



“Clinical Study and Management of Traumatic Cataract”

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ABSTRACT

Background: Ocular trauma is leading cause of unilateral blindness all over world^{1,2}The ocular trauma incidence varies in different parts of the world. In India, the reported incidence is 20.53%²Ocular trauma is an important cause of visual loss, and cataract formation. Traumatic cataract forms a separate category of cataract as they present with other ocular conditions like corneal tears, iris injury, vitreous haemorrhage and retinal tears. Hence, the success rates may differ in traumatic cataract⁴. Any strategy for prevention requires knowledge of the cause of injury, which may enable more appropriate for targeting of resources towards preventing such injuries⁵. Thus this study

has been undertaken to know the incidence of traumatic cataract, modes of clinical presentation, associated ocular injuries, surgical complications and visual outcome following management.

Objectives:

- To find out Socio-demographic profile of Traumatic Cataract.
- To study Clinical Profile of Traumatic Cataract.
- To find out Visual Prognostic factor.
- To know the intra operative and Post Operative complications and difficulties encountered during the management.
- To assess the visual outcome following surgical management

Methods:

- The current study includes 65 cases of traumatic cataract in patients who will be seen at the Department of Ophthalmology
- The study includes all patients who had traumatic cataracts caused by blunt and penetrating traumas in BMC and RC, Ballari.
- These patients underwent necessary ophthalmic and systemic investigations.

All patients underwent cataract extraction with PCIOL Implantation.

Final visual acuity is assessed at the end of 6 weeks.

Results: Incidence of ocular trauma was more in the age group between 19 -30 years(23%) out of 65 patients 36 male(55.3%) and 29 female patients(44.6%). Increased incidence seen in males indicates relatively more involvement in outdoor activities and their nature of work should also be taken into account. Penetrating trauma was more common than Blunt trauma. Most common type of cataract is total cataract 86%. Vision at the time of presentation was PL-3/60. Time since injury <1week to 12 weeks. All patients underwent cataract extraction with PCIOL implantation and Corneal tear was done for corneal tear patients. Final visual acuity was 6/6-6/18 in 52.5% of patients, 24.5% patients attained final visual acuity of <6/18 – 6/60, visual acuity of <6/60 is seen in 23% of patients. Penetrating injury caused less vision recovery due to corneal scarring and astigmatism.

Interpretation and Conclusion: Cataract extraction with PCIOL Implantation is highly effective in restoring vision in traumatic cataracts. The time lag between injury and surgery should be as short as possible for complete recovery. More importance is given to the preventive measures by educating people on ocular trauma and timely management⁶.

Key words: traumatic cataract, associated ocular injuries, prevention, management, visual outcome.

I. INTRODUCTION

Ocular trauma is relatively common, upto 1/5" of adults will experience ocular trauma at some point in their lives. It occurs most frequently in men and young people.

A study performed by the world health organization estimated that upto 55 million eye injuries occur annually worldwide and up to 1.6million people lose their sight due to trauma. In developed countries it is a major cause of monocular blindness⁷.

Ocular trauma is frequently associated with formation of traumatic cataract, both blunt and penetrating trauma can cause damage to the



crystalline lens. Traumatic Cataract is estimated to occur in upto 27%-65% of eye trauma cases and is major cause of acute and longstanding visual loss worldwide, Traumatic cataract is a special clinical type since it is commonly seen in young individual and children. By causing severe visual impairment in young population it leads to reduced productivity due to loss of manpower and in children it may lead to loss of

binocular single vision if neglected.

Lens can be damaged by both blunt and penetrating trauma. Considerable number of patients present with ocular trauma (both blunt and penetrating) in this part of the country, many being engaged in manual labour owing to the low literacy rate prevalent here, which increases their risk of exposure to accidental ocular trauma.

Since traumatic cataract causes significant visual impairment in younger Population, it is necessary to evaluate the damages caused by it and manage it with timely intervention to restore the vision at the earliest.

A great number of severe injuries now occur during sporting activities. Inevitably, new hazards constantly arise and require continued vigilance.

Although the circumstances of the injury often appear fortuitous. A high proportion of all trauma is predictable and hence avoidable, clearly much depends on the awareness of risk and the use of appropriate safety measures⁸.

Most ocular injuries in rural population occurred at workplace suggesting the need to explore workplace strategies to minimise ocular trauma as a priority⁹.

Thus this study has been undertaken to know the incidence of traumatic cataract, modes of clinical presentation and their management.

II. METHODOLOGY

This study entitled "CLINICAL STUDY AND MANAGEMENT OF TRAUMATIC CATARACT" was conducted in the Department of Ophthalmology, Ballari Medical College and Research Centre, Ballari during the period of July 2022 to December 2023.

Materials & Methods

- The current study includes 65 cases of traumatic cataract in patients who will be seen at the Department of Ophthalmology
- The study includes all patients who had traumatic cataracts caused by blunt and penetrating trauma Ballari Medical College and Research Centre, Ballari.

Source of Data

- Patients Attending Department of Ophthalmology BMC and RC BALLARI from JULY 2022 to DECEMBER 2023 Following inclusion criteria Sufficient Clinical material/sample available (declaration based on last 3 years average in hospital / department)? Yes
- Is the study novel? NO
- Are the outcomes relevant to practice and benefit patients? YES

Inclusion criteria

All Patients with traumatic cataract, following penetrating or blunt eye injury, written consent, Patients with minimum follow-up of 6 weeks

Exclusion criteria- All cases of cataract other than Traumatic Cataract

Method of collection of data (Including sampling procedure, if any)

These 65 traumatic cataract patients will be admitted, and the following examinations will be performed prior to surgery:

1. Ocular Examination.
2. Routine blood analysis.
3. Lacrimal patency test
4. Intraocular pressure measurement
5. General physical examination.
6. B-Scan ultrasonography

Diffuse illumination, slit lamp bio microscopy, indirect ophthalmoscopy will be done.

Preoperative visual acuity will be recorded in both eyes.

Keratometry and A-scan biometry will be done for intraocular power calculation.

All patients will be followed up on a regular basis. After 1st week, 3, and 6 weeks

Visual acuity.

IOP

Retinoscopy and best corrected visual acuity.

Detailed anterior segment evaluation with Slit lamp.

Keratometry for post-operative astigmatism.

Posterior segment evaluation

Sample Size with details

Both penetrating and blunt ocular injuries can result in development of cataracts. There is approximately a 14% lifetime prevalence of ocular trauma in the general population. ⁽¹¹⁾



Mechanisms of ocular injury vary by urban versus rural settings, region of the world, and patient age. Depending on the report, 27-65% of ocular traumas lead to cataract⁽¹²⁾

Taking lowest prevalence rates, based on the formula if we calculate:

$$\text{SAMPLE SIZE (N)} = 4pq/d^2 = 4 \times 0.96 \times 0.04 / 0.0025 = 61 \text{ cases}$$

leaving 5% for loss of follow up total of 65 cases will be included

p = prevalence/ positive factor /proportion

q = 100-p

d = allowable error /precision/variability

Primary outcome, secondary outcomes, side effects

- Good Visual Rehabilitation and with appropriate surgical interventions and intraocular

Lens implantation.

