STUDY OF CLINICAL AND DEMOGRAPHIC PROFILE OF OCULAR TRAUMA AND ITS EFFECT ON VISUAL OUTCOME

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ABSTRACT

BACKGROUND

Ocular trauma is an important preventable cause of visual morbidity, especially among younger population in developing countries. It constitutes a significant cause of monocular blindness.

Aims- To study the demographic and clinical profile of ocular trauma and its effect on visual outcome.

MATERIALS AND METHODS

This prospective study was conducted on 200 patients visiting Regional Institute of Ophthalmology, Govt. Medical College, Amritsar with ocular trauma. All patients above 5 years of age were included in the study. Patients with comorbid eye diseases affecting the visual acuity were excluded from the study. Data obtained was tabulated and analysed statistically.

RESULTS

Out of 100 patients, 46% were between 16 - 35 years of age. Males (88%) were predominantly affected. Road side accident (30%) was found to be the most common cause of injury; 71 patients presented within 5 days of injury. Closed globe injury (81%) was more common than open globe. Conjunctiva (80 patients) was the most commonly involved ocular structure followed by eyelids (60 patients). The visual acuity observed in the affected eye at the time of admission was between 6/18 - 6/6 in 44% of patients followed by < 3/60 in 25%.

CONCLUSION

Road side accident is the most common cause of ocular trauma. Younger age group and males are predominantly affected. Closed globe is the common type of injury and conjunctiva is the mostly affected ocular structure.

KEYWORDS

Ocular Trauma, Conjunctiva, Visual Acuity.

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BACKGROUND

Ocular trauma is one of the commonest causes of ophthalmic morbidity and monocular blindness in all parts of the world. They have a significant impact on an individual and society in terms of sufferings, medical cost and loss of productivity.⁽¹⁾

The eyes occupy only 0.1% of the total and 0.27% of the anterior body surface area; however, ocular trauma is far more commonly seen than what these small figures might indicate. Out of all types of ocular emergencies, ocular trauma is by far the commonest constituting nearly 75% of all ocular emergencies.⁽²⁾

There are approximately 1.6 million people blind due to injuries, additional 2.3 million cases have bilateral low visual disability and 19 million have unilateral visual impairment.⁽³⁾

The World Health Organisation program for the prevention of blindness, research indicated that there are approximately 55 million eye injuries per year that restrict activities for more than one day.⁽⁴⁾

In India, there are more than 50 million blind people and this number increases by about 3.8 million per year. Amongst the total number of blind cases, 1.2 percent is contributed by injuries which are preventable.⁽⁵⁾

Nearly, 90% of eye injuries can be prevented by relatively simple measures.⁽⁶⁾

Classification of Ocular Trauma (Birmingham Eye Trauma Terminology)

1. Closed Globe

- (a) Contusion.
- (b) Lamellar Laceration (Partial thickness wound in eye wall).

2. Open Globe

- (a) Penetrating (Entrance wound only).
- (b) Perforating (Entrance and exit wound).
- (c) IOFB (Intraocular Foreign Body).
- (d) Globe Rupture.⁽⁷⁾

Looking at the present scenario of working pattern and visual demands of patients and the use of sophisticated

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instruments, it has become mandatory on the part of an ophthalmologist to identify the various ocular structures involved due to trauma, which may vary in severity and provide best vision if managed at its earliest. It is essential to study not only recent injuries, but also study the eyes which have sustained an injury at variable time intervals earlier.

Aims

To study the demographic and clinical pattern of ocular trauma and to assess its effect on visual acuity.

MATERIALS AND METHODS

A prospective, non-comparative study was conducted in Regional Institute of Ophthalmology, Amritsar, Punjab, India. 100 patients were studied regarding mode, type, severity of injury. The study was conducted after approval from thesis and ethical committee. Informed consent was taken. Patient had the right to opt out of the trial at any time during the course of study without having to give the reasons for doing so.

