

Ocular Injury In Children Associated With Conflict

Keywords-Ocular Injuries, Children , Open Globe, Closed Globe

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I. Introduction

Ocular trauma can be a devastating injury in children and may cause lifelong disability. More than one third of eye injuries occur in pediatric age group. In general children are more susceptible to eye injuries because of their immature motor skill and their tendency to imitate adult behaviour without evaluating risks.¹ Serious ocular trauma gives rise to irrevocable structural damage or functional loss which imposes an enduring burden throughout the most productive years of life ². Patients suffer from severe initial anxiety, major changes in career opportunities, changes in life style, impaired quality of life, economic setbacks and sometimes permanent disability and disfigurement.³

Besides loss of vision, earnings (job opportunities) and productivity, it increases the cost to society because of increased health care spending.⁴

Although many studies have been carried out regarding the etiology and prognosis of ocular trauma in children but perhaps there are very few studies highlighting the ocular trauma in children in conflict zone. Most of the previous studies carried out may not reflect our own experience, although some studies from Pakistan, Israel, west bank and Gaza strip may be most relevant. In this study we have focussed on children less than 15 years. . Conflict has assumed an important cause of ocular injury as has been previously published^{5,6} and are becoming increasingly common.

II. Material And Methods

Ours was a prospective study conducted over a period of three years. All the children less than 15 years of age with ocular injuries due to conflict cause (violence) visiting Department of Ophthalmology, SMHS Hospital of Government Medical College, Srinagar or referred from peripheral hospitals were included in the study. The study conducted abides by norms declared in declaration of Helsinki. The ethical clearance of the study was granted by the committee of the institution.

The demographic data of each patient including address (rural/urban), literacy status, cause of injury, occupation, and financial status was recorded in addition to a complete history of the mishap and the nature and circumstances of the injury.

The detailed ophthalmic work up of all the patients including slit lamp examination, slit lamp biomicroscopy and indirect ophthalmoscopy was carried out. Complete details of ophthalmic examination including (1) initial best corrected visual acuity (2) lid or facial injury, subconjunctival haemorrhage or laceration (3) presence or absence of corneal/scleral perforation, hyphaema, iris injuries and afferent pupillary defect (4) presence or absence of vitreous haemorrhage, retinal detachment, intraocular foreign body, endophthalmitis, retinal breaks, choroidal rupture and or macular hole was noted. X ray, CT scan and MRI was done in cases of intraocular foreign body. MRI was not used where intraocular foreign body was suspected to be of metallic nature.

Standardized ocular trauma classification describing by Pieramici D.J. et al. was used to grade all injured eyes at initial examination.

III. Observations And Results

Male and female ratio

A total of 35 children under the age of 15 years were examined during this period, out which males were 33 and females 2, With a male to female ratio of 16.5:1 with males comprising 94.28% of total subjects. (chart 1)

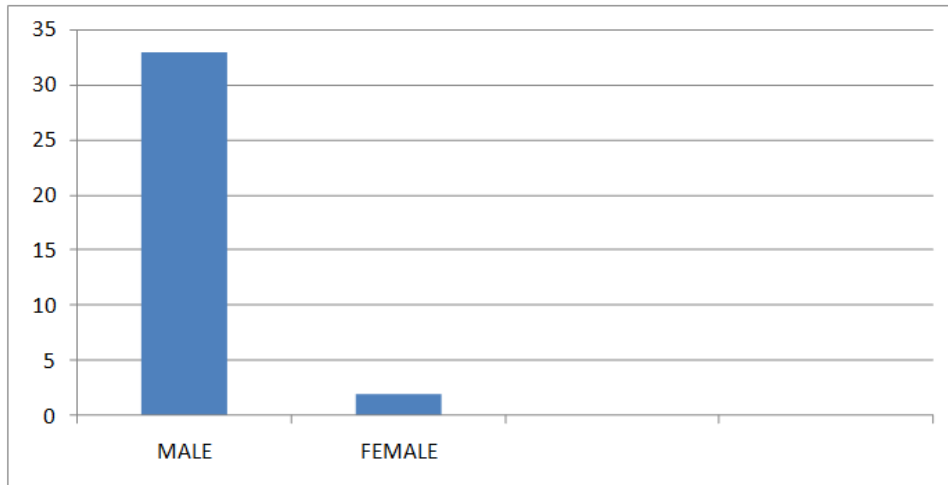


Chart 1

Age distribution of subjects

29 of the children were of age group between 7-15 yrs and 6 children were in the age group 0-7 yrs.(chart 2)

