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A Clinical Study of Complications and Visual Outcome of Cataract Surgery in Patients with Pseudoexfoliation

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Abstract

Background *:Pseudoexfoliation is an age related microfibrillopathy that targets ocular tissue through gradual depositon of fibrillary residue from lens & iris pigment epithelium mainly on lens,ciliary body,zonules,corneal endothelium & iris. It has only been recently recognized to be the overall most common identifiable cause of glaucoma.**Aim :***To assess the demographic features intraoperative, postoperative complications & visual outcome of cataract surgery following primary IOL implantation in patients with cataract &pseudoexfoliation.**Methods :***62 eyes of 62 patients with cataract &pseudoexfoliation are posted for primary IOL implantation.**Results :***Majority of patients were in the age group of >70 yrs. Among 62 cases 39 were males and 23 were females. Among 62 eyes 23 were unilateral & 39 were bilateral. Intraoperative compliacations include zonular dehiscence,difficulty in anterior capsulotomy,posterior capsular rent and vitreous loss .Postoperative complications include corneal edema,AC reaction,raised IOP,decentration of IOL, retained lens matter and PCO.Final BCVA after 3months followup was >6/18 in 43 cases,6/18 to 3/60 in 14 cases &<3/60 in 5 cases.* ***Conclusion:****There was male preponderance predominantly involving age group >70 yrs. Intraoperative compliacations are zonular dialysis,difficulty in anterior capsulotomy, PCR & vitreous loss.Postoperative complications are AC reaction,retained lens matter,decentration of IOL was comparable with other studies PCO and persistent corneal edema are common postoperative complications responsible for poor visual outcome in this study.*

Keywords :*Pseudoexfoliation,Slit lamp examination,Anterior capsulotomy,Anterior chamber reaction,Zonular dehiscence,Intraocular lens impantation,Posterior capsular rent, Posterior capsular opacity,Decentration of intraocular lens,Best corrected visual acuity.*

I. Introduction

Pseudoexfoliation is an age related microfibrillopathy that targets ocular tissue through gradual depositon of fibrillary residue from lens and iris pigment epithelium mainly on lens,ciliary body,zonules, corneal endothelium and iris. It has only been recently recognized to be the overall most common identifiable cause of glaucoma and in some countries it accounts for majority of glaucoma. Similar material has also been detected in the skin and connective tissue portion of various visceral organs.

Pseudoexfoliation is a risk factor not only for open angle glaucoma but also for angle closureglaucoma,lens subluxation,blood-aqueous barrier impairment serious intra and postoperative complications and has been with increased incidence of cataract formation. Exfoliation of fibrillogranular amyloid like material has been found in many organs such as skin,heart,lungs,liver,kidney,gall bladder,blood vessels,extraocular muscles,connective tissue in the orbit,optic nerve & meninges suggesting that XFS is not only an ocular disease but also a general disorder that involves abnormal production of extra cellular matrix material. Recent investigations have shown a positive link between PXF and transient ischemic attacks,stroke, heart disease and aneurysms of abdominal aorta. There is an association between PXF and cataract, possibly due to ocular ischemia & defective antioxidant defence mechanisms. Moreover cataract appear sooner and progress quicker in these patients.

II. Aim Of The Study

To assess epidemiologyintraoperative, postoperative complications and visual outcome following surgery with IOL implantation in patients with PXF.

III. Objectives

1.To assess epidemiology of PXF in terms of a)age incidence b)sex incidence c) laterality.
2. Intraoperative and postoperative complications of cataract surgery in patients with PXF.
3. Visual outcome following cataract surgery with IOL implantation in patients with PXF.

IV. Materials & Methods

Inclusion criteria: All patients with cataract and PXF who need IOL implantation with normal posterior segment findings.

Exclusion criteria : Previous intraocular trauma, previous intraocular surgery,subluxated or dislocated lens, Established glaucoma cases and patients with uveitis are excluded.

This is a prospective study in patients with cataract and PXF attending ophthalmology outpatient services,SVRRGG Hospital,SV Medical College,Tirupati,Andhra Pradesh.

Informed consent is taken from all cataract with PXF patients undergoing cataract surgery with IOL implantation. Data was collected on age,gender,laterality, intraoperative, postoperative complications and postoperative vision after 3 months.

V. Observations And Results

The study group consisted of 62 eyes of cataract with PXF.The main aim was to assess the demographic features, intraoperative, postoperative complications and visual outcome of cataract surgery following primary IOL implantation.

