ORIGINAL ARTICLE

Etiological Factors in Peadiatric Ocular Trauma and Their Prevention

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ABSTRACT

Aim: To elaborate the different objects and causes of trauma among children (0- 15-years age group) presented in Sh. Zayed Medical College / Hospital, Rahim Yar khan
Design: Non interventional (descriptive) type study.
Place and duration of study: Total 120 cases were studied, who were presented in four years (from Aug.2008 to Aug.2012) in Eye Department of Sh. Zayed Medical College/Hospital Rahim Yar Khan.
Methods: We studied 120 cases of ophthalmic injuries of children referred to Eye Department from emergency during this period. These were grouped according to age, sex, mode of injury, type of object involved in injury and the gravity of vision loss classified according to Snellen's Chart.
Results: Out of 120 children Male children were seventy and female were fifty. Injuries by blunt trauma were sixty five. These included trauma by fists while fighting thirty one, trauma by ball while playing nineteen, Road side accidents nine, and trauma by fall four from height, trauma by horn of goat Two, Bird strike child while he was sitting on motorbike in front of his father were one. Perforations were total thirty; by sticks twenty, Iron F.Bs two, Sharp Pencil four, Cock'sbeak two and Surma two. Chemical Injuries were 14; Out of which Acid of battery were seven, Elfy three and oil at home four. Blast Injuries were total eight; out of which Patakha at wedding ceremony five; Bomb blast at Sui Balochistan were three. Pellets Injuries by firearms were three done accidently while firing at village.
Conclusion: Trauma among children is very common. Most of them are minor but few are life lasting and put permanent disability and obstruction in career. But Good luck is they all can be prevented.
Keywords: Ocular trauma, prevention, injury

INTRODUCTION

Children are flower of our society; they must be cared upon to have healthy life later on. They get different types of trauma among which Ocular trauma has the highest incidence ranging up to 50%[1-2]. In emergency we come across such of type eye injuries which range from very mild to blinding. Eye injuries are the leading cause of monocular visual disability and noncongenital unilateral blindness in children[3]. There are a lot of modes which are involved in the infliction of these injuries like, accidents, playing, children fighting, crackers and firing is used in our functions as marriages Shab-i-barat, self inflicted injuries and rarely criminal as firing, bomb blasts etc. Multiple modes of assault cause ophthalmic injuries and different parts of eye get injured[4]. A blunt impact to the eyes as in fisting may cause bruising of the eyelids and subconjuntival hemorrhage mostly. Road side accident and playground trauma involve multiple parts of eye as bruising of eyelids, injuries to cornea, iris or lens, bleeding into the vitreous or anterior chamber, detachment of the retina and occasionally a traumatic cataract. Contusion of the face may result in extensive spreading of the blood, and periorbital heamatomas are common. Fractures of the nose can also result in heamatomas at these sites[5]. Blood spreads in the lax tissues more easily as can happen in area around the eye and lips. Blood collected at the site of the impact may move along the tissue line of least resistance under the influence of gravity changing both its shape and site as happens in production of "Black Eye" following a bruise of the forehead and scalp[3]. A simple fall on to the face on a flat surface does not usually cause a Black Eye, as the prominences of the eyebrow, cheekbone and nose prevent damage to the orbit.[4] Punching consists of blows with the clenched fist and is usually directed at the upper part of the body of the victim. Bruising and abrasions are the most common result, but lacerations may occur over bony prominences such as eyebrow or cheeks. On the face, Black Eyes (periorbital heamatomas) are common, the doctors 54must always differentiate these from a fractured base of skull[5]. When punched directly in the midface, battered persons often develop bilateral, periorbital contusions[6]. Explosions, automobile accidents, industrial accidents and warfare may cause injuries to cornea, lens, detachment of the retina and cataract. Sharp objects may cause penetrating and lacerated

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wounds of the eye. A strong blunt force may rupture the Entire Globe[7].Children of villages gets injuries from stick or other vegetable traumas. Newborn children have got trauma during birth, this birth trauma is seen more when birth is at home rather than hospitals. New born Children have chemical injuries due to Taboos of society as Surma and Honey use. Pre-school Children have more chance of home work related injuries as they are with their mothers. Children at school get sharp edge injuries by pencils and pens. They get injuries while playing and fighting. At few places School teachers beat children and eye injuries did happen.

MATERIAL AND METHODS

We studied 120 cases of ophthalmic injuries of children referred to Eye Department from emergency during this period.

