Topic: PROFILE OF CLOSED GLOBE INJURY IN A SECONDARY EYE HOSPITAL

Name of authors: Dr Manita Sunam Godar, Lumbini Eye Institute and Research Centre , Shree Rana Ambika Shah Eye Hospital, Bhairahawa,Rupandehi, Nepal.

Dr Sushila Patel, Lumbini Eye Institute and Research Centre , Shree Rana Ambika Shah Eye Hospital, Bhairahawa,Rupandehi, Nepal

Dr Nita Sunam Gamal, Lamahi Eye Hospital, Dang, Nepal.

Dr Laxmi Devi Manandhar, Lumbini Eye Institute and Research Centre, Shree Rana Ambika Shah Eye Hospital, Bhairahawa, Rupandehi, Nepal

Contact address of corresponding author: Dr Manita Sunam Godar, Lumbini Eye Institute and Research Centre, Shree Rana Ambika Shah Eye Hospital and Research Centre, Siddharthanagar-3, Bhairahawa, Rupandehi, Nepal.

Email: manitagodar@gmail.com

**ABSTRACT**

Introduction: Ocular trauma is an important cause of preventable ocular morbidity and blindness.

Aims: To analyze the epidemiological profile of patients with closed globe injury

Study design: Retrospective, descriptive, cross-sectional study

Materials and method: Details of 167 patients with closed globe injury attending Dr.Binod Neeta Kandel Eye Hospital, Nawalparasi from Aug 2017 to July 2018 were reviewed. Demographic profile, detailed history and examination findings were recorded.

Results: Closed globe injury was more common in males (61.7%) than females (38.3%). The mean age was 30.76 ± 16.58 yrs, youngest being 3 years old whereas oldest 90 years old. Left eye was more involved. The most common mode of injury was accidental (70.55%) followed by physical assault (12.6%), fall injury (9%) and road traffic accident (7.8%). Household injury was the commonest (38.92%) followed by recreational activities (17.96%), workplace injury (14.97%). Conjunctival laceration (21.55%) and traumatic uveitis (21.55%) were the commonest. 79.64% had good vision (VA 6/6 -6/18) whereas 7.78% cases were blind (VA less than 3/60).

Conclusion: Closed globe injury can occur from different modes of trauma. Anterior segment was more involved than the posterior segment. Even a trivial ocular trauma can have a sight threatening impact.

**Keywords:** closed globe injury, anterior segment, posterior segment, vision

**INTRODUCTION**

Ocular trauma is one of the important causes of preventable ocular morbidity and blindness. Blindness due to ocular trauma was 2.4% according to Nepal Blindness Survey, 1981. (1) In Nepal corneal trauma and ulceration is the second most common cause of blindness after cataract. Bhaktapur Eye survey showed the prevalence of ocular trauma as 0.7%. (2)

**MATERIALS AND METHOD**

This was a retrospective, descriptive , cross sectional study conducted in Dr Binod Neeta Kandel Eye Hospital, Nawalparasi, a secondary eye hospital from Aug 1st 2017 to July 31st 2018. Detail history about demography, mode, agent and place of injury were noted. Visual acuity was recorded using Snellen’s chart for adults and cooperative children and CSM method for unco-operative children. Anterior and posterior segment findings before and after mydriasis were noted.

**DATA ANALYSIS**

Data were entered in the computer database and analysed with SPSS version 20.

**RESULTS**

In this study of the 167 patients, there was male preponderance (61.7% vs 38.3%) (Table 1). The mean age was 30.76± 16.58 yrs, the youngest being 3 yrs of age whereas oldest, 90 years of age. Patients below 16 years accounted for 17.37% of study population (Table 1). Maximum patients were of age group 16 -30 yrs (n=62, 37.13%). Patients above 60 years accounted for 5.99%.

In 44.9% (n 75) cases right eye was involved whereas 55.1% (n 92) cases had involvement of left eye.(Table 2)

The most common mode of injury was accidental (70.65%) followed by physical assault (12.6%), fall injury (9%) and road traffic accident (7.8%). (Table 3)

The most common site of injury was household (38.92%) followed by outdoor recreational activities (17.96%) and workplace (14.97%). (Table 4)

Anterior segment was involved in 86.4% and posterior segment was involved in 12.6%.

