



A Study on Pseudoexfoliation Syndrome in a Tertiary Care Centre

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ABSTRACT

Background

To acquire knowledge about pseudoexfoliation syndrome; its clinical manifestations and association with glaucoma.

Methods

This cross sectional descriptive study was conducted in 50 patients at Glaucoma department, Institute of Ophthalmology, Government Ophthalmic Hospital, Chennai for a period of 1 year September 2016 to August 2017.

Results

The most common age group was 61-70 years. 64% were males and 36% were females. 74% patients had bilateral pseudoexfoliation and 26% had unilateral pseudoexfoliation. 26(52%) patients with pseudoexfoliation had glaucoma, most common being open angle glaucoma. Poor pupillary dilatation was noted in 57% patients. 44 % of eyes with pseudoexfoliation had nuclear cataract and 39% had cortical cataract. Advanced glaucomatous optic nerve damage is noted more with open angle glaucoma.

Conclusion

Pseudoexfoliation syndrome, though a disease of the elderly, can also occur in less than 50 years age group. Bilateral pseudoexfoliation was more common with a male preponderance. Pseudoexfoliation syndrome is definitely a risk factor for the development of glaucoma. Though it is more commonly associated with open angle glaucoma, it may predispose to angle closure glaucoma also.

Keywords: Pseudoexfoliation syndrome, exfoliative material, open angle glaucoma

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BACKGROUND

Pseudoexfoliation (PXF) syndrome, first described by Lindberg¹ in 1917, is a systemic

disease. It causes various tissues, including the tissues in the eye, to accumulate a gray and white material. The etiology of PXF is still



unknown. Pseudoexfoliation syndrome is an age-related disease in which abnormal fibrillar extracellular material of uncertain origin accumulates in many ocular tissues. Polymorphism of exon1 of LOXL1² gene has been found in patients with pseudoexfoliation syndrome. It is recognized as a common cause of secondary open angle glaucoma. Deposition of amorphous grey dandruff-like material on the anterior lens surface is the most consistent and important diagnostic feature of pseudoexfoliation syndrome. Exfoliative material is also deposited on corneal endothelium, trabecular meshwork, iris, pupillary margins, zonules, ciliary processes, anterior hyaloid phase. Pseudoexfoliation syndrome is associated with secondary open angle glaucoma in 50% cases. Exact mechanism of rise of IOP is not clear but is proposed due to clogging of trabecular meshwork with exfoliation material and pigments. Glaucoma in pseudoexfoliation syndrome has worse prognosis due to poor response to medications and complications involved in surgical management. It is now suspected to be a systemic disorder and has been associated preliminarily with transient ischemic attacks³, stroke, systemic hypertension and myocardial infarction.

MATERIALS AND METHODS

This cross sectional descriptive study was conducted in 50 patients at Glaucoma department, Institute of Ophthalmology, Government Ophthalmic Hospital, Chennai for a period of 1 year September 2016 to August 2017.

Inclusion Criteria

Presence of exfoliation material on the pupillary margin and/or lens.

Exclusion Criteria

Patients with Previous history of trauma, Anterior uveitis, Secondary cataract, Primary open and closed angle glaucoma, Other secondary glaucoma were excluded from this study.

All the patients were subjected to a detailed slit lamp examination and following signs were looked for

1. Conjunctiva-congestion
2. Cornea-edema, pigmentation, exfoliation material
3. Anterior chamber depth-flare, cells, depth, exfoliation material, pigment dispersion
4. Iris-pattern, transillumination defects, iridodonesis
5. Pupil-size, reaction to light, exfoliation material, dilatation with mydriatics
6. Lens-exfoliation material, cataractous or not, phacodonesis, subluxation or dislocation of lens

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Pupil was dilated as a routine in most of the cases to note the three zones of exfoliation material on the lens capsule. Fundus was examined with direct ophthalmoscopy and slit lamp bio microscopy to look for glaucomatous changes in the disc. Glaucoma workup was done for all patients, which included Gonioscopy, Tonometry, automated perimetry in selected cases. During gonioscopy the presence of exfoliation material and increased trabecular pigmentation were also noted.

RESULTS

Bilateral pseudoexfoliation was found to be more common than unilateral pseudoexfoliation. The maximum incidence of pseudoexfoliation in bilateral cases was in the age group of 61-70 years and in unilateral cases in the age group 51-60 years. The mean age of patients was 63.71 years. Pseudoexfoliation syndrome, though a disease of the elderly can occur in less than 50 years age group. Males were predominant in group of pseudoexfoliation patients with glaucoma while females predominated in group of pseudoexfoliation patients without glaucoma. 28 patients had poor pupillary dilatation. This is a recognized entity in pseudoexfoliation syndrome due to intrinsic

degenerative changes occurring in the sphincter pupillae. 24 patients had IOP more than 21mmHG. There was increased incidence of nuclear cataract in the patients with pseudo exfoliation syndrome. Pseudoexfoliation syndrome is definitely a risk factor for the development

of glaucoma. Pseudoexfoliation is more commonly associated with open angle glaucoma but may predispose to angle closure glaucoma also. Advanced glaucomatous optic nerve damage is noted more in association with open angle glaucoma.