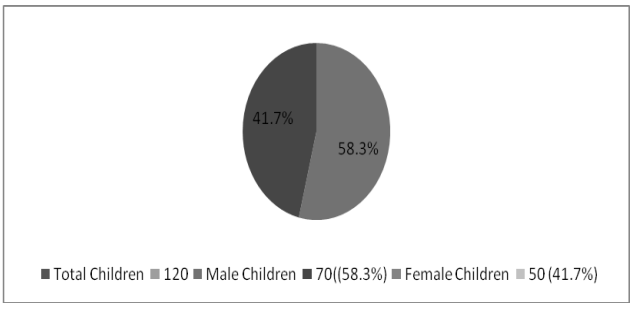
These were grouped according to age, sex, mode and weapons of infliction. Visual Acuity of all patients was checked for each eye by using Snellen's chart and later confirmed objectively by thorough examination of eyes. Slit lamp examination was used to see details of Lids, conjunctiva, cornea, Lens, Iris and pupils. Fundus examination was done by dilating both pupils and Direct Ophthalmoscope, Indirect Ophthalmoscope and Fundus Lenses were used for this purpose.

Diagnostic tools like X-Rays, Ultrasonography (B-Scan) and CT-Scan were used for further help where needed. The gravity of vision loss was classified according to; total loss of vision or percentage of vision lost. Nature of loss of vision whether reversible on treatment or not was determined. Cause of loss of vision was categorized as corneal, lenticular or vitreoretinal or combined.

Following Performa was made for analysing data. Data analysis were done using SPSS.

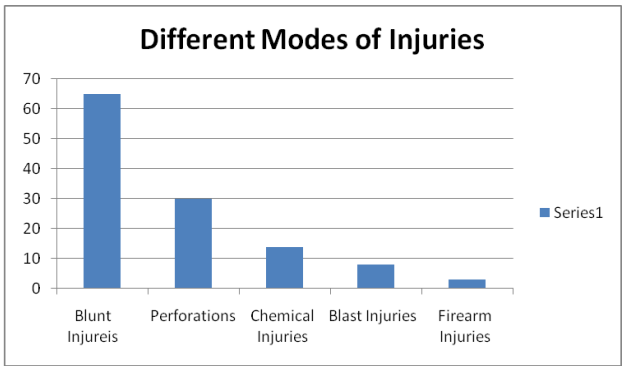
RESULTS

Out of 120 persons male children were seventy and female were fifty.



Children got injuries by many ways in which Globe is ruptured or saved. Lids and adenexa may tear apart or just get hemorrhage. Orbit might get fracture or simply hemorrhage might occur. We had seen modes of Injury which were blunt, perforating, Chemical, blast and firearm injuries which were further sub classified. Injuries by blunt mode were sixty five. This included trauma

- By fists while fighting thirty one,
- Trauma by ball while playing nineteen,
- Road side accidents eight RSA,
- trauma by fall four from height and
- trauma by horn of goat two,
- Bird strike child while he was sitting on motorbike in front of his father were one



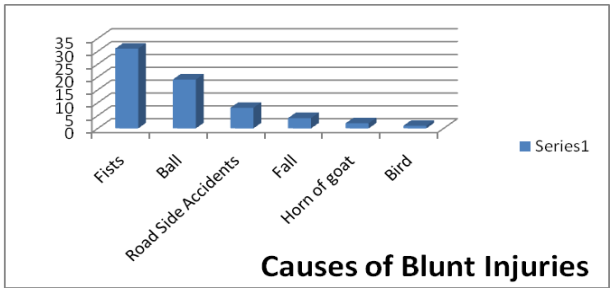


Fig 1: Black eye and subconjunctival Hemorrhage

Perforations were total thirty ;by sticks twenty, Iron foreign Bodies two, sharp Pencil four, cock's beak two and surma two.

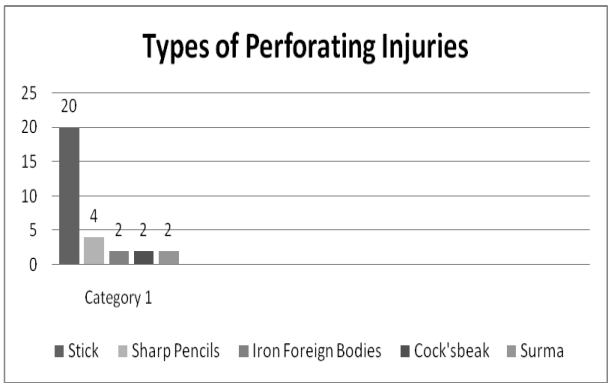


Fig. 2 Perforation by Iron Foreign Body

Chemical Injuries were 14; Out of which

- Acid of battery were seven (7)
- ,Elfy three (3) and
- oil at home four(4).