TABLE 1: Age Distribution

Age group in years	Total number of cases	% of total cases
40-50	2	3.2
51-60	7	11.3
61-70	18	29.03
>70	35	56.45

Table 1 shows the distribution of 62 cases according to age.Majority of the patients were in the age group of >70yrs(56.45%).

TABLE 2: Sex Distribution

Sex distribution	No.of cases	% of total cases
Males	39	62.90
Females	23	37.09

Table 2 shows sex wise distribution of 62 cases.Among 62 cases 39 (62.90%) were males and 23(37.09%) were females.The male:female ratio is 1.69:1.

TABLE 3: Laterality Distribution

Laterality	No.of cases	% of total cases
Unilateral	23	37.09
Bilateral	39	62.90

Table 3 shows laterality of 62 cases. Among62 cases 23 (37.09%) were unilateral and 39 (62.90%) were bilateral.

TABLE 4: Intraoperative Complications

Complication	No.of cases	% of total cases
Difficulty in capsulotomy	10	16.10
Difficulty in nucleus delivery	8	12.90
Zonular dehiscence	5	8.60
Posterior capsular rent	6	9.67
Vitreous loss	5	8.06

Table 4 shows intraoperative complications in 62 cases.Zonular dehiscence was seen in 5(08.06%) cases.Difficulty in capsulotomy in 10(16.1%) cases & difficulty in nucleus delivery in 8(12.9%) cases due to poor mydriasis.Posterior capsular rent in 6(9.67%) cases and vitreous loss in 5(8.06%) cases**.**

TABLE 5: Post Operative Complications

Complication	No.of cases	% of total number of cases
Straitekeratopathy	14	22.58
Anterior chamber reaction	8	12.90
Residual lens matter	6	9.67
Corneal edema	10	16.12
IOP elevation	6	9.67
Decentred IOL	2	3.22

Table 5 shows postoperative complications in 62 cases, most common early complication seen is striate keratopathy in 14(22.58%), anterior chamber reaction is seen in 8(12.90%), corneal edema in 10(16.12%),IOP elevation in 6 cases(9.67%). Decentered IOL in 2 cases(3.22%).

TABLE 6: Final Bcva

Final BCVA	**No.of cases**	**% of total cases**
Less than 3/60	5	8.06
<6/18 to 3/60	14	22.58
>/= 6/18	43	69.35

In the present study out of 62 cases 43(69.35%) cases regained BCVA of 6/6 to 6/18.BCVA <3/60 is seen in 5 (8.06%) cases.

TABLE 7: Causes For Decreased Post-Operastive Visual Acuity

Causes	**Number of cases**	**% of total cases**
Persistent corneal edema	5	8.06
Decentered IOL	2	3.22
Posterior capsular opacification	12	19.35
Cystoid macular edema	4	6.45

Table 7 shows the common causes of postoperative decreased visual acuity conducted on 62 cases. Incidence of PCO is more involving 12(19.35%) cases,persistent corneal edema 5(8.06%) cases, cystoidmacular edema in 4(6.45%) cases,decentered IOL in 2(3.22%) cases.

VI. Discussion

Cataract surgery with IOL implantation is done in 62 eyes of 62 patientsin the present study. The results of the study were compared with other similar studies.

TABLE 8: Comparison Of Age Distribution

Age distribution	**40-50yrs (%)**	**51-60yrs (%)**	**61-70yrs (%)**	**>70yrs(%)**
Thomas et al APEDS	4.1	12.32	42.46	38.31
H arvind et al	5.5	17.59	39.81	37.52
L vijaya et al CEDIS	5.1	22.90	35.60	35.60
PA Lamba et al	6.75	21.62	44.59	27.02
R.Krishnadas et al	1.94	22.07	48.70	27.27
K.Pranathi et al	-	-	48.1	51.9
Present study	3.2	11.3	29.03	56.45

Age analysis showed that majority of cases i.e 35(56.45%) occurred in older group >70yrs.This goes in accordance with other studies.

TABLE 9 : Comparison Of Sex Distribution

Sex distribution	**Males (%)**	**Females (%)**
Thomas et al APEDS	54.79	45.20
H Arvind et al	45.40	54.60
PA Lamba et al	64.86	35.73
Swetha S Philip et al	44	56
R.Krishnadas et al	57.79	42.20
V.Thanusree et al	61	39
L vijayet alCEDIS	55.17	44.82
Abdullah Almujhani et al	48.49	55.51
SurekhaBangal et al	42	58
K.Pranathi et al	53.8	46.2
AbidNaseem et al	67	33
Present study	62.90	37.09

Among 62 eyes we noted a male preponderance with 39(62.90%) cases and 23 cases (37.09%) are females.This goes in accordance with other studies.

