

Per-Operative Complications of Phacoemulsification in Patients With Pseudoexfoliation

IFTIKHAR AHMAD SAHITO¹, ANWAAR-UL-HAQ HASHMI², ARSHAD MAHMOOD³, ZAHID MAHMOOD⁴,
AYESHA AZAM⁵, MATEEN AMIR⁶

ABSTRACT

Aim: To determine the frequency of intraoperative complications of Cataract extraction with phacoemulsification in patients with pseudo exfoliation Syndrome

Methods: This study was conducted at Ophthalmology Department, Mayo Hospital Lahore from 1st January 2016 to 30th June 2016. All the patients underwent cataract surgery with phacoemulsification procedure, after giving local or topical anesthesia. The surgery was performed by a competent surgeon who had at least 5 years' experience of performing cataract surgery. Per-operative complications i.e. Zonular dialysis, posterior capsular rent and vitreous loss was detected during surgery and their presence was labeled as per-op definition. Data was stratified for age and duration of cataract, Post stratification chi-square test was applied, p-value<0.05 was considered significant.

Results: The average age was 60.44±6.06 years. Mean duration of cataract of the patients was 5.37±2.26 months. The complication zonular dialysis was found in 16(10%), posterior capsular rent was noted in 16 (10%) cases and vitreous loss was found in 13(8.1%) patient.

Conclusion: The most common peroperative complication is zonular dialysis and posterior capsular rent and Vitreous loss was least common complication of Cataract extraction in patients with pseudo exfoliation Syndrome.

Key words: Vitreous, Pseudo exfoliation Syndrome, Zonular, Dialysis, Capsular, Intra operative

INTRODUCTION

Pseudo exfoliation (PXF) syndrome is a systemic disease but manifest mostly with ocular symptoms. Whitish-gray fibrillogranular amyloid-like material deposits on the lens capsule (anterior), zonules of lens, ciliary body, margin of the pupil, the iris, corneal endothelium, anterior vitreous and trabecular meshwork^{1,2}

The prevalence of this disease increases significantly with age, affecting 0.5% in those younger than 60 years to 15% in people aged 60 years and older worldwide^{3,4} Ocular findings most commonly involving pseudo exfoliation include raised intraocular pressure, secondary open angle glaucoma, increased prevalence of cataract, lens subluxation, as well as others ophthalmic symptoms⁵.

Cataract is frequently associated with PXF syndrome. It is a mixed, corticonuclear type, with large nucleus (cataracta brunescens)⁶.

Higher rate of complications are observed during cataract surgery on eyes with pseudo exfoliation,

complications like zonular dehiscence, posterior capsular rent, intraocular bleeding, vitreous prolapse, contraction of the capsular opening is greater in the pseudo exfoliated eyes than in the healthy eyes. The higher frequency of posterior capsular opacifications (PCO) is another important complication of surgery in patients with pseudo exfoliation⁷.

Surgery performed for cataract in patients with PXF is not free of complications rather a high frequency of complication was observed with this surgery in previous studies. So, this raises a question whether cataract surgery with phacoemulsification is safe for the patients having cataract associated with PXF or some alternate procedure should be adopted for future.

MATERIAL AND METHODS

This study was performed at Department of Ophthalmology, Mayo Hospital, Lahore. One hundred and 60 patients were included. All the patients with cataract with PEX with duration of less than 1 year, either gender and age between 50 to 70 years were included. Cataract with PEX having glaucoma, which will be assessed by measuring intraocular pressure with applanation tonometry, subluxation due to zonular dehiscence detected on slit lamp examination, eye diseases other than pseudo exfoliation like uveitis, pathological myopia, retinal

¹Senior Registrar,

²Assistant Professor of Ophthalmology

³Professor Ophthalmology,

⁴Assistant Professor of Ophthalmology,

⁵Assistant Professor of Ophthalmology,

⁶Professor of Ophthalmology, University College of Medicine and Dentistry Lahore

Correspondence to Dr. Arshad Mahmood Email: drarshad2020@hotmail.com

detachment etc and uncontrolled diabetes mellitus (BSR > 180) or hypertension (BP >140/90) were excluded. Demographic history including age and sex was taken. After taking written informed consent, all of them underwent cataract surgery with phacoemulsification after giving local or topical anesthesia. Limbal incision was given continuous, curvilinear capsulorrhexis was preformed hydro dissection was performed to loosen the capsule cortex attachment followed by phacoemulsification of nucleus and implantation of intraocular lens in uneventful cases. The surgery was performed by a competent surgeon who has at least 5 years' experience of performing cataract surgery. Intraoperative complications i.e. zonular dialysis, posterior capsular rent and vitreous loss was detected during surgery and their presence was labeled. After collecting the data, the qualitative data like demographics (sex; male or female), complications (zonular dialysis, posterior capsular rent and vitreous loss) were analyzed using SPSS version 10 and were presented as frequency and percentages. Quantitative data like age (in years) was presented as means and standard deviations by stratified for duration of cataract, post stratification chi-square test was applied, p-value<0.05 was considered significant.