- Role of health education and awareness are critical for preventing avoidable blindness due to traumatic cataract.
- Ocular trauma score and its usefulness in predicting visual prognosis.
- Early diagnosis followed by effective management of traumatic cataract are critical for visual prognosis.

Surgical treatment: Corneoscleral tear repairs was done in case of globe ruptures, Manual small incision cataract surgery was done along with intraocular lens implantation for traumatic cataract.

PROCEDURE

All manual SICS were done under local anaesthesia (peribulbar)

- After a limited conjunctival peritomy. Superior self-sealing sclerocorneal tunnel incision of 6.5 to 7 mm will be created with a crescent blade. Starting 1-1.5 mm behind the limbus.
- This incision was widened to approximately 9.0 mm as it advanced into the clear cornea.
- Side port blade was used to make side port entry.
- Capsulorrhexis or rarely can-opening capsulotomy (6.0-7.0 mm) was performed with a cystotome followed by hydrodissection.

- 2.8 mm keratome blade was used to open the internal lip of the tunnel incision
- The nucleus was prolapsed into the anterior chamber using a Sinsky hook and delivery was done.
- Cortical cleanup was performed with the Simcoe irrigating-aspirating cannula using Ringer's lactate or 0.9% normal saline solution.
- Viscoelastic was injected into the anterior chamber.
- After implantation of single piece PMMA intraocular lens into the capsular bag, viscoelastic was washed out with saline, the side port was hydrated, and the anterior chamber was checked for wound integrity
- Subconjunctival injection of Antibiotics and Steroid given.
- Eye padded and bandaged
- Oral antibiotics and Analgesics were administered.

Follow up

Patients were followed up to 1 week ,3week and 6 weeks. At each follow up detailed anterior segment examination was done with slit lamp. Visual acuity was recorded with Snellen's chart. Refraction was done at 6 weeks. Intraocular pressure was at each follow up. Detailed fundus examination was done at each follow up. At the end of 6weeks, best corrected visual acuity was recorded along with the cause for reduced visual acuity.

SAMPLE SIZE ESTIMATION

Both penetrating and blunt ocular injuries can result in development of cataracts. There is approximately a 14% lifetime prevalence of ocular trauma in the general population.

Mechanisms of ocular injury vary by urban versus rural settings, region of the world, and patient age.

Depending on the report, 27-65% of ocular traumas lead to cataract

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III. RESULTS

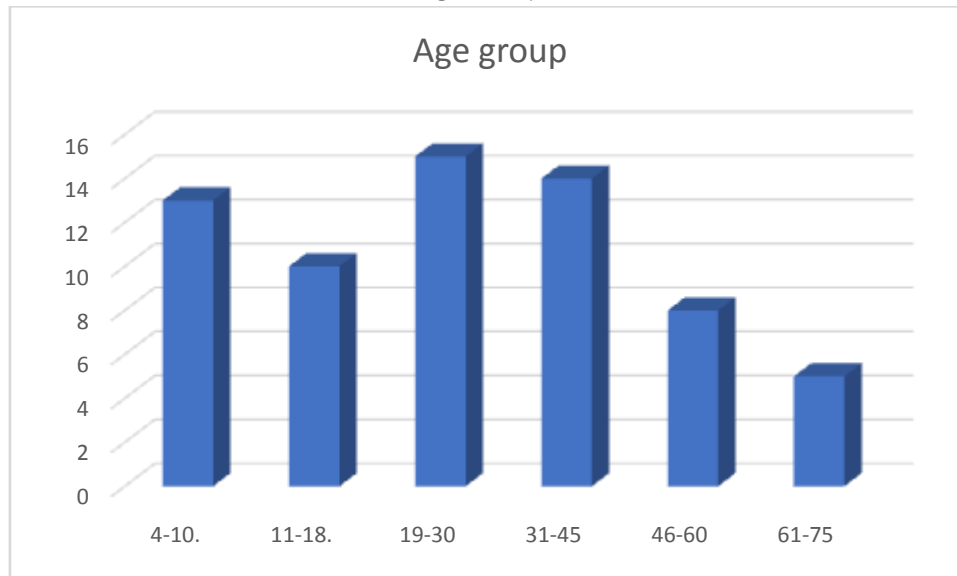
Table:1

Age group

S.no	Age group	No	Percentage
1	4-10	13	20%
2	11-18	10	15.3%
3	19-30	15	23%
4	31-45	14	21.5%
5	46-60	8	12.5%
6	61-75	5	7.6%
	Total	65	100%

The p-value is .118235. The result is not significant at $p < .05$

GRAPH:1



The above table shows age group with 19-30 age group (23%) was high compared with other age groups.

Table:2

Gender distribution

S.no	Gender	No	Percentage
1	Female	29	44.6%
2	Male	36	55.3%

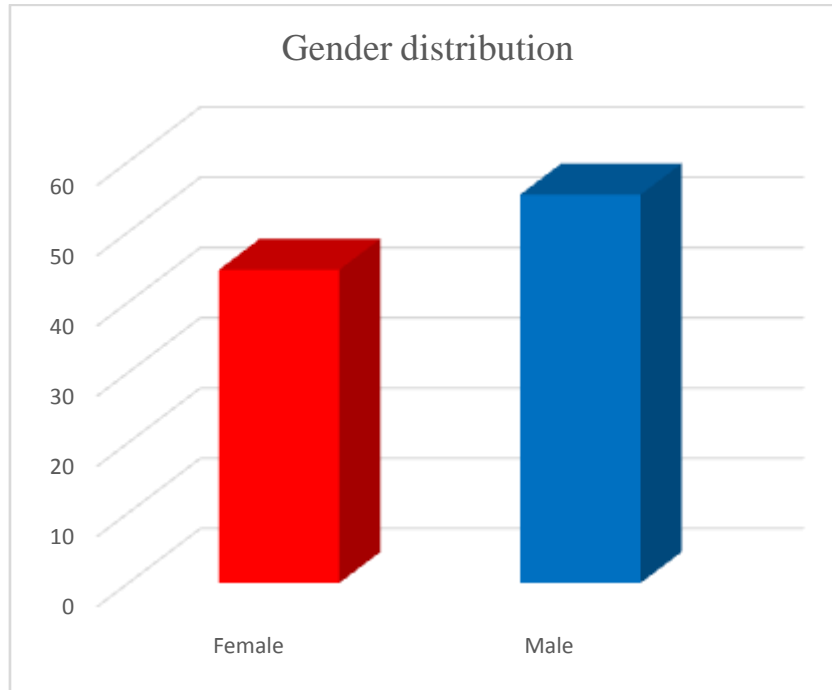


3	Total	65	100%
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The p-value is .540234. The result is not significant at $p < .05$.

