Ocular Morbidity due to Trauma

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Abstract

Introduction:
Ocular trauma is an important cause of visual impairment worldwide. It is estimated that more than 2 million people suffer from ocular trauma annually and 40,000 become visually handicapped permanently. The exact number of ocular trauma in Nepal is not known. However, national survey conducted by HMG, WHO/PBL in 1981 has shown blindness due to ocular trauma is 2.4%

Objectives:
Primary objective:
To study the ocular morbidity due to trauma

Secondary objective:
• To study the hospital based incidence of ocular trauma
• To study the mode of ocular injury
• To study the various traumatic agents.
• To categorize the visual impairment due to ocular trauma
• To analyze the risk factors for poor visual recovery following ocular trauma

Materials and methods:
It was a prospective study conducted at Nepal Eye Hospital over a period of one year. All the patients attending out patient department, emergency and admitted in the hospital with history of trauma were included in the study. Demographics of the patient and clinical examination findings were recorded in a especially designed proforma. Data were analyzed using the SPSS program.

Results:
The incidence of ocular trauma in Nepal Eye Hospital in one year was 1.6%. Among the 530 patients enrolled in the present study, 40.19% presented with decreased vision. According to the WHO definition of blindness (vision <3/60), 20.7% were blind on presentation among the 78 admitted patients. At the time of discharge, mild visual impairment (vision 6/24-6/60) resulted in 25.6% and severe visual impairment (vision <6/60-3/60) resulted in 1.2% and 19.2% were blind (vision <3/60).

Hammering iron nail comprised 9.8% followed by physical assault 7%; RTA, 4.3%; sports, 5.5%; and hammering stone 3%. Regarding the causative agent for ocular trauma 25.3% were metallic agent, 12.6% were vegetative matter, 10.4% were wooden piece and 7.0% were wooden piece while non- specific agents comprised 41.9%. Visual impairment had improved in cases with corneal abrasion, corneal foreign body, keratitis and hyphema. However, open globe injury, corneal ulcer, corneal opacity and grade IV chemical injury were the causes for poor visual outcome.

Conclusion:
Ocular trauma results in profound ocular morbidity in terms of visual acuity. Visual acuity in severe injury was poor despite the best possible treatment available was provided. Attempts to create awareness regarding the modes of trauma will go a long way in minimizing the incidence of ocular morbidity due to trauma.

Introduction
Ocular trauma is an important cause of visual impairment worldwide. It is estimated that more than 2 million people suffer from ocular trauma annually and 40,000 become visually impaired.
handicapped permanently. The exact number of ocular trauma in Nepal is not known. However, national survey conducted by HMG, WHO/PBL in 1981 has shown blindness due to ocular trauma is 2.4%.

Ocular trauma can occur in almost any setting like during sport related activities, in the workplace, rural agricultural setting, industrial works, traffic accident, physical assault etc. Ocular trauma depending upon the severity may cause facial disfigurement and visual impairment and thereafter economic loss. On top of it, ocular trauma frequently occurs during active period of life, even though there is no age bar.

Visual impairment can occur through a variety of processes after traumatic ocular injury. Vision limiting factors may include corneal scarring or decompensation; hyphema formation with glaucomatous complications; cataract formation or subluxation of lens; vitreous hemorrhage; retinal tear, dialysis and detachment; choroidal hemorrhage; macular and optic nerve contusive damage; hypotony; pthysis bulbi formation; orbital and lid structural defect; cranial nerve damage; and amblyopia (in children). Many of these conditions can be medically treated or surgically corrected, although a significant number of patient still end up with severe visual limitations.

Ocular trauma is a major cause of monocular blindness and visual impairment throughout the world, although little is known about its epidemiology or associated visual outcome in developing countries. A review suggested that at least half a million people are monocularly blind from ocular trauma worldwide. The national population based survey of blindness in Nepal (1981) found a blindness prevalence rate of 0.84%, with trauma responsible for 7.9% of monocular blindness. In Nepal, “corneal trauma and ulceration” is the second most common cause of monocular blindness after cataract. Superficial corneal trauma sustained especially in agricultural societies as in Nepal often leads to rapidly progressing corneal ulceration and visual loss.

