International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 10; Issue 03 (A); March 2021; Page No.23989-23992
DOI: http://dx.doi.org/10.24327/ijcar.2021.23992.4754

Research Article

COMPLICATIONS OF CATARACT SURGERY IN PATIENTS WITH PSEUDOEXFOLIATION SYNDROME

Shilpi Kapoor, Kanavdeep Kapoor, Shagufta Rather, Dinesh Gupta

Department of Ophthalmology, Government Medical College Jammu, J&K, India

A R T I C L E I N F O

Article History:
Received 6th December, 2020
Received in revised form 15th January, 2021
Accepted 12th February, 2021
Published online 28th March, 2021

Key words:

Pseudoexfoliation, ECCE, phacoemulsification.

A B S T R A C T

Aim: To study the complications of cataract surgery in patients with pseudoexfoliation syndrome and to evaluate the final visual outcome after surgery in these patients.
Material and methods: The study enrolled a total of 68 patients with pseudoexfoliation who were operated for cataract in the Department of ophthalmology, GMC Jammu during one year period w.e.f. 1 November 2018 – 31 October 2019. 52 patients were subjected to cataract extraction via SICS and phacoemulsification in 16 patients.
Results: 21(30.88%) patients experienced one or more of the complications. Intraoperatively, 5(7.35%) patients had extension of rhexis, 8(11.76%) had intraoperative iris prolapse, 6(8.82%) had zonular dehiscence, 8(11.76%) had posterior capsule rent, 5(7.35%) had vitreous loss and difficulty in removing lens matter was felt in 7(10.29%) patients. 2(2.94%) patients had cornea compromised due to edema and striate keratopathy at 6 weeks. Late complications included 1(1.47%) patient had cystoid macular edema, 1(1.47%) had decentered intraocular lens, 2(2.94%) patients presented with posterior capsule opacification at 12 weeks and 17 weeks respectively. 85% patients achieved a fairly good final visual acuity of ≥6/36 in the operated eye while 9(14.7%) patients had poor vision i.e. ≤6/60.
Conclusion: PEX presents challenges that must be adequately addressed with proper pre-operative preparation, surgical care and postoperative follow-up.

INTRODUCTION

Pseudoexfoliation syndrome is an age-related systemic microfibrillopathy, caused by progressive accumulation and gradual deposition of extracellular grey and white material over various tissues (Ritch R, Schlotzer-Schrehardt U 2001)[11]. Pseudoexfoliation syndrome has now been identified as an accumulation of whitish gray fibrinogranular extracellular pseudoexfoliative material produced by abnormal basement membranes of ageing epithelial cells in trabecular meshwork, equatorial lens capsule, pupillary margin of iris and ciliary body, hyaloid and endothelial surface of the cornea (Sekeroglu MA *et al.,* 2008)[13]. Cataract is more common in patients with pseudoexfoliation syndrome than normal population. Hietanen J *et al.,(1992)*[6] have reported nuclear cataract to be the predominant type of cataract in pseudoexfoliation. Cataract surgery in these patients is associated with a higher incidence of complications including intra-operative and post-operative complications. Intraoperative complications most notably zonular dialysis, shallow anterior chamber, posterior capsule breaks, vitreous loss, lens dislocation, loss of residual lens matter in vitreous, have been seen more frequently than normal population.

Corresponding author:* **Shilpi Kapoor
Department of Ophthalmology, Government Medical College Jammu, J&K, India

Post operative complications like acute intraocular pressure rise, corneal edema, glaucoma, cystoid macular edema, posterior synechae, posterior capsular opacification and capsulorhexis contraction, intraocular lens dislocation, prolonged anterior chamber reaction have been found to occur relatively more which could be vision threatening. Many cases may go undetected due to failure to dilate the pupil or examine the lens surface with the slit lamp before surgery. Hence, rational diagnostic, preventive and therapeutic strategies need to be developed and utilized.

MATERIAL METHODS

This study was conducted on patients with cataract with pseudoexfoliation syndrome who were admitted for cataract surgery in the Department of Ophthalmology, Government Medical College, Jammu from 1st November 2017 for a period of one year. The clearance was taken from ethical committee for the study in reference. Informed consent was taken from all the patients enrolled in the study. Patients diagnosed to have cataract with pseudoexfoliation, of either sex and age and willing to participate in the study were included. Cataract with history of ocular trauma, complicated cataract, true exfoliation and patients with systemic complications like transient ischemic attacks, uncontrolled DM, stroke, severe systemic and cardio-vascular disease were excluded. All patients were

evaluated for visual acuity – snellens chart, with and without pinhole refraction, extra-ocular examination, tonometry – Non contact tonometer / Schiotz tonometer, fundoscopy, lacrimal sac test, biometry, Slit lamp and gonioscopy was done. Routine investigation like Haemoglobin, CBC, RFTs, BT,CT, random blood sugar, urine routine, ECG, hepatitis B and HIV testing.

