

ORIGINAL ARTICLE

INCIDENCE OF OCULAR TRAUMA AMONG THE PATIENTS HOSPITALIZED IN THE OPHTHALMOLOGY DEPARTMENT OF AYUB TEACHING HOSPITAL**Umer Maqsood, Danish Zafar, Hassan Shahzad, Zulfiquar Ali**

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Background: Ocular trauma is leading cause of mono or binocular vision deterioration. This study was conducted to determine the incidence of ocular trauma in patients in our set-up. **Methods:** A retrospective observational study was done from Nov 2021 to Jan 2022 on all admitted patients for age, gender, occupation and activity at the time of injury, nature of injury, and traumatic agent. Data were classified into 5 groups on basis of trauma setting. Injuries were grouped in accordance with Birmingham Eye Trauma Terminology System. **Results:** The total number of patients admitted to the Ophthalmology Department was 458. Out of these, 61 (13.31%) patients were admitted with Ocular trauma. Ocular trauma was highest in age group of 1–20 years (59%), followed by age group 21–40 years (31.1%). Ocular trauma was very frequent (39.34%) in 1st decade of life. Males were most affected (80.3%). The most common setting for ocular injuries was sports/playtime (44.26%) followed by work-related injuries (27.86%) and household/indoor injuries (16.39%). Blunt objects accounted for most trauma (50.81%) followed by sharp objects (45.9%). Wood (39.34%) was the most common traumatic agent followed by stone (24.59%). Cornea (43.47%) was the most frequently damaged tissue followed by eyelids (41.30%). **Conclusion:** Ocular trauma was highest during sports/playtime, especially in the first decade of life. There is a need for parents' education regarding the risk of ocular trauma with trivial objects such as toys and utensils and the impact of ocular trauma on vision.

Keywords: Ocular trauma, Ocular injury, Intraocular foreign body, Eyelids laceration

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INTRODUCTION

Ocular Trauma is a significant cause of monocular blindness all over the world.¹ The epidemiological data for ocular injuries is quite deficient unlike other blinding conditions, hence effects of ocular trauma are very often underestimated.² Around 55 million ocular injuries occur annually, limiting daily activities for more than a day.³ There are around 19 million people with monocular blindness or low vision, and around 2.3 million people with bilaterally low vision due to ocular insults.⁴ It has been suggested that 90% of all ocular trauma is preventable.⁵ Hence prevention forms the foundation of long-term management.

The demographic pattern concluded from previous studies in Pakistan suggests that ocular trauma occurs most frequently in the first 2 decades of life with a second peak in the elderly.⁶ Incidence of ocular trauma is high in males, usually occupation-related and wood being a major traumatic agent, while children suffer during sports and games.⁷

This retrospective study was carried out to see the prevalence and pattern of ocular trauma and common traumatic agents among the admitted patients from northern parts of Pakistan to the Department of Ophthalmology, Ayub Teaching Hospital, Abbottabad.

MATERIAL AND METHODS

This retrospective observational study was carried out for patients admitted with ocular trauma in the Ophthalmology Department of Ayub Teaching Hospital from Nov 2021 to Jan 2022. Detailed history was taken from all the patients included in this study for the date, age, gender, occupation and activity at the time of injury, nature of the injury and traumatic agent. Thorough ophthalmological examination of the patients was carried out including visual acuity with Snellen Chart where possible, anterior segment examination using Slit Lamp to document size of the tear, its location, involvement of visual axis, intraocular foreign body (IOFB), and posterior segment examination using direct and indirect ophthalmoscope. X-ray Orbit (Anterio-posterior and lateral views) and B-scan Ultrasonography were done when and where required to rule out any intraocular foreign body.

Data were categorized in five groups on the basis of trauma setting: injuries that happened at home, injuries that happened outdoor while working (occupational), injuries that took place during sports/playing, injuries related to animals, and others (Road Traffic Accidents, assault injuries, and other outdoor activities).

Injuries were grouped in accordance with Birmingham Eye Trauma Terminology System. Data

collection contained details like age, gender, tissues damaged during trauma, i.e., lids, cornea, sclera, the frequency distribution of form of the traumatic agent, visual acuity where required.

RESULTS

Total number of patients admitted to the Ophthalmology Department of Ayub Teaching Hospital during the sturdy period was 458. Out of these, 61 patients (13.31%) including 49 (80.3%) males and 12 (19.6%) females were admitted due to Ocular Trauma. Mean age of patients was 20.3±16.8 years. There were 36 (59%) patients in 1–20 years age group, while 19 (31.1%) patients were in 21–40 years age group, and 06 (9.8%) in >40 years age group (Table-1).

Table-1: Distribution of age and gender groups

Age groups	Male	Female	Total
1–20 years	28	8	36
21–40 years	16	3	19
>40 years	5	1	6
Total	49	12	61

Out of 61 patients, 19 had eyelid lacerations (13 being simple tears, 2 involved lid margins, and 4 involved canaliculi), while 42 patients had globe injuries. Under injury classification of globe injuries (in accordance with Birmingham Eye Trauma Terminology System), 27 (64.28%) were open globe injuries, and 15 (35.71%) were closed globe injuries. Amongst closed globe injuries, contusions were 8 (53.33%) and 7 (46.66%) were lamellar lacerations. Amongst open globe injuries, lacerations were 21 (77.77%) and 6 (22.22%) were ruptures. Amongst lacerating wounds, 15 (71.42%) were penetrating lacerations, while 6 (28.57%) were IOFB. No patient presented with perforation (Table-2).