Out of total 1466 admitted patients in Nepal Eye Hospital during last year, 126 (8.6%) were due to ocular trauma and were admitted either for medical treatment or surgical treatment. Patients admitted for ocular trauma management means the one with severe ocular injury and even with best modern management patient will have some degree of ocular morbidity. Similarly, during the same year, there were 1493 cases coming for emergency service and out of which 906 (61%) were traumatic cases. This showed that more than 60% cases seeking emergency treatment are of ocular trauma.

Objectives

Primary Objective: To study the ocular morbidity due to trauma.

Secondary Objectives:
1. To study the hospital based incidence of ocular trauma
2. To study the mode of ocular injury
3. To study the various traumatic agents.
4. To categorize the visual impairment due to ocular trauma
5. To analyze the risk factors for poor visual recovery following ocular trauma

Literature Review

Injuries to the eye have been described in ancient literature and continue to be reported in contemporary journals. Such reports in older days were kind of self-inflicted injuries causing blindness occurring in Greek and Norse mythology. The story of hoe Oedipus gouged out his eyes is well known. In Norse mythology, Odin is said to have given one of his eyes for the right to drink a single draught from the spring of Mimir, whose water contained wisdom and understanding.

Ocular injury poses a major threat to vision, profound emotional trauma and economic loss.
Predictors of good (6/18 or better) visual outcome are a presenting acuity after injury of 6/60 or better, wound location anterior to pars plana, a wound length of 10 mm or less, and a sharp mechanism of trauma.

Ocular Trauma Classification Group has introduced a new classification system for eye injuries based on the type of injury, grade of injury based on visual acuity, presence of relative afferent pupillary defect in the involved eye and Zone of injury, based on the location of injury

A study done in Nepal Eye Hospital on 1979/82 by Upadhyay, M. P. et al showed 1297 cases of Ocular trauma out of 28,223 OPD patients. The overall prevalence of ocular trauma was found to be 4.6%. The prevalence among males was found to be 2.92% and among females 1.96%

Bhaktapur Eye Survey by Upadhyay, M. P. et al had stated that 350,000 eye injuries occur every year and the prevalence of ocular injury was 3.7%

In a retrospective study of eye injury at Bir Hospital in 1982 and a prospective study of ocular trauma in Nepal Eye Hospital in 1993 and 1996 Malla BK had shown that the cause of eye injury had shifted form Agricultural injury 11.7% in1982 to Mechanical injury 43.7% in 1996

Adhikari R K et al in his analysis of corneal injury from 1994 to 1997 in King Mahendra Memorial Eye Hospital, Chitwan had shown more traumatic corneal lesions 59.3% than non traumatic corneal lesions 40.3%. Wood stick was the commonest agent (28.7%) of trauma. 7.1% cases were of physical assault, majority of patients were of age between 15 to 50 years of active working age. Incidence was higher in April, August, September, November and December, which were agricultural months in Nepal. 2.4% patients reported hospital within 7 days only, 5.2% reported within 6 hours of injury. 23% patients still went to medical hall for primary treatment, 2% still believed in Dhami and Jhakri. Among admitted patients, 41.74% were benefited with good vision (6/18 or better), 5.9% had useful vision. Thus he had shown proper treatment can restore good vision.

A study done by Sternberg P Jr et al, showed that penetrating injuries are a leading cause of unilateral visual loss in young patient. A record of 197 patients aged 18 years and younger who underwent primary repair of a penetrating ocular injury at the Wilmor Ophthalmological Institute from Jan 1979 to Dec 1981. The injury was caused by sharp objects in 49% of cases and blunt trauma in 14%. 110(69%) patient achieved final
visual of 5/200 or better and 75(48%) patient achieved final vision of 20/50 or better. The prognosis after a penetrating injury is strongly influenced by the nature of injury and the extent of initial damage. Several factors were found to correlate with an unfavourable visual outcome, including initial preoperative visual acuity of worse than 5/200, injuries due to blunt trauma and wound involving the sclera.

In a five year prospective study, S K Khatry et al., estimated the incidence of ocular injury in rural Nepal and identified details about these injuries that predict poor visual outcome. The study collected prospective case series data from all patients presenting with ocular trauma from November 1995 through May 2000 to the primary eye care center in Sarlahi district of eastern Nepal. 525 cases of incident ocular injury were reported with a mean age of 28 years. Using census data, the incidence was 0.65 per 100 male per year and 0.38 per 100 female per year. The most common type of injury was lacerating and blunt, with the majority occurring at home or in the fields. Upon presentation to the clinic, 26.4% of patient had best corrected visual acuity worse than 20/60 in the injured eye while 9.6% had visual acuity worse than 20/400. 82 were examined at follow up: 11.2% patient had visual acuity worse than 20/60 and 4.6% had vision worse than 20/400. A poor visual outcome was associated with increased age; care sought at a site other than eye clinic; and severe injury. 3% of patients were referred for further care at an eye hospital at the initial visit; 7% had sought additional care in the interim between visits, with this subset representing a more severe spectrum of injuries.