Patients were taken for cataract surgery by either manual small incision cataract surgery or phacoemulsification. All patients were operated by consultants. Preoperatively pupillary diameter after dilatation was graded as poor (2-4 mm), moderate (5-6 mm) and good (7-9 mm or more). Patients who got good pupillary dilatation and nuclear sclerosis between grade 2-3 were selected for phacoemulsification, rest of the patients underwent manual SICS. Postoperatively, patients were put on topical antibiotics and steroids with a tapering dose over 4-6 weeks depending upon the postoperative inflammation. Patients were followed on the postoperative day 1, 1 week, 3 weeks and at 6 weeks to evaluate VA, IOP, and presence of intraocular inflammation, IOL decentration and corneal endothelial decompensation. After 6 weeks refraction was done and best corrected visual acuity was recorded. Their per operative and postoperative complications were recorded. Data was analyzed though statistical package for social sciences version 22.0.

RESULTS

The present study entitled "Complications of cataract surgery in patients with pseudoexfoliation syndrome" enrolled a total of 68 patients with pseudoexfoliation who were operated for cataract in the Department of ophthalmology, Government medical college, Jammu during one year period w.e.f. 1 November 2018 – 31 October 2019.

The study was undertaken to outline the peroperative and postoperative complications encountered during cataract surgery in patients with pseudoexfoliation syndrome and to determine the final visual outcome following cataract extraction surgery with PCIOL implantation.

52 patients were subjected to cataract extraction via SICS and phacoemulsification in 16 patients considering the pupillary dilatation and type of cataract. PCIOL was implanted in 65 patients while in 3 patients it could not be placed. Postoperatively all patients were put on antibiotic steroid drops for a period of 4-6 weeks.

85% of patients belonged to age group of 51 to 80 years. Most patients 27 (39.70%) were in their 7^{th} decade of life. 94.12% patients presented with preoperative visual acuity of ≤6/60. 40(56%) patients had visual acuity ≤6/60 in the fellow eye and 2 patients were one eyed.

23(33.82%) patients underwent sphincterotomy.

21(30.88%) patients experienced one or more of the complications associated with surgery observed in intraoperative or postoperative period. This is statistically significant with p value <0.0001. Intraoperatively, 5(7.35%) patients had extension of rhexis, 8(11.76%) had intraoperative iris prolapse, 6(8.82%) had zonular dehiscence, 8(11.76%) had posterior capsule rent, 5(7.35%) had vitreous loss and difficulty in removing lens matter was felt in 7(10.29%) patients. Posterior capsule rent and intraoperative iris prolapsed were the most common complications encountered during surgery being 11.76% each.

27(39.7%) patients had moderate and 6(8.8%) had severe AC reaction at Day 1 which resolved in most. 4(5.88%) patients showed mild AC reaction at 6 weeks managed with prolonged topical steroids instillation. 4(5.88%) patients presented with retained lens matter. No patient had postoperative hyphaema in our study.

2(2.94%) patients had cornea compromised due to edema and striate keratopathy at 6 weeks.

Late postoperative complications included 1(1.47%) patient had cystoid macular edema, 1(1.47%) had decentered intraocular lens, 2(2.94%) patients presented with posterior capsule opacification at 12 weeks and 17 weeks respectively. 85% patients achieved a fairly good final visual acuity of ≥6/36 in the operated eye while 9(14.7%) patients had poor vision i.e. ≤6/60.

Causes of poor postoperative vision in our study were aphakia (3 patients), corneal decompensation (2 patients), posterior capsule rent and its sequelae in rest of the patients. PEX presents challenges that must be adequately addressed with proper pre-operative preparation, surgical care and postoperative follow-up. Cases may go undetected due to failure to dilate the pupil or to examine with slit lamp after dilatation.

DISCUSSION

A total of 68 patients were enrolled in the study. The patients were subjected to cataract extraction via SICS in 52 and phacoemulsification in 16 patients.