Graph:2

Gender distribution



In this study, the most common gender is male (55.3%) wasfemale (44.6%) in the study.

Table:3

Socio economic class (KUPPUSWAMY CLASSIFICATION)

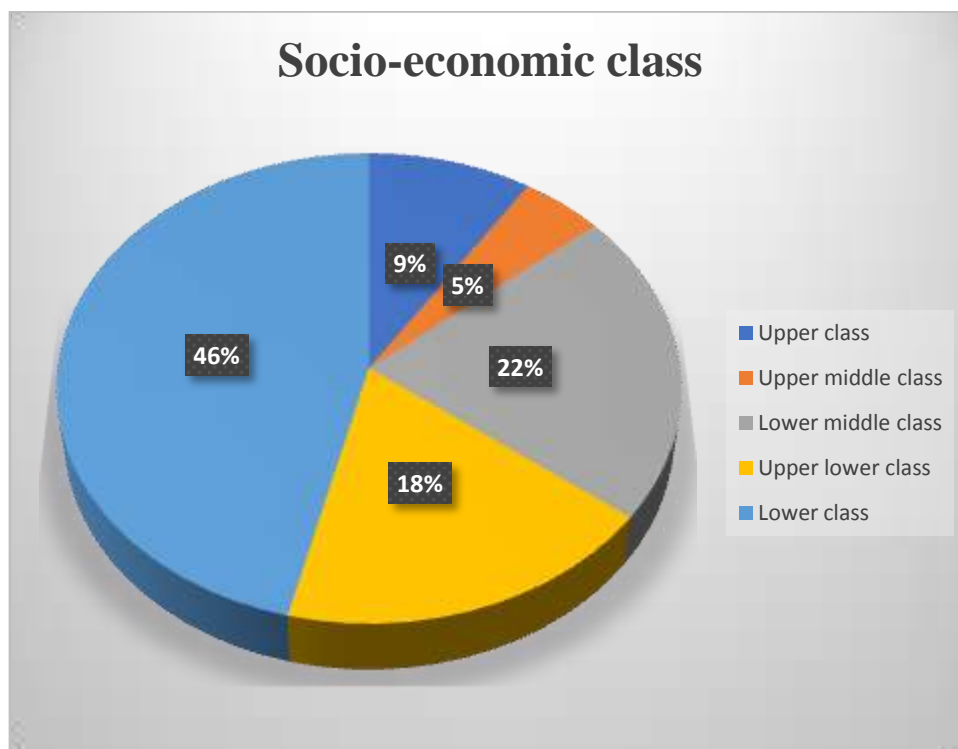
S.no	Socio economic class	No	Percentage
1	Upper class	3	4.6%
2	Upper middle class	6	10.7%
3	Lower middle class	14	21.5%
4	Upper lower class	12	18.4%
5	Lower class	30	46.3%
	Total	65	100%

The p-value is .118235. The result is not significant at $p < .05$.



GRAPH:3

Socio-economic class



Most of the cases belonged to lower socioeconomic class 46.3%

TABLE:4
Urban vs rural area comparison

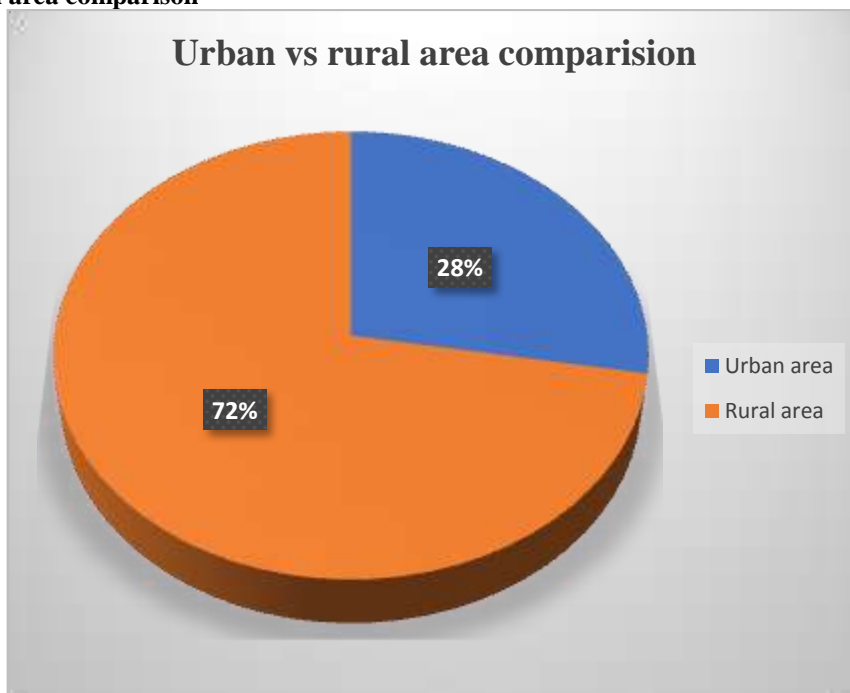
S.no	Regions	No	Percentage
1	Urban area	18	27.6%
2	Rural area	47	72.3%
3	Total	65	100%

The p-value is .009318. The result is significant at $p < .05$.