The national society to prevent blindness has estimated that more than 2.4 million eye injuries occur each year in United States. Since ocular injury causes severe disability and economic loss, several countries have established eye injury registries that serve for the collection of information on serious eye injuries. The purpose of this registry is to reduce morbidity from ocular injury by providing information that will aid the country in the prevention and treatment. Both prevention and management requires a definitive knowledge on the causative agent of trauma, place of trauma, pattern of ocular damage and vulnerable age group. This would determine the type of intervention needed for further management and methods of prevention in minimizing the impact of serious injuries.

The visual outcome of perforating ocular injuries depends on the type of trauma sustained. Injuries from sharp objects have a better prognosis compared with those caused by blunt objects. This is because sharp objects cause laceration with damage confined to the underlying tissue whereas those caused by blunt objects result in widespread damage, which, in the case of sufficiently high force, may rupture the globe.

Open globe injuries are one of the marked reasons for acute and long-standing visual loss in children and young adults. Although marked improvement in the management of open-globe injuries has occurred in the last 30 years, including fundamental advances in microsurgical and vitreoretinal techniques, open-globe injuries, especially those caused by lacerations by intraocular or retrobulbar foreign bodies have remained an outstanding problem.

The trend of mechanism of eye injuries is being influenced by environmental factors as well. With successive wars in the twentieth century, there has been a lot of relative increase in injuries to the eye, compared to the injuries to other parts of the body. The main cause of eye injury has changed with advances in techniques and weaponry of warfare, into blast fragmentation injuries accounting for 50-80% of cases. Injuries associated with chemical, nuclear and laser weapons have distinct characteristic and epidemiology. Enucleation was commonly performed at turn of century, but incidence has declined with better understanding of pathophysiology of ocular trauma, improved
surgical techniques and sepsis control with antibiotics. Sympathetic ophthalmitis seems to be uncommon and earlier fears of this complication seem to have been exaggerated. Timely evacuation to a surgical facility is important for a good visual prognosis and preservation of the globe.

Materials and Methods
It was a prospective study, conducted at Nepal Eye Hospital from 1st of Baisakh 2063 to 30th Chaitra 2063 (14th April 2006-13th March 2007). All traumatic cases attending out patient department, emergency and admitted at the hospital were included in the study.

The detailed history of trauma was taken, which included name, age, sex, address, and occupation of patient, action of patient when trauma happened, mode of trauma like road traffic accident, sports, physical assault, hammering with stones or nails etc and causative agent of trauma like wooden piece, metal, stone or others. The presenting symptoms, duration of trauma, medical assistance and treatment received before presentation to the hospital were also noted.

Patient’s unaided visual acuity was recorded either on a Snellen’s test type or by making them count fingers whichever was possible depending on the visual acuity. Orbit, eyelid and adnexa were examined. Pupillary light reflex direct and consensual were noted and swinging flash light test was performed to note the presence or absence of relative pupillary defect (RAPD). Every patient was examined in the slit lamp for the site, extent and type of lesion. Detailed examination of anterior segment was done to access the extent and depth of conjunctiva, scleral, limbal, corneal or corneoscleral wound, anterior chamber depth, anterior chamber reaction, hyphaema and condition of iris, pupil and lens were examined including vitreous in accordance to the proforma developed. Posterior segment evaluation was be done by direct ophthalmoscope/ 90 dioptre lens/ indirect ophthalmoscope to evaluate the condition of retina and optic nerve head, if the anterior segment lesion will not preclude such examination. Intraocular pressure of both eyes was measured by applanation or by Schiotz tonometer (whenever possible and whenever required). Necessary investigations like USG, X-ray orbit/skull and even CT scan and MRI were done whenever indicated. Once a clinical diagnosis was made, patient was put on supportive medical treatment and/or surgical treatment, which depended upon the type of injury. Visual recovery at the time of discharge was recorded in admitted patients. Cause of poor visual recovery at the time of discharge was also noted.

All the data were entered first in the specially designed proforma and data were analyzed using the SPSS program.