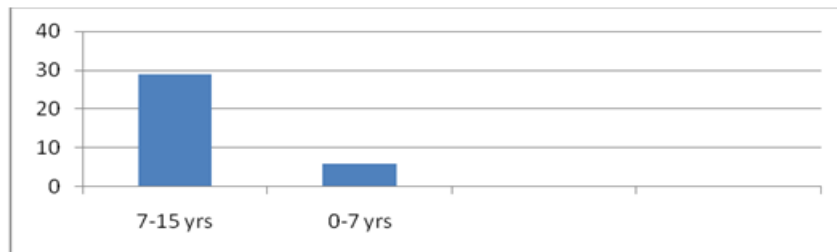


Chart 2

Literacy Status Of The Patients

While noting the literacy status of the patients , it was found that majority, 25 students were in their middle to high school. [chart 3]

Under school age group = <3 years of age

Primary = class Nursery to 5th

Middle = 6th to 8th

High = 9th and 10th

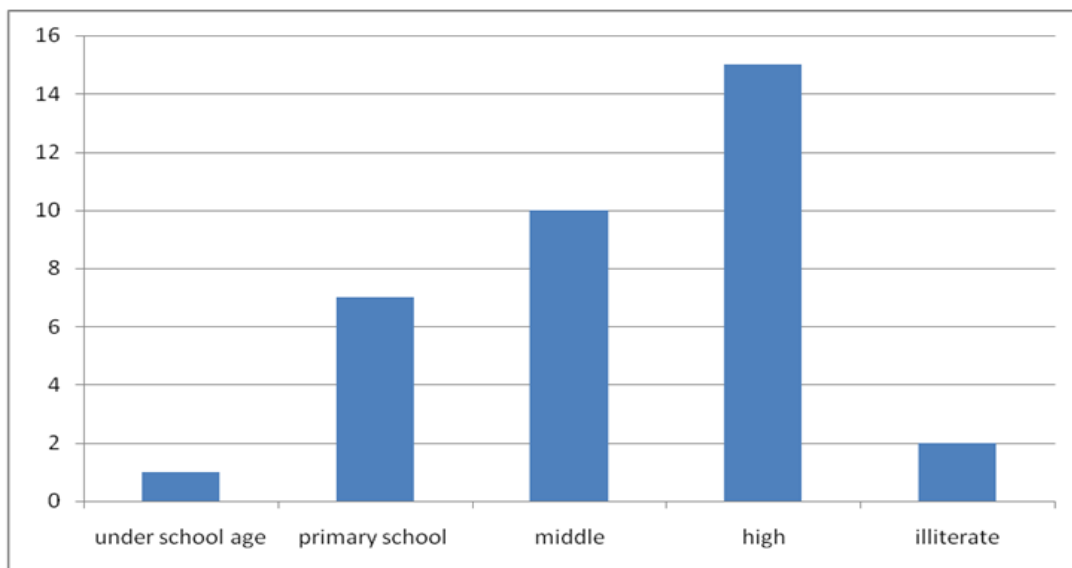


Chart 3

Place Of Injury

In our study majority of patients had injury when they were outside i.e streets .(N=34)[CHART 4]