Conjunctival laceration (21.55%) and traumatic uveitis(21.55%) were the commonest followed by lid ecchymosis (18.7%). In posterior segment commotio retinae (5.69%) was the commonest. (Table 5)

In our study, 79.64% had good vision (6/6 -6/18) whereas 7.78% cases were blind (vision less than 3/60). (Table 6)

The commonest agent of injury was stick (16.77%) followed by stone (14.97%). (Table 7)

Table 1: Demographic characteristics

|  |  |
| --- | --- |
| **Gender** | Number of cases (percentage) |
| Male | 103 ((61.7%) |
| Female | 64 (38.3%) |
| **Age group** |  |
| <16yrs | 29 (17.37%) |
| 16-30 yrs | 62 (37.13%) |
| 31-45 yrs | 48 (28.74%) |
| 46-60 yrs | 18 (10.78%) |
| >60 yrs | 10 (5.99%) |

Table 2: Table showing eyes affected

|  |  |  |
| --- | --- | --- |
| **Eye** | **No.** | **%** |
| Right | 75 | 44.9 |
| Left | 92 | 55.1 |
| **Total** | **167** | **100** |

Table 3: Table showing cause of injury

|  |  |
| --- | --- |
| **Mode of injury** | **No. of patients (%)** |
| Accidental | 118 (70.65%) |
| Physical assault | 21 (12.6%) |
| Fall injury | 15 (9%) |
| Road traffic accident (RTA) | 13 (7.8%) |
| **Total** | **167** |

Table 4: Table showing scenario of injury

|  |  |
| --- | --- |
| **Scenario of injury** | **No. of patients (%)** |
| Household injury | 65 (38.92%) |
| Workplace injury | 25 (14.97%) |
| Outdoor (Recreational activities) | 30 (17.96%) |
| School | 2 (1.19%) |
| Physical assault | 19 (11.38%) |
| Road traffic accident (RTA) | 15 (8.99%) |
| Fall injury | 11(6.59%) |
| **Total** | **167** |

Table 5: Table showing site of ocular involvement

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Ocular structures involved** | **Clinical findings** | **No. of eyes (%)** | **Ocular structures involved** | **Clinical findings** | | **No. of eyes (%)** |
| Lid | **Lid ecchymosis** | 46 (18.7%) | Lens | Traumatic cataract | 1 (0.41%) | |
| Lid laceration | 12 (4.88%) | Subluxation of lens | 2 (0.81%) | |
| Conjunctiva | Subconjunctival haemorrhage | 13 (5.28%) | Dislocation of lens in vitreous | 2 (0.81%) | |
| **Conjunctival laceration** | 53 (21.55%) | Posterior segment | Vitreous haemorrhage | 7 (2.85%) | |
| Cornea | Corneal abrasion | 14 (5.69%) | Choroidal rupture | 2 (0.81%) | |
| Corneal lamellar laceration | 1 (0.41%) | **Commotio retinae** | 14 (5.69%) | |
| Iris | Hyphaema | 15 (6.1%) |  | Berlin’s edema | 3 (1.22%) | |
|  | Traumatic mydriasis | 2 (0.81%) |  | Macular hole | 2 (0.81%) | |
|  | **Traumatic uveitis** | 53 (21.55%) |  | Retinal detachment | 3 (1.22%) | |
|  | | | Ocular NAD | No pathology detected | 1 (0.41%) | |

Table 6: Table showing visual status of involved eye

|  |  |
| --- | --- |
| **Visual status** | **Number of patients (%)** |
| 6/6-6/18 | 133 (79.64%) |
| 6/24-6/60 | 13 (7.78%) |
| 5/60-3/60 | 5 (2.99%) |
| <3/60 | 13 (7.78%) |
| Follows and fixates light | 3 (1.80%) |
| **Total** | **167** |