Inclusion Criteria

All patients above 5 years of age with ocular trauma were included in the study.

Exclusion Criteria

1. Children less than 5 years.
2. Comorbid eye diseases affecting visual acuity.

When a patient presented with a history of ocular trauma, following findings were recorded

1. General history.
2. Detailed history of traumatic event.
3. General physical examination.
4. Recording of presenting vision (Snellen's visual acuity).
5. External examination of eye (adnexa).
6. Ocular motility.
7. Pupils (Size, shape, symmetry, reaction to light).
8. Anterior segment (Conjunctiva, cornea, anterior chamber, iris, lens).
9. Posterior segment (Vitreous, retina, macula, choroid and sclera).
10. Intraocular pressure. (Measured by non-contact tonometer or digitally as feasible).

Ancillary Diagnostic Tests were used when required which Included

1. Plain x-ray.
2. B-scan.
3. CT scan.
4. MRI scan.

Patient was managed medically or surgically as required.

Final best corrected visual acuity was recorded using Snellen's chart following the treatment.

RESULTS

Out of 100 patients, 88 were males and 12 were females. (Table 1) 19 were between the age group 6 - 15 years, 23 each were between the age group 16 - 25 years and 26 - 35 years, 12 were between the age group 36 - 45 years, 14 were

between the age group 46 - 55 years and 9 were more than 55 years (Table 2).

Sex	No. of Patients	% Age
Male	88	88.0
Female	12	12.0
Total	100	100.0

Table 1. Showing Sex Incidence

Age Group (Years)	No. of Patients	% Age
6 - 15	19	19.0
16 - 25	23	23.0
26 - 35	23	23.0
36 - 45	12	12.0
46 - 55	14	14.0
> 55	9	9.0
Total	100	100.0

Table 2. Showing Age Incidence

Eye	No. of Patients	% Age
OD (Right)	49	49.0
OS (Left)	49	49.0
OU (Both)	2	2.0
Total	100	100.0

Table 3. Showing Eye Involved

Table 3 shows that out of 100 patients 49 patients had an injury in right eye, 49 patients had in left eye and 2 had in both eyes. Bilateral injuries were caused by roadside accident.

Occupation	No. of Patients	% Age
Student	34	34.0
Labour	21	21.0
Farmer	13	13.0
Industry	13	13.0
Housewife	8	8.0
Sedentary	7	7.0
Nil	4	4.0
Total	100	100.0

Table 4. Showing Occupation of Patients with Ocular Trauma

Table 4 shows that out of 100 patients 34 were students, 21 were labourers, 13 each were farmers and industrial workers, 8 were housewives, 7 were sedentary workers and 4 were unemployed.

Source/Place	No. of Patients	% Age
RSA	30	30.0
Home	22	22.0
Assault	20	20.0
Work	15	15.0
Sports	13	13.0
Total	100	100.0

Table 5. Showing Place of Injury

Table 5 shows that out of 100 patients, majority (30 patients) were involved in road side accidents, 22 patients had home-related injuries, 20 were assaulted, 15 were injured at work place and 13 while playing.

Object	No. of Patients	% Age
RSA	30	30.0
Wood	12	12.0
Stick	10	10.0
Fist	8	8.0
Stone	6	6.0
Metal	6	6.0
Rod	5	5.0
Table	4	4.0
Cracker	4	4.0
Glass	2	2.0
Door	2	2.0
Knife	2	2.0
Blade	2	2.0
Sand	1	1.0
Shoe	1	1.0
Pipe	1	1.0
Pillar	1	1.0
Oil	1	1.0
Nail	1	1.0
Tennis Ball	1	1.0
Total	100	100.0

Table 6. Showing Mode of Injury

Table 6 shows that out of 100 patients 30 had Road Side Accidents (RSA), 12 had an injury with wood, 10 with a stick, 8 with a fist, 6 each with stone and metal, 5 with rod, 4 each with table and cracker, 2 each with glass door, knife and blade whereas 1 each with sand, shoe, pipe, pillar, oil, nail and tennis ball.

