



STUDY OF SURGICAL OUTCOMES OF SMALL INCISION CATARACT SURGERY(SICS) IN PATIENTS WITH PSEUDOEXFOLIATION(PEX) SYNDROME

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ABSTRACT Our study was conducted on 30 patients undergoing cataract surgery with pseudoexfoliation syndrome at our hospital from January 2022 to July 2022, we have done complete ophthalmological examination and all the cataract investigations are done. Intraoperative, postoperative complications and postoperative vision were also noted. Post operative followup was done. It was found that it is more common in patients older than 60 years, with male predominance with U/L occurrence being more common. PEX was prominent along pupillary margin with 70% of patients having rigid pupils with insufficient mydriasis, higher incidence of nuclear cataract in PEX was noted, difficulty in capsulorhexis and difficulty in nucleus delivery were commonly reported. Inflammation and corneal edema was most noted intraoperative complication. Proper preoperative assessment and management can have a good post-op outcome. Various precautionary steps to be taken include a large capsulorhexis, usage of techniques to minimize the stress on Zonules, keeping iris hooks and capsular tension rings handy during surgery. It is preferable to do cataract surgery at an early stage to minimize complications.

KEYWORDS : Pseudoexfoliation, sics, cataract

INTRODUCTION:

- Pseudoexfoliation syndrome is an age-related systemic disorder, increases with age and is more common in 7th to 9th decade of life.
- It may be unilateral or bilateral
- It is characterized by deposition of grey-white dandruff-like material (abnormal fibrillar extracellular material) in the anterior segment structures lined by aqueous humor.
- An association between cataract and PES exists. There is increased prevalence of cataract in PES and vice versa. The associated features of PEX include transillumination defects in peri pupillary areas, poor pupillary dilatation, pigment dispersion in the anterior chamber.
- Causes various intraoperative and postoperative complications.
- PEX is the most common identifiable cause of secondary open-angle glaucoma.
- PEX is associated with various systemic diseases.

AIM:

- To study the intraoperative and early postoperative complications in patients with pseudoexfoliation undergoing small incision cataract surgery.

OBJECTIVES:

- To study the **risk factors** leading to complications during cataract surgery in patients with pseudoexfoliation (PEX) syndrome.
- To study the **frequency** of various complications (intra-operative and early postoperative complications) in patients with pseudoexfoliation syndrome (PEX) undergoing cataract surgery.

MATERIALS AND METHODS:

- Study design:** A hospital-based cross-sectional study
- Study period:** January 2022 to July 2022
- Study sample:** 30 eyes of 30 patients undergoing cataract surgery with pseudoexfoliation (PEX) syndrome.
- Study population:** patients having cataract with pseudoexfoliation syndrome (PEX) were included in the study.
- Inclusion criteria:** pre-senile and senile cataract patients with pseudoexfoliation in one or both eyes were included in the study

Exclusion criteria:

- Other types of glaucoma (primary and secondary angle closure glaucomas)
- Other types of cataract like developmental, juvenile, traumatic

cataract

- Previous history of trauma

Methodology:

All patients underwent a complete examination that includes BCVA, Slit-lamp evaluation for the evidence of pseudoexfoliation, posterior synechiae, dislocation/subluxation of lens, type of cataract, measurement of pupil dilatation.

- Intraocular pressure (IOP) measurement, gonioscopy and fundus examination, all the investigations for cataract surgery (syringing, keratometry, A-scan biometry, RBS, BP, ECG) were done.
- Intraoperative complications are noted
- Postoperative vision, and early post operative complications were also noted.
- Patients were advised to come for regular postoperative check-up.

RESULTS:

- The mean age of presentation in the study was found to be 62.06 years, and the majority-15(50%) were between 60-70 years of age with male predominance.
- Male predominance-20(66.66%) was seen in our study.
- In our study uniocular involvement-22(73.33%) is more common.
- The mean IOP was 16.09 mmHg, on comparing with normal mean IOP (15.5mmHg), this was found to be quite high.
- All the patients had PEX along the pupillary margin-30(100%) and 15(50%) of them also had PEX on the Lens.
- 70 % (21) of patients had insufficient mydriasis
- Higher incidence of nuclear cataract - 46.66% was seen
- In our study it was noted that inadequate mydriasis and advanced dense cataract were the most common risk factors that affect the surgical outcome
- In our study the main intraoperative complications are difficulty in capsulorhexis and difficulty in nucleus delivery.

