

Incidence and Prognostic Factors for Visual Outcome in Patients Having Cataract Surgery with Traumatic Cataract Visiting Tertiary Care Centre, Jharkhand

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ABSTRACT

Introduction: Ocular trauma is one of the common causes of visual morbidity. This study aims to investigate the incidence and prognostic factors for visual outcome in patients with traumatic cataract following cataract surgery.

Material and methods: This prospective hospital-based study was performed in a tertiary care centre of Jharkhand between February 2019 to February 2020. All patients who underwent cataract surgery with or without primary intraocular lens implantation with traumatic cataract were evaluated. Age, sex, preoperative vision, postoperative vision at 3 – 6 months, Injury type, wound location and posterior segment involvement responsible for poor visual outcome were assessed.

Results: Forty seven eyes of 47 patients were studied which included 42 males and 5 females. In 32 patients right eye and in 15 patients left eye was involved. The preoperative visual acuity in all 47 eyes was less than 6/60. The postoperative visual acuity in 25 eyes was 6/6 – 6/18, 14 eyes had visual acuity of 6/24 – 6/60 and 8 eyes had visual acuity less than 6/60. Corneal opacity and posterior segment involvement were the main causes of poor visual acuity.

Conclusion: The prognostic factors like initial visual acuity, injury type, wound location and posterior segment involvement played a vital role in achieving final visual acuity. Our study also shows that satisfactory visual results can be achieved in the absence of posterior segment involvement and corneal scar not obscuring the visual axis.

Keywords: Anterior Lens Capsule Tear, Corneal Tear, Ocular Trauma, Posterior Capsular Tear, Traumatic Cataract, Visual Outcome

INTRODUCTION

Ocular trauma is the leading cause of unilateral blindness in children worldwide.¹ Ocular trauma has been a common reason of visual morbidity, which causes heavy psychological and economic burden to victims and society.²⁻³ The incidence of ocular injuries varies across the world. In India, the reported incidence is 20.53%.⁴ Ocular trauma includes mechanical eye injury (open globe injury and closed globe injury) and nonmechanical eye injury.⁵ Children and young adults, especially boys, are more predisposed to trauma and have a higher incidence of traumatic cataract.⁶ The timing of surgery is important for visual rehabilitation, especially in children, as the risk for amblyopia is high because of media opacity.⁷ Several studies have revealed that early cataract extraction with intraocular lens (IOL) implantation

in patients with traumatic cataract results in good vision.⁸

This study was carried out to assess the incidence and prognostic factors responsible for visual outcome achieved following early cataract extraction with or without primary IOL implantation in traumatic cases.

MATERIAL AND METHODS

This prospective hospital based study was performed in the Tertiary care centre, Jharkhand from February 2019 to February 2020. All patients with traumatic cataract with or without primary IOL implantation were included in this study. All cases had been operated for cataract as soon the inflammation subsided as it's a known fact that the outcome of traumatic cataract surgery depends upon the time interval of the occurrence of trauma and surgery. In our study 21 patients presenting only with traumatic cataract were operated within next day of the admission. In 12 patients corneal tear was managed primarily by corneal tear suturing and 14 patients underwent corneal tear suturing along with cataract surgery at the same sitting. Anterior vitrectomy was done in 10 cases who presented with vitreous in the anterior chamber. The visual acuity was assessed at 3 and 6 months using Snellen's chart. All eyes were examined under slit lamp microscope and indirect ophthalmoscope post-surgery. Patient's demographic details, causative agents, initial visual acuity, intraocular pressure, injury type, wound location, B-scan reports, type of surgery, early and late complications and final outcomes were all noted for each case. Subsequent Follow up of patients was done at 1 day, 1 week, 3 weeks, 3 months, and 6 months postoperatively.

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RESULTS

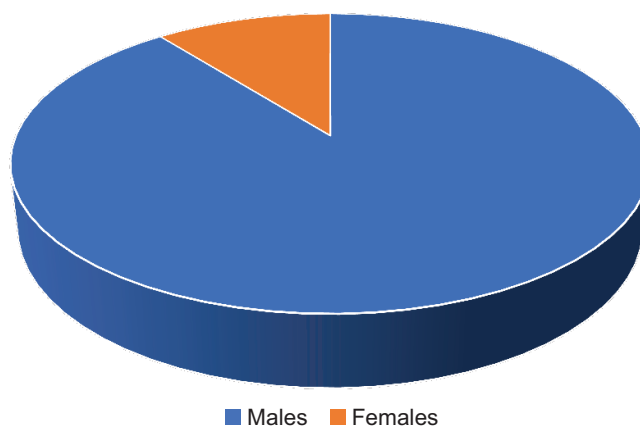
The study included a total of 47 eyes of 47 patients with male predominance. Out of 47 patients 42 (89%) were males and 5 (11%) were females (Graph 1). The Right eye was involved in 32 (68%) cases and left eye in 15 (32%) cases.

Majority of the patients were adults comprising 35 (74%) of adults and 12 (26%) of children mainly with involvement of the age group of 5-15 and 36-45 (Table1).