Time Interval	No. of Patients	% Age
< 24 hours	27	27.0
1 - 5 days	44	44.0
6 days - 1 month	17	17.0
1 month - 12 months	9	9.0
> 12 months	3	3.0
Total	100	100.0

Table 7. Showing Time of Presentation

Table 7 shows that out of 100 patients 27 presented within 24 hours, 44 patients consulted between 1 - 5 days, 17 between 6 days - 1 month, 9 between 1 month - 12 months and 3 patients presented after 12 months.

Type of Injury	No. of Patients	% Age
Closed	81	81.0
Open	19	19.0
Total	100	100.0

Table 8. Showing Type of Injury

Table 8 shows that out of 100 patients, 81 had closed globe injuries, whereas 19 had open globe injuries.

Table 9 shows that out of 100 patients included in our study periorbital lesions were seen in 41 patients, eyelids

were involved in 66 patients, conjunctiva in 79, cornea in 43, anterior chamber in 28, iris in 24, pupil in 38, lens in 15, angle in 3 and posterior segment in 23 patients. Multiple ocular structure involvements were seen in the same patient.

Ocular Structure	No. of Patients	% Age
Periorbital Lesions	41	41.0
Eyelid	66	66.0
Conjunctiva	79	79.0
Cornea	43	43.0
Anterior Chamber	28	28.0
Iris	24	22.0
Pupil	38	39.0
Lens	15	17.0
Angle	3	3.0
Posterior Segment	23	23.0

Table 9. Showing Trauma to Ocular Structures

Periorbital Lesion	No. of Patients	% Age
Oedema	32	78.0
Laceration	8	19.5
Abrasion	7	14.6
Burns	3	7.3
Ecchymosis	2	4.8
Total	41	

Table 10. Showing Periorbital Lesion

Table 10 shows that out of 41 periorbital lesions, commonest was oedema seen in 32 patients followed by laceration (8 patients), abrasion (7 patients), burns (3 patients) and ecchymosis (2 patients).

Table 11 shows that out of 66 eye lid injuries, oedema (62 patients) was the most common finding followed by ecchymosis (53 patients), laceration (14 patients), burns (3 patients), ptosis (2 patients) and scar (1 patient). Multiple types of eyelid injuries were seen in the same patient.

Eyelid	No. of Patients	% Age
Oedema	62	93.9
Ecchymosis	53	80.3
Laceration	14	21.2
Burns	3	4.5
Ptosis	2	3.0
Scar	1	1.5
Total	66	

Table 11. Showing Eyelid Involvement

Conjunctiva	No. of Patients	% Age
Chemosis	61	77.2
Subconjunctival Haemorrhage	51	64.6
Congestion	28	35.4
Laceration	10	12.66
Total	79	

Table 12. Showing Conjunctival Lesions

Table 12 shows that out of 100 patients, 79 had conjunctival injuries. Multiple types of conjunctival injuries

were found in the same patient. Chemosis (61 patients) was the most common finding followed by subconjunctival haemorrhage (51 patients), congestion (28 patients) and laceration in 10 patients.

Corneal	No. of Patients	% Age
Oedema	19	44.1
Laceration	17	39.5
Opacity	10	23.3
Abrasion	10	23.3
Ulceration	7	1.6
PEE	1	2.3
Total	43	

Table 13. Showing Corneal Involvement

Table 13 shows that out of 43 patients with corneal injuries, 19 patients had corneal oedema, 17 had lacerated cornea, 10 each had opacity and abrasion, 7 had corneal ulceration, 1 had punctate epithelial erosions. Multiple types of corneal injuries were found in the same patient.

