Section: General Surgery

Original Research Article

A STUDY ON COMPLICATIONS AND THEIR MANAGEMENT DURING PSEUDOEXFOLIATION CATARACT SURGERY

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Abstract

Background: To analyze the clinical profile of pseudoexfoliation cataract, intraoperative complications encountered and measures to manage them. **Materials and Methods:** A prospective cross sectional time-bound study was done with patients of pseudoexfoliation associated with cataract and willing for surgery were included. All the patients were planned for manual small incision cataract surgery with rigid posterior chamber intraocular lens implantation under peribulbar anaesthesia and all the surgeries were performed by 2 experienced surgeons. Any intraoperative manipulations were noted and recorded. **Results:** A total of 710 patients were selected for cataract surgery, out of which 52 patients had pseudo exfoliation cataract. Insufficient mydriasis < 6mm was seen in 39 patients. Pupil dilatation in patients with pseudoexfoliation material distribution on pupil margin and lens was 5 +_0.5 mm. We implanted rigid PCIOL in the bag in 48 patients, 2 patients had posterior capsular rent where intraocular lens was placed in the sulcus in one and in another patient iris claw lens was placed. Secondary glaucoma following cataract surgery was seen in 15 patients and visual acuity > 6/12 was recorded in 30 patients and visual acuity > 6/18 was seen in 46 patients. **Conclusion:** Although cataract surgery in pseudoexfoliation is challenging, intraoperative complications can be managed better with thorough preoperative evaluation and modification in surgical technique.

INTRODUCTION

Pseudoexfoliation is an age related systemic disorder in which fibrillar extracellular material is synthesized and deposited throughout the anterior segment of the eye.[1] Cataract surgery in pseudoexfoliation syndrome poses challenges due to poor pupillary dilatation and zonular weakness. Serious complications caused mainly by zonulopathy manifest as zonular dehiscence, capsular tear or rupture, vitreous loss and also higher incidence of posterior capsule opacification.[2] Pupillary transillumination defects or pigment dispersion may indicate early pseudoexfoliation. However, the degree of pseudoexfoliation deposition visible in the eye may not correlate with the degree of zonular instability.[3]

The prevalence of pseudoexfoliation syndrome reported varies from 0.69% to 3.8% in India. Breakdown of blood aqueous barrier leads to transient rise of intraocular pressure and fibrinoid uveitis after surgery. Late complications include posterior capsule opacity, decentred intraocular lens and corneal endothelial decompensation. The present study was conducted to analyze the clinical profile of pseudoexfoliation cataract, intraoperative complications encountered and measures to manage them.

MATERIALS AND METHODS

This is a prospective cross-sectional time-bound study done between Feb. 2019 to Jan. 2020 at a tertiary care teaching hospital in North Karnataka. All patients visiting to Ophthalmology OPD with features of pseudoexfoliation associated with cataract and willing for surgery were included. Patients with glaucoma, significant phacodonesis and previous history of trauma or intraocular surgery were excluded. A written informed consent from every patient was taken and approval received from institutional ethical committee.

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A comprehensive ocular examination was done with detailed medical and ocular history, best corrected visual acuity, pupillary dilatation, fundoscopy, lacrimal sac syringing and intraocular pressure. Slit lamp examination was done to note status of cornea, anterior chamber depth & pigment dispersion, pseudoexfoliation material over anterior lens capsule & pupillary border and phacodonesis. Nuclear sclerosis grading and cataract grading based on the Lens Opacity Classification System (LOCS-III) was done. Intraocular lens power calculation was done using SRK-T formula. All the patients were planned for manual small incision cataract surgery with rigid posterior chamber intraocular lens implantation under peribulbar anaesthesia and all the surgeries were performed by 2 experienced surgeons. Any intraoperative manipulations were noted and recorded:

1) Use of intraoperative adrenaline (Epitrate)
2) Mechanical stretching of pupil
3) Sphincterotomy
4) Type of capsulotomy & size
5) Use of CTR / any other untoward event.

Adequate peribulbar block was given, size of the scleral tunnel corresponding to nuclear sclerosis was fashioned. Liberal use of viscoelastic protecting the corneal endothelium, where ever required epitrate was used and sphincterotomy done especially in small pupil or nuclear sclerosis > grade 4. Thorough cortical wash was done and post operative topical & systemic steroids or antiglaucoma drugs given appropriately. Post operative complications were recorded and patients were followed up on 1st, 7th, 40th day.

Data was collected and analyzed using SPSS version 10.0 software. Chisquare test was used where ever appropriate and a p-value <0.05 was considered statistically significant. Values were expressed as mean or percentage.

RESULTS

During the study period, a total of 710 patients were selected for cataract surgery, out of which 52 patients had pseudo exfoliation cataract. Age distribution among patients revealed that 8 patients in 50-60 years range, 25 patients in 60-70 years range and 19 patients were > 70 years. Among 52 patients 33 were males and 19 were females.