Results
The incidence of ocular trauma in Nepal Eye Hospital in one year was 1.6%.

![Fig. 1: Distribution of Patients according to the Age Group](image)

The above figure shows the distribution of age group. The most commonly affected age group due to trauma was between 20-29 years (26.6%) followed by 30-39 years (23.96%).
Fig. 2: Distribution of Patient according to Sex

The above chart shows that males were affected more than females (78% vs 22%).

Table 1: Distribution of Modes of Trauma

<table>
<thead>
<tr>
<th>Mode of trauma</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTA</td>
<td>23</td>
<td>4.3</td>
</tr>
<tr>
<td>Sports</td>
<td>29</td>
<td>5.5</td>
</tr>
<tr>
<td>Physical assault</td>
<td>37</td>
<td>7.0</td>
</tr>
<tr>
<td>Hammering iron nail</td>
<td>52</td>
<td>9.8</td>
</tr>
<tr>
<td>Hammering stone</td>
<td>16</td>
<td>3.0</td>
</tr>
<tr>
<td>Others</td>
<td>373</td>
<td>70.4</td>
</tr>
<tr>
<td>Total</td>
<td>530</td>
<td>100</td>
</tr>
</tbody>
</table>

The above table shows the different modes of trauma in which eyes were involved. Road traffic accident caused ocular trauma in 4.3%, sports related injury in 5.5%, physical assault in 7%, hammering iron nail in 9.8%, and hammering stone in 3%. Other modes of trauma comprised 70.4%. Among the other modes of trauma, 33.2% occurred at home while 30% occurred at workplace. Similarly, 3 cases were of blast injury and 1 case of bullet injury. The mode of trauma in 34 cases was unspecified.

Fig. 3: Causative Agent of Ocular Trauma

Regarding the causative agent for ocular trauma, 25.3% were metallic agent, 12.6% were vegetative matter, 10.4% were wooden piece and 7.0% were wooden piece while non specific agents comprised 41.9%.

Fig. 4: Laterality of Eye Involvement

Right eye was involved in 50.57% and left eye was involved in 45.28% while only 4.15% had both eyes involved due to trauma.

Fig. 5: Medical Assistance before Presentation

Among the enrolled patients, 65% have not received medical assistance before presentation while 35% had sought medical assistance. And those receiving medical assistance, 41.9% had been to the pharmacy and only 20.9% had visited ophthalmologists.

Regarding the presenting symptoms, 77.92% presented with redness, 76.04% presented with
pain while 68.5% presented with discharge (watery, mucopurulent, purulent). Similarly, 40.19% presented with decreased vision.

78 patients with ocular trauma were admitted. Among them, according to WHO definition of blindness, 20.7% were blind on admission.

Mild visual impairment (vision 6/24-6/60) resulted in 25.6% and severe visual impairment (vision <6/60-3/60) resulted in 1.2% due to trauma. Similarly, 19.2% were blind (vision <3/60) at the time of discharge.

### Table 2A: Unaided Visual Acuity of Admitted Patients at Presentation

<table>
<thead>
<tr>
<th>Visual acuity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6</td>
<td>16.00</td>
<td>20.5</td>
</tr>
<tr>
<td>6/9</td>
<td>13.00</td>
<td>16.7</td>
</tr>
<tr>
<td>6/12</td>
<td>6.00</td>
<td>7.7</td>
</tr>
<tr>
<td>6/18</td>
<td>5.00</td>
<td>6.4</td>
</tr>
<tr>
<td>6/24</td>
<td>1.00</td>
<td>1.3</td>
</tr>
<tr>
<td>6/36</td>
<td>3.00</td>
<td>3.8</td>
</tr>
<tr>
<td>6/60</td>
<td>7.00</td>
<td>9</td>
</tr>
<tr>
<td>5/60</td>
<td>2.00</td>
<td>2.6</td>
</tr>
<tr>
<td>3/60</td>
<td>1.00</td>
<td>1.3</td>
</tr>
<tr>
<td>HM</td>
<td>7.00</td>
<td>9</td>
</tr>
<tr>
<td>PL+PR accurate</td>
<td>10.00</td>
<td>12.8</td>
</tr>
<tr>
<td>PL+PR inaccurate</td>
<td>3.00</td>
<td>3.8</td>
</tr>
<tr>
<td>NPL</td>
<td>4.00</td>
<td>5.1</td>
</tr>
</tbody>
</table>

