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## Original Article

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# Intraoperative complications during cataract surgery in patients with pseudoexfoliation syndrome

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### ABSTRACT:

50 eyes of 50 patients with pseudoexfoliation syndrome were studied in order to note incidence of different intraoperative complications during cataract surgery, early postoperative complications and best corrected visual acuity (BCVA) and also the measures to minimize the incidence of complications. Our study concluded that pseudoexfoliation is commonly seen in old age, usually a bilateral condition with male predominance. Pseudoexfoliation leads to difficulty in achieving adequate pupil dilatation and thus leads to various intraoperative complications and poor outcome after surgery. Thus in patients with pseudoexfoliation detailed preoperative evaluation, good communication with patients regarding surgical risks and proper management of intraoperative and postoperative complications are needed to improve surgical outcomes.

**Key words:** Pseudoexfoliation, pupillary dilatation, intraoperative complications.

### INTRODUCTION:

Pseudoexfoliation is a senile condition characterized by deposition of white fibrillogranular material in the anterior segment of eye <sup>[1]</sup>. Pseudoexfoliative material is also seen to get deposited in systemic vasculature. <sup>[2]</sup> Multiple factors contribute to the development of pseudoexfoliation. True exfoliation seen in glass blowers is different from senile exfoliation i.e. pseudoexfoliation. Pseudoexfoliation is the most identifiable cause of primary open angle glaucoma. <sup>[3]</sup> Patients with pseudoexfoliation syndrome have significantly greater risk for development of intraoperative and postoperative complications related to cataract surgery.

### **Aims and Objectives:**

Primary objective: To study the frequencies of intraoperative complications during cataract surgery in patients with pseudoexfoliation and to note early post operative complications.

Secondary objective: To study various anterior segment manifestations of pseudoexfoliation and to note measures to minimize the frequencies of complications by modifying surgical techniques. To record BCVA at 8 weeks

### MATERIALS AND METHODS:

Prospective hospital based interventional study of 50 eyes of 50 cataract patients of age >50 years diagnosed to have cataract with pseudoexfoliation on slit lamp examination before and after pupil dilatation were included. Ethical Committee permission was taken. Patients with traumatic cataract, complicated cataract, any other ocular disease, previous ocular surgery, h/o exposure to intense infrared light were excluded. After taking written consent all patients were examined in detail. Thorough examination including visual acuity, anterior segment, posterior segment, A-scan biometry and B-scan, measuring of intraocular pressure (IOP) by Schiottz tonometer and gonioscopy was performed before cataract surgery. Intraoperative maximum pupil dilatation was obtained and measured. Patients were posted for manual small incision cataract surgery and all patients were operated by same surgeon. Patients were followed up and examined on post op day one, after one week, four week and eight week.

### RESULTS:

Out of 50 patients 22(44%) patients were 60-69 years old. Youngest patient being 52 years old and oldest being 84 years old. Increased prevalence of pseudoexfoliation was found in the age group of 50 to 80. Male predominance with 64% males and 36% females was observed. In only 34% cases pseudoexfoliation was unilateral with bilaterality seen

in 66% cases. In 32 eyes pseudoexfoliation was seen deposited on anterior capsule of lens and in 26 eyes on pupillary margin of iris. In three cases zonular fragility was observed pre operatively and subluxation of lens in one case.

**Table 1: Distribution of cases according to cataract**

Type of cataract	Number
Cortical	3
Posterior sub-capsular	5
Nuclear(Grade 1, Grade 2)	16
Mature	10
Brunescent	8
Mixed	8

In three patients IOP was > 20 mm Hg.

**Table 2: Gonioscopy**

Pseudoexfoliation deposits in angle	2
Pigment dispersion in angle	3
Narrow angle	1

Gonioscopy was done by using Goldman three mirror lenses. Two patients had C: D> or= 0.5

**Table 3: Grading of mydriasis**

Grade	Measurement in mm	No
Poor	2-4	16
Moderate	5-6	26
Good	7-9	08

In 21 cases can openers capsulotomy was done and in 29 cases Capsulorrhesis was done.

