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Retrospective evaluation of the complications in patients with traumatic cataract

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Abstract

Background: The main cause of blindness worldwide from the last two decades is reported to be cataract even after advancement in the patterns of diagnosis and treatment. The present study was planned for the assessment of clinical outcomes and complications with secondary extraction of a traumatic cataract using retrospective study method.

Materials and methods: The study was conducted in the department of ophthalmology in the institution. Review of 71 patients that undergone secondary removal of traumatic cataract was done. The mean age of the patients was 27 years (range 6-49 years). The study group constituted of 42 males and 29 females. Surgery for cataract was done after 6 months of primary repair of corneal or scleral wound. Preoperative visual acuity was assessed using Snell's chart.

Results: Preoperative complications were observed in 27 patients. Corneal scar due to a previous large corneal laceration was observed in 7 patients, anterior capsule rupture in 4 patients, anterior synechiae in 5 patients, sphincter damage in 3 patients, iridodyalisis in 2 patients, zonular loss in 3 patients, vitreous hemorrhage in a single patient and macular scar in 2 patients. Vitrectomy was done to manage posterior capsular rupture which occurred in 5 patients. Vitrectomy was not performed in case of capsular rupture of 2 cases. Due to sphincter rupture introperatively iris sutures were placed in 4 patients. Only 2 patients were observed in case of intraoperative hyphema.

Conclusion: Traumatic cataract surgery is very demanding and delicate procedure. The success of postoperative surgery is dependent on age, concomitant eye injury, intraocular lens implantation, preoperative, intraoperative, and postoperative complications, and the skill and experience of the surgeon.

Keywords: cataract, intraoperative complications, lens cortex

Introduction

The main cause of blindness worldwide from the last two decades is reported to be cataract even after advancement in the patterns of diagnosis and treatment [1, 2]. it is not necessarily that the result of cataract surgery be satisfactorily every time. Good surgeon's skills are highly responsible for a good result of cataract surgery [3, 4]. A treatable case of cataract, after cataract extraction can encounter various complications due to which a treatable case of cataract can be converted into irreversible blindness.

The treatment of cataract can be performed in two ways: primary removal of cataract or secondary removal of cataract. This is the basic questions concerning the surgery that which surgery shall be performed and if intervention is decided, which is the most proper technique. The main advantage of removal of cataract by primary intervention is the ability of surgeon to check the posterior segment blocked by lens opacity. Primary intervention for removal of cataract is recommended in case of fragmentation, swelling of lens or pupillary block caused by the lens [5] Secondary intervention for cataract removal is recommended because of advantages like better visibility, better intraocular lens calculation, anterior segment reconstruction, and stabilisation of a hemato-ocular barrier [6].

The present study was planned for the assessment of clinical outcomes and complications with secondary extraction of a traumatic cataract.

Materials and methods

The study was conducted in the department of ophthalmology in the institution. Review of 71 patients that undergone secondary removal of traumatic cataract was done. The mean age of the patients was 27 years (range 6-49 years). The study group constituted of 42 males and 29 females. Different objects such as knife, toy, glass, pencil, wire and blunt trauma were responsible for the mechanical trauma [6]. Surgery for cataract was done after 6 months of primary repair of corneal or scleral wound. Sanders-Retzlaff-Kraff (SRK) II formula measurements were used for power calculations of intraocular lens power on non-injured eye [7, 8]. Preoperative visual acuity was assessed using Snell's chart. Intraocular pressure was measured with a Goldmanapplanation tonometer (Nikon slit lamp NS-1, Tokyo, Japan) or Schiotz tonometer (Amman ophthalmic instruments, Liptingen, Germany) [9]. Anterior segment examination was done using Slit-lamp bio microscopic examination after the dilation of pupils and predominant type of opacity was located to check the type of cataract. An indirect opthalmoscope was used for checking posterior segment. For ruling out vitreous hemorrhage and retinal detachment, B-scan ultrasound was used [10].

Medication prescribed was topical application of Maxitol 5 times per day postopeartively, depending on the level of intraocular inflammation. Daily follow up was done for first 5 days after the surgery, once a week for first month postopertaively and once in a month for minimum 1.2 months.