GRAPH:4

Urban vs rural area comparison



In this study 47 patients (72%.3) belonged to rural category

TABLE:5

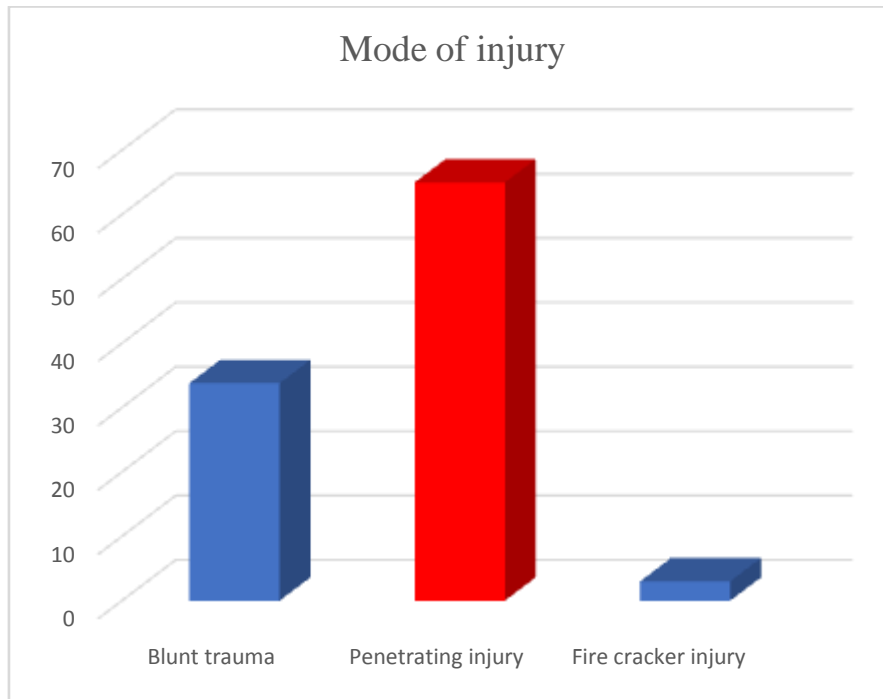
Mode of injury

S.no	Injury	No	Percentage
1	Blunt trauma	22	33.8%
2	Penetrating injury	41	65.0%
3	Fire cracker injury	2	3.0%

The p-value is .000022. The result is significant at $p < .05$.



GRAPH:5
Mode of injury



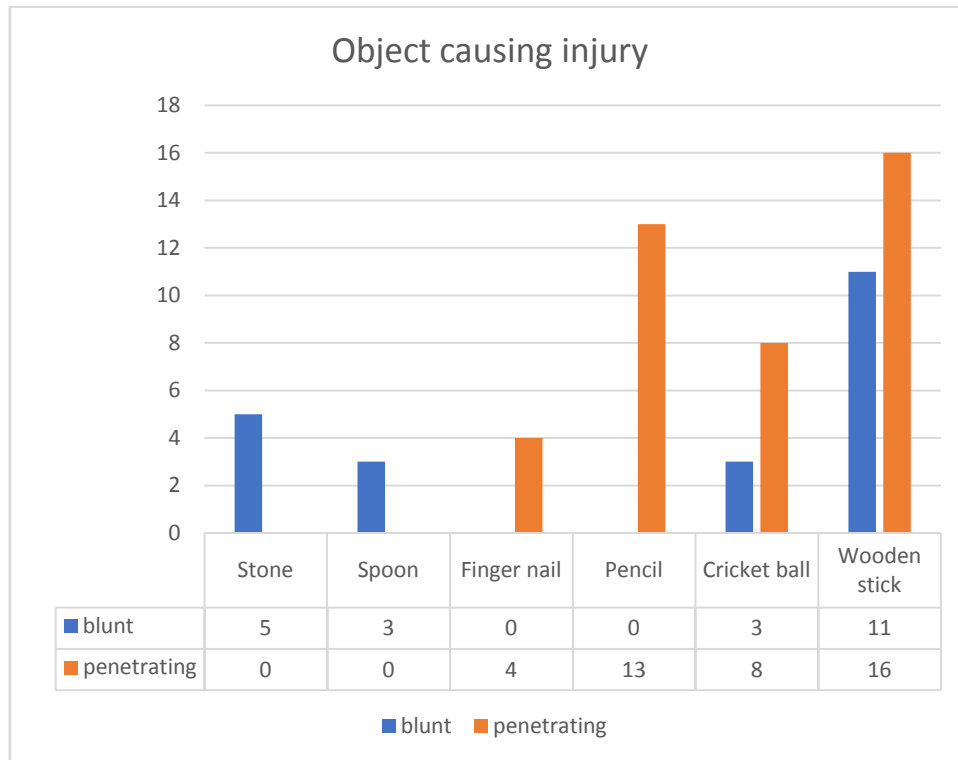
Most common injury is penetrating trauma (65%)

Table:6
Most common object involved in traumatic injuries (n=65)

S.no	Object causing injury	Blunt injury	Percentage	Penetrating injury	Percentage
1	Stone	5	24%	0	0%
2	Spoon	3	13%	8	19%
3	Finger nail	0	0%	4	10%
4	Pencil	0	0%	8	19%
5	Cricket ball	3	13%	0	0%
6	Wooden stick	11	50%	21	52%
		22	100%	41	100%



Graph 6
Most common object involved in traumatic injuries (n=65)



Most common object causing injury was wooden stick in both groups.

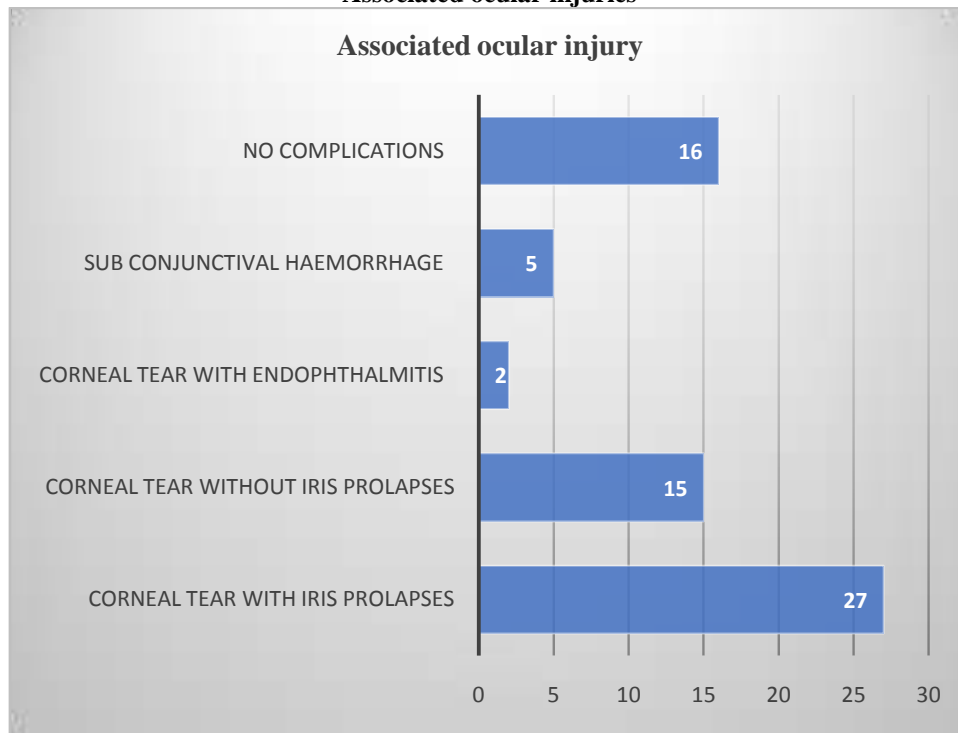
Table :7

Associated ocular injuries

ASSOCIATED OCULAR INJURY	NO	Percentage
corneal tear with iris prolapses	27	41%
corneal tear without iris prolapses	15	23%
corneal tear with endophthalmitis	2	3%
Sub conjunctival haemorrhage	5	7%
No complications	16	24%
Total	65	100%



Graph:7
Associated ocular injuries



Corneal tear with iris prolapses was most commonly associated ocular injury with 41%. Corneal tear without iris prolapses (23%), Sub conjunctival haemorrhage (7%).

