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Original Article

Pseudoexfoliation Syndrome with Cataract and its Surgical Management

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Abstract

Introduction: Pseudoexfoliation (PXF) syndrome is an age-related disease where fibrillogranular material accumulates in many ocular tissues. Therefore, cataract extraction has increased the risk of zonular dehiscence with poor pupillary dilatation leading to complications.

Purpose: The aim of the study was to study PXF syndrome and its surgical management.

Materials and Methods: A prospective study conducted among 25 patients with PXF. Examination includes visual acuity, anterior segment with slit-lamp biomicroscopy, intraocular pressure, gonioscopy, and dilated fundus examination followed by cataract surgery.

Results: Majority of patients were in the age group between 66 and 75 years (66%). Cataract surgery with implantation of posterior chamber intraocular lens (IOL) was done 20 patients (80%), anterior chamber IOL in 2 patients (8%), scleral-fixated IOL in 1 patient (4%), and aphakia in 2 patients (8%).

Conclusion: PXF presents with cataract and glaucoma which needs pre-operative evaluation and intra-operative care to prevent complications for good surgical outcome.

Key words: Cataract, Glaucoma, Posterior capsular rent, Pseudoexfoliation, Surgery

INTRODUCTION

Pseudoexfoliation (PXF) is an age-related condition characterized by deposition of whitish fibrillogranular material in and around the anterior segment of the eye.

- Anterior capsule of the lens
- Pupillary margins and iris surface
- Corneal endothelium
- Ciliary processes and zonules
- Anterior chamber (AC) angle.

Mean age of onset of this condition ranges from 60s to 70s and the prevalence increases with increasing age.[1,2]

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This exfoliative material gets deposited along the pupillary margin of the iris, vasculature of the iris leading to iris atrophy and poor pupillary dilatation.[3] Deposition of this material in the angle of the AC leading to the blockage of trabecular meshwork causing a type of glaucoma called pseudoexfoliative glaucoma. Exfoliative material thus alters the anatomy and physiology of the anterior segment posing many challenges to a surgeon. Cataract extraction in PXF has increased the risk of zonular dehiscence[4] and this combined with poor pupillary dilatation may lead to capsular rupture and vitreous loss, with its early and late complication.

MATERIALS AND METHODS

Type of Study

This was a prospective cross-sectional study.

Study Period

The duration of the study was 6 months from November 2016 to May 2017.

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Place of Study
This study was conducted at Rajarajeswari Medical College and Hospital, Bengaluru.

Sample Size
The sample size was 25 cases.

Source of Data
The study was conducted on all patients who fulfill the inclusion/exclusion criteria attended to our Department of Ophthalmology in Rajarajeswari Medical College and Hospital, Bengaluru.

DISCUSSION

PXF is a condition that mainly affects the elderly patients. Age of presenting with PXF was 50–80 years [Figure 1], of which 14 were male and 11 were female showing almost equal prevalence in both sexes [Figure 2]. PXF is known for its association with raised intraocular pressure (IOP) leading to PXF glaucoma, in the study the mean IOP was 16.7 mm Hg NCT, with no obvious pseudoexfoliative glaucoma.

The most frequent problem encountered during surgery was a poor pupillary dilatation, 44% cases had small size pupil (<6 mm) and 56% cases had good dilatation (7–8 mm) [Figure 3]. When the incidence of the intra-operative complications was compared with the pupil size, it was noted that the incidence was high in patients having pupil size <6 mm.[4,5] Pupil size has direct implications on the outcome of the surgery, as with small pupil size adequate capsulorhexis cannot be achieved and the delivery of nucleus becomes difficult leading to posterior capsular tear[6] and increased manipulation during surgery may lead to increased post-operative inflammation and corneal endothelial damage.[7]

In the present study where nucleus delivery was difficult, due to small pupils, sphincterotomy was done to facilitate nucleus prolapsed into AC. Other alternatives like iris hooks can be used.

In the presence of weak zonules, this may lead to complications such as lens dislocation, bag dialysis, nucleus drop, and vitreous loss. Intra-operative complications were noted in 5 out of 25 (with posterior chamber [PC] rent, bag dialysis, and vitreous loss).

PC intraocular lens (PCIOL) were placed in 20 eyes [Figure 4]; however, in 2 eyes IOL was placed in sulcus (because of the adequate support), and in 2 cases IOL could not be placed in the bad (as patients had complete bag dialysis and large PC rent).