Anterior Chamber	No. of Patients	% Age
Collapse	19	67.85
Irregular	7	25
Hyphaema	7	25.0
Uveitis	5	17.8
Foreign Body	1	3.5
Total	28	

Table 14. Showing Anterior Chamber (AC) Involvement

Table 14 shows that out of 28 patients with injury involving the anterior chamber, 19 had collapsed AC, 7 each had irregular AC and hyphaema, 5 had uveitis and 1 had foreign body. Multiple anterior chamber lesions were found in the same patient.

Iris	No. of Patients	% Age
Prolapse	11	45.8
Sphincter Tear	6	25.0
Iridodialysis	4	16.7
Iridodonesis	2	8.3
Laceration	1	41.7
Not Accessible (NA)	1	
Total	24	

Table 15. Showing Iris Involvement

Table 15 shows that out of 24 with iris injury, 11 had iris prolapse, 6 had pupillary sphincter tear, 4 had iridodialysis, 2 had iridodonesis and 1 had a laceration, whereas 1 could not be assessed. Multiple types of iris injuries were observed in the same patient.

Pupil	No. of Patients	% Age
Irregular	15	39.5
Eccentric	15	39.5
Mydriatic	8	21.1
Sluggish	7	18.4
RAPD	3	7.9
Posterior Synechiae	2	5.3

NA	1	
Total	38	

Table 16. Showing Pupil Involvement

Table 16 shows that out of 38 patients with trauma to pupil, 15 each had irregular and eccentric pupil, 8 had mydriasis, 4 had a sluggish reaction, 3 had RAPD (Relative Afferent Pupillary Defect) and 2 had posterior synechiae whereas 1 could not be assessed. Multiple types of pupillary lesions were encountered in the same patient.

Sclera	No. of Patients	% Age
Laceration	9	81.8
Rupture	2	18.2
Total	11	

Table 17. Showing Scleral Involvement

Table 17 shows that out of 100 patients, 9 had a laceration of sclera and 2 had ruptured sclera.

Lens	No. of Patients	% Age
Cataract	11	73.3
Subluxation	3	6.7
Dislocation	2	13.33
Could not be assessed	1	6.6
Total	15	

Table 18. Showing Injury to the Lens

Table 18 shows that 15 out of 100 patients had lenticular injury, in which 11 had cataract, 3 had subluxation, 2 had dislocation and it could not be assessed in 1 patient. Multiple lenticular injuries were seen in the same patient.

Angle	No. of Patients	% Age
Recession	3	3.0
Normal	74	74.0
NA	23	23.0

Table 19. Showing Angle Involvement

Table 19 shows that out of 100 patients 3 had an angle recession, whereas it could not be assessed in 23 patients.

Table 20 shows that 9 patients out of 100 suffered traumatic effect to vitreous, of which 6 had haemorrhage, 4 had PVD (Posterior Vitreous Detachment) and 2 had vitreous prolapse. Multiple vitreous lesions were found in the same patient.

Vitreous	No. of Patients	% Age
Haemorrhage	6	66.7
PVD	4	44.4
Vitreous Prolapse	2	22.2
Total	9	

Table 20. Showing Vitreous Involvement

Table 21 shows that out of 12 patients with retinal injury, 5 had retinal detachment followed by commotio retinae in 3 patients, optic atrophy in 2 patients and 1 patient each had tear and macular hole.

Retina	No. of Patients	% Age
Retinal Detachment	5	41.7
Commotio Retinae	3	25.0
Optic Atrophy	2	16.7

Tear	1	8.3
Macular Hole	1	8.3
Total	12	

Table 21. Showing Trauma to Retina

Choroid	No. of Patients	% Age
Rupture	2	66.7
Laceration	1	33.3
Total	3	

Table 22. Showing Choroidal Involvement

Table 22 shows that out of 100 patients 2 suffered from choroidal rupture, whereas 1 had a laceration of choroid.