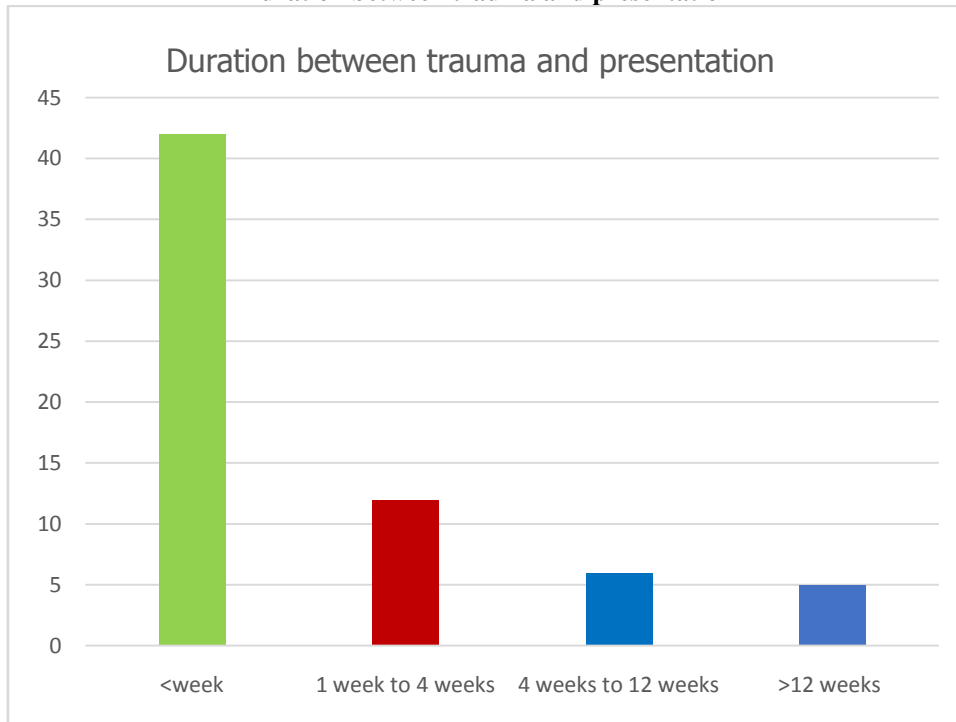
Table:8
Duration between trauma and presentation

S.no	Duration	No.ofcases	Percentage
1	<week	42	64.6%
2	1 week to 4 weeks	12	18.4%
3	4 weeks to 12 weeks	6	9.2%
4	>12 weeks	5	7.6%
	Total	65	100%

The p-value is .000084. The result is significant at $p < .05$.



Graph:8
Duration between trauma and presentation



Out of 65 cases 42 cases [64.6%] presented within a week of injury

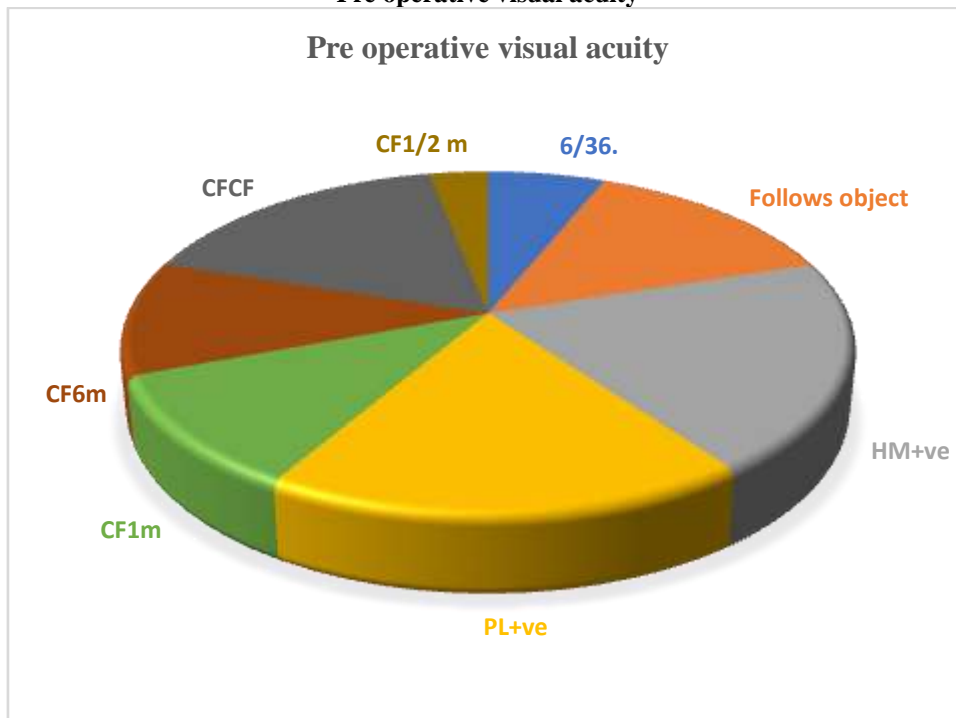
Table:9

Pre operative visual acuity

S.NO.	Visual acuity	AFFECTED EYE	
		No. of cases	Percentage
1	6/36	4	6.5%
2	Follows object(uncooperative patients)	9	13.8%
3	HM+ve	13	20%
4	PL+ve	12	18.4%
5	CF1m	7	10.7%
6	CF6m	7	10.7%
7	CFCF	11	16.9%
8	CF1/2 m	2	3.07%
	Total	65	100%