Analysing the age distribution of patients in our study, 58(85%) patients were in the age group of 51-80 years. Highest number of patients 27(39.70%) were in 7th decade of life. Anuradha A *et al.,* (2015)[2] in their study found that out of their total number of patients(30) with pseudoexfoliation coming for cataract surgery 15(50%) were in 7th decade of life. Hemalatha BC and Shetty BS (2016)[5] in their study found the mean age of patients was 70 years with age range of 50-80yrs. Our study is in confirmation with the results of above studies showing maximum prevalence of patients with PEX in 50-80 years of age.

Preoperatively, 64 (94.12%) patients had visual acuity of ≤6/60, 14 (20.59%) patients had vision of $PL^{+}PR^{+}$ at the time of admission. 4 (5.88%) patients had vision in range of 6/18-6/36 (Table 1).

Table 1 Preoperative visual acuity

Visual acuity	No. of patients	Percentage (%)
6/6 – 6/12	0	0
6/18 – 6/36	4	5.88
6/60 - 1/60	36	52.94
FCCF-HMCF	14	20.59
PLPR	14	20.59
Total	68	100

19 (27.94%) patients had mature cataract, 19 (27.94%) had nuclear sclerosis grade III and grade IV, 16 (23.52%) had posterior subcapsular cataract, 5 (7.35%) had phacodonesis and 3 (4.41%) were subluxated lenses (Image 1). Sandeep K, Vekkatram (2017)[15]in their study also worked on 30% patients with nuclear sclerosis grade III and IV. Islam MN *et al.,* (2017)[8] study found posterior subcapsular cataract to be

21.87% of all the cataract. Sinha AS *et al.,* (2017)[14] in their study worked upon 30% mature cataract. Incidence of phacodonesis varies from 0% (Veselinovic A *et al.,* 2017)[16] to 6% (Choudhary KG *et al.,* 2017)[4] to 14% (Jawad M *et al.,* 2009)[9] in various studies. Jawad M *et al.,* (2009)[9] found 4% subluxated lenses preoperatively. 23(33.82%) patients underwent sphincterotomy (Image 2) due to poor pupillary dilatation.

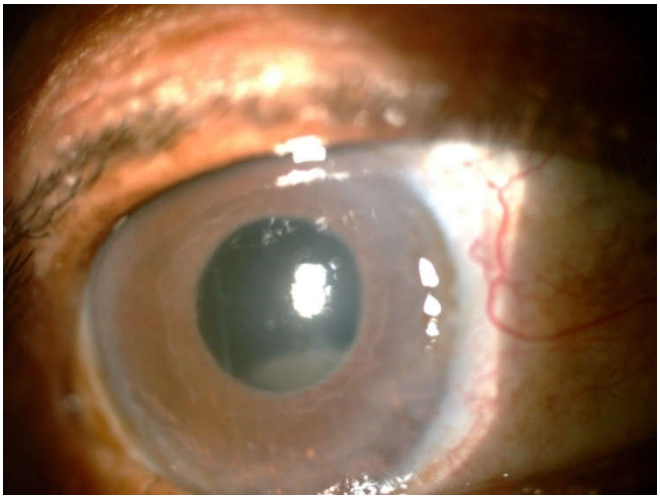

Image 1 Pseudoexofoliation along pupil with subluxated lens

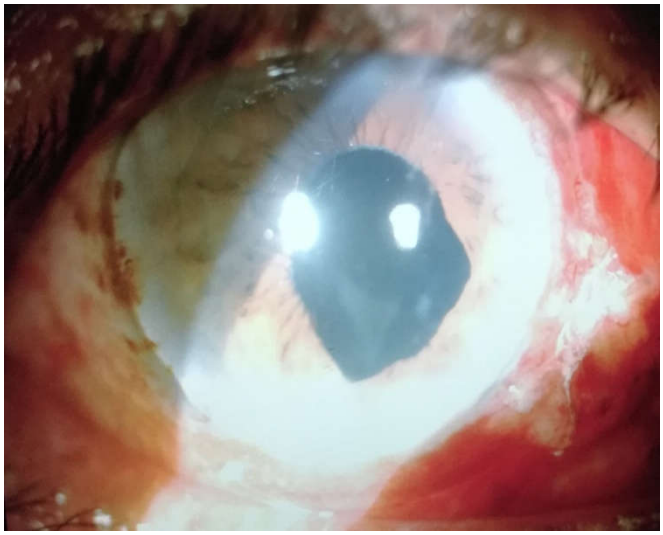

Image 2 Postoperative image showing multiple sphincterotomies and deformed pupil.

