

Case report:

Glass particle in anterior chamber: An unusual intraocular foreign body observed to have remained quiet for over 3 years

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Abstract:

Ocular trauma is an important cause of vision loss. An intraocular foreign body (IOFB) following ocular trauma may traumatize the eye mechanically, introduce infection or exert other toxic effects on the intraocular structures. We present a case of ocular trauma after blast injury, from a broken glass shield, with no PL vision, which was treated with repair of the corneal rupture with 10-0 MFN sutures along with aspiration of the cataractous lens 3 years back. A glass particle remained in the anterior chamber, which was observed during the post operative examination. The glass particle was kept under observation instead of an unnecessary second intervention for removal, as the patient had no PL vision due to traumatic optic neuropathy. The follow up was done for over a period of 3 years since then and the glass particle continued to remain inert and did not induce any form of reaction in the anterior chamber at any point of time. This observation helped us conclude that glass is indeed an inert material for the eye, a conclusion which can help design various prosthesis in the future of ophthalmology.

Keywords: Glass, injury, trauma, foreign body

Introduction:

Ocular trauma is a leading cause of blindness. [1] The causative agents implicated in such cases are variable and related to the occupation and daily activities of the person. While there have been reports of blinding ocular trauma caused by common objects like wood pieces, pencil, firecrackers, there also have been reports of such trauma, caused by unusual objects like horse hoof, [2] paintball pellets [3] and grease from high hydraulic machinery. [4]

We present an unusual case of a glass particle in the anterior chamber of a patient which was

observed for a period of 3 years and it was found to have induced no foreign body reaction unlike most other foreign bodies, confirming its inert nature as an intraocular foreign body.

Case Report:

An 18 year-old male patient had presented to our OPD 3 years back, as a case of corneal rupture with traumatic cataract with subluxation and cortical matter in the anterior chamber. He was treated on an emergency basis with aspiration of the cortical matter and repair of the corneal rupture with 10-0 MFN sutures. During the post operative evaluations, it was observed that the patient had a small

particle of glass left in his anterior chamber which had not been removed. The visual acuity of the patient was no PL and the patient was found to have developed traumatic optic neuropathy due to the injury which was confirmed by VEP. The glass intra-ocular foreign body was thus not perturbed assuming glass to be an inert foreign body for the eye and the patient was put on regular follow-up in order to ensure quick action in case any reaction to the glass particle was observed.

The patient was followed at weekly, then monthly and then 3 monthly intervals for the last 3 years and it was found that the patient's eye remained quiet to the presence of the glass particle in the eye and there was no evidence of any reaction to the glass particle in any follow-up in the entire period.



Fig 1: Post Operative 6 months

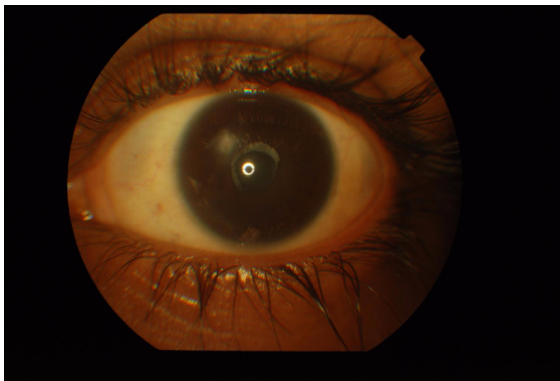


Fig 2: Post operative 1 year

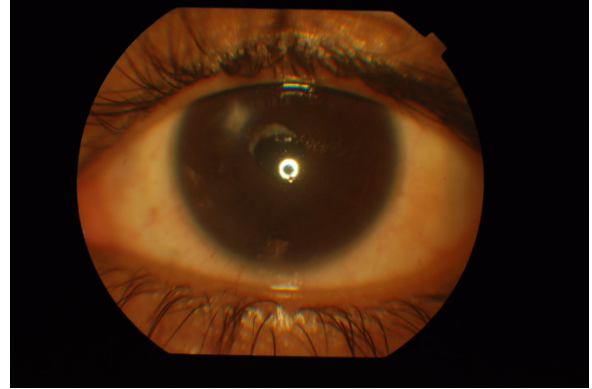


Fig 3: Post operative 2 years



Fig 4: Fig 2: Post operative 3 years



Fig 5: The Patient

Discussion:

