



CLINICAL EVALUATION OF POSTERIOR SEGMENT INTRAOCULAR FOREIGN BODIES – A RETROSPECTIVE STUDY

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ABSTRACT

Purpose:

To study and analyze the characteristics of intra ocular foreign body (IOFB) in posterior segment after ocular trauma.

Design:

Retrospective study

Material and methods:

A retrospective chart review was performed for 58 patients with posterior segment intraocular foreign bodies between December 2001 to February -2003 (14 months).

Exclusion criteria: Anterior segment intraocular foreign bodies.

Results:

58 patients were studied blunt trauma seen 18 cases and 40 cases had open globe injuries with corneal injuries in 30 cases, cornea scleral injuries in 3 cases and scleral injuries cases. Most of the patients were male (57), with majority of the patients in 20-30 years age group (40 cases). Occupation related (Welding work) Metal on metal injury being common (42 cases). The time interval between injury and IOFB removal was around 1 month because of delaying presentation to the tertiary eye care institute. The size of the foreign body ranged from 3mm to 8mm. traumatic cataract was found in 10 cases, vitreous hemorrhages 15 cases, retinal detachments 19 cases. IOFB was diagnosed by plain X-Ray and CT scan, nonmetallic foreign bodies diagnosed by ultrasound.

IOFB in the lens seen in 2 cases in the vitreous (4cases) double perforation (1), 51 cases on the retina.

Pars plana vitrectomy (PPV) was performed in 5 cases, Pars plana vitrectomy and Pars plana lensectomy (PPL) done 10 cases, Scleral buckling PPL+PPV+SOI performed in 19 cases. Endophthalmitis at presentation seen in 1 case, siderosis bulbi in 3 cases.

Conclusions:

Open globe injuries with posterior segment IOFB have a gradual visual prognosis. Most cases were work related, increased awareness of the importance of eye protection can help minimize the occurrence of these injuries.

KEYWORDS : .Posterior segment, IOFB, Metal.

Introduction:

Open globe injuries^{1,2} important cause of visual morbidity, especially in teenagers or young adults. The presentation, outcome and prognosis of injuries with intraocular foreign bodies are variable. The location and damage cause by an IOFB will depends on several factors including the size, shape and composition of the object as well as the momentum of the object at time of impact. Usually an IOFB causes less acute damage in comparison to blunt trauma, however, large irregular IOFBs may cause significant initial damage. Subsequent damage depends on the context of the IOFB. Inert substances such as glass, stone, and plastic are better tolerated than metals that oxidize such as copper or iron. Metallic (Figure- 1-3) and magnetic IOFBs are the most common. Organic material such as vegetable matter, cilia causes severe tissue reaction and may lead to endophthalmitis of the penetrating injuries 18-40% have at least one IOFB. Most common age group affected by IOFB injuries is middle age (20-40 years).

The extent of the primary damage occurring at the time of the initial injury remains the limiting factor for visual outcome. Increased awareness and advanced surgical techniques have substantially improved the outcome and the prognosis for these potentially devastating injuries. The aim of this study is to analyze the characteristics of intra ocular foreign body (IOFB) in posterior segment after ocular trauma.

Material and methods:

The patients diagnosed as having IOFBs at the tertiary care hospitals were identified between December 2001 to February -2003 (14 months). Those Anterior segment intraocular foreign bodies were excluded. Demographic data comprised age, gender, mechanism of injury, ocular features, pre visual acuity, nature of foreign bodies. All patients with leaking wound underwent primary globe repair, patients with a self-sealing wound had PPV carried out. Lensectomy was done in cases of traumatic cataracts. FB's were extracted through enlarged

sclerotomy or limbal incision using intraocular forceps with or without the assistance of an external magnet. Any injured retinal areas, including detached retina were secured by cryoretinopexy, and intraocular temponade by silicone oil (SOI).

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Discussion:

IOFB is a serious problem in a young, working age population. in accordance with previous reports,³ this study showed that the majority of patients (90.%) were male. In incidence of IOFBs was significantly higher in the workplace than in the community. This study found that (90%) of the patients had work-related injury^{4,5,6}. Metal, associated with hammering or chiseling was the most common nature of IOFB's which

is similar to other studies³. Poor presenting visual acuity has been reported as an important predictive factor for poor visual outcomes. The risk of endophthalmitis decreases with early IOFBs removal. Delayed IOFBs removal was also appropriate when a primary wound was repaired promptly, with broad spectrum antibiotic administration. The time of IOFB's removal in this study was around 1 month which is comparable to other studies.

Limitations of this study were a retrospective nature, varied data documentation, small number of patients.

Conclusions:

Open globe injuries with posterior segment IOFB have a gradual visual prognosis. Most cases were work related, increased awareness of the importance of eye protection can help minimize the occurrence of these injuries.

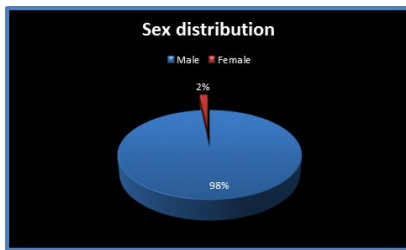
Observations:

Total number of patients in the study: 58

1. Sex distribution:

No of patients	58
Male	57
Female	1

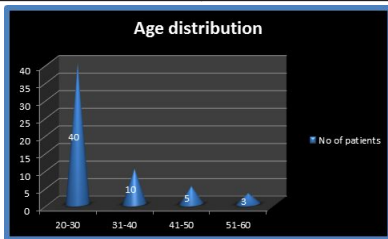
Males more commonly affected.