Time Interval	Presenting VA	No. of Patients	Final BCVA	No. of Patients
< 24 hours	6/6 - 6/18	7	6/6 - 6/18	11
	6/24 - 6/60	3	6/24 - 6/60	0
	5/60 - 3/60	0	5/60 - 3/60	0
	< 3/60	1	< 3/60	0
1 - 5 days	6/6 - 6/18	28	6/6 - 6/18	40
	6/24 - 6/60	12	6/24 - 6/60	1
	5/60 - 3/60	0	5/60 - 3/60	0
	< 3/60	1	< 3/60	0
6 - 30 days	6/6 - 6/18	7	6/6 - 6/18	10
	6/24 - 6/60	3	6/24 - 6/60	5
	5/60 - 3/60	5	5/60 - 3/60	1
	< 3/60	2	< 3/60	1
1 - 12 months	6/6 - 6/18	3	6/6 - 6/18	3
	6/24 - 6/60	0	6/24 - 6/60	3
	5/60 - 3/60	0	5/60 - 3/60	0
	< 3/60	6	< 3/60	3
> 12 months	6/6 - 6/18	0	6/6 - 6/18	1
	6/24 - 6/60	0	6/24 - 6/60	0
	5/60 - 3/60	1	5/60 - 3/60	1
	< 3/60	2	< 3/60	1
Total		81		81

Table 23. Showing Correlation between Visual Acuity and Time Interval between Injury and Presentation to the Hospital in Patients with Closed Globe Injury

Time Interval	Presenting VA	No. of Patients	Final BCVA	No. of Patients
< 24 hours	6/6 - 6/18	0	6/6 - 6/18	4
	6/24 - 6/60	1	6/24 - 6/60	7
	5/60 - 3/60	4	5/60 - 3/60	2
	< 3/60	11	< 3/60	3
1 - 5 days	6/6 - 6/18	0	6/6 - 6/18	0
	6/24 - 6/60	0	6/24 - 6/60	2
	5/60 - 3/60	1	5/60 - 3/60	1
	< 3/60	2	< 3/60	0
6 - 30 days	6/6 - 6/18	0	6/6 - 6/18	0
	6/24 - 6/60	0	6/24 - 6/60	0
	5/60 - 3/60	0	5/60 - 3/60	0

1 - 12 months	< 3/60	0	< 3/60	0
	6/6 - 6/18	0	6/6 - 6/18	0
	6/24 - 6/60	0	6/24 - 6/60	0
	5/60 - 3/60	0	5/60 - 3/60	0
> 12 months	< 3/60	0	< 3/60	0
	6/6 - 6/18	0	6/6 - 6/18	0
	6/24 - 6/60	0	6/24 - 6/60	0
	5/60 - 3/60	0	5/60 - 3/60	0
Total		19		19

Table 24. Showing Correlation between Visual Acuity and Time Interval between Injury and Presentation to the Hospital in Patients with Open Globe Injury

Presenting Visual Acuity	No. of Patients	Final BCVA	No. of Patients
6/6 - 6/18	45	6/6 - 6/18	65
6/24 - 6/60	18	6/24 - 6/60	9
5/60 - 3/60	6	5/60 - 3/60	2
< 3/60	12	< 3/60	5
Total	81	Total	81

Table 25. Showing Correlation between Visual Acuity Outcome and Closed Globe Injury

Table 25 shows that out of 81 patients with closed globe injuries at the time of presentation, 45 had VA between 6/6 - 6/18, 18 had between 6/24 - 6/60, 6 had between 5/60 - 3/60 and 12 had < 3/60. However, after treatment 65 had BCVA between 6/6 - 6/18, 9 had between 6/24 - 6/60, 2 had between 5/60 - 3/60 and only 5 had < 3/60.