Graph:9
Pre operative visual acuity



At the time of presentation 20% cases had visual acuity of Hand m

TABLE:10
Type of surgery

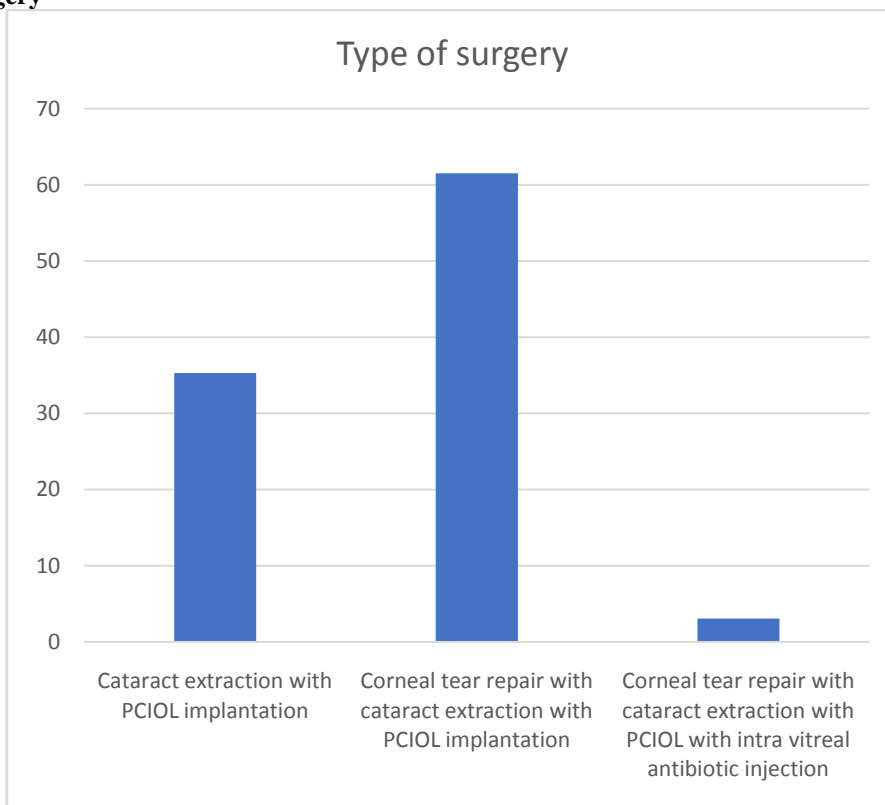
S.no	Surgery	No	Percentage
1	Cataract extraction with PCIOL implantation	23	35.3%
2	Corneal tear repair with cataract extraction with PCIOL implantation	40	61.5%
3	Corneal tear repair with cataract extraction with PCIOL with intra vitreal antibiotic injection	2	3.07%
	Total	65	100%

The p-value is .000028. The result is significant at $p < .05$.



GRAPH: 10

Type of surgery



Type of surgery like cataract extraction with PCIOL implantation (35.3%) and corneal tear repair with cataract extraction with PCIOL implantation (61.5%)

Table:11

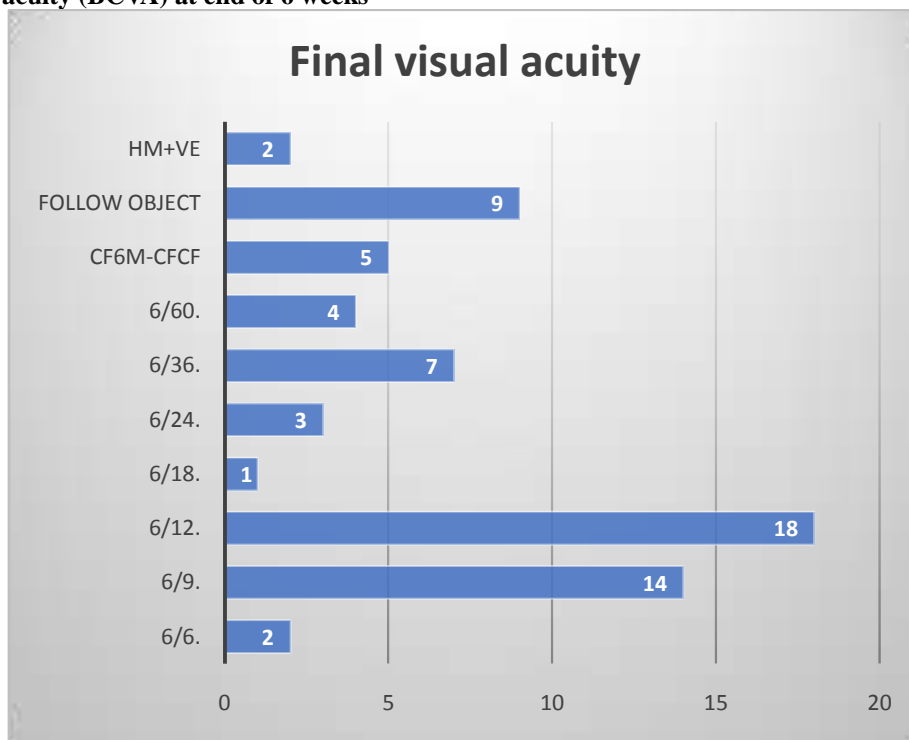
Final visual acuity (BCVA) at end of 6 weeks

Final visual acuity	No. of eyes	Percentage%
6/6	2	3%
6/9	14	21%
6/12	18	27%
6/18	1	1.5%
6/24	3	4%
6/36	7	14.5%
6/60	4	6%
CF6m-CFCF	5	7%
Follow object(uncooperative patients)	9	13%
HM+ve	2	3%
Total	65	100%



Graph:11

Final visual acuity (BCVA) at end of 6 weeks



In this study 27% of the cases had post operative visual acuity of 6/12 at the end of 6 weeks and 21% cases had visual acuity of 6/9 at the end of 6 weeks.

Table:12

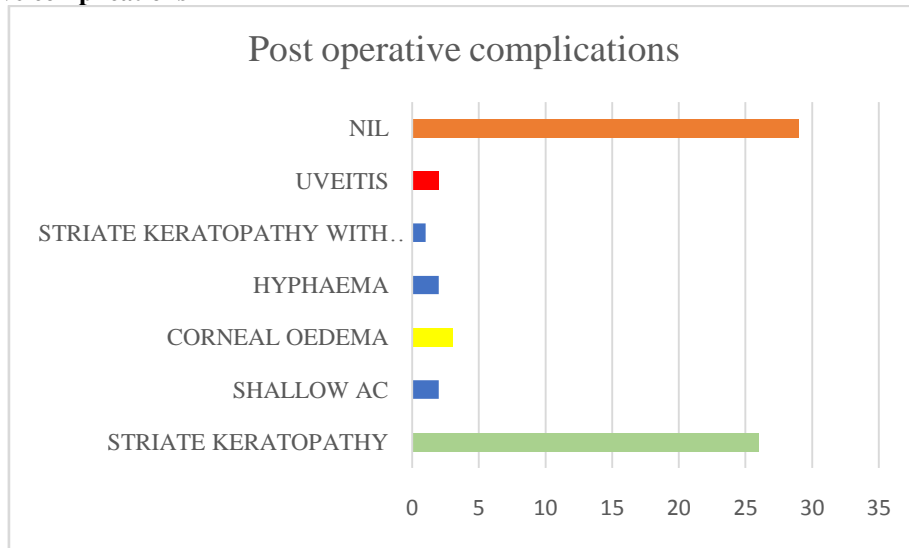
Complications	No.	Percentage
STRIATE KERATOPATHY	26	40%
SHALLOW AC	2	3%
CORNEAL OEDEMA	3	4%
HYPHAEMA	2	3%
STRIATE KERATOPATHY WITH HYPOPYON	1	1.5%
UVEITIS	2	3%
NIL	29	44%
Total	65	100%

