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# Clinical study on the cases of traumatic cataract and its management

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## Abstract
**Abstract**: Traumatic cataract is one of the common complication after ocular injury. It is the leading cause of uniocular visual loss. A study was done to know the clinical outcome of traumatic cataract.
**Aim**: To know the incidence of traumatic cataract in the age group of 10-70 years, complications due to traumatic cataract and visual prognosis following cataract extraction with intraocular lens implantation.
**Methods**: Fourty five cases (10-70 years) with traumatic cataract were analysed from the period of January 2019 to January 2020. Age, gender, preoperative and postoperative vision and complications were analysed.
**Results:** Out of 45 cases of traumatic cataract, 31 cases (68.89%) were males and 14 cases (31.11%) were females. Most of the cases i.e., 42 had total cataract. Corneal injuries (54%) and iris related problems (28%) were the most common complications. Small incision cataract extraction with intraocular lens (IOL) implantation was performed in these cases. Visual acuity improved from PL PR preoperatively to 6/18 or above in 82.97% postoperatively.
**Conclusions**: Small incision cataract extraction with IOL implantation gives good results in traumatic cataract. The main cause for impaired vision was corneal opacity obstructing visual axis and posterior capsule opacification.

**Keywords:** penetrating trauma, rosette cataract, adherent leucoma

## Introduction
Ocular trauma is one of the leading cause of visual disability and blindness. Cataract is commonest cause of blindness in India in 81% of population. Traumatic cataract accounts for about 36%. 75% of patients are younger than age 40 years. Male to female ratio is 9:1. It is very common sequel of ocular trauma. It can occur secondary to blunt or penetrating trauma. Other causes are infrared energy (glass-blower's cataract), electric shock, ionizing radiation (X-rays).
The pathophysiology of traumatic cataract includes direct rupture of capsule or coup, countercoup and equatorial expansion due to hydraulic forces transferring the energy of trauma to the opposite side of the eye. It may present as acute, subacute, or late sequela of ocular trauma. Both penetrating and concussion injuries cause cataract, the type of trauma, extent of lenticular involvement and associated damage to the ocular structure go a long way in determining the ultimate prognosis.
Management of traumatic cataract resulting from blunt or penetrating ocular trauma needs special attention because of associated injury to ocular and periorbital structures. The time interval between injury and first intervention is important, as the morphology of traumatic cataract is influenced by this interval.

## Material and Methods
The study was conducted in Upgraded Department of Ophthalmology in GMC Jammu. The study consists of 45 cases of traumatic cataract in age group of 10-70 years attending the Eye OPD of GMC Jammu during the period of February 2019 to January 2020. All the patients from age of 10-60 years with traumatic cataract due to blunt and penetrating injuries were included in the study. All the cases of traumatic cataract having posterior segment involvement like retinal detachment, optic atrophy, vitreous hemorrhage, traumatic cataract due to retained intraocular foreign body, electric shock, radiation were excluded. Detailed history was taken and all patients underwent general physical examination, detailed local examination which included Best corrected visual acuity (BCVA), torch light and detailed slit lamp examination of the anterior segment, tonometry, dilated refraction, fundus examination with the direct and indirect opthalmoscope, keratometry (Opposite normal eye was used in case of corneal opacity), Intraocular lens power calculation and B-scan was done. Routine investigations were also done before surgery.
Depending on the status of lens and status of capsule and zonules, the type of cataract surgery done was SICS with PCIOL Implantation or SICS with secondary lens implantation • SICS
Follow up of patients was done after 1 week, after 1 month and after 1 month, 3 months and 6 months.

## Results
In this study majority of the cases were seen in the age group ranged from 10 to 70 years.
More number of cases were found in the age group of 21-30 years (35.55%). Out of 45 cases, 31 were males and 14 were females. The male-female ratio is 2.21:1.

**Table 1:** Age and gender distribution

| Age group | Males | Females | Total | % |
|---|---|---|---|---|
| 10-20 | 2 | 1 | 3 | 6.67% |
| 21-30 | 11 | 5 | 16 | 35.55% |
| 31-40 | 9 | 4 | 13 | 28.89% |
| 41-50 | 5 | 2 | 7 | 15.55% |
| 51-60 | 2 | 1 | 3 | 6.67% |
| 61-70 | 2 | 1 | 3 | 6.67% |

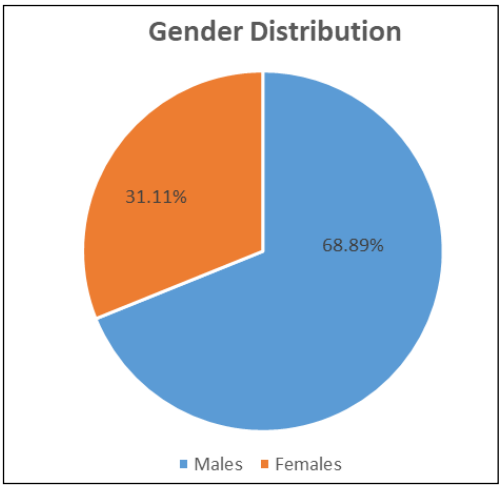


**Fig 1:** showing gender distribution.

**Table 2:** Type of trauma

| Type of Trauma | Males | Females | Total | % |
|---|---|---|---|---|
| Blunt | 9 | 6 | 15 | 33.33% |
| Penetrating | 22 | 8 | 30 | 66.67% |
| Total | 31 | 14 | 45 | 100 |

**Table 3:** Type of cataract

| Type of Cataract | Number |
|---|---|
| Total lens opacity | 41 |
| Rosette | 4 |

41 cases of traumatic cataract had total lens opacity and 4 cases have rosette cataract.