Presenting Visual Acuity	No. of Patients	Final BCVA	No. of Patients
6/6 - 6/18	0	6/6 - 6/18	4
6/24 - 6/60	1	6/24 - 6/60	9
5/60 - 3/60	5	5/60 - 3/60	3
< 3/60	13	< 3/60	3
Total	19	Total	19

Table 26. Showing Correlation between Visual Acuity Outcome and Open Globe Injury

Table 26 shows that out of 19 patients with open globe injuries at the time of presentation, 1 had VA between 6/24 - 6/60, 5 had between 5/60 - 3/60 and 13 had < 3/60. However, after treatment 4 had final BCVA between 6/6 - 6/18, 9 had between 6/24 - 6/60 and 3 each had visual acuity between 5/60 - 3/60 and < 3/60.

Extent of Injury	Presenting VA	No. of Patients	Final BCVA	No. of Patients
Anterior Segment (AS)	6/6 - 6/18	43	6/6 - 6/18	65
	6/24 - 6/60	16	6/24 - 6/60	15
	5/60 - 3/60	11	5/60 - 3/60	3

			3/60	
	< 3/60	14	< 3/60	1
Anterior and Posterior Segment (AS + PS)	6/6 - 6/18	2	6/6 - 6/18	4
	6/24 - 6/60	3	6/24 - 6/60	3
	5/60 - 3/60	0	5/60 - 3/60	2
	< 3/60	11	< 3/60	7
Total No. of Patients		100		100
Table 27. Showing Correlation between Extent of Injury and Visual Acuity				

Table 27 shows that out of 84 patients with anterior segment injury, 43 had initial VA between 6/6 - 6/18, 16 had between 6/24 - 6/60, 11 had between 5/60 - 3/60 and 14 had < 3/60. However, after treatment 65 had BCVA between 6/6 - 6/18, 15 had between 6/24 - 6/60, 3 had between 5/60 - 3/60 and 1 had < 3/60. Out of 16 patients with both anterior and posterior segment injury, 2 had initial VA between 6/6 - 6/18, 3 had between 6/24 - 6/60, none had between 5/60 - 3/60 and 11 had < 3/60. However, after treatment, 4 had BCVA between 6/6 - 6/18, 3 had between 6/24 - 6/60, 2 had between 5/60 - 3/60 and 7 had < 3/60 ($P < 0.05$, Pearson's Chi-squared test).

Initial VA	No.	% Age	Final BCVA	No.	% Age
6/6 - 6/18	45	45.0	6/6 - 6/18	69	69.0
6/24 - 6/60	19	20.0	6/24 - 6/60	18	18.0
5/60 - 3/60	11	11.0	5/60 - 3/60	5	5.0
< 3/60	25	25.0	< 3/60	8	8.0
Table 28. Showing Best Corrected Visual Acuity (BCVA)					

Table 28 shows that out of 100 patients, at the time of presentation 45 had VA between 6/6 - 6/18, 19 had between 6/24 - 6/60, 11 had between 5/60 - 3/60 and 25 had < 3/60. However, after treatment 69 had BCVA between 6/6 - 6/18, 18 had between 6/24 - 6/60, 5 had between 5/60 - 3/60 and 8 had < 3/60. Initial VA correlated with the final BCVA (Spearman's correlation coefficient= 0.658; $P < 0.05$).

Table/Fig. 1: Conjunctival Laceration

Table/Fig. 2: Fundus Photograph showing Choroidal Rupture

Table/Fig. 3: Lid Oedema with Ecchymosis and Subconjunctival Haemorrhage

Table/Fig. 4: Lower Canaliculi Injury due to Blunt Trauma

Table/Fig. 5: Traumatic Hyphaema and Cataract

7(b): Metallic Blade retrieved from Eye

Table/Fig. 6: Corneal Laceration with Iris Prolapse and Hyphaema

Table/Fig. 7: Perforating Injury

7(a): Open Globe Injury

7(c): B Scan showing Posterior Segment Tear

DISCUSSION

In our study there was increased incidence of ocular injuries in younger age group and children, 65% patients being under 35 years of age. This was in close relation with Dhasmana R et al⁽⁸⁾ and Gupta S et al.⁽⁹⁾

Males were more commonly involved constituting 88% of the study group. Male preponderance is seen, because they are more frequently exposed to outdoor work compared to females. This was in correlation with Balaghafari A et al¹⁰ and Sharma AK et al.⁽¹¹⁾

The most common cause of injury was road traffic accident (30.0%) followed by injury due to wood (12.0%) and stick (10.0%). This is consistent with some studies, while others do have variety of findings. Enock ME et al⁽¹²⁾ and Mowatt L et al⁽⁴⁾ showed that motorcycle-related road traffic accident was the most common cause of ocular injury.

