INTRODUCTION

Trauma is one of the most common causes of visual morbidity and ocular problems especially when associated with intraocular foreign body (IOFB). Its incidence is on the rise due to increased use of weapons and wars especially in our part of the world. Traumas whether blunt or penetrating results in series of ocular 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 because of penetration of intraocular foreign body (IOFB). 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. There are different types of IOFBs like metal, wood, stone, plastic and even hair can enter the globe and cause serious damage. IOFB can cause different types of complications. Common complications of IOFB are damage to cornea, lenticular damage, vitreous hemorrhage, retinal detachment, scleral perforation etc. Intraocular damage is often irreversible.

CONCLUSION:

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. Some IOFB are more damaging especially organic e.g. vegetables, wood, iron and metals. Some IOFB when left undetected may lead to chalcosis and siderosis with subsequent loss of the whole globe. Treatment of IOFB is complex and it not only involves removal of IOFB if it is indicated but also dealing with the complication of these FBs as well. So more or less it is a staged management. Despite all efforts it’s very difficult to get good in majority of the victims. Those which are presented late and with complications, have poor prognosis despite surgery and medication. Bomb blast injury (BBI) victims have multiple injuries and complicated trauma and are especially the risk group. Every penetrating trauma patient should be properly managed. Therefore, delayed and neglected IOFB left undetected results in many complications and even loss of whole eye. Hence it represents a challenge to the ophthalmologist.

METHODOLOGY

This prospective, interventional study was carried out at Department of Ophthalmology, Govt Lady Reading Hospital, Peshawar from 1st July 2011 to 31st Jan 2013. 37 cases with intraocular foreign body from outdoor department were admitted for management. This was a prospective, Interventional study of patients with IOFBs. Patients were examined after detailed history and important findings noted. Patients were examined in detail. 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 IRFB 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 presented in the form of tables. Non probability consecutive sapling technique was used.

All patients with history of intraocular foreign body were included in the study. Patients with history of ocular disease especially diabetie retinopathy, high myopia, past ocular surgery and bleeding disorders were excluded from the study.

RESULTS

We evaluated thirty seven cases of intraocular foreign body.

Table - I shows age and gender of the patients. For ease of description we divided the age of the patients into three groups in years. Age ranges from five years to sixty three years. Age was divided and in first group age ranges 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 belong 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 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 in our study.

TABLE – I: AGE AND SEX DISTRIBUTION OF PATIENTS (n=37)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 to 20 years</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>21 to 40 years</td>
<td>21</td>
<td>56.7</td>
</tr>
<tr>
<td>41 years and above</td>
<td>10</td>
<td>27.02</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
<td>70.2</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>29.8</td>
</tr>
</tbody>
</table>

TABLE – II: CAUSES OF INTRAOCULAR FOREIGN BODY (n=37)

<table>
<thead>
<tr>
<th>Causes</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammering a chisel</td>
<td>15</td>
<td>40.55</td>
</tr>
<tr>
<td>Bomb blast injury</td>
<td>13</td>
<td>35.13</td>
</tr>
<tr>
<td>Sports or accidental</td>
<td>4</td>
<td>10.81</td>
</tr>
<tr>
<td>Others</td>
<td>5</td>
<td>13.51</td>
</tr>
</tbody>
</table>

TABLE – III: OCCUPATION OF PATIENTS. (n=37)

<table>
<thead>
<tr>
<th>Occupation of Patients</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>18</td>
<td>48.65</td>
</tr>
<tr>
<td>Sports and defense</td>
<td>11</td>
<td>29.74</td>
</tr>
<tr>
<td>Students</td>
<td>5</td>
<td>13.51</td>
</tr>
<tr>
<td>Others / accidental</td>
<td>3</td>
<td>8.1</td>
</tr>
</tbody>
</table>

TABLE - IV: COMPLICATIONS OF INTRAOCULAR FOREIGN BODY (n= 37)