Post operative complications



Graph:12

Post operative complications



Most common post operative complication was Striate Keratopath

Table:13

Best corrected visual acuity in relation to trauma (n=65)

Final BCVA	Blunt trauma	Penetrating trauma	Fire cracker injury	Total
6/6 – 6/18	12(54.5%)	21(51.2%)	2(100%)	35(53.8%)
< 6/18 – 3/60	4(18.1%)	10(24.3%)	-	14(21.5%)
CF6m-CFCF	2(9.0%)	3(7.3%)	--	5(7.6%)
HM+	1(4.0%)	1(2.4%)	-	2(3%)
Follow Object	3(13.6%)	6(14.6%)	-	9(13.8%)
Total	22(100%)	41(100%)	2(100%)	65(100%)

The p-value is .210861. The result is not significant at $p < .005$



Table:14
Pre-operative and post-operative BCVA in traumatic cataract patients (n=65)

Preoperative		Postoperative BCVA*				P-value
Type of vision	Total	Less improved vision (V/A <6/60-6/36)		More improved vision (V/A 6/24 - 6/6)		
	No.	%	No.	%	No.	%
6/6 to 6/18			0	0	2	
<6/18 -3/60	4	100.0	0	0	4	100.0
HM	13	100.0	3	23	10	77
Follows objects	9	100.0	8	88.8	1	11.2
PL	12	100.0	10	83.3	2	16.6
<CF6m-CfCF	27	100.0	17	64.5	10	35.5

Out of 13 cases with Hand movements 10 cases improved to 6/24 to 6/6 at the end 6 weeks

IV. DISCUSSION

The current study includes 65 cases of traumatic cataract. Children are more active and more likely to have accidents while playing with stones, wooden sticks, and other objects. Age-wise study revealed that most cases with traumatic cataracts took place in the age range of 19-30 years of age. Role of Health Education and Awareness are critical for preventing avoidable blindness by traumatic cataract. In contrast to present study, **Günaydin NT et al (2022)** found with the peak age of traumatic cataract ranged from 6 to 10 years. Due to their work in agriculture and industry, a sizable number of patients between the ages of 21 and 50 are especially at risk for trauma.

In current study with a demographic split of 55.3% males and 44.6% females. Previous research studies often report a similar gender distribution, albeit with variations in the specific percentages. **Smith et al. (2015)** found a slightly higher proportion of males affected.

In a study conducted by **Pargament JM et al (2015)** identified that socioeconomic status correlated with the incidence of eye injuries, with people of lower socioeconomic status or people living in socioeconomically deprived areas exhibiting higher percentages of eye injuries. Similar to present study in which higher percentage was exhibited by lower socio-economic status (46.3%).

In this study on comparison patients belonging to rural area (72.3%) were higher, urban area (27.6%). In current study most common injury

is penetrating injury (65%) and blunt trauma (33.8%) which is similar to the study conducted by **Sharma AK et al (2016)**. Found that 54.2% patients sustained penetrating trauma while 45.8% got blunt injury. A study by **Mohseni M et al (2023)** Most common injury was found to be blunt trauma which is discordant to present study.

In this research corneal tear with iris prolapse was most commonly associated ocular injury with 41%. Corneal tear without iris prolapse (23%), corneal tear with endophthalmitis (3%). In study conducted by **Uma thakur et al (2020)** found that he associated ocular morbidities were corneal opacity (25%), posterior synechiae (21.77%), corneal tear (non-sealed) 12.90%, anterior capsular tear (9.67%), anterior synechiae (7.25%), glaucoma (6.45%). According to this research most common penetrating and blunt traumatic injury is due to wooden stick.

In this study time interval between injury and cataract surgery mostly between <1 week (64.6%)

According to a study by **Memon et al. (2012)**, the time interval between an injury and cataract surgery did not have an impact on the patients' ultimate visual prognosis. Traumatic cataract patients, when treated appropriately, have good visual outcomes. According to **Jagannath et al. (2016)**, in 52% of patients, the time between the trauma and the corrective surgery was less than one month, and in 12.5% of cases, it was over six months. In contrast, present study has shown that in



64.6% of patients, the time between the trauma and the corrective surgery was less than a week.

In current study most common object causing injury for both blunt trauma 11(50%) and penetrating wounds 16(39%) was wooden stick.

In this research best surgical procedure is found to be corneal tear repair with cataract extraction with PCIOL implantation (61.5%) with very minimal complications. similar to present study **Kavitha V et al (2016)** also found that PCIOL implantations have good visual outcomes and minimal postoperative complications. **Marcus Blum (1998)** 148 eyes with traumatic cataracts were studied. 42 patients (66.6%) with penetrating injuries and 72 patients (84.7%) with blunt trauma had PCIOLs implanted. **Krishnamachary M et al (2006)** reviewed 237 children who developed traumatic cataract. In the study extra capsular cataract extraction with IOL implantation was performed in 65.67% of patients.

Chuang LH et al. (2005) evaluated 30 patients with traumatic cataracts with open globe injuries. primary repair of the penetrating wound was carried out together with cataract extraction in every patient.

Jyoti Bhuiyan et al (2017). in their study reported striate keratopathy as immediate post operative complication in 4% patients. In a study by **Sofi, I A et al (2016)** 12 27.5% uveitis and 10% corneal oedema was noted. **Akshay J et al (2016)**. showed uveitis in 48% patients.

Visual result:

After surgery, the patients were examined during post-operative days 1, 3, and 6 weeks, and the ultimate BCVA was recorded in 65 cases The BCVA was assessed at the end of 6 weeks. The final visual acuity was graded based on WHO Vision categories as:

- Vision <3/60 as blind
- Vision of 3/60 to 6/18 as visually impaired
- 6/18 and above as adequate vision

Out of 65 cases, 38 cases, the final BCVA was between than 6/24 to 6/6

11 cases final BCVA was between 6/36 to 6/60 because of PCO

5 cases between CF 6m to CFCF [vision did not improved because of central corneal opacity]

2 patient had Hand moments at the end of 6 weeks because of associated corneal opacity and endophthalmitis and PCO

Similar findings were found in multiple studies conducted by different researchers. **Daljit Singh et al.** studied 61 cases of traumatic cataract and found that 79% of patients had final visual acuity of 6/6 to 6/12 post surgery.

Renuka Srinivasan, Kumudhan et al reported that 88.2% of patients had final visual acuity of 6/12 or better. 67% of patients who had PCIOL implantation in addition to cataract extraction had visual acuity of 6/12 or better, according to study by **Murali Krishnamachary et al** 74.1% of of patients exhibited post-operative visual acuity of 20/60 or higher.

