Original Article

Demographic Characteristics of Cases with IOFB Presenting to a Tertiary Care Centre

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Purpose: To determine the demographic characteristics of IOFB presenting to a tertiary care centre of Khyber Pakhtunkhwa for management.

Material and Methods: The study was carried out at Department of Ophthalmology, Govt. Lady Reading Hospital, Peshawar from July 2011 to Jan 2013. We received 37 cases from outdoor department for management and were admitted for management. Patients were examined after detailed history and important findings noted. Data was collected on special proforma and was analyzed with the help of SPSS Version16.

Results: The study population comprised of 37 cases. Male were 26 (70.2%). . Mean age was 33 ± 12 years. Hammering a chisel was the main cause and it was seen in 15 (40.5%) cases. Labor was the commonest occupation which was seen in 18 (48.6%) cases. No perception of light vision was noted in 11 (29.7%) cases and 09 (24.32 %) cases presented with Perception of light vision. Counting finger or better vision was noted in 17 (46%) cases. Left eye was affected in 25 (67.6%) cases.

Conclusion: Duration of trauma was linearly proportion with prognosis for vision. Visual progression was poor in majority of the eyes; delayed presentation and BBI were the top reasons.

Key words: IOFB, ocular trauma, visual outcome.

In certain parts of the world, trauma is one of the most common causes of visual morbidity and ocular problems especially when associated with IOFB.[1] Its incidence is on the rise due to increase use of weapons and wars especially in our part of the world.[2] Traumas whether blunt or penetrating results in series of ocular structure damage which at times becomes irreversible and may result in blindness. Penetrating trauma is even more dangerous because it gives rise to numerous ocular complications like endophthalmitis, vitreous hemorrhage, retinal detachment, optic nerve damage, mainly due to penetration of intraocular foreign body (IOFB).[3] There are various reasons, why a foreign body (FB) gets entry into the body. In our part of the world, bomb blast injuries, working while chiseling or hammering and accidental entry of stones etc are the most common reasons for IOFB.[4,5]

There are different types of IOFB, metal, wood, stone, plastic and even hair can enter the globe and cause serious damage. Every IOFB can cause complications.[6]

Timely repair of the defect, removal of IOFB and treatment of complications of IOFB are the key factors on which prognosis for vision depends along with type of IOFB.[7]

Different techniques are available to detect IOFB. The most important step in detecting the characteristics of IOFB is proper history and examination of globe. In most of the time history is diagnostic and will give us the clue for presence of IOFB. Occupation, age, gender, area of accident, all give valuable information about the different characteristics of IOFB like nature, location, size, shape and even prognosis about vision.[8]

Imaging plays a vital role in the management of IOFB. Ultrasound and B – scan is a simple and easy diagnostic test which not only detects the presence of IOFB but also gives us the exact size, nature and location of IOFB. It gives information about complication of FB as well as vitreous hemorrhage, retinal detachment and globe integrity. CT scan is particularly useful for detection of metallic and small FBs.[9] X-ray orbit will give a rough idea about detection of IOFB. MRI should be avoided especially when there are clues in favor of magnetic IOFB.

Most of the victims are male and young patients working on fields which are exposed because of their occupations. In this regard, lack of awareness regarding protective goggles and early referral to eye specialist for urgent management is lacking.[10,11]

Causes of IOFB are also important. Metals, infected foreign bodies and organic foreign bodies have worse progressive. BBI victims have multiple injuries and complicated trauma and are especially the risk group.[4]

Every penetrating trauma patient should be properly managed. The most important step is to take proper history and detailed clinical examination of the globe so that the presence of any IOFB should be excluded. Neglected IOFB which are left undetected in the globe results in disastrous complications and even loss of whole eye and represent a challenge to the ophthalmologist.[12]

The aim of the study is to give data about demographic features of the patients who suffer from IOFB in open globe injuries to highlight the importance of proper assessment of penetrating trauma so that any IOFB if detected should be managed on time.

MATERIAL AND METHODS

The study was carried out at Department of Ophthalmology, Govt. Lady Reading Hospital, Peshawar from July 2011 to Jan 2013. We received 37 cases from outdoor department and were admitted for management. This was a prospective, Interventional case series of consecutive patients with IOFBs. Patients were examined after detailed history and important findings noted. Patients were recalled for a comprehensive examination. The following variables were recorded for the purpose of the study: age, gender, cause of trauma, occupation, complications, presenting best – corrected visual acuity (BCVA), slit lamp and fundus examination, ultrasound examination when ophthalmoscopy was not possible, foreign body localization based on orbital CT scan, size, site, and type of the foreign body, consequences of retained IOFB including complications, time interval since injury, details were recorded. All patients underwent surgical removal of the IOFB. Final visual acuity at 6 month follow up visit was noted. Data was collected on special proforma and was analyzed with the help of SPSS Version 16. Non probability consecutive sampling technique was used. Patients were enrolled during the study period.

Inclusion criteria: patients with history of intraocular foreign body. Patients with history of ocular disease especially diabetic retinopathy, high myopia, past ocular surgery and bleeding disorders were excluded as these factors can introduce bias in the study results.

RESULTS

We evaluated thirty seven cases of intraocular foreign body admitted with us from January 2012 to July 2013.

For ease of description we divided the age of the patients into three groups in years (Table 1). Age ranged from five years to sixty three years. Age was divided and in first group age ranged from five to twenty years. In the second group it is ranging from twenty one to forty years and in the third group from forty one to sixty three years. Majority of the patients belonged to second group and there were 21 (56.7%) patients in group one, 7 (19%) patients in group two and 10 (27.02%) patients in group three. Mean age was 33 ± 12 years. So majority of our patients were young who spent life in outside environment.