Difficulty in nucleus delivery was seen in 28 cases. Sphincterotomy was done in 64.29% cases and bimanual stretching in 32.14%. One patient required broad iridectomy.

**Table 4: Complications during nucleus delivery**

Complications	Number	%
Sphincter damage	5	10
Iridodialysis	1	2
Intraocular bleeding	1	2
Pigment dispersion	6	12

In this study in three cases there was extension of rrhexis and PC (posterior capsule) tear. Zonular dialysis was seen in four patients (8%). Vitreous loss occurred in five cases (10%).

**Table 5: Early post op complications**

Type of complication	Number	%
Iritis	12	24
Corneal edema	8	16
Raised IOP	5	10
Pigment on lens	7	14
Residual cortical matter	3	6
Hyphaema	1	2

**Table 6: Postoperative best corrected visual acuity at eight weeks**

Visual acuity	Number of patients	%
6/6-6/12	14	28
6/18-6/36	31	62
6/60-FC	05	10

## DISCUSSION:

Age is an important determinant in the incidence of pseudoexfoliation. There is increased prevalence in age group from 50 to late 80s. In our study patients ranged from 52 to 84 years with 44% patients in the age group 60-69 years. In a study by M Jawad 37% patients were in age group 60-69 years. [4] In this study no significant association was found between age and the risk of an intraoperative complication comparable to study by S J Robbie. [5] In this study more frequent occurrence was noted in males than females. In a study by M Jawad 84% were males and 16% females. [4] Pseudoexfoliation was noted in unilateral eye in 34% cases. In a study by Khanzada 25% cases were unilateral. [6]

Pseudoexfoliation is associated with a constricted pupil. In our study poor pupillary dilatation was seen in 32% cases, moderate in 52% cases and good dilatation in 16% cases. In a study by M Jawad 48% had poor pupillary dilatation, moderate in 42% and good in 10% cases. [4]

In our study in 6% cases patient had extension of rrhexis and resultant pc tear. In a study by Ravindra Kumar PC rent was seen in 8.8%. [7] In a study by H. Bayramlar rate of capsular complications was 18% in eyes with pseudoexfoliation and 5.5% in eyes without pseudoexfoliation. [8] In a study by R.A. Kargar, PC rent occurred in 3.6% of cases. [9] Weak zonules are one of the most notorious problems faced by cataract surgeons in pseudoexfoliation cases. In our study, 6% cases had zonular fragility; three patients had phacodonesis, one of which had infero-nasal subluxation of cataractous lens. In a study by M. Jawad 22% patients had zonular fragility, 14% had phacodonesis and 4% patients had subluxation of lens. [4] In the patient with subluxation, cataract extraction was done and scleral fixated PCIOL was implanted. In our study, vitreous loss occurred in 10% cases. In a study by B. Shingelton, overall vitreous loss was 4% in pseudoexfoliation group. [10] In a study by H. Bayramlar, the rate of vitreous loss was 12% in eyes with pseudoexfoliation and 2.3 % in

eyes without pseudoexfoliation. <sup>[8]</sup> In this study post operative best corrected visual acuity at 8 weeks was 6/6 in 28% cases , 6/18-6/36 in 62% and 6/60-CF in 10% cases. In the study by M. Jawad BCVA was 6/6 -6/12 in 27.5% cases 6/18-6/36 in 69% and 6/60-CF 4% cases. <sup>[4]</sup>In a comparative study by A. Akinci there was no significant difference in the incidence of visual acuity gain between the patients with or without pseudoexfoliation after cataract surgery at the end of 8 weeks. <sup>[11]</sup>

### **CONCLUSION:**

Patients with pseudoexfoliation are at greater risk for developing various intraoperative and postoperative complications. Thus cataract surgery in the setting of pseudoexfoliation needs careful preoperative evaluation and management of possible complications. Early diagnosis, detailed ophthalmic examination, managing intraoperative complications and postoperative complications can improve surgical outcomes in cataract associated with pseudoexfoliation.

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