At each visit, visual acuity was recorded. For recording early postoperative complications (corneal edema, fibrinous anterior uveitis, raised intraocular pressure, hyphema) and for late postoperative complications (posterior capsule opacification, pupil capture, intraocular lens decentration, and retinal detachment), slit-lamp biomicroscopic and posterior segment examination were done.

Results

Preoperative Complications

Preoperative complications were observed in 27 patients. Corneal scar due to a previous large corneal laceration was observed in 7 patients, anterior capsule rupture in 4 patients, anterior synechiae in 5 patients, sphincter damage in 3 patients, iridodyalisis in 2 patients, zonular loss in 3 patients, vitreous hemorrhage in a single patient and macular scar in 2 patients.

Intraoperative Complications

Vitrectomy was done to manage posterior capsular rupture which occurred in 5 patients. Vitrectomy was not performed in case of capsular rupture of 2 cases. Due to sphincter rupture introperatively iris sutures were placed in 4 patients. Only 2 patients were observed in case of intraoperative hyphema (table 1).

Postoperative Complications

Early postoperative complications were corneal edema, fibrinous uveitis, intraocular pressure rise, and hyphema. Late postoperative complications were posterior capsule opacification, pupil capture, intraocular lens decentration, and retinal detachment (Table 1). Visual acuity in the first group could not be improvedbeyond0.05-0.1becauseof cornealscar and postoperative complications such as posterior capsule opacification, intraocular lens decentration, pupil capture, and retinal detachment in one case. Corneal edema, intraocular pressure increase, and hyphema were transient requiring a short course of topical medical treatment. The most frequent early complication was fibrinous uveitis, which developed in 8 cases. Three children required intensive topical corticosteroid therapy in the immediate postoperative period. The most frequent late postoperative complication was posterior capsule opacification requiring an Nd: YAG laser posterior capsulotomy.

Table 1: Number of patients with respect to different complications of secondary cataract surgery

Complications		No. of patients
Preoperative	Corneal scar	7
	Anterior capsule rupture	4
	Anterior synechiae	5
	Sphyncter damage	3
	Iridodyalisis	2
	Zonular loss	3
	Vitreous hemorrhage	1
	Macular scar	2
Intraoperative	Posterior capsular rupture	5
	Iris sutures	4
	Hyphema	2
Postoperative	Corneal edema	3
	Fibrinous uveitis	8
	Raised intraocular pressure	3
	Hyphema	2
	Posterior capsule opacification	7
	Pupil capture	3
	Decentration of intraocular lens	5
	Retinal detachmen	2

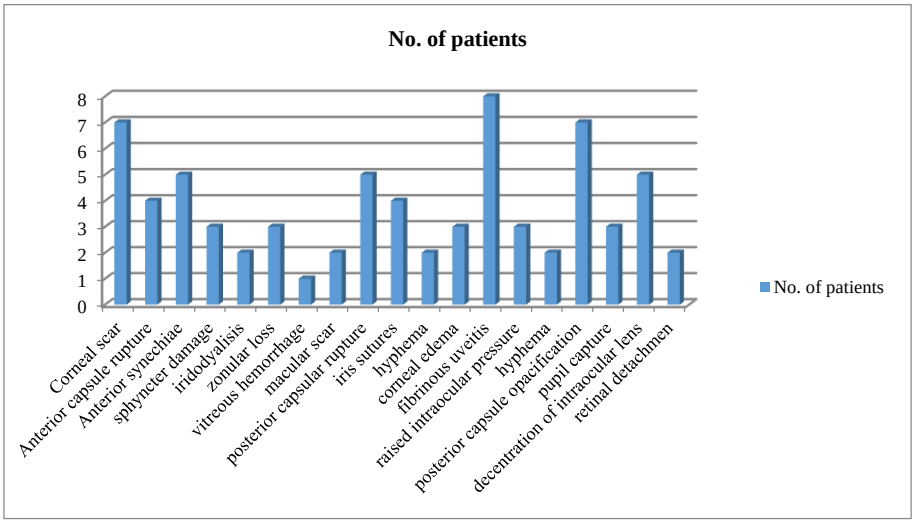

Fig 1: Comparison of different complications of secondary cataract surgery

Discussion

Visual gain following surgery for traumatic cataracts is a complex problem. Electrophysiological and radio-imaging investigations are important tools available in industrialized countries for assessing comorbidities associated with an opaque lens. Predictors of visual gain after traumatic cataract surgery would be useful for ophthalmologists in such cases [11-13].