Blast Injuries were total eight (8); out of which

- Patakha at wedding ceremony five (5);
- Bomb blast at Sui Balochistan were three (3).

Firearm Injuries were three (3) which happened accidently while firing at village.

DISCUSSION

In our study we observe that eye injuries among children are can be avoided mostly. If they occur then by prompt evaluation and treatment we can minimize the risk of loss of sight.

In our study Male children were more (58.3%) than female children (41.7%). It is because in our society Male children have more outdoor activity. Omer et al gave male 67% and female children 33% in their study in KPK (Khybar Pakhtonkha). Although it is in Pakistan but difference might be due to our studies at Southern Punjab and Pakhton cultures[8]. Out of 120 cases Injuries by blunt trauma were sixty five 65(54.16%). Sana Nadeem et al found Blunt trauma 47%[9]; but this study was for all age group. Tehmina Jehangir et al showed Sharp Object injuries 32% and blunt object injuries 27% in their study[10]. Their study was for all age group and at Lahore city; so difference might be due to this. Fasih and associates had similar findings in their study penetrating and blunt trauma was more than chemical, electrical and thermal trauma[11]. We have found that children got blunt Injury by many ways as 31-Chidren got trauma by fists while fighting. This Fist trauma remained the highest mode (47.69%) of Blunt injury among children and luckily was safe vision vise in the long the run. Children have habit of fighting and they use their fists usually. Sana Nadeem et al did not find any case of blunt trauma by fist[9] but her study was for elder. In Blunt Injuries, Trauma by ball (29.23%) while playing was second to Fist Trauma .We all know that Children are fond of playing Cricket and football etc .Ball injuries were in Playground. Road side accidents nine (8), and trauma by fall was four (4) from height. Tahira et al found children of ocular trauma while surveying Victims of Earthquake of Isalambd 2005; they all had got Balck eye and fracture of flour of Orbit[12].In our study no such children was found as in our region no such disaster happened by Grace of Allah Almighty. Trauma by horn of goat was two (2); theses two children had villager background. In villages such injuries are very common. There was one strange injury; bird strike the face of child while he was sitting on motorbike in front of his father. Perforating Injuries were thirty (25%), Sana Nadeem et al showed 27% perforating injuries [9].Tehmina et al study revealed it 32%[10]. Difference among these studies is not too much marked. Megan Brophy et al found it 20.9%;this study is conducted at America.[13]In our study Sticks was object of trauma in twenty (66.67%).Dr. Omer Khan et al showed it 30.7%[8]. Their study was at Khyber Pakhtonkha (KPK), Sana Nadeem et al showed it 12% but this study was in adults[9]. Rahimyarkhan and its surroundings is Agarian society and stick injury is very common. Four children (13.33%) got perforation in Globe by Sharp Pencil. Sharp pencil is used for school work. Two children (6.66%) got injury by Cock's beak; these cocks were fighter and used for gambling, all children were villager. Injury by Cocks' beak was so severe that none of eye was saved. Dr. Omer et al found Bird's beak injury 2.12%[8]. Two children got perforation(6.66%) by rod of Surma; both were infants and their grandmothers used it for the purpose of making big eyes. Two (6.66%) children got perforation by Iron Foreign Bodies as they were chiseling at workshop. Out of 120 cases, Chemical Injuries were 14(11.66%).Tehmina Jeahngir et al showed Burn injury 8%[10].Sana Nadeem et al found it 2.4%[9]. Only common point was less ratio of chemical injuries than other types. Different subtypes of chemical injuries were noted. 7-Children were victim of Acid of battery of cars and they all got it while working at workshop. Elfie was dropped in three (3) children as they were opening it at home. Four (4) children got burn by oil as their mothers were frying something in kitchen. Blast Injuries were total eight (6.66%). Firework by Patakha at wedding ceremony

injured five children. Bomb blast at Sui Balochistan victimized three children. Bomb blast affects both eyes and other organ of body. In eye multiple foreign bodies are seen within the cornea along with dust, and powder of blast. Mumtaz et al found very disappointing results in their study[14]; their study was at KPK. Our victims were from Sui Balochistan which is bad area as far as law and order is concerned. Similarly KPK is always a disturbing area. Firearm Injuries were three (2.5%) where pellets entered into Globe and vision was lost. This happened in wedding ceremony as children were watching it. Sana Nadeem et al showed pistol injury 1.2% and pellet injury 1.2%[9] while Tehmina et al study revealed it 3%[10].

