Visual Outcome and Prognostic Factors in Management of Traumatic Cataract Associated with open Globe Injury

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One of the common complications of ocular trauma is traumatic cataract. The incidence of traumatic cataract can be as high as 32%.1 Traumatic cataract in the setting of open globe injuries pose a challenge as it requires repair of the corneal or scleral laceration to restore the integrity of the eye ball and removal of the opaque and often disrupted lens to prevent lens induced uveitis or glaucoma and restore the vision. The aim of this present study is to report the visual acuity and prognostic factors affecting outcome following management of traumatic cataract in patients with open globe injury.

MATERIALS AND METHODS

In this retrospective study, the medical records of 83 patients with open globe injury undergoing cataract surgery for removal of traumatic cataract were reviewed. All patients underwent primary repair of the corneal/sclera wound at the earliest. Cataract surgery was generally preferred to be performed as a second procedure (secondary cataract surgery) once corneal clarity had improved and anterior segment inflammation had subsided with treatment with intensive topical and oral steroids. However in selected cases, cataract extraction (primary cataract surgery) was done along with repair of corneal laceration if the cataract was visually significant, with the anterior capsule damaged, and escape of lens matter in the anterior chamber provided the corneal clarity was good enough to allow for surgery. The main outcome measure was best corrected visual acuity measured with logmar visual acuity charts. For the purpose of statistical analysis, all patients were categorized into two groups: Those with BCVA ≥ 20/40 as good outcome and those with BCVA <20/40 as poor outcome. Univariate analysis was done by constructing a 2x2 table to test for level of significance with Fisher’s exact test. Those variables...
which reached statistical significance (p<0.05) in the univariate analysis was put into a multiple logistic regression model to test for significance.

RESULTS

Of the 83 patients enrolled, outcome data was analysed in 65 eyes of 65 patients. There were 54(83.08%) males and 11(16.92%) females between the age of 5 and 56 years (mean: 23.05 ± 13.93 years). The presenting visual acuity ranged from perception of light to 20/160.

Post-operative BCVA was ≥ 20/40 in 37(56.92%), 20/50-20/200 in 19 (29.23%) and <20/200 in 9 (13.85%) patients. In univariate analysis primary cataract surgery (p=0.01), corneal tear sparing the visual axis (p=0.01) and non-involvement of posterior segment structures (p=0.02) were associated with good visual outcome. Multivariate analysis identified corneal tear sparing the visual axis (p=0.018) and non-involvement of posterior segment structures (p=0.019) as statistically significant factors which were associated with good outcome.

DISCUSSION

In the present study, good outcome was achieved in 37(57%) patients, comparable to results reported by Rumelt and Rehany\(^2\) who reported 51% patients with visual acuity of ≥ 20/40 and Shah \textit{et. al.}\(^3\) who reported 48% with visual acuity of >20/60 but less than that reported by Blum \textit{et. al.}\(^4\) who reported post-operative visual acuity of >20/40 in 90% cases.

In this study, multivariate analysis identified corneal tear sparing the visual axis and non-involvement of posterior segment structures as statistically significant factors which were associated with good outcome. Barr reported poor presenting visual acuity, amount of hyphema, posterior uveal prolapse, vitreous hemorrhage, length of corneal laceration and extent of lens damage as factors which were associated with poor final visual acuity following corneoscleral lacerations.\(^5\) Shah \textit{et. al.}\(^5\) attributed corneal scar, glaucoma, infection, inflammation, lens position, and extensive post damage as causes of poor final visual acuity.\(^3\) Baykara \textit{et. al.}\(^6\) have previously reported corneal scar, irregular astigmatism and traumatic maculopathy to cause poor outcome after surgery for traumatic cataract, Gradin \textit{et. al.}\(^7\) reported amblyopia and retinal detachment while Blum \textit{et. al.}\(^4\) found severe traumatic retinopathy and optic neuropathy to affect the outcome.

In conclusion, the prognosis for traumatic cataract after open globe injury is not poor. It is always not necessary to remove the cataract during the initial surgery. In selected patients primary cataract surgery also results in good outcome. Poor prognosis is associated if visual axis involvement is present and if there are posterior segment complications.
REFERENCES