In our study 27% presented within 24 hours, whereas 44% presented between 1 - 5 days. This was correlated with Saxena R et al.⁽¹³⁾

Patients who came late after injury usually did not suffer from significant symptoms and signs at the time of injury or had received treatment elsewhere and were presenting now with sequelae or complications.

81% had closed globe injuries, whereas 19% had open globe injuries. This was in close correlation with Nirmalan PK et al⁽¹⁴⁾ and Pandita A.⁽¹⁵⁾

In our study, conjunctiva (79%) was the commonly involved structure in ocular trauma followed by trauma to eyelid (66.0%) and cornea (43%).

Oedema (32.0%) was the most common finding in periorbit, whereas oedema (62.0%) followed by ecchymosis (53%) were common in eyelid injuries. Conjunctival chemosis (61%) followed by subconjunctival haemorrhage (51%) were frequent injuries in conjunctiva. Oedema (19%) and laceration (17%) in cornea, collapsed anterior chamber (19.0%) and hyphaema (7.0%), prolapse (11.0%) and sphincter tear (6.0%) were associated frequently with trauma to iris, whereas irregular and eccentric pupil (15.0% each), cataract (11.0%), vitreous haemorrhage (6.0%), retinal detachment (5.0%), choroidal rupture (2.0%) and scleral laceration (9.0%) were the common injuries encountered in our study.

Enock ME et al⁽¹²⁾ showed that the conjunctiva, lids and cornea were the mostly commonly affected structures during ocular trauma. Similarly, Pai SG et al⁽¹⁶⁾ found that the most commonly involved structure was conjunctiva followed by lid and adnexa.

Out of 100 patients studied, 45 had VA between 6/18 - 6/6, 19 had between 6/24 - 6/60, 11 had between 5/60 - 3/60 and 25 had < 3/60 at the time of presentation. However, after treatment, 69 had VA between 6/18 - 6/6, 18 had between 6/24 - 6/60, 5 had between 5/60 - 3/60 and 8 had < 3/60, $p = 0.000$ which is highly significant.

In a study by Qi Y et al⁽¹⁷⁾ it was concluded that 65.5% of patients achieved VA at > 20/60. The factors associated with the final visual outcome were initial VA, injury type, wound location, the way of cataract removal and IOL implantation.

In the study by Maurya RP et al⁽¹⁸⁾ initial visual acuity was good ($\geq 6/18$) in 36.59%, moderate vision ($< 6/18 - 6/60$) in 26.83% and poor vision ($< 6/60$) in 21.95%, while assessment was not possible in 14.63%. Final visual acuity was 6/18 or better in 46.34%, between $< 6/18$ to 3/60 in 21.95% and < 3/60 to no PL in 19.51%. Final visual acuity could not be evaluated in 12.20% cases.

CONCLUSION

We conclude that ocular trauma is more common in males in younger age group. Majority present within 5 days of trauma. Road traffic accident is the most common cause of injury. Closed globe injuries are more common than open globe. Conjunctiva is the most frequently injured structure followed by eyelid. Post management visual acuity depends not only on severity of injury, but also on the time of presentation. Health education in schools and factories can help prevent and early manage ocular trauma. Prompt evaluation and treatment helps salvage the eye both anatomically and functionally, thus significantly reduce both social and economic burden on the society.

Interdisciplinary approaches and community-based strategies are important to make progress in this area of study to save vision.

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