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OCULAR PROFILE OF PSEUDOEXFOLIATION PATIENTS AMONG CATARACT PATIENTS IN A TERTIARY EYE CARE HOSPITAL IN SOUTH INDIA.

Ophthalmology

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ABSTRACT

Introduction: Pseudoexfoliation syndrome is the most common identifiable cause of secondary open angle glaucoma2,7 which can lead to rapid progression of optic nerve damage and irreversible blindness. The study was aimed to study the clinical profile of Pseudoexfoliation (PEX) syndrome among patients presented for cataract surgery in a tertiary eye care hospital and to determine the association of glaucoma in patients with pseudoexfoliation and cataract. **Materials & Methods:** This is a cross sectional study conducted over a period of 6 months among 100 patients of age-related senile cataract who were planned for cataract surgery in the department of Ophthalmology. All patients underwent slit lamp examination before and after pupillary dilatation, intraocular pressure measurement, gonioscopy and fundus examination. **Results:** Out of 100 patients, 23% had bilateral PEX, 7% had unilateral PEX and 70% had no PEX. The most common age group was between 51 to 60 years. 37% of patients with PEX had high IOP (>21mmHg) with significant glaucomatous optic disc changes. All 100 patients were graded to have nuclear cataract. **Conclusions:** Hence Pseudoexfoliation is an age-related disorder, frequently associated with cataract leading to open angle glaucoma and has to be analyzed before cataract surgery for necessary precautions to avoid intra operative complications and management of associated Glaucoma.

KEYWORDS

Pseudoexfoliation, intraocular pressure, glaucoma, cataract.

INTRODUCTION

Pseudoexfoliation (PEX) syndrome is an age related systemic condition, which is characterized by deposition of abnormal greyish white fibrillogranular material of uncertain origin, accumulates in many intraocular tissues[1,3,10]. Pseudoexfoliative material is most commonly seen in anterior segment structures such as pupillary margin, anterior lens surface, iris, zonules, trabecular meshwork, ciliary process, corneal endothelium and also in other body parts[4,9]. It commonly affects the elderly age group[1,2]. It may be unilateral or bilateral and 50% of them become bilateral over a period of 10 years[1,6,12]. Pseudoexfoliation syndrome is currently recognized as the most common identifiable cause of secondary open angle glaucoma[2,7], which can lead to greater diurnal pressure variation, rapid progression of optic nerve damage, visual field loss and irreversible blindness[3,5,6]. Angle closure glaucoma[7] is also reported due to pupillary block by forward displacement of lens[14]. Pseudoexfoliation is associated with intraoperative complications like poor mydriasis, zonular weakness, posterior capsular rupture during cataract extraction surgery[4,5,6]. Zonular weakness with instable lens results in subluxation of lens[11] and variable anterior chamber depth[8]. Decrease in corneal endothelial cell density leading to early corneal decompensation at moderate increase in intraocular pressure after cataract surgery[8,12]. It is also associated with postoperative complications like posterior capsular opacification, capsule contraction syndrome, intraocular lens decentration, and macular oedema[8,10,12]. Glaucoma in pseudoexfoliation has worst prognosis due to poor response to medications[3,8,12], more severe clinical course and more frequent necessity of surgical interventions[13]. Hence proper preoperative assessment is necessary to prevent the surgical complications. The objective of our study was aimed to study the clinical profile of pseudoexfoliation syndrome among patients presented for cataract surgery in a tertiary eye care hospital and to determine the association of glaucoma in patients with pseudoexfoliation and cataract.

MATERIALS AND METHODS

A cross sectional study was conducted among 100 patients of age-related senile cataract who were planned for cataract surgery at the department of ophthalmology in a tertiary care hospital, over a period of 6 months. The study protocol was approved by the institutional ethical committee. Informed written consent was obtained from all the participants. Data of all patients including age, sex, history of cataract surgery, associated systemic illness like diabetes, hypertension, coronary artery disease, renal disease was obtained by direct patient interviews and by reviewing the medical records.

Inclusion Criteria

- All Patients of either sex with age related senile cataract whether it is unilateral or bilateral who were planned for cataract surgery.

Exclusion Criteria

- Patients with clear lens, both eyes pseudophakia, history of anterior uveitis, with traumatic/complicated cataract, other causes of secondary glaucoma

All patients had undergone complete ophthalmic examination including best corrected visual acuity and detailed slit lamp examination and those with pseudoexfoliation are identified by the presence of greyish-white dandruff like flaky material over pupillary margin and anterior lens surface.

