



Clinical Profile of Patients with Pseudo-Exfoliation Syndrome Undergoing Small Incision Cataract Surgery

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Cataract, Intraocular Pressure, Pseudoexfoliation, Refraction

ABSTRACT:

Background and Aim: Pseudoexfoliation (PXF) syndrome is an age-related process of unknown etiology characterized by the deposition of distinctive fibrillar material in the anterior segment of the eye. The material is commonly deposited in the anterior chamber, angle of the eye, iris, trabecular meshwork, anterior capsule of the lens, and also the cornea. The current study set out to determine the prevalence of pseudoexfoliation in all patients aged 40 and above, as well as the degree of pseudoexfoliation's involvement in the eyes.

Material and Methods: The current study is a cross-sectional analysis hospital-based study conducted at the ophthalmology department of the medical college and its affiliated hospital. There were hundred patients in the research. The professionals in the field of the research issue produced the structure questioner. Sociodemographic information about the patient, including age, sex, and a thorough medical history, was noted. The following were included in the visual clinical examination: Visual Acuity testing utilizing Snellen's chart to determine the distance to and proximity to an object, Refraction, An external examination of the eyes and Biomicroscopy with Slit Lamp. Intraocular Pressure (IOP) was measured using an on-contact tonometer following surgery.

Results: Fifty Six patients had bilateral distribution, 44 patients had unilateral pseudo exfoliation material. Four of the individuals had an IOP between 11 and 13 mmHg. Twenty-two patients had an IOP ranging from 13 to 15 mmHg. There were 4 patients with an IOP in the range of 15–17 mmHg and 48 patients with an IOP in the range of 17–19 mmHg. Twenty-two patients fell between 19 and 21 mmHg in the IOP range.

Conclusion: Preoperative risk factors such as zonular weakness, inadequate mydriasis, phacodonesis, and subluxation/dislocation of the cataractous lens should be closely monitored in patients with pseudoexfoliation syndrome and cataract scheduled for short incision cataract surgery, as they have the potential to impact the surgical result.

Introduction

A systemic disease's significant eye symptom is pseudoexfoliation syndrome. It was Lindberg who while conducting his research paid attention to greyish flakes and fringes at the pupillary border and on anterior lens surface. This was found to be as common in cataract patients as in non-cataractous controls older than 55 years. The phenomenon was observed in 50% of glaucoma patients as well. It was also noticed that this was more prevalent with advancing age. The exfoliative material consists primarily of abnormal crosslinked fibrils that accumulate progressively in some organs such as the heart, blood vessels, lungs or

meninges, and particularly in the eye's anterior structures.¹⁻³

Although the precise pathophysiological mechanism is yet unknown, it is believed that both genetic and environmental factors contribute to the genesis and gradual extracellular accumulation of exfoliative material. Therefore, higher exposure to ambient UV light or caffeine consumption, as well as polymorphisms in the LOXL1 gene, which is involved in the metabolism of elastic fibres and extracellular matrix, are linked to pseudoexfoliation syndrome.⁴⁻⁶

The majority of patients who undergo pseudoexfoliation are elderly, typically in their late 60s and early 70s. It can be unilateral or bilateral, and over



the course of 20 years, 50% of them turn bilateral. Clinically, tiny fibrillar extracellular material buildup and increasing generation are signs of pseudoexfoliation in the eye. These dandruff-like deposits are typically observed over the anterior lens capsule and pupillary edge.⁷⁻⁹

In order to achieve safe surgery and a positive postoperative outcome, pseudoexfoliation syndrome offers problems that require careful preoperative preparation and intraoperative care. Therefore, the purpose of this study is to ascertain the prevalence of PXF in all patients aged 40 and above. The current study set out to determine the prevalence of pseudoexfoliation in all patients aged 40 and above, as well as the degree of pseudoexfoliation's involvement in the eyes.

Material and Methods

The current study is a cross-sectional analysis hospital-based study conducted at the ophthalmology department of the medical college and its affiliated hospital. The study was conducted over a 12-month period. Prior to the study commencing, the ethical committee of the institute was notified about it and an ethical clearance certificate was secured.

Based on predetermined criteria, the study included patients with pseudo exfoliation syndrome and cataract who were inpatients at the Ophthalmology Outpatient Department. There were about a hundred patients in the research. The included patients were informed in detail about the study and the signed informed consent was obtained prior to the start of the study.

Criteria for Inclusion: The study included patients with pseudo-exfoliation in one or both eyes who were pre-senile or senile with cataracts.

Exclusion Criteria

1. All glaucoma patients, particularly those with elevated IOP and known pseudo exfoliation glaucoma
2. Developmental, Juvenile, Traumatic cataract
3. Past head/body trauma
4. Previous h/o intraocular surgeries
5. Systemic conditions predisposing to subluxation of Lens
6. Uveitis
7. Posterior segment pathology

Study Methods

The professionals in the field of the research issue produced the structure questioner. Sociodemographic information about the patient, including age, sex, and a thorough medical history, was noted. The following were included in the visual clinical examination:

1. Visual Acuity testing utilising Snellen's chart to determine the distance to and proximity to an object,

2. Refraction
3. An external examination of the eyes
4. Biomicroscopy with Slit Lamp

Pre-Operative Care

The test dose of lidocaine, Injection TT 0.5ml, was administered the day before surgery. Pupils were dilated with 0.8% Tropicamide and 5% Phenylephrine on the day of surgery. One drop every fifteen minutes until the pupil was sufficiently dilated, one hour before to surgery. In order to avoid the constriction of pupils during surgery, non-steroidal anti-inflammatory medicines such as flurbiprofen 0.03% were administered, one drop every fifteen minutes. The patient gave written approval so that cataract surgery could proceed.