Table-2: Type of Tissue damage

Type of Tissue	Frequency	Percentage
Corneal Lacerations	20	32.78
Eyelids Lacerations	19	31.14
Conjunctival Lacerations	6	9.83
Corneal Ulcers	5	8.19
Scleral Lacerations	4	6.55
Corneoscleral Lacerations	3	4.91
Hyphaema	3	4.91
Traumatic Cataract	1	1.63
Total	61	100

Intraocular foreign bodies were found in 8 patients, 14 patients had iris prolapse associated with corneal/scleral lacerations. Visual axis was involved in 13 patients and traumatic cataract was found in 11 patients. In 2 patients, scleral laceration was at least 4 mm away from limbus. Regarding types of traumatic agents, 28 (45.9%) patients had trauma with sharp objects (wood, needle, nails, glass), 31 (50.81%) had trauma due to blunt objects (stone, ball, rod), and 2 (3.27%) due to liquid (acid, hot water) (Table-3).

Table-3: Frequency distribution of traumatic agents

Traumatic Agent	Frequency	Percentage
Wood	24	39.34
Stone	15	24.9
Metallic	5	8.19
Firecrackers	5	8.19
Animals	4	6.55
Glass	2	3.27
Ball	2	3.27
Acid/Hot water	2	3.27
Needle	1	1.63
Fingernails	1	1.63
Total	61	100

The ocular trauma most commonly occurred during sports/playing (44.26%). This was followed by occupational injuries (27.86%). Household/indoor injuries were (16.39%) of the total ocular trauma. Animal-related injuries were (6.55%) and others/miscellaneous (Fights, RTA) were (4.91%) of all cases (Table-4).

Table-4: Distribution of place of trauma setting

Place of Trauma	Frequency	Percentage
Sports/playing	27	44.26
Occupational	17	27.86
Indoor	10	16.39
Animal-Related	4	6.55
Others/Miscellaneous	3	4.91
Total	61	100

Out of 61 patients, 24 had a visual acuity of 6/60 or higher, 13 patients were underage and unable to cooperate, 8 patients were at counting fingers between 1 foot to 3 meters, 5 patients could acknowledge only hand movements, 7 patients could perceive the light while 4 patients had no perception of light (Table-5).

Table-5: Frequency distribution for presenting visual acuity of patients

Visual Acuity	Frequency	Percentage
6/60 or higher	24	39.34
Counting Fingers	8	13.11
Hand Movement	5	8.19
Light Perception	7	11.47
No Light Perception	4	6.55
Underage	13	21.31
Total	61	100

DISCUSSION

Ocular Trauma is an important cause of monocular visual loss, especially in underdeveloped countries.⁸ This study indicates the incidence of ocular trauma among hospitalized patients as 13.31% which is slightly higher compared to the results (11.2%) of a study conducted in Menoufia University Hospitals, Egypt.⁹

This study found the incidence of ocular injuries higher in males as compared to females which is consistent with the other studies done in Pakistan¹⁰⁻¹² and globally.¹³⁻¹⁵ It was observed that ocular injuries frequently occur in the first 2 decades with the mean age

of 20 years which is almost the same as previous studies conducted in Pakistan⁶ and abroad¹⁶.

According to our study, ocular trauma was most frequent in the first decade of life thus encouraging the need for better awareness programs for young parents regarding the visual prognosis following ocular trauma and prevention of childhood injuries within home during playtime.^{15,17} Blunt objects were the most frequent cause of ocular trauma, consistent with the results of some previous studies.^{10,18} Wood was the most common traumatic agent followed by stone. The most common setting for ocular trauma found in our study was recreational/sports activities followed by work-related trauma.

Our study found cornea to be the most frequently damaged tissue in ocular trauma followed by the eyelids. This is in agreement with the previous studies from Pakistan.^{10,12} Penetrating injuries were highest among the Open Globe Injuries. These injuries, having presenting visual acuity of NPL, PL +, or HM, were associated with poor visual prognosis and more likely to develop monocular blindness as compared to closed globe injuries.¹⁶

This was not a population-based study and though Ayub Teaching Hospital is a major Tertiary Care Hospital of the region, some patients might have been treated in other healthcare centres, so it does not give exact incidence and prevalence of ocular injuries in the population of Hazara Region. Some cases of ocular trauma might have not reported to healthcare centres either because of lack of education, awareness, or financial resources which may also explain the out-of-proportion male:female ratio in ocular trauma across different studies.¹⁹

CONCLUSION

Ocular trauma was highest in males and in first decade of life. This calls for better awareness programs and education regarding the use of protective glasses during working and parental supervision of children during playtime. Parents need education regarding risk of ocular trauma with objects like toys and utensils etc. and impact of ocular trauma on vision to decrease the incidence of ocular trauma and blindness.

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