Table 1: Profile of Pseudo exfoliation patients

Parameter		No. of patients
1. Preoperative pupil dilatation	< 6mm	39
2. Type of cataract	Hypermature	01
	Mature	20
	Nuclear sclerosis > Grade IV	20
	Nuclear sclerosis < Grade IV	11
3.Distribution of pseudoexfoliation material	Pupillary border, iris	40
	Anterior lens capsule	37
	Pupillary + Anterior capsule	46

Table 2: Intraoperative events

Sl. No.	Intraoperative event	No. of patients
1	Sphincterotomy	12
2	Mechanical stretching	15
3	Epitrate use	10
4	Viscostretching	15
5	Capsulorrhexis	35
6	Can opener Capsulotomy	17
7	Zonulodialysis	3
8	Iridodialysis	2
9	Posterior capsule rent	2
10	Vitreous loss	2
11	Intraocular lens	
	Rigid PCIOL	48
	Iris claw	01
	PCIOL in sulcus	03
	Decentered IOL	01

Table 3: Post Operative Results

Visual acuity on last follow up	>6/18 : 40 patients
	< 6/18 : 12 patients
Secondary uveitis	4
Secondary glaucoma: rise of intraocular pressure	15
Corneal edema	12

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DISCUSSION

52 patients with senile cataract associated with pseudoexfoliation underwent manual small incision cataract surgery under peribulbar block. Age distribution showed that most of the patients were more than 60 years similar to study done by Anuradha et al.[4] and Sastry et al.[5] where majority of patients were more than 50 years. Our study found 20 patients with Nuclear Sclerosis > Grade IV while in study by Joshi R S et al.[6] found Nuclear sclerosis > Grade IV cataract in 67.3% cases and in study by Pranati et al.[7] only 13.46% cases.

Insufficient mydriasis < 6mm was seen in 39 patients, similar to study done by Jawad et al.[8] In our study mechanical stretching of the pupil to facilitate capsulorrhexis and nucleus delivery was required in 15 patients. If pupil cannot be enlarged sufficiently with stretching, we preferred to make use of radial sphincterotomies which would help inn safer lenticular management. In smaller pupils, capsulorhexis would be difficult leading to zonular dehiscence and difficult nucleus prolapse, hence where ever required can opener technique of capsulotomy was done. Epitrate was used in about 10 cases to facilitate pupillary dilatation. It helped more in cases where pseudoexfoliation over pupillary margin or iris was not present. Pseudoexfoliation over pupil may make it more rigid. In our series of cases, pseudoexfoliation material was distributed on the iris & pupil in 40 cases.

In a study by Joshi et al.[6] pseudoexfoliation material was distributed over pupil margin in 15.9% eyes and over iris & lens in 30.9% cases. In our study, pupil dilatation in patients with pseudoexfoliation material distribution on pupil margin and lens was 5+_0.5 mm compared to Joshi et al.[6] 4.2+_0.5 mm and significantly less compared to patients with pseudoexfoliation material on lens or iris alone 5.5+_0.9 mm compared to Joshi et al.[6] 5+_0.7mm.

We had 2 cases of Posterior capsule rent similar to study by Sushil kumar et al.[9] and two cases of iridodialysis as in a study by Bangal SV et al.[10] We implanted rigid PCIOL in the bag in 48 patients, 2 patients had posterior capsular rent where IOL was placed in the sulcus in one and in another patient entire capsular bag extruded, vitrectomy was done and iris claw lens was placed. In a study by Anuradha et al.[4], 3 patients (10%) were kept aphakia due to intraoperative complication. Out of 2 posterior capsular rent, 1 patient had vitreous loss with iridodialysis. Both had insufficient mydriasis which was statistically significant. In the present study many complications occurred intraoperatively were commonly encountered due to insufficient mydriasis. In a study by Joshi et al.[6], posterior capsule rent was in 1.3% and zonular dehiscence in 8% cases while in a study by K Pranithi et al.[7], zonular dialysis in3.8%, iridodialysis in 1.9% and posterior capsule rent in 7.7% cases was seen.

Secondary glaucoma following cataract surgery was seen in 15 patients. Low incidence of glaucoma was reported by Joshi et al.[6] in 9.3% cases and Thomas R et al.[11] 4.2%. Post operative hazy cornea was seen in 12 patients. This is due to decompensated cornea and associated iritis in 11.5% cases in a study by K Pranithi et al.[7] Visual acuity < 6/60 was seen in 2 patients and visual acuity > 6/12 in 30 patients and visual acuity > 6/18 in 46 patients after 1 month follow up. In a study by Pranathi et al.[7], Visual acuity < 6/60 in 7.7% and visual acuity > 6/12 in 23.1% of cases. Posterior capsule opacification could not be analyzed due to short term follow-up period, however it was seen in 18.8% cases in K Pranathi et al.[7], due to incomplete removal of cortical matter due to poor visibility secondary to small pupil.

There were some limitations in our study as 2 surgeons operating would lead to non consideration of surgical skills in management of complications. Pre operatively phacodonesis patients were not included in our study, hence none of our cases needed capsular tension rings in management plan. A larger scale of study population is required to test the outcomes.

CONCLUSION

Although cataract surgery in pseudoexfoliation is challenging, intraoperative complications can be managed better with thorough preoperative evaluation and modification in surgical technique.

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