<table>
<thead>
<tr>
<th>Complication</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitreous hemorrhage</td>
<td>12</td>
<td>32.4</td>
</tr>
<tr>
<td>Retinal detachment</td>
<td>14</td>
<td>37.8</td>
</tr>
<tr>
<td>Sclera perforation</td>
<td>12</td>
<td>32.4</td>
</tr>
<tr>
<td>Corneal perforation</td>
<td>7</td>
<td>18.9</td>
</tr>
<tr>
<td>Hyphaema</td>
<td>4</td>
<td>10.8</td>
</tr>
<tr>
<td>Cataract</td>
<td>24</td>
<td>64.9</td>
</tr>
<tr>
<td>Endophthalmitis</td>
<td>10</td>
<td>27</td>
</tr>
</tbody>
</table>

TABLE - V: FINAL VISUAL OUTCOME (n=37).

<table>
<thead>
<tr>
<th>Visual Acuity</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception of light to no perception of light</td>
<td>20</td>
<td>54.05</td>
</tr>
<tr>
<td>1/60 to 6/60</td>
<td>17</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100</td>
</tr>
</tbody>
</table>

DISCUSSION

We studied cases with penetrating intraocular injury that underwent vitrectomy and foreign body removal. Visual outcomes and complications of surgical management for IOFBs were determined. Important observations reported in the literature were compared to the present study.

We evaluated 37 cases of IOFB and we studied the detail of those patients who suffered trauma and presented to us with IOFB. 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 12. In a study by Muzaffar et al, It was observed that 60.7% patients had sustained ocular trauma of a variable degree as a result of the blasts. The mean age of the victims was 29 years and they were
all male. 13

Mostly victims are those working in the field and exposed to
environment. 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
hyphaema 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.

Profession like Labor was the commonest occupation and these
were the main victim of IOFB. BBI is very common in our part of
the world and 35% cases were victim of BBI. BBI were having
worse prognosis and despite proper management and early
intervention, results and final visual outcome was poor and
disappointing. It was mainly because of multiple and complex
type of injuries and severe ocular damage and associated ocular
complications.

Several studies confirm that trauma of any type is common in
male. 14 in our study males were in majority also. Similarly young
to middle age people are the common group of people exposed
to both accidental as well as occupational trauma 15,16. In our
study most of our patients were less than 40 years age.

Penetrating ocular injuries with retained posterior segment
foreign bodies are challenging cases requiring urgent attention
by vitreoretinal surgeons. Posteriorly located IOFBs can result in
serious immediate and delayed vitreoretinal sequelae, such as
retinal detachment and endophthalmitis. In a study, the rates of
retinal detachment and endophthalmitis were 41% and 17%
respectively. 1

Types of IOFB complications were important factors for poor
visual outcome 17. In our study, Vitreous Hemorrhage was the
commonest complication associated with it, as shown in
another study as well. 1. Corneoscleral perforation was second
most common complication. Collectively, Endophthalmitis is
the most serious ocular problem, as proved in literature as well.
In our study, in these cases the prognosis for vision was very
poor because of serious damage. The final visual acuity was
Perception to no perception of Light vision only. In a study 1,18
the incidence of traumatic endophthalmitis is around 14-17%
which is less than our study because of late referral and the
more serious cause of injury.

In ocular trauma, the nature of the foreign body determines the
clinical behavior; inert objects such as steel and glass may not
cause significant inflammation. Removal of organic foreign
bodies, however, is mandatory since these objects usually lead
to secondary infection, like endophthalmitis. 19

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. Perception of Light visual acuity was in
35% cases in present study.

Several studies have shown that the visual prognosis is poor. In a
study, 63% patients had final visual acuity of less than 5/200 at
final follow-up. 20 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%). 21

In our study, the average final Visual Acuity was only PL in
majority of cases. 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

Vitreous Hemorrhage is the most common complication while
Endophthalmitis is the most serious complication in trauma
associated with intraocular foreign body. Majority of the cases
end up with poor visual outcome; delayed presentation and BBI
are the top reasons.

RECOMMENDATIONS

Counseling about postoperative complications of surgeries
should be discussed in detail before surgical removal of the
FB. Patients should be properly investigated for IOFB and its
causes because many of them are completely curable while
others are manageable only if referred and timely managed.
This will help to reduce patients’ suffering, improve quality of
life and vision loss from complications of trauma.

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