



## CAUSES AND VISUAL OUTCOME OF CHILDHOOD EYE INJURIES A CLINICAL STUDY

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**ABSTRACT** **Aim:** To study the causes and Visual outcome of Childhood Eye injuries  
**Materials and Methods:** This is a prospective interventional study conducted at Department of Trauma of Sarojini devi eye hospital between March 2012 to February 2013. 60 patients of Ocular Trauma aged between 0-15 years were included in the study. Patients with poly trauma and injury to other parts of body were excluded from study. Patients who lost the follow up were also excluded from study. Informed consent was obtained from Parents and legal guardians of all patients included in the study. Through examination was done using torch and loupe. Examination under general anaesthesia was performed in special cases. Visual acuity was recorded by best possible methods. Patients were treated according to the type of injury.  
**Results:** Of 60 cases included in the study 41 were males and 19 were females. In 38 cases right eye was involved in 19 LE was involved. In 3 cases both eyes was injured. 37 had open globe injury. 15 had blunt trauma. 1 case had chemical injury, 2 had thermal trauma to eyes. 5 had lid laceration.  
**Conclusions:** Recovery of vision was good in blunt trauma, chemical injury and thermal injury. Patient who had lid laceration maintained same visual acuity at the time of discharge as at the time of admission. Patients with open globe injury involving zone II had good recovery of vision with single intervention. Open globe injury patients with involvement of zone I had to undergo more than one intervention before they had good visual acuity. Those with zone III injury with expulsion of contents of globe didn't recover the vision.

**KEYWORDS :** RE (right eye), LE(Left eye), Blunt trauma, Lid Laceration, Open globe injury, Visual acuity.

**Introduction:**

Negrel and Thylefors reported that worldwide 1.6 million people are blind secondary to ocular injuries, 2.3 million with low visual acuity bilaterally and 19 million with unilateral blindness or low vision<sup>1</sup>. Children below 15 years are more prone to injuries. In India there is a spurt in injury to eyes among children after the advent of telecasting of Mythological serials like Mahabharata and Ramayana. Children will get injured while playing with toy bow and are Penetrating injuries known to carry a poor prognosis than blunt injuries. The prognosis for severely injured eyes has improved with the development of advance microsurgical technique and better understanding of reaction to trauma and judicious use of Systemic and topical steroid<sup>2</sup>.

**Materials and Methods:** This is a Prospective interventional study conducted at the department of trauma of Sarojini Devi eye Hospital between March 2012 to February 2013. 60 cases of trauma to eyes were included in the study. 42 were males and 18 were females. Patients who had poly trauma and those who lost on follow up were excluded from the study. Informed consent was obtained from parents or legal guardians of all patients. All the cases were examined by an experienced Ophthalmologist using Torch and loupe in infants. Elder children who were cooperative were examined on slit lamp, Direct and Indirect Ophthalmoscopy. Ocular investigations like B scan to rule out retained intra ocular foreign body and vitreous hemorrhage and VEP was done in cases wherever it was necessary. Necessary Investigations was done for subjecting children to general anaesthesia. Photographic documentation was done. Visual acuity was recorded using preferential looking and Optokinetic Nystagmus in infants. In Pre school children visual acuity was recorded by Allen's picture chart and Sheridans tumbling E. All children were examined under general anaesthesia for the extent of injury and examination of posterior segment using indirect Ophthalmoscope. Eye wash with saline done if required. Medical treatment like Topical antibiotic eye drops and Cycloplegics drops were prescribed in cases of closed globe injury. Micro surgical suturing was done in Open globe injury. Corneal lacerations were sutured using 10/0 Nylon sutures. Scleral tears were sutured using 5/0 Ethibond sutures. All cases of open globe injury was prescribed Steroid antibiotic eye drops along with Cycloplegics eye

drops. Patient with open globe injury were also prescribed oral steroid ie. Prednisolone 1mg/Kg body weight stat with 10 mg of Panto prazole orally. Systemic broad antibiotics was given in all cases of open globe injury and lid lacerations.

**Results:** Of 60 cases treated, 37 had Open globe injury, 15 had blunt trauma, 1 had chemical injury, 2 had thermal injury and 5 had Lid laceration.

Type of injury	No. of cases	Males	Females
Open globe injury	37	23	14
Blunt trauma	15	12	3
Chemical injury	1	1	0
Thermal injury	2	2	0
Lid laceration	5	4	1

Open globe injury was caused by injury with Pencil, Needle of disposable syringe, Fall on sharp object while playing and while playing with toy Bow and Arrow. Blunt trauma was caused by Tennis ball, Stone, Hit on eye by fist blow and slap. Chemical injury was accidentally caused by home cleaning Phenyl falling into the eye of child. Thermal injury is caused by cracker explosion at home during festival. Lid laceration is caused by blouse hook of mother while feeding the child.