2. Age distribution:

Total number of patients in the study: 58

Years	No of patients
20-30	40
31-40	10
41-50	5
51-60	3



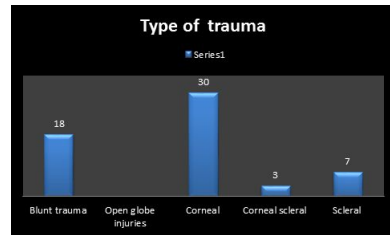
3. Nature of injury : (Figures- 1-3)

Metal on wood	1
Metal on metal	42
Metal on stone	10
Glass injury	3
Stone	1
Bullet	1
Total	58



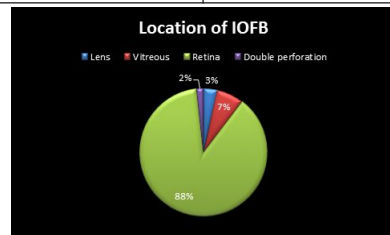
4. Type of trauma :

Blunt trauma	18
Open globe injuries	
Corneal	30
Corneal scleral	3
Scleral	7
Total	58



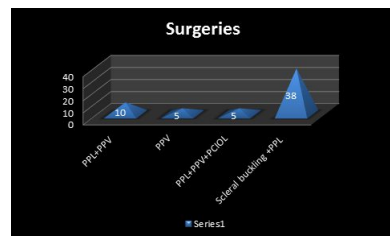
5. Location of IOFB :

Lens	2
Vitreous	4
Retina	51
Double perforation	1
Total	58



6. Surgeries:

PPL+PPV	10
PPV	5
PPL+PPV+PCIOL	5
Scleral buckling +PPL	38
Total	58



Metallic intraocular foreign bodies (Figures-1-3)

Figure-1



Figure-2



Figure-3



CT SCAN SHOWING INTRAOCULAR FOREIGN BODY
(Figures 4 - 6)



Figure-4



Figure-5

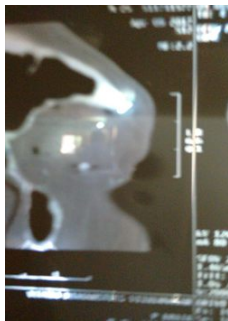


Figure-6

Acknowledgements :

Patients of Sarojini Devi Eye Hospital, Hyderabad.
C.Shiva Kumar, Computer Operator, Sarojini Devi Eye Hospital,
Hyderabad.

References:

1. Posterior segment intraocular foreign bodies: A 10- year review, Lekha K Mukkaamala, MD, Nishant Soni, MD, Marco A Zarbin, MB, Ph D, Paul D, Langer, MD, Paul D. Langer, MD, Neelakshi Bhagat, MD, MPH., Research in vision and ophthalmology annual meeting, may-1-5, 2016, Seattle, Washington.
2. Intraocular foreign bodies (IOFB) Dr.Jay Chhablani, Sami Kamjoo, MD, Peter A Karth, MD, Peter A, Karth, MD on October 17, 2015.
3. Predictive factors and outcomes of posterior segment intraocular foreign bodies, J Choovuthaykorn, L Hansapinyo, N Ittpunkul, D Patikulasila and P Kunavisarut, Department of Ophthalmology, Faculty of medicine Chiang Mai University, Chiang Mai, Thailand. 28, July, 2011; Published online: 17 September 2011.
4. Posterior segment intraocular foreign bodies: An update on management, Risks of infection, scarring and vision loss are among the many concerns to address., April 1, 2009.
5. Current trends in the management of intraocular foreign bodies : Curr Opin Ophthalmol, 2008 May; 19(3): 225-33.
6. Szijarto Z, Gaal V, Kovacs B, Kuhn F. Prognosis of penetrating eye injuries with posterior segment intraocular foreign body. Greefes Arch Clin Exp Ophthalmol 2008; 246(1): 161-165. Pubmed. ISI.
7. Dermircan N, Soyulu M, Yagmur M, Akkaya H, Ozcan A, Varili I. Pars plana vitrectomy in ocular injury with intraocular foreign body. J Truama 2005; 59(5): 1216-1218.
8. Ehlers J, Kunimoto D, Ittoop S, Maguire J, Ho A, Regillo C. Metallic intraocular foreign bodies : Characteristics, interventions, and prognostic factors for visual outcome and globe survival. Am J Ophthalmol 2008; 146(3): 427-433.
9. Soheilian M, Abolhasani A, Ahmadieh H, Azarmina M, Dehgan MH, Mashavekhi A et al. Management of magnetic intravitreal foreign bodies in 71 eyes. Ophthalmic Surg Lasers Imaging 2004; 35(5): 372-378. Pubmed, ISI.
10. Warrasak S, Euswas A, Hongsakorn S. Posterior segment trauma: Types of injuries, results of vitreo-retinal surgery and prophylactic broad encircling scleral buckle. J med assoc thai 2005; 88(12): 1916-1930. Pubmed.