Table 1: Surgical modifications

Surgical modification	No. of patients	Percentage
pupillary dilation (pharmacological and manual with the help of instruments)	28	93.3
Sphincterotomy	3	10
Synechiolysis	2	6.66
Both	2	6.66

- 29(96.66%) patients are placed with PCIOL 1(3.33%) patient was placed with ACIOL

Table 2: Post operative visual acuity

VA in log MAR	PRE-OP	POD day1	POD 1st week	POD 4th week
0.0-0.5(6/6 to 6/18)	0	7	26	28
0.6-1.0 (6/24 to 6/60)	3	14	0	0
1.1-2CF	18	5	2	0
3.0 HM	4	1	0	0
5.0 PL	4(PL+)1(PL-)	1(PL+)2(PL-)	2	2
Mean visual acuity in log MAR units.	2.16	1.16	0.83	0.76

Mean postoperative visual acuity improved from 1.16 on day 1 to 0.76 on 4th week postoperatively. Mean IOP at 1st week-15.9 and By the 4th week postoperatively, all patients presented with IOPs within normal limits with mean IOP-14.7

Inflammation-16(53.33%) and corneal edema-10(33.33%) were the most common early postoperative complication, also immediate post operative displacement of IOL-1(3.33%) and retained cortex-2(6.66%) was seen.

DISCUSSION:

Table 3 : Comparision With Other Studies

	OUR STUDY	OTHER STUDIES
Mean age	62.06 years.	Aravind HariPriya et al. (2019) study 63+ ₋ 6.9 years1.
Sex predominance	20(66.66%) were male 10(33.33%) were female	Rajesh s Joshi and Sonali V Singanwad 2 Male (52.7%)
Laterality	Unilateral (73.3%)	Rajesh s Joshi Unilateral (30.9%)
Mean IOP	16.09mmHg	Tojo, Naoki MD et al. 3 20.3+ ₋ 3.9 mmHg,
PEX along the pupillary margin	100%	Scherhardt et al 4 84%
Rigid pupils with insufficient mydriasis.	70%	Carpel 591.4% Alfaiate et al., 648.4%Asano N,
Higher incidence of nuclear cataract in PEX	46.66% most of them are grade 3 and grade 4	Seland et al. 7
Intraoperative complications	66.66%	Freyler H, Radar U 9 72.22%
Post operative complications	53.33%	Alia R Sufi et al. study-30%
Inflammation	33.33%	Alia R Sufi et al.10 study-12%
Corneal edema	6.66%	Shingleton BJ et al. study-1.7%
Retained cortex	3.33%	Naseem A et al study-15.3%
Decentration of IOL		

- Studies shown that it is more common in patients older than 60 years, and prevalence increases with age.
- Study conducted by Naumann, Schlotzer-Schrehardt, Hammer (2001) concluded that PEX was a B/L disease with asymmetrical involvement. They suggested that U/L occurrence was a precursor for the B/L presentation, which occurs within 5-10 years. Clinically PEX often presents unilaterally.
- Eyes with PEX were at a cumulative risk for glaucoma. It was found to be 5% and 15% at 5 years and 10 years respectively.
- PEX along the pupillary margin considered a more consistent and prominent clinical finding next to the lens pseudoexfoliation material.
- Schlotze-Scherhardt, Naumann (1966) studied that the poor mydriasis was due to degenerative change in pupillary muscle fibres, including both dilator and sphincter muscle cells.
- A strong association between PEX and nuclear cataract was found in our study and various studies.

- Since the prosthetic methods are unavailable in our setup, most of the cases with poor pupillary dilatation are managed either by pharmacological dilatation, sphincterotomy, Viscomydrisis, and manual iris stretching, and synaechiolysis.
- Difficulty in capsulorhexis and difficulty in nucleus delivery were commonly reported intraoperative complication
- The most important reason behind the difficulty in nucleus delivery is the presence of a large and hard nucleus.
- A well centered and adequately sized capsulorhexis is difficult in the presence of zonular weakness.
- Excessive intraoperative manipulations can cause postoperative corneal edema and iritis.
- In the presence of weak zonules, it may lead to severe complications like vitreous loss and lens dislocation.
- Mean postoperative visual acuity improved from 1.16 on day 1 to 0.76 on 4th week postoperatively
- Corneal edema and postoperative inflammation are the most common reasons for the decreased visual acuity postoperatively.
- 3 eyes with IOP between 20-22 mmHg at the first-week visit had associated corneal edema, which might be the cause of raised IOP.
- By the 4th week postoperatively, all patients presented with IOPs within normal limits.

CONCLUSION

- Although cataract surgery in PEX is challenging, proper pre-op assessment and management can have a good post-op outcome.
- Various precautionary steps to be taken include a large capsulorhexis, usage of techniques to minimize the stress on Zonules, keeping iris hooks and capsular tension rings handy during surgery.
- To minimize the complications, it is preferable to do cataract surgery at an early stage if associated with pseudoexfoliation (PEX) syndrome.

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