21(30.88%) patients experienced one or more of the complications associated with surgery observed in intraoperative or postoperative period. Study shows a high statistical significance of complications in pex patients with p value <0.0001.

Table 2 Intraoperative complications

Complication	No of patients	Percentage (%)
Extension of rhexis	5	7.35
Iris prolapsed	8	11.76
Zonular dehiscence	6	8.82
Posterior capsule rent	8	11.76
Vitreous loss	5	7.35
Difficult lens matter removal	7	10.29

Intraoperatively, 5(7.35%) patients had extension of rhexis, 8(11.76%) had intraoperative iris prolapse, 6(8.82%) had zonular dehiscence, 8(11.76%) had posterior capsule rent, 5(7.35%) had vitreous loss and difficulty in removing lens matter was felt in 7(10.29%) patients. Posterior capsule rent and iris prolapse were the most common complications encountered during the surgery being 11.76% each (Table 2).

27(39.7%) patients had moderate and 6(8.8%) had severe AC reaction at Day 1 which resolved in most. 4(5.88%) patients showed mild AC reaction at 6 weeks managed with prolonged topical steroids instillation. 4(5.88%) patients presented with retained lens matter which were treated with cycloplegics and topical steroids allowed gradual resolution, while 1 patient had to be taken again to OT for surgical removal of lens matter retained postoperatively. 2(2.94%) patients had cornea compromised due to edema and striate keratopathy at 6 weeks. Jawad M *et al.,* (2009)[9] observed retained lens matter in 6% subjects. Choudhary KG *et al.,* (2017)[4] reported 6% patients with residual cortical matter.

46 (67.6%) patients had visual acuity of ≥6/36 on postoperative day 1. 22 (32.36%) patients had poor vision i.e. ≤6/60.

Late postoperative complications included 1(1.47%) patient had cystoid macular edema, 1(1.47%) had decentered intraocular lens, 2(2.94%) patients presented with posterior capsule opacification at 12 weeks and 17 weeks respectively. Veselinovic A *et al.,* (2017)[16] showed 1.0% lens dislocation 1.7% cystoid macular edema, posterior capsular opacification 2.3% and postoperative keratopathy in 0.7% patients. Hohn S *et al.,* (2004)[7] reported spontaneous dislocation of intraocular lens with the in the bag fixated iol occurs as a late complication of cataract surgery in patients with pseudoexfoliation syndrome. Islam MN *et al.,* (2017)[8] reported postoperative corneal decompensation in 4.49% patients. Our study is in confirmation with the results of above studies.

85% patients were able to achieve a vision of ≥6/36 in the operated eye. 23(33.8%) patients had vision 6/6 -6/12. 9(14.7%) patients had visual acuity ≤6/60 (Table 4).

Table 3 Comparision with results of other studies

Complication	Our study	Avramides *et al*, 1997 study[3]	Lumme *et al*, 2001 study[17]	Erkayhan GE and Dogan S 2017 study[18]
PCR	11.76%	10.71%	10.2%	12.5%
VL	7.35%	7.14%	7.4%	8.8%

Table 4 Final best corrected visual acuity of patients recorded at 6 weeks

BCVA	No. of patients	Percentage (%)
6/6 – 6/12	23	33.8
6/18 – 6/36	36	51.5
≤6/60	9	14.7
Total	68	100

Causes of poor postoperative vision in our study were aphakia (3 patients) corneal decompensation (2 patients), posterior capsule rent and its sequelae in rest of the patients.

The main limitation of the study was the duration of the study. Furthermore, we did not include pre- and post-operative specular microscopy and corneal pachymetry.

Table 5 Comparision between visual acuity of our study with Choudhary KG study

Visual Acuity	Choudhary KG study		Our study	
	No. of Patients	Percentage (%)	No. of Patients	Percentage (%)
6/6-6/12	14	28	23	33.8
6/18-6/36	31	62	36	51.5
≤6/60	5	10	9	14.7
Total	50	100	68	100

CONCLUSION

Cataract surgery in eyes with pseudoexfoliation syndrome is associated with an increased incidence of complications both intraoperatively and postoperatively. Inadequate mydriasis is one of the major finding in eyes with pex which has a bearing on the intraoperative complications like posterior capsular rent and vitreous loss. Adequate surgical modifications such as sphincterotomy and/or synechiolysis in eyes with inadequate mydriasis reduce the intra operative complications. Although cataract surgery in pseudoexfoliation syndrome is challenging, if the surgeon is aware of the condition pre operatively and pays meticulous attention to the surgical technique, a good outcome can be expected.