Ocular trauma is an important cause of vision loss. An intraocular foreign body (IOFB) following ocular trauma may traumatize the eye mechanically, introduce infection or exert other toxic effects on the intraocular structures. Once in the eye, the foreign body may lodge in any of the

structures it encounters; thus it may be located anywhere from the anterior chamber to the retina and choroid. Stone and organic foreign bodies are associated with a higher rate of infection, and this is particularly high with soil-contaminated or vegetable matter, when prophylaxis with intravitreal antibiotics is required. Many substances including glass, many plastics, gold and silver are inert and a decision to remove them should be based on factors like site of impingement, size of the foreign body, potential of secondary injuries and hemostasis.[5] The physical characteristics of the foreign body like mass and shape are also of prognostic importance. Woodcock *et al.*[6] from UK had found that foreign bodies of greater mass were associated with worse visual outcome.

Glass IOFBs comprise 6–9% of all IOFB injuries[7]. They pose a specific challenge to the ophthalmologist, as there are pros and cons to surgical management. Glass is typically inert, and therefore will cause virtually no long-term inflammatory damage if retained. A retrospective study by Gopal *et al* [9] showed no adverse events

in eight of eight eyes where glass IOFBs were left intact. In the same study, 13/43 eyes that underwent surgical removal of the glass IOFBs experienced iatrogenic retinal breaks. Another review by Milkowski *et al* [10] also revealed no complications with glass IOFBs left intact, even with close proximity to the optic nerve and retina.

On the other hand, complex cases with multiple glass IOFBs may yield different outcomes if not surgically removed. Mechanical complications from retained glass IOFBs can develop. Sharp edges, when moving posterior to anterior, have been reported to cause cataract, corneal oedema, and iridocyclitis. [10] In addition, anterior to posterior migration can cause retinal laceration as well as trauma to the macula and subsequent visual impairment. [8]

Thus we would conclude from our case that the decision to remove a glass foreign body or go for a close follow-up is decided by the interplay of various factors the ophthalmologist needs to consider and at times, as was the case in our patient, close follow-up proves to be a good choice.

References

1. Chen KC, Yang CS, Hsieh MC, Tsai HY, Lee FL, Hsu WM. Successful management of double penetrating ocular trauma with retinal detachment and traumatic endophthalmitis in a child. *J Chin Med Assoc.* 2008;71:159–62.
2. Islam S, Walton GM, Dean F, Hoffman GR. Multidisciplinary management of complicated orbital injury inflicted by a horse. *Ophthal Plast Reconstr Surg.* 2007;23:486–8.
3. Mason JO, 3rd, Feist RM, White MF., Jr Ocular trauma from paintball-pellet war games. *South Med J.* 2002;95:218–22.
4. Wang Y, Lu X, Xiao L. Delayed presentation of grease-gun injury to the orbit. *Ophthal Plast Reconstr Surg.* 2008;24:154–6.
5. Salam A, Varma D, Innes JR. An unusual presentation of a retained orbital foreign body. *CME J Ophthalmol.* 2005;8:11–2.
6. Woodcock MG, Scott RA, Huntbach J, Kirkby GR. Mass and shape as factors in intraocular foreign body injuries. *Ophthalmology.* 2006;113:2262–9.
7. Ghoraba H. Posterior segment glass intraocular foreign bodies following car accident or explosion. *Graefe's Arch Clin Exp Ophthalmol.* 2002;240:524–528.

8. Ray S, Friberg T, Beatty R, Loewenstein J. Late posterior migration of glass intraocular foreign bodies. *Arch Ophthalmol.* 2004;122:923–926.
9. Gopal L, Banker AS, Deb N, Badrinath SS, Sharma T, Parikh SN, et al. Management of glass intraocular foreign bodies. *Retina.* 1998;18 (3:213–220.
10. Milkowski S. Rare case of spontaneous migration of intraocular glass foreign body 21 years after injury. *Wiad Lek.* 1978;31 (15:1065–1069.