The present study reported that safe rehabilitation of a majority of eyes affected by traumatic cataract can be done by posterior chamber lens implantation. Improvement in visual acuity was observed postoperatively in 36 cases. There were only 12 cases in which visual acuity could not be improved above 0.1 because of postoperative complications. Blum at al reported improved visual acuity in 90% of the cases, whereas Gain at al concluded that postoperative visual acuity depended on complications [14, 15]. Gupta at alalso had good results in children with traumatic cataracts, who achieved visual acuity of 0.5 or better after the operation and intraocular lens implantation [16].

Fibrinous uveitis is a common early postoperative complication in children, leading to posterior central synechias, pupillary block glaucoma, and lenticular membrane formation [11, 16]. To avoid these complications, patients received an intensive topical corticosteroid therapy in the immediate postoperative period, which was gradually tapered over 3-4 month period [17]. Patients were examined frequently during the early postoperative period. The most frequent late postoperative complication in our study was posterior capsule opacification, mainly in children, requiring and Nd: YAG laser posterior capsulotomy. The incidence of posterior capsule opacification in children with traumatic cataract having cataract surgery with posterior chamber intraocular lens implantation has been reported to vary between 21% and 100 [18-21]. One case with retinal detachment required pars planavitrectomy. After a five month follow-up, the retina was attached and visual acuity was 0.1.

Sofi IA, Bharti AR, Gupta SK, *et al* [17]. assessed the visual outcomes and post-operative complications following the management of traumatic cataracts. This prospective hospital-based study was conducted on 40 patients of traumatic cataract. Patients were managed with lens extraction and intraocular lens implantation. Regular follow-up of patients was done and best corrected visual acuity and postoperative complications were assessed at the end of six months. The study showed that majority (50%) of patients were in the age group of <20 years with male preponderance; 37 cases (92.5%) were succesfully rehabilitated with IOL implantation as primary or secondary procedure. Out of 40 cases, BCVA of 6/18 - 6/6 was recorded in 28 cases (70%), 6/36 - 6/24 in 8 cases (20%) and had BCVA of equal to or less than 6/60 in 10 cases. Most common complications reported were anterior chamber reaction and Posterior Capsular Opacification (PCO). It was concluded by the authors that 92.5% patients were safely rehabilitated with cataract extraction and IOL implantation and 70% had BCVA of 6/18 - 6/6. Posterior capsular opacification and uveitis were the common post-operative complications.

Mousumi Krishnatreya *et al* [18]. Conducted a study to know the profile of patient presenting with traumatic cataract, to study the mode of presentation and type of injury causing it and to know the associated ocular morbidities of traumatic cataract. All the patients admitted for traumatic cataract in Regional Institute of Ophthalmology during the study period were taken for the study. History was taken in a pre-deigned pre tested proforma for all 48 patient got during the period. Ocular examination was also done. Results: Maximum number of traumatic cataract were among male patient (66%) and children below 10 years are mostly (27.08%) affected. Maximum (58%) numbers of traumatic cataract were due to blunt ocular trauma. Wooden stick was the commonest object causing both blunt as well as penetrating ocular injuries. It was observed that cornea involvement, anterior capsular tear, posterior synechia, subluxation or dislocation, uveities, raised IOP etc are some of the common morbidities associated with traumatic cataract. Conclusion: Maximum numbers of patients were children and they were mostly related to unsupervised activities. As corneal involvement is one of the common morbidities associated with traumatic cataract early reporting and adequate follow up need to be emphasized to the masses.

Conclusion

From the above results, the authors concluded that traumatic cataract surgery is very demanding and delicate procedure. The success of postoperative surgery is dependent on age, concomitant eye injury, intraocular lens implantation, preoperative, intraoperative, and postoperative complications, and the skill and experience of the surgeon.

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