References

1. Alfaiate M, Leite E, Mira J, Cunha-Vaz JG. Prevalence and surgical complications of pseudoexfoliation syndrome in Portuguese patients with senile cataract. *J Cataract Refract Surg* 1996; 22:972–76.
2. Anuradha A, Vidyadevi M, Kailash P, Chhabria, Samhitha HR, Shilpa YD. Study of intraoperative complications of manual small incision cataract surgery in eyes with pseudoexfoliation. *J Evidence Based Med & Hlthcare* 2015; 2(13):2044-50.
3. Avramides S, Traianidis P, Sakkias G. Cataract surgery and lens implantation in eyes with exfoliation syndrome. *J Cataract Refract Surg* 1997; 23:583-87.
4. Choudhary KG, Nandedkar V, Paranjape A, Dahatonde S, Golande. Intraoperative complications during cataract surgery in patients with pseudoexfoliation syndrome. MRIMS *J Health Sciences* 2017; 5(3): 100-02.
5. Hemalatha BC, Shetty SB. Analysis of intraoperative and postoperative complications in pseudoexfoliative eyes undergoing cataract surgery. *J Clin Diagn Res* 2016; 10(4): NC05-NC08.
6. Hietanen J, Kivela T, Vesti E, Tarkkanen A. Exfoliation syndrome in patients scheduled for cataract surgery. Acta Ophthalmol (Copenh) 1992; 70:440-46.
7. Hohn S, Spraul CW, Buchwald HJ, Lang GK. Spontaneous dislocation of intraocular lens with capsule as a late complication of cataract surgery in patients with pseudoexfoliation syndrome. Klin Monatsbl Augenheilkd 2004;221(4):273–6
8. Islam MN, Goswami S, Khanam BSM, Mukherji S. Complications of cataract surgery in patients with pseudoexfoliation syndrome in a tertiary care hospital of west Bengal. *Int J Sci Stud* 2017; 5(3):11-15.
9. Jawad M, Nadeem AU, Khan Au, Aftab M. Complications of cataract surgery in patients with pseudoexfoliation syndrome. *J Ayub Med Coll Abbott abad* 2009; 21:33-36.
10. Pranathi K, Magdum RM, Maheshgauri R, Patel K, Patra S. A study of complications during cataract surgery in patients with pseudoexfoliation syndrome. *J Clin Ophthalmol Res* 2014; 2:7-11.
11. Ritch R., Schlotzer-Schrehardt U. Exfoliation syndrome. Survey of Ophthalmology. 2001;45(4):265–315.
12. Scorolli L, Scorolli L, Campos EC, Bassein L, Meduri RA. Pseudoexfoliation syndrome: A cohort study on intraoperative complications in cataract surgery. Ophthalmologica 1998; 212(4):278-80.
13. Sekeroglu MA, Bozkurt B, Irkec M, Ustunel S, Orhan M, Saracbasi O. Systemic associations and prevalence of exfoliation syndrome in patients scheduled for cataract surgery. *Eur J Ophthalmol* 2008;18:551-55.
14. Sinha AS, Dindore P, Sabnis M. Comparative study of intraoperative complications in pseudoexfoliation syndrome with normal patients in cataract surgery. *Int J Adv Res* 2017; 5(2): 2247-52.
15. Sandeep K, Vekkatram. Operative complications of pseudoexfoliative syndrome – an observational cross-sectional study. *Indian J Clin Exp Ophth* 2017; 3(3):377-79.
16. Veselinovic A, Cvetanovic M, Milosevic Z, Veselinovic D. Intraoperative and postoperative complications of phacoemulsification in cataract eyes with pseudoexfoliation syndrome. Srp Arh Celok Lek 2017; 145(3-4):124-28.
17. Lumme P, Lattikaanen L. Exfoliation syndrome and cataract extraction. *Am J Ophthalmol* 1993;116(1):51-55.
18. Erkayhan GE, Dogan S. Cataract surgery and possible complications in patients with pseudoexfoliation syndrome. *Eurasian J Med* 2017; 49(1):22-25.

How to cite this article:

Shilpi Kapoor *et al* (2021) 'Complications of Cataract Surgery In Patients With Pseudoexfoliation Syndrome', *International Journal of Current Advanced Research,* 10(03), pp. 23989-23992. DOI: http://dx.doi.org/10.24327/ijcar.2021.23992.4754

****