

Ocular Injuries: Its Etiology and Consequences in Balochistan

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Purpose: To find out the etiologies and consequence of ocular injuries presented in Helper eye hospital Quetta, Blochistan. We analysed 200 cases of Ocular injuries in Helpers Eye Hospital, Quetta regarding its etiology in three different age groups of 0-15, 16-30 and above 30 years of ages.

Material and Methods: Retrospective analysis of 200 cases of ocular injuries was done who presented in the eye department of the Helper eye hospital Quetta Blochistan.

Data was recorded on the proforma for further analysis. Recording were made specifically for age, sex and type of injury patients were divided into three groups according to age 0-15, 15-30 and above 30 years to find out the comment injury in each age group.

Results: The majority 48.5 % (n=97) was due to sports and play, maximum being in children (n=87). Occupational and firearm injuries were the second commonest cause (12.5 % n=25 and 12 % (n=24) respectively. Whereas fight and assault was found responsible in 10 % (n=20) and road traffic accident 6.5 % (n=13) in our study.

Conclusion: Keeping in view the above etiological factors it is being emphasized that efforts should be made towards the prevention, and proper management of Ocular injuries in Pakistan.

Key words: Ocular trauma, Blochistan.

Ocular Trauma is a major cause of unilateral blindness, particularly in young patients, affecting people on the most productive time of their working career¹.

Blunt injuries are more common than penetrating injuries and they represent a spectrum from mild corneal abrasions to forceful blunt trauma causing marked tissue disruption¹.

Like many other developing countries ocular trauma is more common in Pakistan in general and in the province of Balochistan in particular.

Since the injuries occurred from innumerable causes in every instance of life, it is difficult to compare with previous authors². Hence etiologically they have been broadly classified as:

- Occupational,
- Play ground injuries,
- Fighting and assault,

- Domestic Injuries,
- Firearm injuries,
- Road traffic accidents; and
- Miscellaneous.

The purpose of this study is to present the common causes of ocular injuries, its incidence and types in our region.

MATERIAL AND METHODS

Two hundred cases of ocular injuries were divided into three groups according to ages of 0-15, 16-30 and over 30 years.

Out of 200 cases, 107 (53.5 %) were below 15 years, 61 (30.5 %) were within 16-30 years, whereas 32 (16 %) were above 30 years (Table 1). Male to female ratio was 4:1, the number of patients being 162 (81 %) and 38 (19 %) respectively (Table 2). Moreover, all cases of ocular injuries were classified in seven categories regarding involvement of ocular structures (Table 3).

The preoperative evaluation of all the patients included documentation of cause, site, shape and extent of injury, structures involved investigations for intraocular FB. Detection and its location by X-Rays in primary, up, down, right and left gazes from antero-posterior and lateral views and ultrasonography and time of trauma.

RESULTS

The most common cause of anterior segment ocular trauma was accident during play in children (97 patients, (48.5%). This correlates well with a study from Northwest Frontier Province of Pakistan in which the highest cases (42.21%) fell into the category of accidents at play³. A study from India by Panda et al in which commonest cause of trauma to the eye was also attributed to sports and play. Out of 97 patients, 87 were under 15 years of age, in which 66 were male and 21 female. Only 9 cases were affected during play and sport in adults. At all ages the prominent sex was male. This is mainly because of children being engaged in aggressive activities like throwing stone (24 cases male, 15 female), hitting with stick (20 cases) pieces of glass, metal, sharp instrument (knife), airgun (5 cases), mudball (4 cases), disposable syringe (3 cases), finger/fist (6 cases), cricket ball (2 cases) (Table 4 and pie chart).

According to the 10 years survey of eye injuries in Northern Ireland by Canvan and Archer^{5, 9}, the most common injuries occur during play and sports (33.8%) in children under 16 years of age.

The second major group fell into the category of occupational (12.5%). The commonest cause was flying particles while using a hammer and chisel and majority patient had intraocular foreign body. Out of 25 cases, 17 were male 6 female above 16 years of age. Only 2 cases were below 16 years of age. Children sustained injuries invariably during play and adults at work (Panda, Bhatia and Dayal 1985)⁴.

The third major group was firearm injuries due to explosion (12%). These injuries were most often found in those affected by the Afghan war. Out of 24 patients, 22 patients were injured by bomb blast, mine blast etc. Very few patients were injured by shotgun and bullet. Explosions usually affected both eyes and often caused serious damage. Corneoscleral perforation was the most-prevalent injury and intraocular or intraorbital foreign body was present in majority of patient. Rate of infection was higher. Most of the patients were in the 16-30 or above 30 years of age groups. Most of the trauma occurred in men (Table 4).

The delay between injury and admission varied from 2-7 days. Primary repair was possible in 15 patients while 8 eyes were excised because of irreparable damage. Traumatic cataracts were dealt with surgically.

The fourth major group was domestic injuries (10.5%). Common causes of domestic injuries were knives, scissors, stone, needles, children fingers and toys etc. 8.5% resulted from accidents in the home. Home is an area in which serious eye injuries can occur commonly in the young.

Injuries during fighting and assault accounted for 10%. The common causes were stone, stick, fist etc. In USA 14.3% of eye injuries were inflicted during fight and assault. In our study all patients affected during fighting were male.