Local Anaesthesia

To provide both intraocular anaesthesia and analgesia, a peribulbar block was administered. Peribulbar block ingredients include 2% lignocaine, 0.75 percent bupivacaine, 1:200,000 adrenaline, and 5 mg/ml hyaluronidase. A 5-milliliter syringe was fitted with a disposable needle with a gauge of 25. The patient was instructed to lie down in a supine position and to gaze straight ahead steadily. Along the orbital floor, the needle was inserted at the point where the lateral one-third and middle two thirds of the lower eye lid meet.

After the syringe was removed, the blood vessel was examined for any unintentional penetration. A second injection was administered via the supraorbital notch, just inferomedial. The conjunctival sac was injected with one drop of 5% povidone.

Intraocular pressure was measured using an on-contact tonometer following surgery. Every patient was assessed using a slitlamp to check for early post-operative problems like pigment dispersion over the IOL, corneal edoema, inflammation, residual cortical material, hypema, and decentration of the IOL.

Every patient received a steroid eye drop combined with a topical antibiotic. Five days of systemic antibiotics were administered. Patients were urged to schedule routine follow-up appointments. A week following the post-operative day was the first visit, after that, every two weeks for 45 days.

Results

Patients in the age range of 50 to 60 years were included in this study. Between the ages of 61 and 70, there were 46 patients. 34 patients fell into the age category of 61 to 70, while 4 patients fell into the age group of 81 to 90. As per the sex distribution there were 62 male patients and 38 were female patients.



While 56 patients had bilateral distribution, 44 patients had unilateral pseudo exfoliation material. The range of IOP in pseudioexfoliation patients was displayed in Table 2. Four of the individuals had an IOP between 11 and 13 mmHg. Twenty-two patients had an IOP ranging from 13 to 15 mmg. There were 4 patients with an IOP in the range of 15–17 mmHg and 48 patients with an IOP in the range of 17–19 mmHg. Twenty-two patients fell between 19 and 21 mmHg in the IOP range.

It was discovered that 78 patients had no trouble performing a capsulotomy, while 22 patients had trouble doing one. According to the current study, 88 patients had PCIOL implants; eight of them individuals had sulcus IOL implantations, and the remaining eight were aphakic patients.

The following is a list of post-operative IOP frequency. The IOP was found to be normal in 86 patients, while it was elevated in 14 patients. Out of the total patients, 58 had good vision, 24 had average vision, and 18 had impaired vision.

Table 1: Age Distribution of the Patients Included In the Study

Age distribution in years	Frequency
50 -60	16
61 - 70	46
71 - 80	34
81 - 90	4

Table 2: The range of IOP in Pseudioexfoliation Patients

IOP RANGE IN MM Hg)	frequency
11 - 13	4
13 - 15	22
15 - 17	4
17 - 19	48
19 - 21	22

Discussion

One hundred patients with pseudoexfoliation who underwent minor incision cataract surgery at the medical college's department of ophthalmology and its affiliated hospital are included in this study. Table 1 of this study indicates that 16 patients had pseudoexfoliation and belonged to the 50-60 year old age group; 46 patients had pseudoexfoliation and were in the 61-70 year old age group; 34 patients were in the 71-80 year old age group; and 4 patients were in the 81-90 year old age group. The majority of patients in the study were older than 60 years old, with a mean age of presentation of 65.11 years.

It was discovered that there was an almost 3:1 male to female ratio, with men predominating. There were still discrepancies in the numerous researches done by numerous writers worldwide about the sex distribution of pseudoexfoliation. There is a male prevalence in certain study series and a female majority in others. This may be explained by the fact that individuals who participated mostly in outside activities had faux exfoliation in comparison to those who participated in interior activities.

When compared to the typical mean IOP of 15.5 mmHg, the mean IOP of 17.09 mmHg was judged to be relatively high. The cumulative risk of glaucoma in eyes with pseudo exfoliation was reported to be 5% and 15% at five and ten years, respectively. This eliminates

the necessity for the patients receiving faux exfoliation to have close follow-up. Furthermore, patients with unilateral pseudo exfoliation glaucoma and only pseudo exfoliation material in the other eye were at a 50% increased risk of getting glaucoma; in contrast, the risk of glaucoma in the other eye is reduced when pseudo exfoliation is absent.

The current investigation is ongoing alongside Ritch Schotzer's study. Scherhardt et al. reported in 2001 that around 84% of patients have pseudoexfoliation along the pupillary edge. Furthermore, compared to lens pseudo exfoliation material, the presence of pseudo exfoliation material along the iris sphincter is seen to be a more constant and noticeable clinical finding.^{2,10}

Conclusions

Preoperative risk factors such as zonular weakness, inadequate mydriasis, phacodonesis, and subluxation/dislocation of the cataractous lens should be closely monitored in patients with pseudoexfoliation syndrome and cataract scheduled for short incision cataract surgery, as they have the potential to impact the surgical result. Even though pseudoexfoliation makes cataract surgery difficult, intraoperative complications can be controlled and a positive outcome can be anticipated if the surgeon is aware of the condition prior to surgery and carefully observes surgical technique during tiny incision cataract surgery.



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