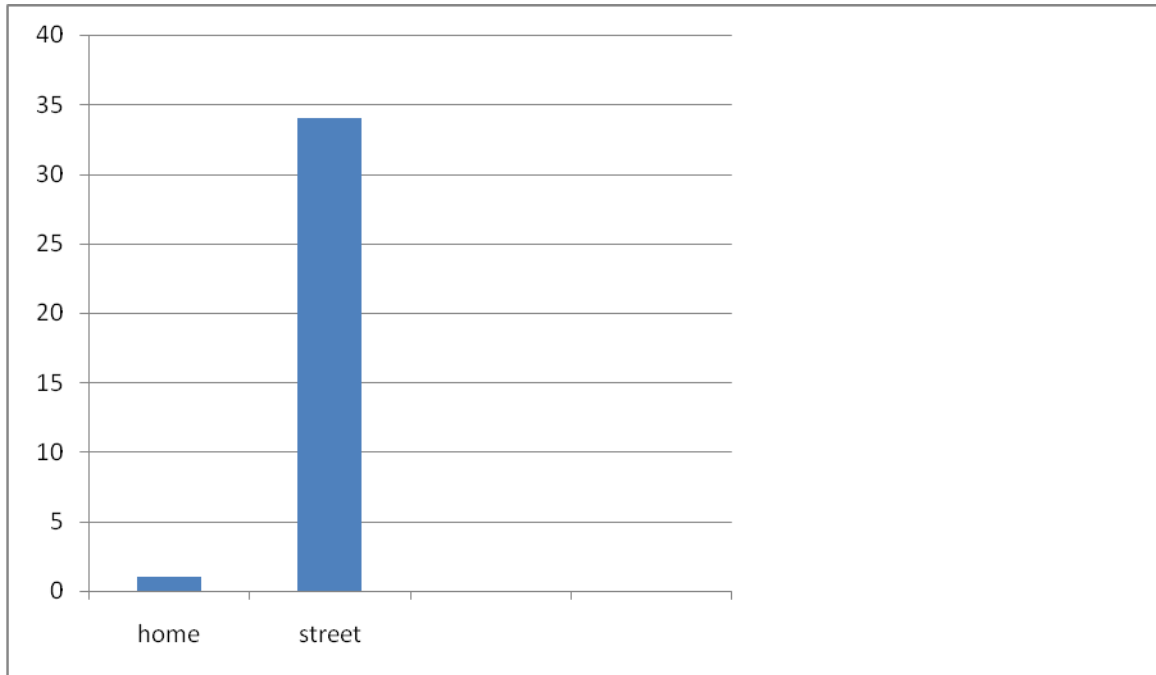


Chart 4

Causes Of Injury

Pellet was the most common cause of injury accounting for 40% of cases which was followed by Sling shot (catapult) accounting for 34.28% of cases. Stone was the cause in 20% of patients followed by glass (2.85%) and bullet(2.85%).[CHART 5]