All patients were studied postoperatively on day 1, after 2 weeks and after 6 weeks for any prolonged post-operative inflammation, any IOL related complication or corneal decompensation. The most common post-operative complication on the immediate post-operative day was corneal haze with increased inflammation due to increased manipulation during the surgery. Out of 25 patients, 12 had

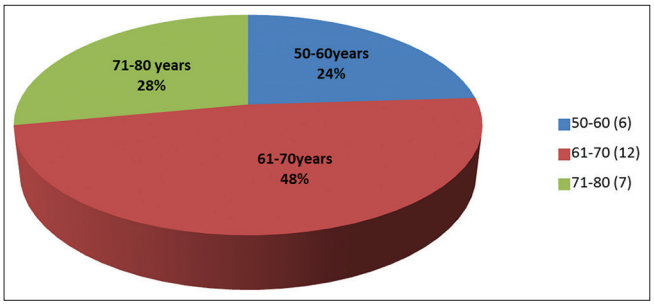

Figure 1: Patients distribution by age

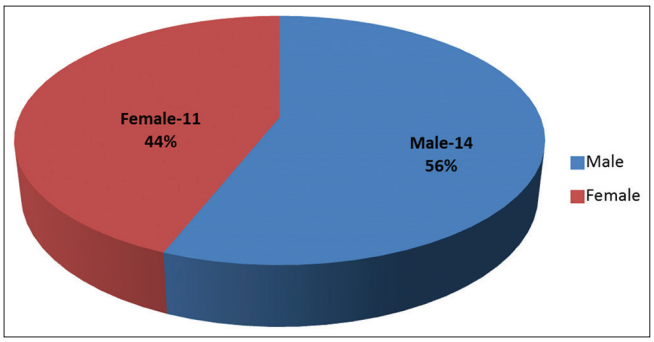

Figure 2: Sex ratio

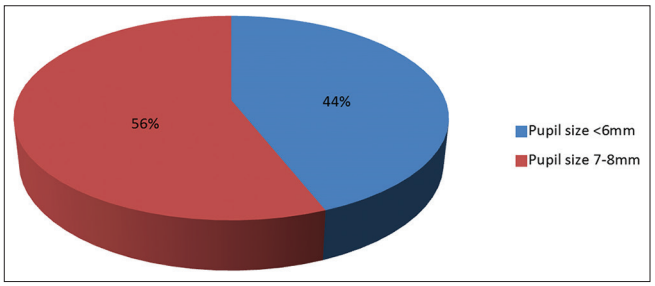

Figure 3: Percentage of patients

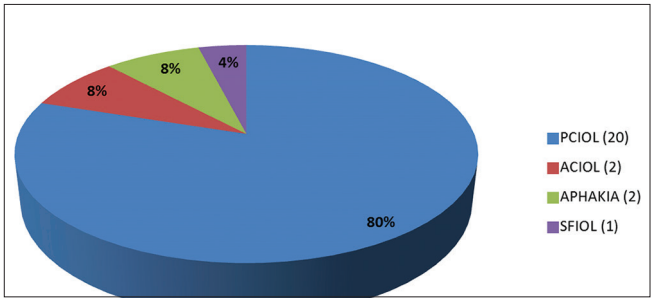

Figure 4: Intraocular lens implantation

hazy cornea on the first post-operative day either in the form of epithelial edema or striate keratopathy, which subsided on treatment. There were no IOL related complications or prolonged inflammation in any of the patients.

The visual outcome of the patients in the study was evaluated at the end of 6 weeks, and glasses were prescribed. 20 cases out of 25 had vision of 6/12–6/9 and 5 cases had vision between 6/24 and 6/36, due to coexistent posterior segment pathology (2 cases had drusen at macula, 1 case of healed macular scar, and 2 cases of disc temporal pallor).

RESULTS

Majority of patients were in the age group between 66 and 75 years (66%). Cataract surgery with implantation of PCIOL was done 20 patients (80%), ACIOL in 2 patients (8%), scleral-fixated IOL in 1 patient (4%), and aphakia in 2 patients (8%).

CONCLUSION

Cataract surgery in eyes with PXF has a higher incidence of intraoperative and post-operative complications. This presents challenges to the surgeon and mandates proper pre-operative planning and post-operative follow-up. A careful slit lamp examination to detect this condition and to focus for any presence of zonular instability, pupillary dilatation is necessary. Complications correlate directly with intra-operative pupil size and nucleus hardness. Operating PXF cases at early stages of nuclear sclerosis, use of intra-operative highly cohesive viscoelastics, pupil expansion devices and capsule tension rings can increase the margin safety. A careful post-operative follow-up to monitor any rise in IOP, IOL decentration and dislocation is required. Thus with knowledge of possible complications, operating these cases with utmost care, with use of appropriate adjunct devices one can minimize the risk and provide a favorable outcome.

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