### Table 2B: Visual Acuity of Admitted Patients on Discharge

<table>
<thead>
<tr>
<th>Visual acuity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6</td>
<td>30</td>
<td>38.5</td>
</tr>
<tr>
<td>6/9</td>
<td>9</td>
<td>11.5</td>
</tr>
<tr>
<td>6/12</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>6/18</td>
<td>2.00</td>
<td>2.6</td>
</tr>
<tr>
<td>6/24</td>
<td>4.00</td>
<td>5.10</td>
</tr>
<tr>
<td>6/60</td>
<td>10.00</td>
<td>12.80</td>
</tr>
<tr>
<td>5/60</td>
<td>1.00</td>
<td>1.30</td>
</tr>
<tr>
<td>HM</td>
<td>6.00</td>
<td>7.70</td>
</tr>
<tr>
<td>PL+PR accurate</td>
<td>4.00</td>
<td>5.10</td>
</tr>
<tr>
<td>PL+PR inaccurate</td>
<td>1.00</td>
<td>1.30</td>
</tr>
<tr>
<td>NPL</td>
<td>4.00</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Among 530 enrolled patients, corneal foreign body comprised 27.55%, corneal abrasion comprised 19.06% and subconjuctival hemorrhage comprised 9.62. Similarly,
conjunctivitis accounted 7.55%, open globe injury 6.79%, corneal ulcer 5.66%, chemical injury 2.83% and hyphema 3.21%. Lid was involved in 4.9%. Cataract was present in 6 cases among which associated subluxation of lens was present in 3 cases and dislocation lens was present in 2 cases. There were only 2 cases of intraocular foreign body and foreign body was successfully removed surgically in the present study.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open globe injury</td>
<td>29</td>
<td>37.2</td>
</tr>
<tr>
<td>Corneal FB</td>
<td>14</td>
<td>17.9</td>
</tr>
<tr>
<td>Corneal abrasion</td>
<td>12</td>
<td>15.4</td>
</tr>
<tr>
<td>Hyphema</td>
<td>6</td>
<td>7.7</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>4</td>
<td>5.1</td>
</tr>
<tr>
<td>Conjunctival FB</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Chemical injury</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Corneal ulcer</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>Cataract</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Canalicular tear</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Keratitis</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Lid laceration</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Lid Ecchymosis</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Among the admitted patients, open globe comprised 37.2%. Corneal foreign body was seen in 17.9% and corneal abrasion in 15.4%. Hyphema was present in 7.7% and chemical injury in 3.8%. Traumatic cataract was present in only 2.6% of admitted cases.

23 patients had involvement of iris due to trauma among which 13 had iris prolapse, 5 had sphincter tear, 3 had iridodialysis and 2 had iris hole.

Among the 530 enrolled patients, those who were not admitted received only medical treatment and/or foreign body removal. However, among the admitted patients, 52.6% received only medical treatment, either topical and/or systemic antibiotic and/or steroid and 47.4% received both the medical and surgical treatment.

Visual impairment had improved in cases with corneal abrasion, corneal foreign body, keratitis and hyphema. However, Open globe injury, corneal ulcer, corneal opacity and grade IV chemical injury were the causes for poor visual outcome.

**Discussion**

Ocular trauma is now regarded as a major cause of visual morbidity, around the world half a million blinding eye injuries occur every year, there are approximately 1.6 million people blind from eye injuries, 2.3 million bilaterally visually impaired and 19 million with unilateral visual loss; this being the commonest cause of unilateral blindness today. Maximum incidence is found in young adults and elderly\(^\text{19,20}\) and is much more common in males\(^\text{21,22}\).

The result of this study showed that the incidence of trauma in Nepal Eye Hospital in one year was 1.6%.

The cumulative lifetime prevalence and 5-year incidence of ocular trauma was 19.8%(n=972) and 1.6%(n=57), respectively in a population based cross-sectional and follow-up study by TeinYin Wong et al\(^\text{23}\).

The most commonly affected age group due to trauma was between 20-29 years (26.6%) followed by 30-39 years(23.96%) in the present study. this comprises the economically productive age group and visual morbidity due to trauma in this age group results in great deal of economic loss. In United States of America, the estimated annual cost for inpatient hospital care of the ocular trauma is more than US$210,000,000, which does not include the cost of other medical expenses or lost productivity\(^\text{14}\).

