



## A Clinical Study of Perforating injuries of the Eye

### KEYWORDS

Perforating injuries, Primary repair, pentagon approach., follow up.

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### ABSTRACT

*The aim of the study is to identify the causes, demographic and clinical profile and evaluate the final visual outcome of perforating injuries. This study involves 116 cases of perforating injuries treated at Regional Eye Hospital, Kurnool. Out of 116 cases perforating ocular injuries are high in the age group 21 – 40 years with males more vulnerable both in civilian and industrial sector. Common ocular structure involved was cornea followed by lens and iris. With intervening management the visual outcome was good to moderate. In corneal and posterior segment involvement visual prognosis was very poor. This clearly stresses the need for seeking early professional medical help by specialists. A primary repair with pentagon approach and constant follow up is important to restore better visual outcome and a need for preventive measures.*

### INTRODUCTION :

Ocular trauma is an important cause of blindness in modern society. The pattern of trauma vary according to the environment military or civilian, industrial, agricultural or domestic. Despite the natural anatomical protection by orbit and nose, physiologically by blink reflex, head turning reflex and lacrimation injuries to eye are common and of severe implication than any other part of the body because of its constant exposure to the outer world and its delicacy. The causes are innumerable and bizarre like knives, forks, pins, needles, glass, toys to whiplash, acts of claw or teeth of a dog. Perforating injuries are day today occurrence. The clinical picture varies from a fine puncture without clinical symptoms to extensive lacerating wound disorganizing the globe. Even a minute perforating corneal wound leaves some scarring. The complications may range from infection to non infective sympathetic ophthalmitis and retained IOFB with sequelae. Unfortunately these are common in young males and children having economic and health implications. Identification of factors in aetiology of serious injuries help us to determine the effective methods in reducing the incidence of visually damaging trauma. It is in this context present study is carried out.

### MATERIALS AND METHODS :

116 cases of perforating injuries of the eye randomly selected from the patients presenting to Regional Eye Hospital, Kurnool are studied. After eliciting history evaluation of visual acuity, anterior segment examination with diffuse illumination and slit lamp, fundus examination with direct and indirect ophthalmoscopy done wherever possible. All cases were investigated for haemoglobin, urine examination, xray of orbit, ultrasonogram and CT scan wherever needed. Opinion of neurosurgeon and ENT surgeon was obtained for deserving cases. After treatment these cases were followed up for an average period of 3 months. Minor eye injuries like small corneal foreign bodies, abrasions were treated at out patient. Perforating injuries involving two and more than two structures where surgical intervention required were prepared for anaesthesia and surgery. Lid lacerations, conjunctival, corneal and scleral tears were sutured. Prolapsed iris abscised. Dislocated lens extracted. Traumatic cataract was managed by ECCE with IOL implantation if posterior capsule was intact. Injury to pos-

teriorsegment and retained IOFB were referred to higher institutes for further management.

### OBSERVATIONS AND DISCUSSION:

A total number of 116 cases of perforating injuries attended at Regional Eye Hospital, Kurnool for a period of 2 years were studied. The incidence of perforating injuries belonged to the age group of

21 – 40 years 52(44.82%) and 0 – 10 years 18(15.5%) which indicate the high chances of exposure to trauma by work. In children due to work and play. Accidents to school children at home and school are commoner as they are more mature and independent than younger children. Adults mostly rural, and urban semi/unskilled workers in field, factory, lab, workshops, road traffic accidents and students in sports males and boys are more exposed 72(62.06%) most striking observation non occupational injuries 84(72.41%) 3 times more than occupational injuries 32(27.58%) suggests the domestic and civilian life are no less than industrial life. Involvement of right eye is higher 62(53.44%) as majority are right handed and bilateral cases seen in 2 cases due to bomb blast injury. The commonest object causing perforating injury is stone 31(26.72%), stick 23(19.82%) and thorn 21(18.10%) unique to our country. In our series 21 cases were during stone cutting 21(18.16%) and 3 cases in quarries blast. In 48 cases (41.37%) in field due to stick, thorn, thorny stick and 2 cases by dry paddy grain (Tab 1). The chief structure involved was cornea 97 cases (83.62%) from minor pinpoint to corneal tears with iris prolapse, iridodialysis, ciliary body tear in 37 cases (31.89%) (Tab . 2) with the corneal opacity as commonest sequelae in 86(74.13%) and adherent leucoma 17(14.65%) lens involved in 34(29.31%) with sub luxation 6(5.17%) rupture of anterior capsule 18(15.5%) dislocation 2(1.72%) all followed by traumatic cataract in our series (Tab.3) 17 cases (14.65%) presented with vitreous Haemorrhage in 3(2.58%) and retinal detachment in 10(8.62%). 8 cases of IOFB (6.89%) of which 2 cases are iron piece, 3 cases stones and one case cilia of eye lid and 2 cases are of unknown aetiology. With late sequelae pthisis bulbi 14(12.06%) endophthalmitis 12(10.34%) and panophthalmitis 10(8.62%). The visual outcome was 6/18 to 6/60 in 43 cases (37.06%) due to corneal opacity, posterior capsular opacity and pigment dispersion over lens.

