INTRODUCTION

Ocular trauma is the leading cause of unilateral blindness all over the world.1 Traumatic cataract is a common sequelae of ocular injuries in adults and children.2,3 The incidence of ocular injuries varies in different parts of the world. From India, the reported incidence is 20.53%.4 and from Pakistan it is 12.9%.5 Management of traumatic cataract that results from either blunt or penetrating ocular trauma needs special consideration because of associated injury to ocular and periorbital structures.

Surgery of traumatic cataract can be primary or secondary. Primary cataract removal is suggested if the lens is fragmentized, swollen causing a pupillary block or to examine the posterior segment otherwise blocked by lens opacity.6 Secondary cataract removal is more beneficial because of improved visibility, proper intraocular lens calculation, and less chances of postoperative inflammation.6

The aim of this study was to evaluate the final visual outcome of a series of patients with secondary extraction of traumatic cataract along with demographic features and modes of trauma.

METHODOLOGY

Analysis of medical records of all patients who was presented with unilateral traumatic cataract, underwent surgical intervention and completed at least 6 months follow-up during July 2007 to June 2010 at Department of Ophthalmology, Liaquat University Hospital, Hyderabad. Patients of both genders and all age groups with unilateral traumatic cataract were included in the study. Patient's data including demographic details, causative agents, initial visual acuity, intraocular pressure, slit lamp examination findings, B-scan findings, treatment / surgery, early and late complications and final outcome were obtained from patient's chart in the hospital record. Removal of cataract was performed as a second and separate procedure in patients of perforating ocular injury, intraocular lens (IOL) implantation was performed only in patients with adequate capsular support. Patients without any capsular support were kept aphakic. Anterior vitrectomy was performed in patients with posterior capsular tear and vitreous prolapse. Patients were subsequently followed-up on 1 day, 1 week, 6 weeks, 3 months and 6 months postoperatively. At each follow-up visit patient's visual acuity was recorded. Final best corrected visual acuity (BCVA) was recorded on the 5th postoperative visit i.e. at 6 months.
The data processing was carried out on Statistical Package for Social Science (SPSS) version 10.0 software and expressed as frequencies, percentages, mean and standard deviation.

**RESULTS**

Over a period of 3 years i.e. from July 2007 to June 2010, a total of 41 unilateral traumatic cataract patients were managed at Liaquat University, Eye Hospital, Hyderabad. Out of a total 41 unilateral traumatic cataract patients, there were 31 (75.6%) males and 10 (24.4%) females with a male to female ratio of 3.1:1. The age ranged between 5 and 55 years (mean age: 18.5 ± 12 years). The majority of the patients (58.5%) were aged between 5 and 14 years. Males were affected mostly. Details are shown in Table I.

Most of the injuries were caused by wooden stick (31.7%) followed by thorn (22%) and stone (17.1%, Table II).

The pre-operative visual acuity was perception of light in 31 patients (75.6%), counting finger at 1 meter in 9 patients (22%) and 6/24 in 1 patient (2.4%). Total cataract was the most prevalent type with a percentage of 90%. The other types (rosette, absorbed lens matter, calcified and posterior sub-capsular) were evenly distributed comprising 2.4% cases each. Anterior capsular rupture and corneal scar were the common associated ocular injuries found in 20 (44%) and 12 (29.3%) patients respectively.

Lens aspiration was done in 36 cases (87.8%), lens aspiration and anterior vitrectomy in 4 cases (9.7%) and Phacoemulsification in 1 case (2.4%). Posterior chamber intraocular lens was implanted in 39 patients (95%) while 2 (5%) were left aphakic due to inadequate capsular support. Table III highlights the BCVA in terms of duration between the injury and cataract surgery. Majority of the cases had surgery in less than one month (17 cases) and between 1-6 months (16 cases). Duration between injury and cataract surgery was not markedly different among the patients. The major postoperative complications encountered on first postoperative day were anterior uveitis in 20 (48.8%) and corneal oedema in 10 (24%) patients which responded to medical therapy. Posterior capsular opacity was the only late complication seen in 10 patients (24%) at 6 months postoperatively. In these patients visual acuity improved to 6/6 – 6/12 after Nd YAG laser capsulotomy. The average time between laser capsulotomy and surgery was 6 months. On first postoperative day, majority of the patients had visual acuity ranging between < 3/60 to 6/24, on sixth week greater part had between 6/36 to 6/6; at sixth month the best corrected visual acuity of 20 patients (48.8%) was 6/9 to 6/24 and 29 (70.8%) patients had visual acuity of 6/18 or better. The main causes of no improvement in visual acuity were corneal opacity, high astigmatism, and macular scar.