RESULTS

The average age of patients was 60.44±6.06 years and mean duration of cataract of the patients was 5.37±2.26 months. The complication zonular dialysis was found in 16(10%) cases and it was not found in 144 (90%) cases (Table 1). The posterior capsular rent was noted in 16(10%) cases (Table 2). The vitreous loss was observed in 13(8.13%) cases while it was absent in 147(91.87%) cases (Table 3).

Below 5 months duration of cataract of patients were 100 in which zonular dialysis complication was found in 8 cases and it was not found in 92 cases, similarly above 5 months duration of cataract patients were 60 in which zonular dialysis complication was found in 8 cases and it was not found in 52 cases. Statistically there is insignificant difference was found between the duration of cataract and zonular dialysis complication [P=0.276] (Table 4).

Table 1: Frequency distribution of Zonular dialysis (n = 160)

Zonular dialysis	n	%
Yes	16	10.0
No	144	0.0

Table 2: Frequency distribution of posterior capsular rent

Posterior capsular rent	n	%
Yes	16	10.0
No	144	0.0

Table 3: Frequency distribution of vitreous loss

Vitreous loss	n	%
Yes	13	8.13
No	143	91.87

Table 4: Comparison of zonular dialysis with duration of cataract

Duration of cataract	Zonular dialysis		Total
	Yes	No	
Below 5 months	8	92	100
Above 5 months	8	52	60

Chi square value=1.185, P = 0.276 (Not significant)

DISCUSSION

Pseudo exfoliation was first described by Lindberg in 1917.⁸ Pseudo exfoliation (PXF) syndrome is a systemic disease but manifest mostly with ocular symptoms. Whitish-gray fibrillogranular amyloid-like material deposits on the lens capsule(anterior), zonules of lens, ciliary body, margin of the pupill, the iris, corneal endothelium, anterior vitreous and trabecular meshwork^{9,10}.

In a study by Aalia R Sufi et al, 100 eyes had cataract surgeries with phacoemulsification on patients with PXF. The study evaluated frequency of complications associated with cataract surgery. The following was the frequency of complications: Vitreal loss (2%), posterior capsular rupture (7%), zonular dialysis (7%)¹¹.

Pranathi et al¹² described in their study that pupillotomy was done in 25% cases. Other problems encountered were accidental iridodialysis, posterior capsule rupture, vitreous loss, retained cortical matter, decentered intraocular lens and zonular dialysis.

In a study conducted by Jawad¹³ in Pakistan ,out of 200 eyes of 122 patients, Vitreous prolapse in 21(10.5%) and posterior capsular rent in 18(9%). Sphincter papillae damage in 16(8%), iridodialysis in 2(1%), IOL decentration in 8(4%), hyphaema in 2 (1%), Zonular dialysis in 8(4%), lens matter in 12 (6%) and dislocation of crystalline lens was seen in 6 (3%) patient.

In different studies the Posterior capsular rent, zonular dehiscence and vitreous loss are more common compared to that in pseudo exfoliation syndrome^{14,15}.

in a study of Anuradha et al¹⁶ intraoperative complication were found to b 8(26.67%), out of which of the patients had zonular dialysis was found in, 5(16.67%), Posterior Capsular Rupture in 5(16.67%) and 3(10%) of the patients had Vitreous prolapse.

Scorolli L et al demonstrated in their study that conducted on 1,052 patients. Odds ratio for intraoperative complications (vitreous prolapse, capsular rent, zonular dialysis) was estimated to be

5.1 for PSX. PSX was associated with a statistically significant increase in intraoperative complications during cataract surgery ($p < 0.0001$)¹⁷.

The risk of intraoperative complications like lens dislocation, zonular dehiscence or vitreous prolapse increases up to 10 times if zonular weakness is present¹⁸. Rate of vitreous loss varied from 0% to 11% across different studies^{19,20}.

The phacoemulsification surgery in eyes with PXF syndrome is likely to be associated with increase rate of complication like capsular rupture, zonular dehiscence, vitreous prolapse than compared to normal^{21,22}.

One study in Pakistan also showed that the Pseudo exfoliation to be more common in males i.e., 84% compared to that in the female i.e., 16%. with the ratio of about 5:1¹³.

While another study also showed increase prevalence in males with average age of 63.83 years with no change in incidence of unilateral and bilateral involvement with pseudo exfoliation and cataract.¹⁶

According to our study results average age was 60.44±6, mean duration of cataract of the patients was 5.37±2.26 months. In our study zonular dialysis complication was found in 16 (10%), posterior capsular rent complication was observed in 16 (10%) cases and vitreous loss was observed in 13 (8.1%) patient.

CONCLUSION

It was concluded that the most common intraoperative complication is zonular dialysis and posterior capsular rent while Vitreous loss was least common complication of Cataract extraction in patients with pseudo exfoliation Syndrome.