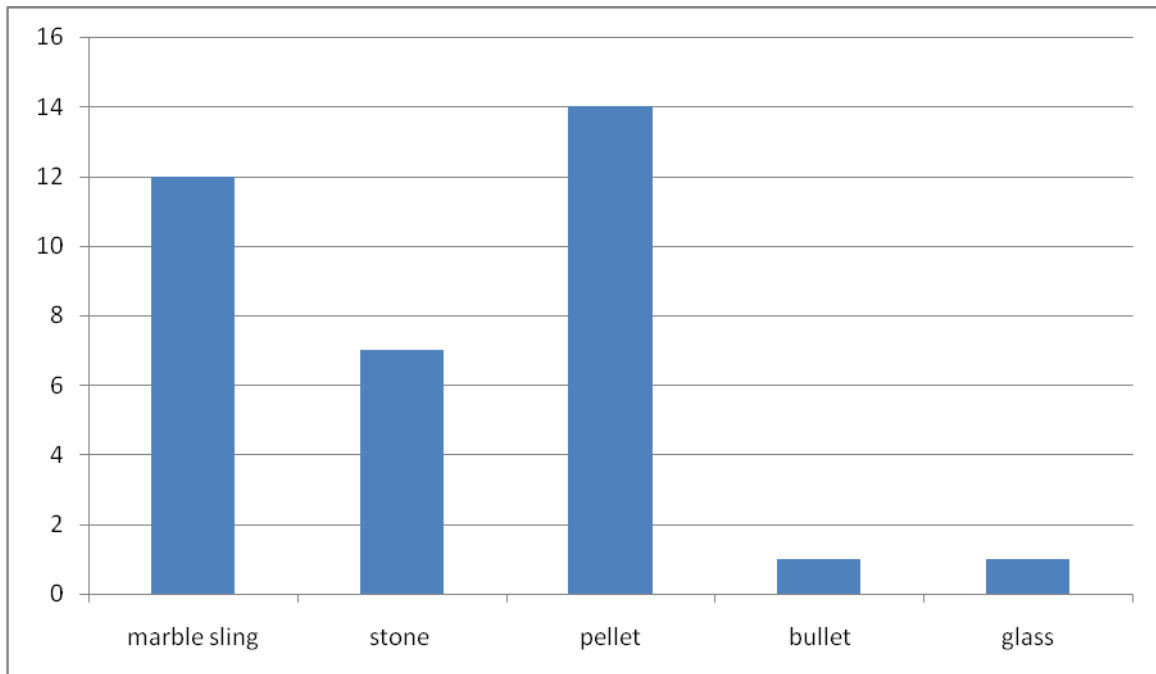


Chart 5

Diagnosis

Various diagnosis have listed in table 1

DIAGNOSIS	NO	% AGE
Corneal tear	8	22.85%
scleral tear	2	5.7%
Traumatic Cataract	4	11.42%
Hyphaema	14	40%
IOFB	12	34.28%
Iridodialysis /irisprolapse	7	20%
Lens subluxation	1	2.85%
Vitreous /sub retinal haemorrhage	8	22.85%
Retinal detachment	2	5.71%
Choroidal tear	1	2.85%
Macular hole	1	2.85%
Ruptured/perforated globe	2	5.71%

Table 1

Table – Ocular Trauma Classification			
Type of Injury	Open Globe (n=20)	Rupture	2
		Penetrating	4
		IOFB	12
		Perforating	1
		Mixed	1
	Close Globe (n=15)	Contusion	13
		Lamellar laceration	0
		Superficial Foreign Body	0
		Mixed	2
	Grade (V/A)	Open Globe	> 20/40
20/40 to 20/100			0
19/200 to P.L.			4
4/200 to P.L.			13
No P.L.			3
Close Globe		> 20/40	
		20/40 to 20/100	1
		19/200 to P.L.	1
		4/200 to P.L.	13
		No P.L.	
Zone	Open Globe	I	7
		II	9
		III	4
	Close Globe	I	
		II	9
		III	6
RAPD	Open Globe	Positive	3
		Negative	17
	Close Globe	Positive	2
		Negative	13

Table 2

The total number of patients in the open globe injury were 20 (57.14%) and in close globe injury 15 patients (42.85%) with a ratio of 1.33:1.



FIG 1

Full Chamber Hyphaema, Clotted Blood –Blunt Trauma Due to Sling Shot (Close Globe Injury)



FIG 2

MRI coronal view showing Intraocular Foreign Body (Pellet) case of stone pelting (open globe injury)



FIG 3

Corneal Tear with Iris Prolapse caused by Stone, a Case of Stone Pelting (Open Globe)

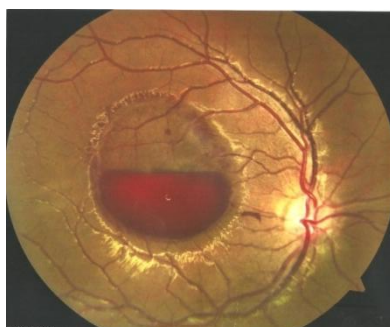


FIG 4

Fundus colour photograph of a patient having subretinal haemorrhage caused by stone (closed globe injury)