Chemical injury case presented with mild chemosis and corneal abrasion. Visual acuity at the time of presentation was 6/12. On treatment patient recovered completely with 6/6 visual acuity.

Thermal trauma cases had singeing of lashes and scalding of skin of lids and congestion of conjunctiva. They had Foreign bodies on cornea. Visual acuity was 6/36. On removal of foreign bodies from cornea and medical treatment patient recovered with 6/9 visual acuity.

Lid laceration cases didn't have any injury to globe. Lid laceration was repaired under general anaesthesia.

Of 15 Closed globe injury cases 11 presented with visual acuity of 6/18 to 6/60. They had mild congestion, lid hematoma and minimal Hyphaema. All of them recovered with medical management and had improvement in visual acuity upto 3 lines on Snellens chart. Four cases presented with visual acuity of < 1/60 to PL +ve. They had vitreous hemorrhage and one case had Traumatic sub luxation of lens and Retinal detachment. Vitreous hemorrhage cases underwent Pars plana vitrectomy and improved unaided vision upto 6/18. Case who had RD had RD surgery and recovered vision upto 6/60.

Of 37 open globe injury cases, 13 had injury involving Zone I, 17 had Zone II injury, 7 had injury involving Zone III with expulsion of contents of Globe. Cases involving Zone II presented with visual acuity of 6/36 to 3/60. On primary repair of corneo- sclera wound patient recovered with 6/12 to 6/60 vision.

13 cases involving Zone I had visual acuity of 3/60 to PL +ve. All cases had primary wound repair using 10' 0 Nylon suture and formation of anterior chamber after AC wash. 7 cases had recovered and had visual acuity of 6/36 with corneal opacity. 5 cases had extraction of traumatic cataract with IOL implantation at later date. They could recover the vision upto 6/60 with corneal opacity. 1 case had retained intra ocular and Traumatic cataract. Triple procedure of extraction of cataract with IOL implantation and Pars plana vitrectomy and IOFB removal was undertaken. Patient could not recover the vision and had PL +ve only.

7 cases with Zone III injury with expulsion of content of globe presented with PL+ ve to No PL. They had pthisis bulbi over a period of time.

#### Discussion:

Caroline J Mac Ewen et al<sup>3</sup> studied 415 patients of eye injury in children below 15 years. They found 70% were males and 30% were females. Right eye injury was predominant. Blunt trauma during sporting activities were major cause.

Saxena R et al<sup>4</sup> studied pattern of Paediatric eye traum in India. Of 204 cases studied 65% were males, 35% were females. 54% had Open globe injury, 43% had blunt trauma, 4% Chemical injury. Common cause of globe perforation is Toy Bow and Arrow injury

Adeyinka o Ashaye et al<sup>5</sup> studied 205 cases of eye injury among children and adolescent. They reported 71% were male and 29% were females. Place of injury was home and school. 40% had penetrating trauma and 31% had contusion. Remaining 29% constitute Lid abrasion, Chemical injuries and hematoma of lids and Sub conjunctival hemorrhage.

Vastsal Katiyar et al<sup>6</sup> studied 191 cases of Ocular trauma in Indian Paediatric population. They reported 80% were male 20% were females 60% had Open globe injury and 30% had Blunt trauma, 10% had chemical injury.

Satyendra singh et al<sup>7</sup> reported 220 cases of paediatric ocular trauma. Male: Female ratio was 2.5:1. 68% had penetrating trauma 30% had blunt trauma 2% had chemical injury. Main cause of penetrating trauma was Toy Bow and Arrow injury.

In present study we also found that there is male predominance in getting injured. 37 had Open globe injury. Major cause of penetrating trauma was Bow and Arrow injury, followed by injury with Needle of disposable syringe and then Pencil. Blunt trauma constituted 15 cases was the next common injury. Majority get injured while playing cricket with Tennis ball or Gilli danda. 2 had cracker burns to lids during marriage party. 1 case had chemical injury with bath room Phenyl. 5 infants had lower lid laceration with mother's blouse hook while breast feeding.

**Conclusion:** Male child are more prone to injuries as they go out to play. All Indian studies showed that main cause of penetrating trauma to eye is because of Bow and Arrow injuries. There is steep rise in these type of injuries after the telecasting of Mythological serials on national television. Blunt trauma is second common cause of injury to the eye. Chemical and thermal injuries are least common cause. There is unique type of lid laceration among infants by blouse hook of mother while breast feeding them. This can be avoided by educating Post natal

mothers to wear blouses with buttons instead of hooks. Bow and Arrow injuries can be minimised by giving statutory warning before starting serial on TV that playing with toy Bow and Arrow is injurious to eyes. Medical professional should dispose off used syringe in prescribed manner rather than throwing them in general household garbage. By this simple measure children will not have access to used disposable syringe needles.

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