Table 7: Table showing agents causing closed globe injury

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.No** | **Agent** | **No.** | **%** | **S.No** | **Agent** | **No.** | **%** | **S.No** | **Agent** | **No.** | **%** |
| 1 | **Stick** | **28** | **16.77** | 12 | Slipper | 1 | 0.60 | 23 | Mango | 1 | 0.60 |
| 2 | Hand | 15 | 8.98 | 13 | Pen/pencil | 3 | 1.80 | 24 | Desk edge | 1 | 0.60 |
| 3 | **Stone** | **25** | **14.97** | 14 | Bike/cycle | 4 | 2.39 | 25 | Elbow | 1 | 0.60 |
| 4 | Fist | 13 | 7.78 | 15 | Catput | 1 | 0.60 | 26 | Handpipe | 1 | 0.60 |
| 5 | Cricket Ball | 11 | 6.59 | 16 | Door | 2 | 1.20 | 27 | Ladder | 1 | 0.60 |
| 6 | Wood | 7 | 4.19 | 17 | Finger | 2 | 1.20 | 28 | Mud | 1 | 0.60 |
| 7 | Rope | 6 | 3.59 | 18 | Iron piece | 2 | 1.20 | 29 | Nail | 1 | 0.60 |
| 8 | Rubber tube | 8 | 4.79 | 19 | Stem | 1 | 0.60 | 30 | Plastic bottle | 1 | 0.60 |
| 9 | Animal horn/tail | 8 | 4.79 | 20 | Wire | 1 | 0.60 | 31 | Toy | 1 | 0.60 |
| 10 | Iron rod | 5 | 2.99 | 21 | Bamboo | 1 | 0.60 | 32 | Cracker | 4 | 2.40 |
| 11 | Brick | 8 | 4.79 | 22 | Bottle lid | 1 | 0.60 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

Discussion

In our study mean age was 30.76± 16.58 yrs which was similar to studies by Godar ST et al (28.89 ± 19.06 yrs) (3) , Kinderan VY et al (28.28± 18.29 yrs) (4), Islam QU et al (27.59 ± 6.89 yrs) (5) and Usharani et al (27 yrs) (6) .

In our study 17.3% belonged to paediatric age group similar to Godar et al (18.7%).

In our study males were predominant similar to studies by Godar et al, Kinderan VY et al and Usharani et al.

In our study left eye was more involved whereas in the study by Godar et al right eye was more involved.

In our study accidental injury was more common whereas RTA was more seen in study by Godar et al and blast injury was more common in study by Islam QU et al, in which study participants were military personnels.

In our study household injury was more common whereas workplace injury was more common in studies by Godar et al and Usharani et al.

The commonest sequelae following closed globe injury were traumatic uveitis and conjunctival laceration in our study whereas study by Godar et al showed subconjunctival haemorrhage, Kinderan VY et al showed lid ecchymosis, Islam QU et al showed vitreous haemorrhage and Usharani et al showed lid and lacimal system injury.

Good visual acuity >6/18 was seen in 79.64% almost similar to studies by Godar et al and KInderan VY et al. Poor vision <3/60 was seen in 7.78%.

Conclusion

Closed globe injury was more common in males. Accidental injury was more common and house was the commonest site of injury. Anterior segment was more involved than the posterior segment.

Even a trivial closed globe injury can have a sight threatening impact.

Loss of sight can have a huge impact on the daily life, the need for medical care, income generation and the cost of rehabilitation.

Community awareness on ocular trauma and preventive strategies are to be focused on the eye health education programmes.

References

1.Brilliant LB, Pokhrel RP, Grasset NC, et al. Epidemiology of blindness in Nepal. Bulletin of the World Health Organization 1985;63:375-86.

2. Upadhyay MP, Karmacharya P, Koirala S, et al. Bhaktapur Eye Study: Ocular trauma and antibiotic prophylaxis for the prevention of corneal ulceration in Nepal. Br J Ophthalmol 2001; 85:388-92.

3. Godar ST, Kaini KR, Amatya P, Joshi K, Singh L.Magnitude of ocular trauma in a tertiary care hospital of western Nepal. Nepal Journal of Medical Sciences 2013;2 (2):140-3.

4. Kinderan YV, Shrestha E, Maharjan IM, Karmacharya S. Pattern of ocular trauma in the Western Region of Nepal. Nepal J Ophthalmol 2012; 4(7):5-9.

5. [Islam QU](https://www.ncbi.nlm.nih.gov/pubmed/?term=Islam%20QU%5BAuthor%5D&cauthor=true&cauthor_uid=28179694), [Ishaq M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ishaq%20M%5BAuthor%5D&cauthor=true&cauthor_uid=28179694), [Yaqub A](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yaqub%20A%5BAuthor%5D&cauthor=true&cauthor_uid=28179694), [Saeed MK](https://www.ncbi.nlm.nih.gov/pubmed/?term=Saeed%20MK%5BAuthor%5D&cauthor=true&cauthor_uid=28179694). Functional and anatomical outcome in closed globe combat ocular injuries. [J Pak Med Assoc.](https://www.ncbi.nlm.nih.gov/pubmed/28179694) 2016 Dec;66(12):1582-1586.

6. Laishram U, Yumnam CM, Gahlot A, Thoudam RS, Keisham SD. Epidemiological profile of ocular trauma in a tertiary care facility in Imphal. J Med Soc 2016; 30:162-5.