IV. Discussion

Although many studies have been carried out regarding the etiology and prognosis of ocular trauma in children but perhaps there are very few studies highlighting the ocular trauma in children in conflict zone. Most of the previous studies carried out may not reflect our own experience, although some studies from Pakistan, Israel, west bank and Gaza strip may be most relevant. In this study we have focussed on children less than 15 years. In our study we found majority of our patients were boys (94.2%) [CHART 1]. The ratio in our study was 16.5:1. This is consistent with most studies Stralman L Et al⁷ and Cascairo MA Et al⁸. This is because of the

reason that boys are usually more aggressive and were part of these violent demonstrations and unrest. Few girls who got injured were injured accidentally were looking through window or on roadside. Majority of the children were in school age group which is consistent with Rapaport I Et al⁹ [CHART 2]. School age group children usually spent more time outside. They are relatively immature and slightly more vulnerable[Stralman L Et al⁷ and Rapaport I Et al⁹. Young children are part of demonstrations and stone pelting case here. Children are not always aware of the possible consequences of their actions and effective counter measures for injuries caused by assaults are very difficult to devise as the circumstances are not well delineated [Caroline J MacEven Et al¹⁰.

Various studies have been done in this conflict zone of Kashmir like Syed Amin Et Al¹¹, Sheikh Shoib Et Al¹², Majid Mushtaque¹³. In this study we are depicting ocular trauma in children in a conflict zone.

Most of the children almost half (15/35) were in their high schools[CHART 3]. The higher incidence in this age group is consistent with studies done by Golden YJ et al in Lesotho¹⁴ and Niramem M et al¹⁵. This can be attributed to the fact that school aged children are more exposed to the environment, tend to be more physically active and ready to take more risks. These agitated mobs in a conflict zone primarily consist of young males. Our results are consistent with a similar study done in Palestine by Ziad M Jaouni et al¹⁶. Most of the injuries occurred at streets (n=34) since these protests were held at streets. Only one injury occurred at home accidentally[CHART 4]. Our majority of cases occurred in 2010, where there was a period of civilian unrest for over 6 months. As per the causes of injury pellets were the most common cause (40%), followed by marble sling catapult (34.28%) and stone in 20% cases. pellets have been used as a means of mob control in a conflict in this part of the world as published previously.¹⁷ Stone was responsible for 20% of injury cases. stone is used as a weapon by the protestors against the authorities. one injury was due to bullet (rubber bullet) and one due to glass[CHART 5]. In our study hyphaema(40%)[FIG 1] was the most common presentation followed by IOFB(34.28%)[FIG 2] comprising chiefly of pellets which was followed by corneal tear (22.85%)[FIG3], vitreous/sub retinal hmg(22.85%)[FIG 4], iridodialysis/iris prolapsed 20%, traumatic cataract(11.42%), retinal detachment (5.71%), sclera tear (5.7%), lens subluxation (2.85%), choroidal tear/macular tear (5.71[TABLE 1]). Bejiga A Ariturk¹⁸ et al found that hyphaema is the most common outcome in blunt trauma and corneal tear in perforating injury. Patients were then classified according to the new ocular trauma classification¹⁹[TABLE 2]. New ocular trauma classification now widely accepted has been assessed for its prognostic significance^{20,21,22}. The best corrected visual acuity and presence of relative afferent defect are the strongest predictors of long term visual acuity. In this study open globe injuries constituted 20(57.14%) and closed globe 15 patients (42.85%) with ratio of 1.33:1.

V. Conclusion

Our study shows the severe nature of ocular injury in children in a conflict zone. Weapons used for mob control particularly pellets, their use should not be encouraged. Conflict associated injuries are associated with far greater morbidity than normal eye injuries. Encouraging use of non lethal weapons in mob control becomes imperative. Education of both parents and children and paying attention to the child's age and responsibility level is needed. Improving rural health services by providing them with facilities and equipment is necessary for urgent management of ocular trauma.

Lastly but important, maintenance of peace is essential.

