

Our traumatic cataract experience in patients with hospitalizing ocular trauma

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More than 2 million eye injuries occur annually in the United States,¹ more than 40,000 result in some degree of permanent visual impairment.² Traumatic cataract was the most common vision-limiting factor in all subcategories of open-globe injuries in some studies.¹ In our study, we wanted to share our experience of traumatic cataract in patients with different types of ocular traumas that required hospital admission and their outcome.

We conducted a retrospective analysis of the records of all patients presenting with ocular trauma requiring hospital admission, surgical intervention, and had completed a 6 months following up period. All patients were examined and operated on by a single skilled surgeon at King Abdul-Aziz University Hospital, Jeddah, Saudi Arabia between January 2004 and October 2006, with a total number of 9 patients. As long as there was no experimental investigations involving human subjects involved and the analysis was retrospective preserving the patients' identity, there was no need for ethical consents to be prepared. We took patients other eyes as the control, all patients included had their other eyes free from cataract, fundus abnormality, and reported normal vision in the injured eyes before the trauma in comparison with their fellow eyes. Factors considered

in the study included 1) primary injury (open versus closed globe), 2) association with intraocular foreign body (IOFB), 3) degree of damage, 4) visual acuity at presentation, 5) visual acuity post operatively, 6) timing of primary surgery, 7) occurrence of complications, 8) need for another ocular operation, 9) presence or absence of Vossius ring, and 10) rupture of the lens capsule. Two patients had closed globe injury due to blunt trauma, 7 patients had open globe injury, among which 4 cases had IOFB and 3 had ruptured globe. A total of 9 patients were included.

Preoperative assessment. All patients received intravenous and topical antibiotics treatment at the onset of presentation, which they continued to have until their primary operation, preoperative visual acuity (VA) assessed using Snellen's E chart, an external ophthalmologic examination with the use of direct ophthalmoscope, a Haag-Streit slit lamp examination, the status of vitreous and retina was evaluated by slit lamp biomicroscopy with 78 D lens and binocular indirect ophthalmoscope with 20 D lens, when vitreous and retina were difficult to visualize ultrasound A-scan and B-scan were applied as alternatives, a computerized axial tomography (CT). Table 1 summarizes the surgical interventions in managing each patient (primarily and secondarily).

Traumatic cataract patients had their final VA improved by an average of 3 lines, one multiple trauma patient with severe blunt trauma did not show VA improvement. Two patients (22.2%) with the blunt

Table 1 - The surgical intervention in managing each patient.

Age (years)	Gender	Mechanism of injury	Type of injury	First OR	Second OR
17	F	Road traffic accident	Rupture globe	Primary repair	Lensectomy, PPV, scleral buckling
36	M	Foreign body while hammering (occupational)	IOFB	PPV, IOFB removal, endo laser	
33	M	Trauma by flying iron piece (occupational)	IOFB	PPV, silicone oil, IOFB removal	Silicone oil removal, PHACO+IOL
8	M	Blunt trauma by stone	Ruptured globe	Primary repair	Lensectomy, PPV, PHACO+IOL
2	M	Blunt trauma	Ruptured globe	Primary repair	
24	F	Injury with piece of stone	IOFB	PPV, IOFB removal, endo laser	
14	M	Blunt trauma following fall on an iron rod	Closed globe injury	Traumatic cataract removal + IOL	
11	M	Penetrating trauma with broken glass	IOFB (in anterior chamber)	Primary repair, IOFB removal	Excision of incarcerated iris, suture repair
10	M	Blunt trauma by stone	Closed globe injury	Lensectomy (traumatic cataract), anterior vitrectomy	

F - female, M - male, OR - operative repair, IOFB - intraocular foreign body, PPV - parsplana vitrectomy, PHACO - phacoemulsification, IOL - Intra ocular lens implant

trauma developed traumatic cataract within the first 48 hours after eye injury. Another 3 patients (33.3%) developed traumatic cataract within 2 months from the trauma, 2 of them had ruptured globe (22.2% of all patients, 66.7% of the lately developed traumatic cataract patients) and another one with IOFB (11.1% of all patients, 33.3% of the lately developed traumatic cataract patients), non of the lately developed traumatic cataract patients showed any signs of lens capsule disturbance or rupture when first presenting, the remaining 4 patients (44.4%) did not develop cataract over a 6 month followed up period. Two cases with IOFB developed complications after initial treatment: one with traumatic cataract and lens subluxation resulting in glaucoma, the other one had iris incarceration with uveal prolapse. One case with ruptured globe had irregular iris, corneal scar, and phthisis bulbi.

Planning surgical management in traumatic cataract provides encouraging results, as a 2-staged procedure after appropriate investigations.² In our study, we planned our management, and applied the 2-staged procedure as necessary. We reached an average of 3 visual lines of improvement.

Doutetien et al³ found that males were predominant (70.4%) in having traumatic cataract than females with a ratio of 2-4. In our study, males represented 80% of the traumatic cataract cases, but we also noticed that males represented 77.8% of our sample. So we believe that males may be more predominant to have traumatic cataract mainly due to their increased incidence of having eye injuries as supported by several studies.

Schoolchildren were the most frequent (37%) occupational group to develop traumatic cataract.³ We did not consider in our study what patients do for a living. Traumatic cataracts resulted from recreational accidents represent (37%) of all traumatic cataracts,³ but we noticed that of 80% of our traumatic cataract patients ranged from 8-17 years, which falls in the age group of school students in many countries. We agree that younger age group have a higher incidence of

developing traumatic cataract, but we cannot comment on the role of their daily activities. Most of our patients after traumatic cataract extraction and lens implantation could return and function normally in the community. Hence, we agree with authors stating that, the majority of eyes with traumatic cataract could be safely rehabilitated after surgery and lens implantation.⁴

In conclusion, the development of traumatic cataract was more rapid among patients with closed globe injury, despite the less apparent damage visualized than open globe injuries, and the majority of eyes with traumatic cataract could be safely rehabilitated after planned surgery and lens implantation.

Received 30th March 2009. Accepted 25th May 2009.

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References

1. Eye Trauma Epidemiology and Prevention. United States Eye Injury Registry. (accessed 2008 June 21). Available from URL: <http://www.useironline.org/Prevention.htm>
2. Robson J, Behrman MJ, Abbuhl S. Globe Rupture. eMedicine-Globe Rupture. (updated 2009 July 16, accessed 2008 June 21). Available from URL: <http://www.emedicine.com/emerg/TOPIC218.HTM>
3. Thakker MM, Ray S. Vision-limiting complications in open-globe injuries. *Can J Ophthalmol* 2006; 41: 86-92.
4. Kumar A, Kumar V, Dapling RB. Traumatic cataract and intralenticular foreign body. *Clin Experiment Ophthalmol* 2005; 33: 660-661.
5. Douterien C, Tchabi S, Sounouvou I, Yehouessi L, Deguenon J, Bassabi SK. Traumatic cataract at the Cotonou, hospital (Benin): epidemiological, clinical and therapeutic considerations. *J Fr Ophthalmol* 2008; 31: 522-526.
6. Baklouti K, Mhiri N, Mghaieth F, El Matri L. Traumatic cataract: clinical and therapeutic aspects. *Bull Soc Belge Ophthalmol* 2005; 13-17.

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Celiker V, Basgul E, Sahin A, Uzun S, Bahadir B, Aypar U. Comparison of midazolam, propofol and fentanyl combinations for sedation and hemodynamic parameters in cataract extraction. *Saudi Med J* 2007; 28: 1198-1203.