Counting fingers (CF) to hand movements (HM) in (25.86%) in corneoscleral injuries and post traumatic cataract treated with PCIOL. No perception of light in 19 cases (16.37%) with vitreous haemorrhage, retinal detachment and endophthalmitis, 19 cases lost follow up (Tab.4)

#### PLACE OF INJURY : Tab-1

S.No.	Place of Injury	No. of cases	Percentage(%)
1	Field	48	41.37
2	Stone Cutting and quarry	21	18.10
3	Home	23	19.82
4	Road	11	9.48
5	Play ground	9	7.75
6	Others	4	3.44

#### INVOLVEMENT OF OCULAR STRUCTURE: Tab - 2

S.No.	Ocular structure	No. of eyes	Percentage (%)
1	Lids	6	5.17
2	Lacrimal apparatus	0	0
3	Conjunctiva	6	5.17
4	Cornea	97	83.62
5	Corneo-scleral	13	11.20
6	Scleral	6	5.17
7	Iris	31	26.72
8	Ciliary body	6	5.17
9	Lens	34	29.31
10	Posterior segment	17	14.65
11	Orbit	2	1.72

#### COMMON COMPLICATIONS AND SEQUELAE : Tab - 3

S.No	Complications/Sequelae	No. of Cases	Percentage (%)
1	Corneal opacity	86	74.13
2	Adherent leucoma	17	14.65
3	Lens cataract/sub luxation and dislocation	34	29.31
4	Secondary glaucoma	6	5.17
5	Posterior segment damage	10	8.62
6	Retinal detachment	3	2.58
7	Fracture nasal or orbital bone	2	1.72
8	Panophthalmitis	10	8.62
9	Endophthalmitis	12	10.34
10	Pthisis bulbi	14	12.06

#### VISUAL OUTCOME : Tab - 4

s.no.	Visual acuity	No. of cases	Percentage (%)
1	6/6	0	0
2	6/18	8	6.89
3	6/24	9	7.75
4	6/36	14	12.06
5	6/60	12	10.34
6	6/60 – CF 3mt	5	4.31
7	CF – HM+	30	25.86
8	HM+-NOPL	19	16.37
9	Unknown	19	16.37

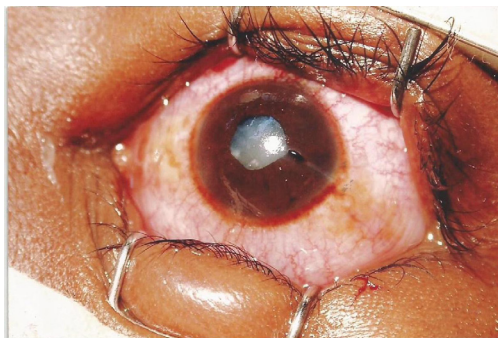


Fig :- 1 Trumatic Cataract with IRIS Prolapse



Fig :- 2 Post Operative – After Corneal Tear Repair

#### SUMMARY AND CONCLUSION :

This study comprises 116 cases of perforating injuries of various grades attending Regional Eye Hospital, Kurnool for a period of two years. The incidence of perforating injuries high in the age group 21 – 40 years 52(44.82%) and high incidence in children between 0 – 10 years 18(15.51%). Males are more vulnerable 72(62.06%) and females 44(37.93%) with male to female ratio 2 : 1. Non occupational injuries 3 times 84(72.4%) commoner compared to occupational injuries 32(27.58%) suggests the equal hazard in civilian life. Common ocular structure is cornea 97(83.62%) followed by lens 34(29.3%) and iris 31(26.72%) Many a time object involved is non organic 57(50.86%) and non metallic is common causative agent 45(38.79%) with stone 31(26.72%) stick 23(19.82%) and thorn 21(18.10%) in our study. Corneal opacity is leading complication in 86(74.13%) and lens sequelae 34(29.31%). The visual prognosis depends upon extent of ocular structure involved, initial visual acuity and management facilities. In this study visual outcome was good in 43(37.06%) cases and moderate in 32.75% cases. In conclusion this study emphasizes the fact that ocular trauma is frequent in this region and constitute a major health problem. Thorough evaluation, meticulous attention of primary repair, pentagon approach with constant follow up are crucial to restore visual functions. In our study we felt that every effort should be done to prevent ocular injuries like improving the safety measures at work places like while cutting stones, during blasting in quarries and mines, improved domestic habits such as chopping and gathering wood, cutting grass, grazing animals, enforcing industrial safeguards, supervision of un-organized conventional play of children, protective aids and goggles for at risk population. Increasing the awareness and encouraging to seek professional medical help earliest and danger in delaying the treatment to be stressed.

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