Road traffic accidents accounted for 6.5% of all cases. Road traffic accidents usually affected both eyes. Major cause was the windscreen and front seat passenger were more affected then the back seat passenger. In our study most of the eye injuries in road traffic accidents occurred in males that is just opposite to the survey done by Canvan and Archer in Northern Ireland⁵ where mostly females were affected in road traffic accidents (Table 4).

DISCUSSION

It has been observed that Ocular injuries are a characteristic of particular environment^{6,7}. In our study in Hectors Eye Hospital, various types of environmental factors were observed to work simultaneously. Manual occupational industries are constant source of perforating ocular injuries with or without foreign bodies.

Table 1:

Age	No of patients n (%)
5-15	107 (53.5)
16-30	61 (30.5)
Above 30	32 (16)
Total	200 (100)

Table 3: Types of ocular injuries (200 Cases)

Classification	Structures involved	No. of cases n (%)
Category I	Scleral perforation with intact cornea	20 (10)
Category II	Corneal perforation with or without iris prolapse and hypheama	65 (32.5)
Category III	Combined corneo-scleral perforation with or without ureal prolapse and hypheama.	55 (27.5)
Category IV	Cornea or corneoscleral perforation with lens perforation	20 (10)
Category V	Corneal, scleral or corneoscleral perforation with lens and vitreous prolapse and presence of intraocular F.B.	25 (12.5)
Category VI	Double perforating injuries with or without the presence of F.B.	7 (3.5)
Category VII	Totally lost eyeball (irreparable eyeball)	8 (4)

Table 4: Causes of injury with regard to age and sex distribution

Causes	0-15 yrs		16-30 yrs		Above 30		Total n (%)
	M	F	M	F	M	F	
Play and sports	66	21	07	01	02	00	97 (48.5)
Stone	24	15	01	00	00	00	40
Stick	20	00	02	01	00	00	23
Air gun	04	00	01	00	00	00	05
Toy Pistol	02	00	00	00	00	00	02
Mud Ball	04	00	01	00	01	00	06
Cricket Ball	01	01	00	00	00	00	02
Disposable Syringe	02	01	00	00	00	00	03
Finger/Fist	02	04	02	00	01	00	09
Glass piece	07	00	00	00	00	00	07
Occupational	02	00	17	06	00	00	25 (12.5)
Domestic	04	02	02	03	09	01	21 (10.5)
Fire Arm injury	04	01	11	01	07	00	24 (12)

Table 2:

Sex n (%)	Sex distribution n (%)	
Male 162 (81%)	Children	81 (40.5)
	Adults	81 (40.5)
Female 38 (19%)	Children	26 (13)
	Adults	12 (6)
Total		200 (100)

Bullet	00	00	00	00	00	00	00
Gunshot	01	00	01	00	00	00	02
Bomb blast	03	01	10	01	07	00	22
Fight and assault	02	00	10	00	08	00	20 (10)
Road Traffic accidents		01	03	00	06	00	10 (5)
Miscellaneous	03	00	00	00	00	00	3 (1.5)
Total	81	26	50	11	31	01	200 (100)

The male to female ratio for the Ocular trauma patients is 4:1 as compared to general ophthalmic male to female ratio, which is (1.2: 1) during our study. This difference of ratio confirms the findings in other large Surveys that men are more often affected^{8,9}.

The Afghan war is another factor of eye injuries especially the male having serious ocular penetrating injuries because they are the direct victims as compared to females.

In our region, girls after puberty are often confined to their homes because of traditional environment therefore they are least prone to ocular trauma as compared to boys, who are always engaged in aggressive activities getting more ocular injuries.

In this study it was observed that most eye injuries occurred during sports and play below the ages of 15 years especially in boys (n = 66) as compared to girls (n = 21).

Disposable syringes were found more responsible for ocular injuries and loss of Eyeball but fortunately during our study only 3 cases were observed (two boys and one girl).

Bomb blast and firearm injuries are another cause of ocular trauma. Most of these were victims of the Afghan war.

Road traffic accidents also remained responsible for ocular injuries, which was 6.5 % in our study in contrast to reports of NWFP of Pakistan, (2.2 %) ¹⁰.

CONCLUSION

Ocular trauma has always been and always will be challenge to Ophthalmologists. In this violent and sophisticated age of motor car, increased industrialization, heightened interest in sport activities and assault, both the number and severity of ocular injuries are increasing.

In developing nations the problem of eye trauma is much more severe because of inadequate awareness, poverty and long distances to obtain appropriate treatment.

Dr. Robert Stegmann and David Miller state that approach to the anterior segment ocular trauma is very important in restoration of vision⁸. Repair of trauma is the most challenging operation in Ophthalmology. Skilled teams of doctors and nurses should do it. Surgical intervention may be safely delayed until next morning when the best surgical team can be assembled and secondary repair should be done after disappearance of initial inflammations. There is no doubt, however, that modern advances have significantly improved the prognosis for perforating injuries involving the anterior segment.

Ocular trauma in the province of Balochistan is a major eye health problem therefore despite improvement for its management attention should also be given for its prevention in the following manner.

1. Trauma register should be maintained in the department of ophthalmology nationwide for obtaining ocular-injury-statistics.
2. The nature of certain types of trauma should be recorded and reported.
3. The public should be given awareness through public health education about the dangers and hazards of certain games (Gulli danda, sharp needles, knives, scissors, syringes etc.).
4. Regular public education seminars should be held in all parts of the country regarding ocular injuries.
5. Ocular trauma centers should be developed and provided with sophisticated ocular equipments for proper repair of ocular injuries all over the country.

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