Preoperatively pupil was dilated as a routine in most of the cases and then examined under slit lamp to note the diagnostic feature of three distinct zones of pseudoexfoliation material on the anterior lens capsule which is middle clear zone due to rubbing of posterior surface of the iris over the anterior surface of the lens during movement of pupil and peripheral granular zone with radial striations[14] and examination after dilatation also included to note the size of pupillary dilatation. It was considered as non-dilating pupil, if it failed to dilate beyond 6mm[1] on slit lamp examination, laterality of pseudoexfoliation material, grading of cataract, iridodonesis, phacodonesis, lens subluxation[5].

Glaucoma evaluation was done for all patients which included gonioscopy with Goldmann single mirror contact lens and IOP measurement with Goldmann applanation tonometer. Fundus was examined with stereoscopic slit lamp examination with 90 D lens to look for glaucomatous changes in the optic disc and documented. Further investigations like Perimetry, pachymetry and OCT were done for confirmation and staging of Glaucoma to start them with appropriate treatment. Patients presented with advanced glaucomatous changes were posted for combined surgeries for cataract and glaucoma after bringing down the IOP with medications. Necessary intraoperative precautions were taken for all patients with pseudoexfoliation and cataract due to poor mydriasis and weakened zonules. All patients who had unilateral or bilateral pseudoexfoliation were advised to undergo systemic cardiac and renal evaluation after cataract surgery.

Data Analysis

Data were entered in Microsoft excel and frequency of different variables were calculated and analysis was done using chi-square test by using SPSS software.

RESULTS

Age & Sex

In our study, out of 100 patients with cataract, there were 49.0% males & 51% were females. 28.6% of males and 17.60% of females

presented with bilateral pseudoexfoliation. Details shown in Table 1.

The most common age group presented with pseudoexfoliation was between 51 to 60 years, among which 23.3% presented with bilateral pseudoexfoliation and 9.30% presented with unilateral pseudoexfoliation. The next common age group was more than 60 years where 26.5% had bilateral pseudoexfoliation and 5.90% presented with unilateral pseudoexfoliation. Details are shown in Figure 1.

Laterality

Of these 100 patients 23% had bilateral PEX, 7% had unilateral PEX and 70% had no PEX as shown in Table 2.

Analysing sex and laterality, 4(8.2%) of males had unilateral PEX & 14(28.6%) had bilateral PEX. 3(5.9%) of females had unilateral PEX & 9(17.6%) had bilateral PEX as shown in Figure 2. In both unilateral & bilateral PEX groups, there was a male preponderance.

Intraocular Pressure And Glaucoma

Our study showed 37% of patients with PEX had high IOP (>21mmHg) with significant optic disc cupping (with increased C:D ratio), bayonetting sign & inferior thinning of neuroretinal rim. These patients also had miotic pupil and did not respond to mydriatics due to pseudoexfoliation. 63% of patients with PEX had normal IOP with disc & vessels within normal limits, hence no glaucoma. Details shown in Table 3.

DISCUSSION

Out of 100 patients with cataract, there was a male preponderance among both unilateral and bilateral group with Pex.Taylor[15] Resnickoff[16] et al., (BJO 1991) suggested that exfoliation syndrome could be related to environmental factor, ultra violet light & hence the male preponderance in this study can be explained to some extent by the fact that in India males are more likely to have outdoor activities than females. In our study, there is a higher incidence of bilateral PEX, which is in accordance with various studies (by Bartholomew[17]1973, Colin[18] 1988, Maden[19] 1982). All the 100 patients were graded to have nuclear cataract. The increased incidence of nuclear cataract in PEX eyes found in these studies is in accordance with similar reports from other studies (Sealand[20]et al., 1982, Sood[21] et al., 1971).

In Gonioscopy, almost all patients had increased trabecular pigmentation, which is an evident sign of pseudoexfoliation syndrome[8]. The pigmentation was seen more on the eye with raised intraocular pressure & bilateral involvement. This suggests that pigmentation might correlate to the glaucoma severity and a consideration for laser trabeculoplasty or combined surgery[26]. Systemic associations: There are 6 patients with PEX had associated diabetes & 4 patients with PEX had systemic hypertension in our study which correlates with Blue Mountain Eye Study (Australia)[27].