**DISCUSSION**

This study included 41 cases of traumatic cataract managed at Department of Ophthalmology, Liaquat University of Medical and Health Sciences, Hyderabad. Traumatic cataract is one of the most common outcomes of ocular injuries. There is a 1-15% incidence of traumatic cataract in ocular injuries. Trauma is the leading cause of 90% of acquired paediatric cataracts.

In this study, male preponderance was found with a male to female ratio of 3.1:1. It is due to involvement of males in sports and outdoor activities. Worldwide...
males are more commonly involved in traumatic cataract than females.

Zaman et al. stated that majority (50.64%) of the traumatic cataract patients ranged between 5-15 years, which is consistent with the present findings i.e. 58.5% cases ranged between 5-14 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 employing protective measures. Thompson et al. observed that a majority of the ocular trauma in children occur at home due to lack of adult supervision.

Penetrating injuries are the most common cause of ocular injuries; the same was observed in this study. Twenty eight patients (68.3%) sustained penetrating injury whereas 13 patients (31.7%) presented with blunt injury. The leading cause of injury was wooden stick (31.7%) followed by thorn (22%) and stone (17.1%). Krishnamachari and Thompson et al. also found that stick and stones were the most frequent cause of injury. There was no marked difference regarding causative agents seen on BCVA postoperatively in this series.

In this series, over 90% of cataracts were total, similar observations were made by Krishnamachari et al. and Panda et al. They stated that most of the traumatic cataracts were total in nature. The opthalmic injuries most commonly associated with traumatic cataract were anterior capsular rupture (48.7%) and corneal scar (29.2%). Ashvini and colleagues also concluded that anterior capsule violation (56%) and corneal laceration (52%) were the most frequent associations with traumatic cataract.

Implantation of intraocular lens (IOL) in traumatized eyes after removal of traumatic cataract depends on availability of capsular support. In capsular bag or sulcus fixation is preferred if there is sufficient capsular and Zonular support. Patients with insufficient capsular or Zonular support are the candidate for Artisan lenses, scleral fixation IOLS and anterior chamber IOLS.

In this study, lens aspiration was done in 36 cases (87.8%), lens aspiration, posterior capsulotomy and anterior vitrectomy in 4 cases (9.7%) and Phacoemulsification in 1 case (2.4%). Posterior chamber intraocular lens was implanted in 39 patients while two were left aphaikic and planned for scleral fixated or anterior chamber intraocular lens. Majority of these patients were operated within 6 months after trauma. Duration between the injury and cataract surgery was less than one month in 17 patients (41.5%), 1-6 months in 16 patients (39%), 7-12 months in 3 patients (7.3%) and more than 12 months in 5 patients (12.2%). Mehul and coworkers reported significant effect of time interval between injury and cataract surgery on final visual outcome (p=0.02), although these patients did not show that.

The major postoperative complications encountered on first postoperative day were severe uveitis (48.8%) which responded to medical therapy. Cheema and coworker reported that the fibrinous uveitis was the most common postoperative complication (25%). It may mainly be due to surgical trauma in an already traumatized eye and not related to type or location of IOL inside the eye. The commonest late postoperative complication in these traumatic cataractous eyes was posterior capsular opacification seen in 10 patients (24%) at 6 months postoperatively. Eckstein and colleagues reported that posterior capsular opacity was seen in almost 92%.

This study revealed that satisfactory visual outcome in majority of patients with traumatic cataract could be safely achieved after cataract removal and IOL implantation. Best corrected visual acuity was 6/6 to 6/9 in 20 patients (48.8%) and 6/18 or better in 29 patients (70.8%). Zaman et al. and Cheema et al. reported visual acuity of 6/18 or better in 68.7% of patients. Gain et al. concluded that postoperative visual acuity depends on complications. The main causes of no improvement in visual acuity in the presently reported patients were corneal opacity, high astigmatism, and macular scar.

Blindness from ocular trauma can be avoided by employing protective eye wears especially in high risk activities. Patient education in schools, baby day care centres and through media must be carried out to prevent ocular injuries in children. Once the injury has occurred, outcome depends on extent of injury to ocular and peri-orbital structures and immediate and professional approach must be taken to prevent blindness.

Limitations of this study were a small sample size and a fixed follow-up period. This study was conducted at a tertiary care hospital where large number of complicated cases were presented for management. It also affected the surgical success rates and outcome. A majority of the patients were from rural areas and seen by local doctors postoperatively for their convenience which limited the follow-up period.

CONCLUSION

Patients with traumatic cataract can have an optional or best possible visual outcome depending upon management and complications. Young males are commonly affected. Taking protective measures in sports and work and patient education can avoid ocular trauma and traumatic cataract formation.

REFERENCES


