrhage and scleral tear of approx 5 mm length was present at about the 12 o clock position 2-3 mm from limbus. Pupil was mid dilated and fixed. On slit lamp examination there was mild flare in anterior chamber. Anterior chamber was shallow. On direct ophthalmoscopy fundal glow was poor and fundus detail could not be seen. X-ray orbit revealed a foreign body in orbit (fig. 1), which was confirmed to be in vitreous on USG B scan along with vitreous hemorrhage. The right eye was normal on examination. Routine blood investigations (CBC,BT,CT,urin sugar and albumin) were within normal limits.

He was subsequently posted for IOFB removal and scleral tear repair (fig. 2). On OT table full thickness scleral tear was revealed. IOFB was removed with hand held magnet through injury site and Injury repaired with 8-

0 silk suture. Intravitreal antibiotic (vancomycin, amikacin) was given. Size of F.B. was 2*4 mm (fig. 3).

On the first post operative day visual acuity in left eye was hand movement perception. There was mild keratitis on slit lamp examination and fundal glow was poor due to vitreous haemorrhage (fig. 4). Patient was given intravenous antibiotic (cefotaxime and amikacin), oral steroid (prednisolone 60 mg in tapered dose), topical antibiotic steroid combination (E/D tobramycin and dexamethasone 2 hourly), pupil dilator (e/d cyclopentolate) and IOP lowering agent (e/d timolol).

After 15 days on first follow up visual acuity was 3/60. Cornea and anterior chamber were clear, suture line healthy and vitreous haemorrhage somewhat resolved (fig. 5). On second follow up after 35 days visual acuity was 6/18 in left eye (fig. 6).

Fig 1. X-Ray Orbit AP And Lateral View Showing Intraocular Foreign Body

Fig 2. Intraoperative Picture Showing Scleral Tear and IOFB Attached To Handheld Magnet

Fig 3. Magnetic IOFB After Removal

Fig 4. Photograph of the Patient on Post Operative Day 1

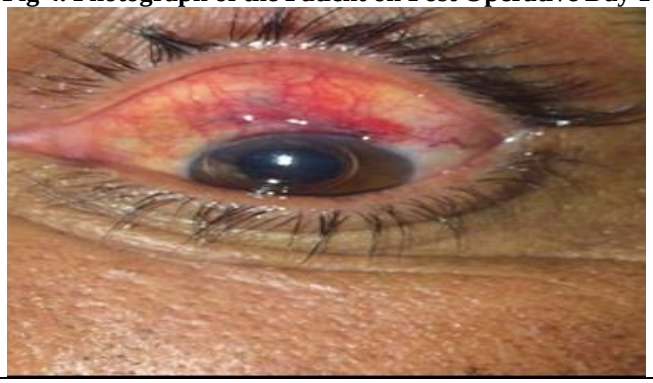

Fig 5. First Follow Up Photograph of the Patient after 15 Days

Fig 6. Second Follow Up Photograph of the Patient after 1 Month

DISCUSSION

This case illustrates the stereotypical history for a metallic IOFB-a young male who is hammering or chiseling stone and feels something strike the eye. Based on the history alone, the possibility of an IOFB should be thoroughly investigated, or the diagnosis can easily be missed due to the sometimes underwhelming external clinical appearance.

The intraocular foreign body in this report occurred as an occupational hazard. The patient was

working with hammer and chisel and was not wearing any eye protective device, neither was any provided by his employer. Such occupational hazards resulting in intraocular foreign bodies have been noted to occur most commonly in young adult males [7, 8]. In this study the patient affected is a 40 years old male. This is because most occupations in which people are exposed to injury are male dominated. It may also be related to greater activity in this group and hence greater exposure to the risk of injury.

Treatment depends on the location and scope of the injury but usually involves emergent removal of the IOFB with repair of any damaged structures. This may involve an anterior approach if the IOFB is located in the anterior chamber and may include corneal laceration repair, lensectomy, and/or anterior vitrectomy. A very careful retinal examination must be performed to identify an IOFB, the impact site of the IOFB, the presence of multiple IOFBs, and any other retinal damage including tears or detachments that may have occurred. If visualization of the retina is not possible due to a cataract or vitreous hemorrhage, imaging via a CT of the orbits or ultrasound of the globe is essential to evaluate for an IOFB. If the posterior segment is involved, a pars plana approach is utilized. The IOFB can be removed (if metallic) using an external or internal magnet or forceps. Typically, a pars plana vitrectomy is also performed. If a retinal tear or detachment is identified it is often repaired at the time of IOFB removal. If the IOFB is organic, or if the injury occurs in a rural setting, one may choose to culture the vitreous and IOFB and inject intravitreal antibiotics at the time of surgery as well [9].

Complications: One of the most common complications of an IOFB is a retinal detachment (14-26%). Other complications include: endophthalmitis (4-6%), corneal scar, cataract, angle recession glaucoma, vitreous hemorrhage, retained IOFB, blind/painful eye, and sympathetic ophthalmia [9].

Prognostic factors: Patients with smaller wound lengths (under 2mm), IOFBs that are located in the anterior segment only, and those with a normal lens at presentation have the best prognosis. Negative prognostic factors include a longer wound length (greater than 3.5mm), posterior segment IOFB, poor initial visual acuity, and the presence of complications arising from IOFB (retinal detachment, endophthalmitis) [10].

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CONFLICTS OF INTEREST:

On behalf of all authors, the corresponding author states that there is no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS:

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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