All eyes had poor visual acuity at presentation (Table 2). Preoperative findings included central corneal tear in 11 cases, peripheral corneal tear in 15 cases, anterior lens capsule tear in 28 cases, posterior capsular tear in 12 cases, 27 cases with cortical matter and 10 cases with vitreous in anterior chamber. 12 cases underwent corneal tear repair on the same day of presentation, whereas 14 cases had corneal tear suturing with cataract extraction in the same sitting.

After 6 months of surgery, visual acuity in 25 cases was 6/6-6/18, 14 eyes 6/24-6/60 and 8 eyes had visual acuity of < 6/60 (Table3).

The main cause of less visual acuity was central corneal opacity which was seen in 11 cases. Aphakia occurred in 5 cases in which secondary IOL implantation will be planned



Graph-1: Sex distribution of cases

in near future. Uveitis was encountered in 21 cases which responded well with mydriatics and with an increase in the dose of topical corticosteroid eyedrops. Eight cases developed posterior synechiae which did not respond to pupil dilatation and corticosteroid eyedrops, though this did not intervene with the final visual outcome.

DISCUSSION

The study included 47 cases of traumatic cataract which were managed in the department of Ophthalmology in the tertiary care centre of Jharkhand. Different studies have suggested that the most common outcome of ocular injuries is traumatic cataract. There is 1-15% incidence of traumatic cataract in ocular injuries.⁹ Trauma is the leading cause of 90% of acquired paediatric cataracts.¹⁰ In this study, incidence was more in males, with a male to female ratio of 8.4:1 considering outdoor activities and sports to be involved more in males. Worldwide, traumatic cataract is more commonly found in the male population than in the female population.¹¹ Zaman et al.¹² stated that the majority (50.64%) of traumatic cataract patients ranged in age from 5 to 15 years, which is consistent with the present findings – that is, 38% of cases ranged in age between 5 and 25 years. Sports and work related eye injuries most commonly occur in children and young adults, followed by injuries related to accidents, because of involvement of children in high-risk sports without supervision or without adopting protective measures.¹² Penetrating injuries are the most common cause of ocular injuries¹³; the same was observed in this study. 26 eyes (55%) presented with penetrating injuries, whereas 21 eyes (45%) sustained blunt injury. Presence of capsular support decided IOL implantation in traumatized eyes following removal of traumatic cataract. The majority of these patients were operated upon within 6 months of trauma. The duration between injury and cataract surgery was less than 1 month in 26 (55%) patients, 1-6 months in 12 (26%) patients and more than 6 months in 9 (19%) patients. The major postoperative complication encountered on the first postoperative day was fibrinous uveitis (55%), which responded to medical therapy. Cheema and Lukran¹⁴ reported that fibrinous uveitis was the most common postoperative complication (25%). It may be mainly due to surgical trauma in an already traumatized

Age group in (years)	No. of patients [n (%)]
5 -15	12(26)
16-25	6 (13)
26-35	10 (21)
36-45	18 (38)
>46	1 (2)
Total	47

Table-1: Age distribution of cases

Visual acuity at presentation	No. of patients [n (%)]
Light perception	13 (28)
Hand movement	17 (36)
Counting finger	17 (36)
Total	47

Table-2: visual acuity at presentation

BCVA after 6 months	No. of patients [n (%)]
6/6 -6/18	25(53)
6/24 - 6/60	14(30)
<6/60	8(17)
Total	47

Table-3: Postoperative visual acuity

Postoperative complication	No. of cases [n (%)]
Central corneal opacity	11 (23)
Peripheral corneal opacity	15 (32)
Retinal detachment	5 (11)
Vitreous haemorrhage	3 (6)
Vitritis	2 (4)
Aphakia	5 (11)
Uveitis	21 (47)
Posterior synechiae	7 (15)

Table-4: Postoperative complications

eye and not related to type or location of the IOL inside the eye. This study showed that satisfactory visual outcome could be safely achieved after traumatic cataract removal and IOL implantation. Best corrected visual acuity was 6/6-6/9 in 13 (28%) patients and 6/18 or better in 26 (55%) patients. Zaman et al.¹² and Cheema and Lukran¹⁴ reported visual acuity of 6/18 or better in 68.7% of patients. 8 (17%) eyes had poor visual recovery due to the posterior segment complications like retinal detachment in 5(11%) eyes and vitreous haemorrhage in 3(6%) eyes (Table 4).

The main reason for poor visual recovery in this study was corneal opacity and high astigmatism as a result of corneal suturing. As Kuhn reported, traumatic cataract procedure is an individualized, consciously made decision regarding what to do and when and how to do it to achieve the best possible outcomes.¹⁵ The possible factors influencing the final VA were initial VA, injury type, wound location and posterior segment involvement.

CONCLUSION

Absence of posterior segment involvement and central corneal opacity helps in achieving good postoperative visual acuity in patients undergoing traumatic cataract surgery due to blunt or penetrating injury. The ocular trauma can be avoided by taking protective measures in sports and high-risk activities. Patient's education can also minimize the eye related casualties.

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