**Table 4:** showing duration between trauma and surgery.

| Duration | No of cases | % |
|---|---|---|
| Within a week | 3 | 6.67% |
| Within a month | 14 | 31.11% |
| Within a year | 22 | 48.89% |
| ➢ 1 year | 6 | 13.33% |

Duration between trauma and surgery varied in different cases. 48.89% cases underwent surgery within 1 year. 31.11% cases underwent surgery within a month.

**Table 5**: Associated ocular damage.

| Associated ocular damage | Number (n=45) | % |
|---|---|---|
| Corneal injuries | 25 | 55.55% |
| Iris | 9 | 20% |
| Adherent Leucoma | 3 | 6.67% |
| Posterior synchiae | 4 | 8.89% |
| Dislocated lens | 4 | 8.89% |

Patients of traumatic cataract had associated ocular damage and visual prognosis is dependent on the severity of injury. 55.55 % cases had corneal injuries in the form of corneal scars or opacity. 8.89 % cases had posterior synchiae and 6.67 % cases had adherent leucoma. Injury to iris occurred in 20 % cases.

**Table 6:** Type of surgery done.

| Type of surgery | Number | % |
|---|---|---|
| SICS with PCIOL Implantation | 41 | 91.11% |
| Sics with Secondary PCIOL Implantation | 4 | 8.89% |

In 91.11 % cases Small incision cataract surgery with Posterior chamber intraocular lens implantation was done.

**Table 7:** Preoperative visual acuity

| Preop VA | Number (n=45) | % |
|---|---|---|
| PL/PR | 37 | 82.22% |
| HM | 4 | 8.89% |
| CF at 1 m | 4 | 8.89% |

**Table 8:** Final visual acuity after surgery

| Post op VA | Number (n=41) | % |
|---|---|---|
| 6/6-6/18 | 31 | 75.60% |
| 6/18-6/60 | 9 | 21.95% |
| 3/60- less | 1 | 2.43% |

## Discussion

This study included 45 cases of traumatic cataract in GMC Jammu. Male to female ratio was
2.21:1.

**Table 9**: Comparison of gender wise distribution of traumatic cataract cases.

| Gender | Shah MA *et al*(n=687) | Krishnamachiary *et al* (n=237) | Present study (n=45) |
|---|---|---|---|
| Female | 195(28.4%) | 110(46.41%) | 14(31.11%) |
| Male | 492(75.61%) | 127(53.59%) | 31(68.89%) |

Daljit Singh *et al* [3] stated that majority (49.17%) of traumatic cataract patients ranged between 11-30 yrs which is consistent with the present finding i.e. cases ranged between 11-30yrs were 42.22 %.

**Table 10:** Comparison of Age wise distribution.

| Age group | Diljit Singh *et al* (n=61) | Present study (n=45) |
|---|---|---|
| 10-20 | 16.39% | 6.67% |
| 21-30 | 32.78% | 28.89% |
| 31-40 | 11.47% | 15.55% |
| 41-50 | 9.83% | 6.67% |
| 51-60 | 9.83% | 6.67% |

The study found that most of the cases i.e., 30 (66.67 %) were caused by stick and thorns.
The type of injury was mostly of penetrating type. Krishnamachray M *et al* also found that penetrating trauma was common mode of injury i.e., 32 (64%) cases and blunt trauma was seen in 18 cases (36%). In this study the

associated damage are corneal injuries in the form of scar or opacity was seen in 25 cases (55.55%), corneal scarring and opacity obstructed the visual axis and caused astigmatism. Out of 45 cases of traumatic cataract who underwent surgery, the final visual acuity was assessed for 41 cases, 3 cases missed for follow-up. The main cause for the impaired vision in this study was due to corneal scars and opacity obstructing the visual axis, and posterior capsular opacification as shown by other studies.

Eckstein *et al* shows 92% cases and Akshay J Bhandari, Shobana A Jorvekar, Pranay Singh conducted a study on 50 patients and found that postoperative visual acuity in 20 eyes was 6/6 – 6/12, whereas 20 eyes had visual acuity of 6/18 – 6/60 and two eyes showed visual acuity of less than 6/60. In this study of 50 cases of traumatic cataract who were managed by cataract extraction with IOL implantation showed good visual outcome, as shown by a study, in which excellent visual results were noted i.e., 86%. Renuka Srinivasan noted 88.2% of visual outcome. Marcus Blum *et al* reported good visual outcome of 90%.

**Table 11**: Comparison of associated ocular complications associated with traumatic cataract.

| Studies | Corneal injury (scar or opacity) | Iris related | Lens (sublaxation, anterior capsular tear) |
|---|---|---|---|
| Daljit Singh | 37% | 26.2% | 6.5% |
| Krishnamachary *et al* | 60.5% | 49.6% | - |
| Marcus Bum *et al* | 61.9% | 52.3% | 35.2% |
| Renuka Srinivasan *et al* | 82.4% | 6% | - |
| Valentine Loncar *et al* | 20.83% | 6% | 20.83% |

## Conclusion

Traumatic cataract is one of the significant cause of visual disability after trauma. It can be prevented by early diagnosis and proper management. Small incision cataract extraction with IOL implantation provides satisfactory results in traumatic cataract.

The main cause for impaired vision was corneal scarring and opacity obstructing visual axis.

Therefore early reporting and awareness of ocular trauma cases is important to prevent the complications related to traumatic cataract.

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