24 eyes with traumatic cataracts that underwent surgical treatment were retrospectively evaluated in 2004 by **Valentina L. et al.** 7 of the 24 patients did not benefit from cataract surgery due to opacification of the posterior capsule and traumatic involvement of the retina, though final visual acuity improved in 17 of patients. Following surgery, 72.7% of eyes had a final visual acuity of 0.5 or better, according to Pavlovic S, Weinand F et al. 30 patients with traumatic cataracts in open globe injuries were examined by Chuang LH and Lai the CC in these patients had cataract extraction and penetrating wound healing procedures. A final best corrected visual acuity of 20/40 or greater was attained by 17 eyes (56.7%).

A study conducted in 2010 by **Rumelt S et al** on 69 patients who experienced open and closed globe injuries and developed traumatic cataract resulted in a final BCVA of 20/40 or better. It was not, however, statistically connected to the kind of removing a cataract, when performing surgery, or inserting IOLs

A cross-sectional study involving 40 traumatic cataract cases attending the outpatient units of, was conducted by **Jagannath C, et al.** The current study revealed that 70.0% of the cases had their best corrected visual acuity restored, ranging from 6/6 to 6/18. In a study conducted on 50 eyes from 50 patients in 2016, Akshay J. Bhandari et al discovered that 28 of the eyes had postoperative visual acuity ranging from 6/6 to 6/12, whereas 20 eyes had visual acuity spanning from 6/18 to 6/36 and two eyes had visual acuity less than 6/60. The main causes of low visual acuity were posterior capsular opacity and corneal opacity

When 45 individuals with traumatic cataracts were studied in 2017 by S Shantanu Bhattacharjee, et al. corrected visual acuity (VA) was reported at the end of six weeks and ranged between 6/6 and 6/60. Four of the cases (8.9%) had VA between 6/24 and 6/36, one case had VA 6/60, and 25 cases (55.5%) had VA between 6/6 and 6/9. 15 cases (33.3%) had VA between 6/12 and 6/18. The posterior capsular opacification in the group with VA between 6/12 and 6/18 was a result of the condition.

In a similar discovery, Murli K et al. (Murli, K. et al., 1997) found that in their series of



137 patients, 97.7% of the patients had preoperative vision less than 6/60. PS Dhende (76% of patients) had pre-operative eyesight lowered to positive PL and PR, according to (2001) observations. In their 1988 study, **Vijay Lakshmi, P et al.** noted that 55 (91.66%) out of 60 patients had visual acuity of less than 6/60 before to surgery.

Preoperatively, patients with PL+ and incorrect PR improved to VA categories (<6/60-6/36) in 80% of cases and VA categories (6/24-6/6) in 20% of cases. There was no statistically significant difference between the two post-operative visual outcome categories (P=0.055). The visual acuity (VA) category (<6/60-6/36) was reached by 64.5% of patients with PL+ and correct PR before to surgery, while the VA category (6/24-6/6) was reached by 35.5% of patients. This difference is statistically significant (P=0.022). Individuals with prior Operative vision is defined as the ability to perceive hand movements. Notably, a significant proportion of patients (6/24-6/6) progressed to more improved post-operative vision. The variations between two post-operative visual outcome categories, such as counting fingers at close range to 0.5 meters and perception of hand movements (HM), in situations of pre-operative vision were found to be statistically significant (<0.005)

CONCLUSION

In this clinical study on the management of traumatic cataract highlights significant advancements and improvements in surgical techniques, patient outcomes, and postoperative care. Role of Health Education and Awareness are critical for preventing avoidable blindness by traumatic cataract.

It is important to educate them regarding preventive measures at their work place. In this finding underscore the importance of personalized treatment approaches, the integration of advanced technology, and the emphasis on comprehensive patient education to enhance surgical success and recovery.

The data indicates interventions, such as manual small incision cataract surgery (MSCIS) and intraocular lenses, have contributed to reduced complications and improved visual acuity. Furthermore, optimizing postoperative care through tailored follow-up protocols has proven effective in minimizing the risk of adverse events and promoting quicker rehabilitation.

These results advocate for a multidisciplinary approach to cataract management, involving both surgical innovation and holistic

patient support. By maintaining a focus on evidence-based practices and patient-centred care, the field can continue to evolve, ultimately leading to enhanced visual outcomes and quality of life for patients undergoing traumatic cataract surgery.

Advances in pars plana vitrectomy include enhanced micro instruments, improved visualization, and combined techniques for better management of anterior capsular tears with traumatic cataract.

Surgery in young traumatic cataract patients aims to minimize postoperative astigmatism, though the risk of posterior capsular opacification (PCO) remains high. In order to prevent traumatic cataracts, it is important to understand the causes, which include mainly blunt and penetrating injuries.

Important preventive actions include using protective eyewear at workplace. Proactive eye safety education at school and public reduces traumatic cataract risk effectively.

SOURCE OF INTEREST: NONE

CONFLICT OF INTEREST: NONE

- [1]. Hiles DA, Wallar PH, Biglan AW. Amblyopia in paediatric cataract. *J Pediatr Ophthalmol* 1977; 13: 319-25.
- [2]. Janti SS, Raja AM, Charanya C, Matheen A. A prospective study of traumatic cataract and its visual outcome. *Journal of medical and dental sciences*. 2014 Jun 30;3(26):729-304.
- [3]. Alfaro DV, 3rd, Jablon EP, Rodriguez Fontal M, Villalba SJ, Morris RE, Grossman M, et al. Fishing-related ocular trauma. *Am J Ophthalmol*. 2005; 139: 488-92.
- [4]. Tosman W, Jaeger E A. Traumatic cataract. In: *Duane's Clinical Ophthalmology*. 1997: 13.
- [5]. Khan MD, Kundi N, Mohammed Z, Nazeer AF. A 6.5 years survey of intraocular and intraorbital foreign bodies in the North West Frontier Province, Pakistan. *Br J Ophthalmol* 1987; 71: 716-9.
- [6]. Bhatia IM, Panda A, Sood NN. Management of traumatic cataract, *Ind J Ophthalmol*, 1982; 31: 290-293.
- [7]. Serna-ojeda Jc. *Int ophthalmol* 2015;35(4):45 1-8. Negrel AD, Thylefors B. *ophthalmic Epidemiol*. 1998;5(3):143-169. Kuhn F J *Fr ophthalmol*. 2004;27(2):206-10
- [8]. Cooling RJ. The Burden of serious ocular injury *Br J Ophthalmol*. 1996 Jul; 80(7):585.



- [9]. Krishnaiah S, Nirmalan P K, Shamanna B R, Srinivas M, Rao G N, Thomas R. Ocular Trauma in a Rural Population of Southern India: The Andra Pradesh Eye Disease study. *Ophthalmology* 2006 Jul;113(7): 1159-64. 73-8.