References

- [1]. Thordarson U, Ragnasson AT, Gudbrandson B. ocular trauma observations in 105 patients. Acta ophthal(copenh) 1979 oct ;57(5):922-928.
- [2]. Robert JC. The burden of serious ocular injury Br journal ophthal 1996;80:585.
- [3]. Sternberg P Jr, DeJuan E Jr, Michals RG. Penetrating ocular injuries in young patients: initial injuries and visual results. Retina 1984; 4: 5-8.
- [4]. Abeba Bejiga. Causes and visual outcomes of perforating ocular injuries among Ethiopian patients. Community Eye Health 2001; 14(39): 45-46.
- [5]. Jao uni ZM, O Sheaja. Civilian eye casualties in east Jerusalem and occupied territories. Med Confl surviv 1996;12:138-148.
- [6]. Elder MJ. Penetrating eye injuries in children of the west bank and gaza strip. Eye 1993;7:429-432.
- [7]. Stralman L, Elman M, Daub L, Baker S. Cause of pediatric eye injuries: a population based study. Arch Ophthalmol 1990; 108: 603-606.
- [8]. Cascairo MA, Mazow ML, Prager TC. Pediatric ocular trauma: a retrospective survey. J Pediatr Ophthalmol Strabismus 1994; 31: 312-317.
- [9]. Rapaport I, Romem M, Kinek M et al. Eye injuries in children in Israel; a nationwide collaborative study. Arch ophthalmol 1990;108:376-9.
- [10]. MacEven CJ, Baiyess PS, Desi P. Eyeinjuries in children: the current picture. Br J Ophthalmol 1999; 83: 933-936.
- [11]. Syed Amin, A.W Khan. Life in a conflict; Characteristics of depression in Kashmir Int J Health SCI(Qassim) Jul 2009;3(2):213-214.
- [12]. Sheikh Shoib, M Maqbool Dar, Haamid basher Et Al. .Psychiatric Morbidity and the Socio-Demographic Determinants of patients attempting suicide in kashmir valley: A Cross Sectional Study. International journal of health sciences & research Vol 2; issue 7; October 2012.
- [13]. Majid Mustaque, Mohammad F mir, Muneer bhat, Fazl Q parray Et al. Pellet gunfire injuries among agitated mobs in Kashmir. Turkish journal of Trauma & Emergency surgery. MAY 2012;18(3):225-9.

- [14]. Gorden YJ, Moketee M. pediatric ocular injuries in leso-tho.Doc ophthalmol 53;283-289,1982
- [15]. Niramem M. Eye injuries in children. British Journal of Ophthalmol 1981; 65: 436.
- [16]. Ziad M Jaouni , John Go Shea. surgical management of ophthalmic trauma due to the Palestinian intifada EYE(1997); 11: 392-397.
- [17]. Mohd L wani, Ab G Ahangar, Farooq A Ganaie ET al. Pattern ,presentation and management of vascular injuries due to pellets and rubber bullets in a conflict zone. Journal of emergencies, trauma and shock. Year 2013 vol 6 issue 3 page 155-158.
- [18]. Ariturk N, Sahin M, Oge I, Erkan D, Sullu Y. The evaluation of ocular trauma in children between ages 0-12. Turk J Pediatrics.1999 Jan-Mar 41(1);43-52.
- [19]. Dante J. Pieramici, MD; Paul Sternberg, Jr, MD; Antonio Capone, JR, MD et al (The Ocular Trauma Classification Group). A system of classifying mechanical injuries of the eye (GLOBE). Am J Ophthalmol 1997 June; 123: 820-831.
- [20]. Deborah Coody, Janet M. Banks, Robert J Yelman. Eye trauma in children: epidemiology, management and prevention. Journal of Pediatric Health Care 1997; 11(4): 182-188.
- [21]. He M, Lin X, Xu J. Pediatric ocular trauma: a retrospective survey. Yan Ke Xue Bao 1997; 13(4): 177-81.
- [22]. Rayees A Sofi, Junaid S Wani, Manzoor Q Keng. PROFILE OF CHILDREN WITH OCULAR TRAUMA. JK-Practitioner2012 January-September; volume 17 Nos (1-3):44-50.