Male preponderance is seen in ocular trauma. In the present study also, 78% were males Even in open globe injuries in children, 71% were male and 29% were female in a study by Rostomain K
et al. The male predominance of injuries may be a result of being engaged in different activities with different degree of risk of ocular injury. In a study by C G Thomson in Australia, males were affected in 67% of the ocular injuries in 7 months to 14 years age group. Another study by Carolina in Scotland demonstrated 70% of the injuries in males.

In the present study, most of the cases had unilateral eye involvement while only 4.15% had both eyes involved due to trauma. Right eye was involved in 50.57% and left eye was involved in 45.28%. Right eye is involved more also in a study by Thompson CG et al in Australia.

Among the 530 patients enrolled in the present study, 40.19% presented with decreased vision. This signifies the ocular morbidity in terms of visual acuity in trauma patients. According to the WHO definition of blindness, 20.7% were blind on presentation among the 78 admitted patients. Similarly, 19.2% were blind on discharge.

Regarding the different modes of trauma, road traffic accident caused ocular trauma in 4.3%, sports related injury in 5.5%, physical assault in 7%, hammering iron nail in 9.8% and hammering stone in 3%. Other modes of trauma comprised 70.4%. Among the other modes of trauma, 33.2% occurred at home while 30% occurred at workplace. Similarly, 3 cases were of blast injury and 1 case of bullet injury. The mode of trauma in 34 cases was unspecified. In a prospective survey of 5671 cases of eye injuries by Caroline J Macewen, 69.9% trauma occurred at work, 18.3% during leisure and domestic activities, 2.3% during sport and 1.9% were due to assaults; contact lens injury occurred in 2.3% and the cause was unknown in 5.3%. 1.8% required admission to the hospital. 98.3% of all injuries involved periorbital or superficial ocular structures only and the remainder involved intraocular structures. The majority of serious injuries were contusional.

There were only 2 cases of intraocular foreign body and IOFB was successfully removed surgically in the present study. In cases with intraocular foreign bodies, prognostic factors for better visual outcome (p<0.05) included better presenting visual acuity and hammering metal on metal as the mechanism of injury. Prognostic factors for poor outcome (p<0.05) included poor presenting visual acuity, the presence of an afferent pupillary defect and vitreous hemorrhage.

Penetrating ocular injury occurs most frequently in the home setting and mostly as the result of the use of sharp tools or by thrown objects. Prevention of penetrating ocular injury requires quality education of children and their careers especially on the potential danger within the homes.

Conclusion

The incidence of ocular trauma in Nepal Eye Hospital in one year was 1.6%. Among the 530 patients enrolled in the present study, 40.19% presented with decreased vision. According to the WHO definition of blindness, 20.7% were blind on presentation among the 78 admitted patients. At the time of discharge, mild visual impairment (vision 6/24-6/60) resulted in 25.6% and severe visual impairment (vision <6/60-3/60) resulted in 1.2% and 19.2% were blind (vision <3/60).

Hammering iron nail comprised 9.8% followed by physical assault 7%; RTA, 4.3%; sports, 5.5%; and hammering stone 3%. Regarding the causative agent for ocular trauma 25.3% were metallic agent, 12.6% were vegetative matter, 10.4% were wooden piece and 7.0% were wooden piece while non-specific agents comprised 41.9%.

Visual impairment had improved in cases with corneal abrasion, corneal foreign body, keratitis and hyphema. However, Open globe injury, corneal ulcer, corneal opacity and grade IV chemical injury were the causes for poor visual outcome.
Fig. 1: Badly Traumatised Open Globe Injury
Fig. 2: Post-Primary Repair with Hyphema
Fig. 3: Lid Laceration in RTA
Fig. 4: Contracted Socket following Evisceration for Open Globe Injury
Fig. 5: Open Globe Injury with Iris Prolapse
Fig. 6: Lid Laceration with Severe Chemosis
Fig. 7: Severely damaged eye due to Chemical Injury

Fig. 8: Cor

Recommendations
Awareness is to be created regarding the modes of injury, which will go a long way in minimizing ocular morbidity due to trauma. Penetrating ocular injury occurs most frequently in the home setting and mostly as the result of the use of sharp tools or by thrown objects. Prevention of penetrating ocular injury requires quality education of children and their careers especially on the potential danger within the homes.

References
9. Adhikari R K et al. Ocular Trauma in Rapti Eye Hospital Dang 1993


