



A STUDY OF POST OPERATIVE OUTCOMES OF SUTURELESS SCLERAL FIXED INTRAOCULAR LENS IN EYES WITH AND WITHOUT TRAUMA.

Ophthalmology

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ABSTRACT

Background: A large number of traumatic lens dislocations require lensectomy with scleral fixated IOL placement and hence this study was done to compare effect of surgery on eyes without trauma and the eyes with trauma. **Methodology:** An interventional study with a prospective design was conducted from June 2018 to November 2019 for a period of 18 months, at a Vitreo-retinal department in a tertiary care eye hospital in India. A total of 70 eyes of 70 patients were studied. Socio-demographic data were collected and analyzed and $p < 0.05$ was considered significant. **Results:** On comparing eyes with and without trauma, we found that patients with trauma were significantly younger and had worse BCVA at presentation. However, there was no difference in other baseline parameters. Both groups recovered vision equally well and did not show much difference in complications, though eyes with trauma had slightly higher rate of postop CME and persistent raised IOP compared to eyes without trauma. **Conclusion:** Best Corrected Visual Acuity (BCVA) improved in both groups but decline in Corneal Endothelial Cell Count (CECC) post surgery was greater in trauma group compared to non trauma group.

KEYWORDS

trauma, sutureless scleral fixated intraocular lens

INTRODUCTION

The development of intraocular lens (IOL) has been one of the greatest milestones in ophthalmology. Perhaps the most dramatic example of this is seen in a case with aphakia, particularly the monocular aphakic patient. This is so because in monocular aphakics, the spectacle correction is generally not acceptable because it induces anisometropia, which creates an image size disparity as great as 25 to 30%. Intraocular lens (IOL) implantation to correct aphakia offers a better visual rehabilitation in comparison to aphakic spectacles or contact lenses.

Because of their anatomic location, scleral-fixated PC IOL have a theoretic advantage over other IOLs with regard to complications, especially in eyes after trauma and in young patients. They provide better visual acuity and binocularity, and avoid the complications of AC IOL, which are seen more with rigid closed loop IOLs than with open-loop and iris-claw IOLs.

Scleral fixation of IOLs can be done using non-absorbable sutures or in a sutureless manner where the IOL haptics of a 3-piece IOL are exteriorized and buried inside scleral pockets or under a scleral flap.

We also see a fair number of traumatic lens dislocations that require lensectomy with scleral fixated IOL placement. As an institutional protocol, we prefer scleral fixation of IOL in view of the advantages elucidated above. Hence this study was done to compare the post operative outcomes of sutureless scleral fixated intraocular lens in eyes with and without trauma.

Methodology:

Type of study: It was a hospital based interventional study with a prospective design carried for 18 months (June 2018 to November 2019) in a Vitreo-Retinal department at a tertiary eye care hospital in India.

Inclusion Criteria: Patients with aphakia following trauma and non-traumatic causes like complicated cataract surgery, Patients with more than 6 clock hours of subluxated clear or cataractous lens requiring surgery where placement of IOL in the bag was not possible and Patients with defect in the posterior capsule precluding stable insertion of PCIOL in the bag or in the ciliary sulcus.

Exclusion Criteria: Patients with preexisting scleral disease Patients with systemic disease known to cause scleral thinning e.g. connective tissue disorder

- Patients with glaucoma of any etiology
- Patients with chronic/ recurrent uveitis

- Patients with active macular pathologies
- Patients with corneal opacity in line with visual axis
- Patients with active ocular infection.

Statistical analysis:

All data was stored in MS Excel and statistical analysis was performed using STATA 12.1 I/c (Fort Worth, Texas). All p values < 0.05 were considered statistically significant.

Results.

A total of 70 eyes were selected based on the inclusion and exclusion criteria for the study, which were then divided into 2 groups, no trauma and trauma. 38 eyes were without any trauma and 32 eyes were with trauma. The mean age in the eyes without any trauma was 47 ± 22.6 years and the mean age in the eyes with trauma was 36.3 ± 22.6 years with p value significant. Also the percent of men in eyes without any trauma was 79% while that in the eyes with trauma was 81%.

(TABLE 1)

The BCVA, IOP AND CECC were calculated at the baseline and then Outcomes in the form of BCVA AND CECC were calculated at 1 months and 3 months. The BCVA at 1 month and at 3 months in the eyes without any trauma was 0.29 ± 0.31 and 0.25 ± 0.23 respectively while that in the eyes with trauma at 1 month and 3 months were 0.35 ± 0.37 and 0.28 ± 0.26 respectively. Also the CECC at 1 month and 3 months in the eyes with trauma were 2477 ± 478 and 2424 ± 480 respectively while that in those without trauma at 1 month and 3 months were 2539 ± 473 and 2486 ± 477 respectively. Although both were greater in the eyes without trauma, this difference was statistically not significant.

(TABLE 2)

Post operative complications in the form of CME, Glaucoma and retinal detachment were studied in both groups of eyes without any trauma and eyes with trauma and the differences were found to be statistically not significant.

(TABLE 3)

DISCUSSION

In our study we divided the eyes into those without trauma and those with trauma. A total of 70 eyes were studied in our study. Baseline characteristics were compared and then outcome variables in the form of BCVA and CECC were calculated. We analyzed and compared eyes with and without trauma and found that eyes with trauma had slightly lower BCVA and these patients were significantly younger with

resultant higher endothelial cell counts. Eyes with trauma are bound to have lower vision in view of refractive changes caused by subluxated lenses, many of which are cataractous at presentation, and do not improve with best glasses. Similarly, eyes with trauma also have higher incidence of vitreous hemorrhage and other posterior segment pathologies as well as corneal scarring and other anterior segment sequelae, all of which compromise vision before surgery. There were no differences in any of the measured parameters in these groups including visual recovery, endothelial cell counts and IOP. From our results, though with a limited sample size, we believe that sutureless SFIOL is equally safe and effective in both, eyes with post cataract aphakia as well as in eyes following blunt or penetrating trauma. Sindal et al also reported comparable visual results in eyes with and without trauma. (9)

CONCLUSION:

Best Corrected Visual Acuity (BCVA) improved in both groups but decline in Corneal Endothelial Cell Count (CECC) post surgery was greater in trauma group compared to non trauma group.

Tables and figure

Table 1 showing age and gender -wise distribution of study population

Variable	No Trauma (n=38)	Trauma (n=32)	P value
Age	47+22.6	36.3+22.6	0.05
Gender (% men)	30 (79%)	26 (81%)	0.81

Table 2 showing outcome in eyes with and without trauma.

Outcome Variable	No Trauma (n=38)	Trauma (n=32)	P value
At baseline			
BCVA	0.60+0.58	1.07+0.63	0.001
IOP	14.6+3.9	14.5+5.4	0.62
CECC	2775+448	2730+472	0.68
At 1 month			
BCVA	0.29+0.31	0.35+0.37	0.30
CECC	253	2477+478	0.58
At 3 months			
BCVA at 3 months	0.25+0.23	0.28+0.26	0.60
CECC at 3 months	2486+4779+473	2424+480	0.53

Table 3 showing postoperative complications in eyes with and without trauma.

Postop complications	No Trauma (n=38)	Trauma (n=32)	P value
CME	4 (10%)	6 (19%)	0.53
Glaucoma	0	2 (6%)	
Retinal detachment	1 (3%)	0	

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