REFERENCES

1. Kaštelan S, Tomić M, Kordić R, Kalauz M, Salopek-Rabatić J. Cataract surgery in eyes with pseudoexfoliation (PEX) syndrome. *Biomed Res Int* 2012; 2013(1):1-5.
2. Elhaway E, Kamthan G, Dong CQ, Danias J. Pseudoexfoliation syndrome, a systemic disorder with ocular manifestations. *Hum Genomics* 2012;6(22):2.
3. Emiroglu MY, Coskun E, Karapinar H, Capkin M, Kaya Z, Kaya H, et al. Is pseudoexfoliation syndrome associated with coronary artery disease? *North Am J Med Sci* 2010;2(10):487.
4. Žoriū L. Pseudoexfoliation syndrome. *Vojnosanit Pregl* 2013;70:762–7.
5. Sufi AR, Mufti AA, Nazir N, Qureshi T, Ramzan R. Prevalence of pseudoexfoliation syndrome in patients scheduled for cataract surgery in eye camps in Kashmir. *J Clin Ophthalmol Res* 2014;2(3):137.
6. Belovaj GV, Varma DK, Ahmed II. Cataract surgery in pseudoexfoliation syndrome. *COO* 2010;21:25-34.
7. Naseem A, Khan S, Khan MN, Muhammad S. Cataract surgery in patients with pseudoexfoliation. *Pak J Ophthalmol* 2007; 23(3):155-60.
8. Lindberg JG. Clinical investigations on depigmentation of the pupillary border and translucency of the iris in cases of senile cataract and in normal eyes in elderly persons. *Acta Ophthalmologica Supplement* 1988;190:1-96.
9. Naumann GO, Schlötzer-Schrehardt U, Kühle M. Pseudoexfoliation syndrome for the comprehensive ophthalmologist: intraocular and systemic manifestations. *Ophthalmology* 1998;105(6):951-68.
10. Schlötzer-Schrehardt U, Naumann GO. Ocular and systemic pseudoexfoliation syndrome. *Am J Ophthalmol* 2006; 141(5):921-37. e2.
11. Sufi AR, Singh T, Mufti AA, Rather MH. Outcome of Phacoemulsification in patients with and without Pseudoexfoliation syndrome in Kashmir. *BMC Ophthalmol* 2012; 12(1):13.
12. Pranathi K, Magdum R, Maheshgauri R, Patel K, Patra S. A study of complications during cataract surgery in patients with pseudoexfoliation syndrome. *J Clin Ophthalmol Res* 2014; 2(1): 7-11.
13. Aftab M. Complications of cataract surgery in patients with pseudoexfoliation syndrome. *J Ayub Med Coll Abbottabad*. 2009;21:15-9.
14. Katsimpris J, Petropoulos I, Apostolakis K, Feretis D. Comparing phacoemulsification and extracapsular cataract extraction in eyes with pseudoexfoliation syndrome, small pupil, and phacodonesis. *Klinische Monatsblätter für Augenheilkunde* 2004; 221(5):328-33.
15. Susic N, Brajkovic J. The prevalence of pseudoexfoliation syndrome in patients admitted for cataract surgery to the department of ophthalmology, Sibenik General Hospital. *Acta Med Croatica* 2006;60(2):121-4.
16. Anuradha A, Vidyadevi M, Kailash PC, Samhitha H, Shilpa Y. Study of intraoperative complications of manual small incision cataract surgery in eyes with pseudoexfoliation. *J Evid Based Med Healthcare* 2015;2(13):1949-53.
17. Scorolli L, Campos E, Bassein L, Meduri R. Pseudoexfoliation syndrome: a cohort study on intraoperative complications in cataract surgery. *Ophthalmologica* 1998;212:278-80.
18. Sekeroglu M, Bozkurt B, Irkeç M, Ustunel S, Orhan M, Saracbası O. Systemic associations and prevalence of exfoliation syndrome in patients scheduled for cataract surgery. *Eur J Ophthalmol* 2008;18:551-5.
19. Shingleton BJ, Crandall AS, Ahmed IIK. Pseudoexfoliation and the cataract surgeon: preoperative, intraoperative, and postoperative issues related to intraocular pressure, cataract, and intraocular lenses. *J Cataract Refract Surg* 2009;35:1101-20.
20. Shastri L, Vasavada A. Phacoemulsification in Indian eyes with pseudoexfoliation syndrome. *J Cataract Refract Surg* 2001; 27(10):1629-37.
21. Drolsum L, Haaskjold E, Davanger M. Pseudoexfoliation syndrome and extracapsular cataract extraction. *Acta Ophthalmologica* 1993;71(6):765-70.
22. Shingleton BJ, Heltzer J, O'Donoghue MW. Outcomes of phacoemulsification in patients with and without pseudoexfoliation syndrome. *J Cataract Refract Surg* 2003; 29(6):1080-6.