TABLE 10: Comparison Of Laterality

Latrality	**Unilateral**	**Bilateral**
Thomas et al APEDS	46.57	53.42
Swetha S Philip et al	57.08	42.20
H Arvind et al	49.10	50.90
PA Lamba et al	43.24	56.75
AbidNaseem et al	23.3	76.7
Sulaiman et al	62.3	37.70
Present study	37.09	62.90

In the present study of 62 eyes bilateral distribution of PXF seen in 39 cases (62.9%) and 23 cases (37.09%) showed unilateral distribution.

TABLE 11: Comparison Of Intraoperative Complications

	Zonular dehiscence (%)	**Posterior capsular rent (%)**	**Vitreous loss (%)**
P.Mohan et al	4	2	-
SurekhaBangal et al	2	6	4
Alia R Sufi et al	7	7	2
K.Pranathi et al	7.7	3.8	7.7
Garima et al	16	-	6
K.Satish et al	10.1	10	8
Sushilkumar et al	-	6.6	-
AbidNaseem et al	15.6	15.6	9.4
Present study	8.06	9.67	8.06

In the present study higher incidence of intraoperative complications like zonular dehiscence in 5 cases (8.06%),PCR (9.67%) and vitreous loss in 8.06% were more where pupil diameter between 3-5mm which was found to be statistically significant (<0.05%)

TABLE 12: Comparison Of Postoperaive Complications

	Corneal edema (%)	**AC reaction(%)**	**Residual lens matter(%)**	**IOP elevation(%)**	**Decentered IOL(%)**
SurekhaBangal et al	32(with sk)	30	10	6	2
K.Pranathi et al	23	11.5	11.5	-	5.8
Garima et al	24	-	6	-	-
K.Satish et al	8.4	16	6	10	1
AbidNaseem et al	43.8	56.2	15.6	15.6	3.1
P.Mohan et al	19	-	-	-	-
Present study	16.12	12.90	9.67	9.67	3.22

In this study 16.12% cases showed postoperative corneal edema, 12.90% cases showed AC reaction,9.67% cases showed raised IOP and decentered IOL was seen in 3.22% cases.

FINAL BCVA

BCVA observed after 3 months followup was >=6/18 in 43 cases (69.35%) **6/18 to 3/60 in 14 cases(22.58%) <3/60 in 5 cases (8.06%).**

In Tobin et al study BCVA was 6/24 in 74% of cases.

In Pranathi et al study BCVA was 6/18 - 6/36 in 69.2% cases ,<6/60 in 7.7% cases.

TABLE 13: Comparison Of Cause Of Decreased Postoperative Bcva

	Persistent corneal edema (%)	**Decentered IOL (%)**	**Posterior capsular opacification(%)**	**Cystoid macular edema (%)**
K.Pranathi et al	7.69	5.8	18.8	-
K.Satish et al	1.6	1	-	6.4
AbidNaseem et al	3.1	3.1	18.8	-
Present study	8.06	3.22	19.35	6.45

In the present study most common cause of decreased postoperative BCVA is posterior capsular opacification (19.35%) followed by persistent corneal edema (8.06%), cystoid macular edema (6.46%) and decentered IOL (3.22%).The results are correlated with Pranathi et al and AbidNaseem et al studies.

VII. Summary

In this study there was male preponderance (62-90%) predominantly involving elderly age group >70 yrs (56.45%). Incidence of intraoperative complications like PCR (9.67%),zonular dehiscence (8.06%) and vitreous loss (8.06%) were comparable with other studies. Incidence of postoperative complications like AC reaction (12.90%), retained lens matter (9.67%),decentration of IOL (3.22%) was comparable to other studies.PCO (19.35%) and persistent corneal edema (8.06%) are the most common postoperative complications responsible for poor visual outcome in this study.

VIII. Conclusion

Cataract extraction with PCIOL implantation offers best visual rehabilitation in patients with PXF. In-the-bag IOL is an ideal choice as it minimizes postoperative inflammation.

Timely intervention with additional procedures will help in treating ocular morbidity in these cases. Newer techniques and instrumentation increases the confidence in managing even complicated cases of cataract with PXF.

IX. Abbreviations

AC-Anterior chamber
BCVA - Best corrected visual acuity
COAG-Chronic open angle glaucoma
IOL - Intra ocular lens
IOP - Intra ocular pressure
PCO- Posterior capsular opacification
PCR-Posterior capsular rent
PCIOL-Posterior chamber intraocular lens
PXF-Pseudoexfoliation
XFS-Pseudoexfoliation syndrome

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