Majority of patients with or without PEX had visual acuity less than 3/60. The defective vision in PEX is due to the presence of associated cataract & glaucoma frequently[25]. We also noted the poor response to mydriatics in PEX eyes compared to those without PEX (Kuldar & Puska 2004[28], Stanila A et al 1996) also noted an increased incidence of insufficient pupil dilatation in 10 patients with pseudoexfoliation syndrome undergoing cataract surgery in their study). Pseudoexfoliation glaucoma accounts for approximately 25% of all open angle glaucoma worldwide[22] as per Ritch.R et al., study. The prevalence of PXG as reported by population-based surveys from South India vary between 7.5% and 13% as per the study by Krishnadas R[23] & Arvind H[24]et al.The major drawback of this study is that visual fields are not done as most of the patients had significant vison loss at the time of presentation due to cataractous lens changes.

CONCLUSION

In this hospital-based study, the frequency of PEX patients scheduled for cataract surgery was 30%. Bilateral PEX was more common than unilateral PEX. The maximal incidence of PEX in both unilateral and bilateral cases was in the age group of 51 to 60 years. PEX though a disease of the elderly can occur in less than 50 years of age group. In all groups of PEX patients, with or without glaucoma and unilateral or bilateral presentation, males were predominant. PEX was more commonly associated with nuclear cataract changes. PEX is definitely a risk factor for the development of glaucoma. It is more commonly associated with open angle glaucoma. Hence proper preoperative assessment is necessary to prevent the surgical complications. Poor pupillary dilatation is managed with iris hooks or capsular tension ring intraoperatively and combined surgery is a good option in case of pseudoexfoliation glaucoma. Pseudoexfoliation syndrome is now suspected to be a systemic disorder and has been associated preliminarily with systemic hypertension, myocardial infarction and stroke. Hence it is recommended that eyes with PEX is carefully examined and patients should be explained about the intraoperative and postoperative complications.

Conflicts Of Interest: There are no conflicts of interest.

Table 1: Showing Sex Distribution In Patients With PEX

SEX DISTRIBUTION	No PEX	Unilateral PEX	Bilateral PEX
male	63.30%	8.20%	28.60%
female	76.50%	5.90%	17.60%

Table 2: Showing Laterality In Patients With Cataract

LATERALITY	PATIENTS WITH CATARACT
Unilateral PEX	7.00%
Bilateral PEX	23%
No PEX	70.00%

Table 3: Showing PEX Patients IOP With Distribution Of Glaucoma

PATIENTS	WITH PEX	NO PEX
HIGH IOP WITH GLAUCOMA	37%	0%
NORMAL IOP WITH NO GLAUCOMA	63%	73%

Iop-intraocular Pressure

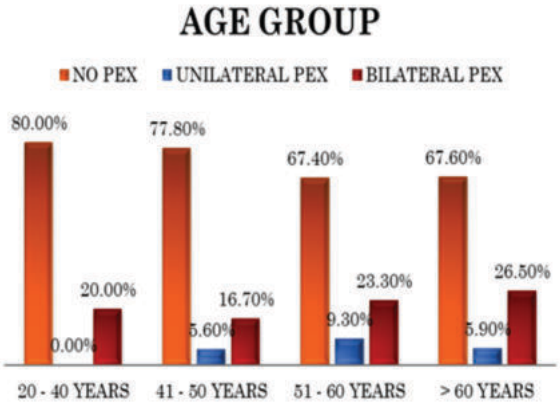

Figure 1: Showing Age Group Distribution In Patients With PEX

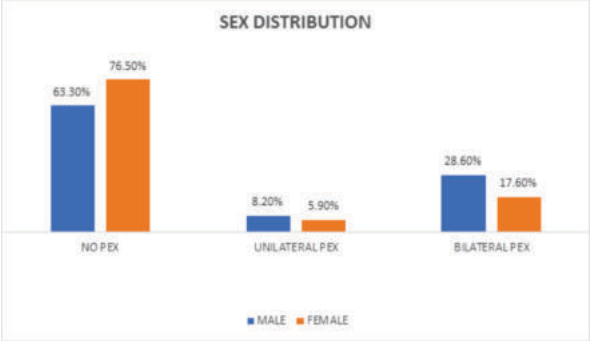

Figure 2: Showing Sex And Laterality In Patients With Cataract

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