If we see above causes and damage to eye because of them; we find a range of damage from minor to vision loss and even organ loss. But all causes were preventable. Cole MD et al have shown that prophylactic measures and seat belt law has reduced eye injuries by 47-to-65%[15]. Simply by educating parents, creating awareness in society by mass media campaign, implementing laws of child labor and regulating road traffic; we can reduce incidents of pediatric eye injuries markedly. Fist trauma can be reduced by educating the children. Stick trauma is again preventable. Children use branches of tree to fight and play which has irregular and sharp edges; don't allow the children to fight and play with such sticks. Road side accidents are results of avoiding traffic rules. Motor cycles are much more involved in such accidents. Parents are accustomed to seat children in front of them; we find such children without helmet. Children size helmet should be used and children should not be seated in front of parents. Blunt injuries by horn of goat in villages can be avoided by free movements of goats as it was noted that goats moved freely in such incidents .Perforating injuries by sharp pencils are preventable; don't allow children to sharpen too much the pencil and teachers and parents should be advised to blunt the sharp pencils. Two Infants got perforation of eyes while their Grandmothers were putting 'Surma' in their eyes; this is one of tradition based on assumption ' Surma will broaden eyes'; this can be stopped by awareness. Cock's beak perforations were done by fighting cocks; such fights are very common in our villages and these cocks are very costly. Parents should be advised that fighting cocks should not be kept at home as they always attack small children. Few children got perforation by Iron Foreign bodies, they all were working in workshops against labor laws and without proper protection. Few children got Chemical injuries as Acid burn by car batteries, elfies etc. These are preventable by implementations of laws and suitable safety guards. We see oil dropped in eyes of while their mothers frying something in kitchen; mothers should be advised stop children coming near to fire. Injuries by fireworks in marriages; firearms in functions and blasts are matter of law and order.

CONCLUSION

Pediatric Ocular injuries can result into lifelong morbidity. But these grave problems are preventable. Prevention is possible by Mass media awareness, education, and acting on traffic rules, implementation of law and order and maintaining the writ of State. Once Ocular injury happened then without delay by prompt diagnosis and management we can reduce the morbidity.

REFRENCES

1. Strenberg Jr,de jaur Jr E,Michels Rg. Penetrating Ocular injuries in young patients; Initial injuries and Visual Results.retimna 1984;4(1);5-8
2. Eagling EM. Perforating Injuries of Eye. B.J.O 1976;60(11);732-736.
3. Thylefors B. Epidemological Patterns of Ocular Trauma. Aust NZJ Ophthalmology1992.20;95-8.
4. Khattak MN, et al. Untreatable monocular blindness in Pakistani patients. PJO1992;8;3-5
5. Bernard Knight, ed. Simpson's Forensic Medicine. 11th Ed. London: Arnold, 1997 : 52.
6. J. S. Olshaker, M.C. Jackson, W.S. Smock, eds. Forensic Emergency Medicine. 2nd Ed. Philadelphia: Lippincott Williams and Wilkins, 2007 : 216, 217
7. Kuhn F, Morris R,Witherspoon CD, Master V. The Birmingham Eye Truama Terminology System (BETT)> J Fr Ophthalmol.2004;27;206-10
8. Omer et al –Penetrating Ocular Injuries in Children.Vol7 No.4 Oct-Dec 2009 Ophthalmology Internationl Updates page 18-19.
9. Sana Nadeem,Muhammad ayub,Humaria fawad. Pak J Opthalmology.2013 Vol 29 (1)34-39.
10. Dr. Tehmina Jehangir,Nadeem Hafeez Butt, Uzma Hamza, Haroon Tayyab, Samina Jehangir PJO 2011,Vol 27(2) 96-102.
11. Fasih U, Shaikh A, Fehmi MS. Occupational Ocular Trauma (Causes Management and Prevention) PJO.2004;20;65-73.
12. Tahira, Tayyab, Asif. AlShifa Juornal of Ophtahalmology 2012; 8(1);20-27. 15-24.Dr.Tehmina Jehangir,Nadeem Hafeez Butt, Uzma Hamza, Haroon Tayyab, Samina Jehangir PJO 2011,Vol 27(2) 96-102.
13. Megan Brophy, Sara A. Sinclair, MPH, Sarah Grim Hostetler, BA, Huiyun Xiang, MD, MPH, PhD. Pediatric Eye Injury–Related Hospitalizations in the United States. *Pediatrics Vol. 117 No. 6 June 1, 2006 pp. e1263 -e1271 (doi: 10.1542/peds.2005-1950).*
14. Mumtaz Akam, Mastafa Iqbal Pak J Ophthalmol 2013,vol 29 No.(1).8-11.
15. Cole MD, Clearkin L, Dabbs T. The seat belt law and after. British J Ophthal .1987;71:436-440.