26 (70.2%) patients were male and only 11 (29.8%) were female (Table 2).

Different causes of the IOFB were determined. Hammering a chisel was the main cause and it was seen in 15 (40.5%) cases. Bomb blast injury was seen in 13 (35.1%) patients and sports or accidents were seen in 4 (10.8%), while other causes reported unknown by the patients were 5 (13.5%) cases (Table 3).

Different people involve in different sort of occupations who get IOFB Labor was the commonest occupation which was seen in 18 (48.6%) cases. sports and defense related people were seen in 11 (29.7%), students and children in 5 (13.5%) and others / accidental cases were only 3 (8.1%) (Table 4).

Table 1: Age distribution (n = 37).

Age	No. of Patients n (%)
5 - 20 years	07 (19)
21 - 40 years	21 (56.7)
41 above	10 (27.02)
Total	37 (100)

Table 2: Gender distribution (n = 37).

Age	No. of Patients n (%)
Male	26 (70.2)
Female	11 (29.8)
Total	37 (100)

Table 3: Causes of intraocular foreign body (n = 37).

Cause	No. of Patients n (%)
Hammering a chisel	15 (40.5)
Bomb blast injury	13 (35.1)
Sports or accidental	4 (10.8)
Others	5 (13.5)
Total	37 (100)

In our study right eye was affected in 12 (32.4%) cases. Left eye was affected in 25 (67.6%) cases. No case of bilateral IOFB was seen (Table 5).

10 (27.02%) cases presented less than one hour after the incidence of trauma, One hour to 24 hours were 10 (27.02%), Less than one week 9 (24.3%) while 8 (21.62%) cases presented later than one week after trauma. It is these patients whose prognosis and results of surgery were good which were presented early (Table 6).

Finally visual progress at six month follow up was determined. Most cases end up in poor vision. 11(29.7%) cases have no perception of light vision. 09(24.32 %) cases got Perception of light vision only. Counting finger or better vision was noted in 17 (46%) cases. BBI and late presentation were the common reason for poor visual outcome (Table 7).

Table 4: Ocupation of patients (n = 37).

Occupation	No. of Patients n (%)
Labor	18 (48.6)
Sports and defense	11 (29.7)
Students	5 (13.5)
Others / accidental	3 (8.1)
Total	37 (100)

Table 5: Affected eye (n = 37).

Eye	No. of Patients n (%)
Right	12 (32.4)
Left	25 (67.6)
Both	0 (0)
Total	37 (100)

Table 6: Time of presentation (n = 37).

Time	No. of Patients n (%)
Less than one hour	10 (27.02)
One hour to 24 hours	10 (27.02)
Less than one week	9 (24.3)
More than a week	8 (21.62)
Total	37 (100)

Table 7: Final visual outcome (n = 37).

Visual Acuity	No. of Patients n (%)
No perception of light	11 (29.7)
Perception of light	09 (24.32)
Counting finger or better	17 (46)
Total	37 (100)

DISCUSSION

With successive wars in the twentieth century, there has been a relative increase in injuries to the eye compared to injuries of other parts of the body. The main causes of eye injury have changed with advances

in techniques and weaponry of warfare, with blast fragmentation injuries accounting for 50 – 80% of cases.[13]

In our study, Mostly victims are those working in the field and exposed to environment. The most common causes of open globe injury are domestic accidents and occupational injuries. Significant prognostic factors for final visual outcome in patients with open globe injury are initial visual acuity, posterior extent and length of wound, presence of hyphema and presence of vitreous prolapse. Awareness of the factors predicting a poor visual outcome may be helpful during counseling of patients with open globe injuries.[14]

In our study, Mostly patients were those working in the field and exposed to environment. Labor was the commonest occupation and these were the main victims of IOFB.

According to different studies [4,13,15] despite early referral, BBIs were having worse prognosis and despite proper management and early intervention, results and final visual outcome were poor and disappointing. It was mainly because of multiple as well as complex type of injuries and severe ocular damage.

Several studies confirm that trauma of any type is common in male.[16] In our study male were in majority. Similarly young to middle age people are the common group of people exposed to both accidental as well as occupational trauma.[10,11] In our study most of our patients were less than 40 years age.

In eye injury patients, the nature of the foreign body determines the clinical behavior; inert objects such as steel and glass may not cause significant inflammation to warrant their removal. Removal of organic foreign bodies, however, is mandatory since these objects usually lead to secondary infection, like endophthalmitis.[18]

In our study, the final visual acuity was Hand Motion vision in majority (60%) of the cases and main reason besides endophthalmitis was BBI and late presentation as well as postoperative complications resulted in an attempt to remove IOFBs from the globe.

Several studies have shown that the visual prognosis is poor. In a study, patients (63%) had final visual acuity of less than 5/200 at final follow-up[19]. in another study, Visual acuity on admission between 6/60 to PL comprises highest number (64%) and also on discharge between 6/60 to PL comprises highest number of cases (50%).[17]

In our study, the average final Visual Acuity we got was PL in 56% cases and CF or better in 44% cases at 6 months follow up. We lost 05 patients at follow up. As mentioned earlier, the late presentation and BBI were main reasons for poor visual outcome. So majority have poor final vision even after treatment.

CONCLUSION

In ocular trauma, IOFB is a common and important clinical problem. Majority of victims were children and young in their productive life. Mostly left eye involved. Most serious cause of IOFB was BBI. Duration of trauma was linearly proportion with prognosis for vision. Visual progression was poor in majority of the eyes; delayed presentation and BBI were the top reasons.

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