LATERALITY	No of cases	%	No of eyes
UL	13	26	13
BL	37	74	74
Total	50	100	87

Table 1: Laterality

37(74%) cases had bilateral pseudoexfoliation and 13(26%) had unilateral pseudoexfoliation. This could be due to the possibility that the unilateral cases invariably become bilateral at a later date.

Age(years)	No of cases
41-50	3
51-60	17
61-70	22
71-80	8

Table 2: Age distribution

In our study, out of 50 cases, 3 cases presented between 41-50 years, 17 cases between 51-60 years, 22 cases presented between 61-70 years and 8 cases between 71-80 years. Thus the most common age group was between 61-70 years followed by 51-60 years. The mean age of the patients was 63.71 years.

Sex	No of cases	%
Male	32	64
Female	18	36

Table 3: Sex distribution

Out of the 50 cases with pseudoexfoliation, 32 (64%) were males and 18(36%) were females.

	Male		Female		Total	
	No	%	No	%	No	%
UL	8	61.50	5	38.46	13	100
BL	24	64.86	13	35.13	37	100

Table 4: Laterality- Sex incidence

There was a male preponderance in both unilateral and bilateral groups.



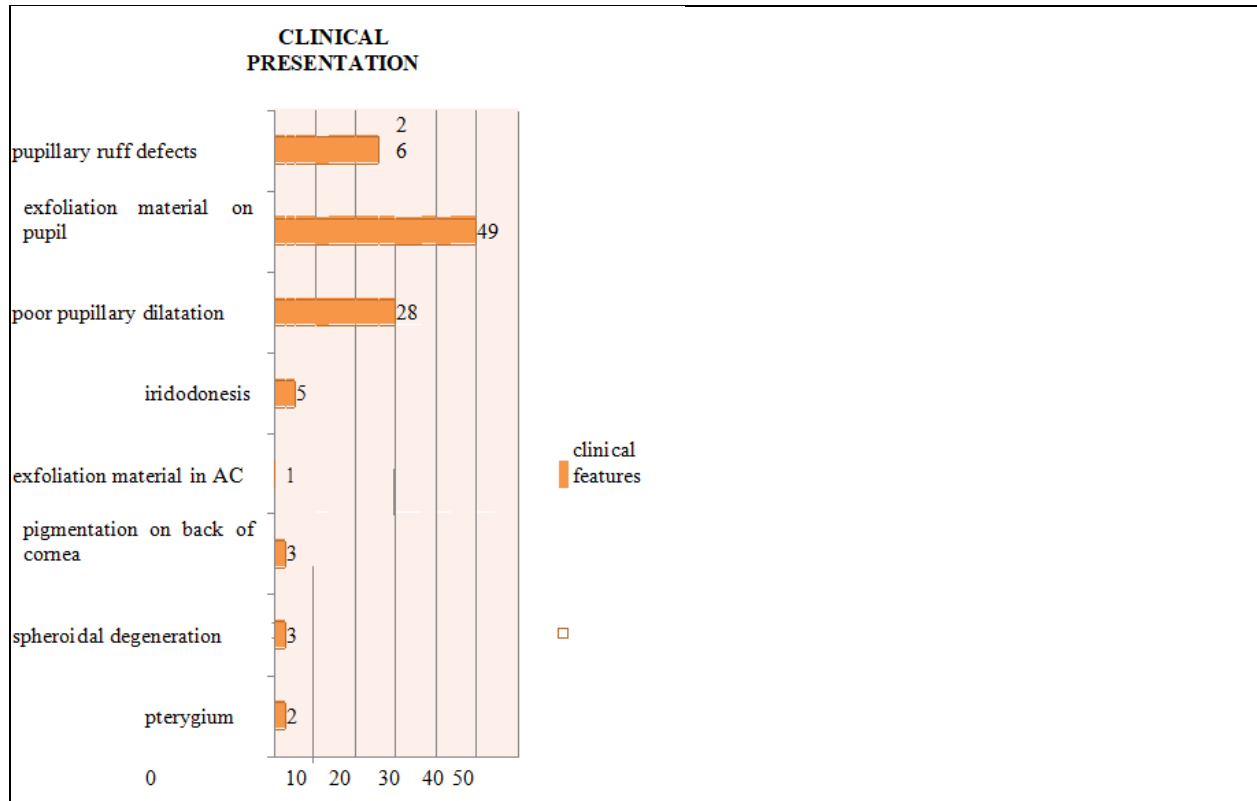


Figure 1: Clinical presentation

2 patients had Pterygium and 3 patients had spheroidal degeneration. 28 patients had poor pupillary dilatation. This is a recognized entity in pseudoexfoliation syndrome due to intrinsic degenerative changes occurring in the sphincter pupillae.

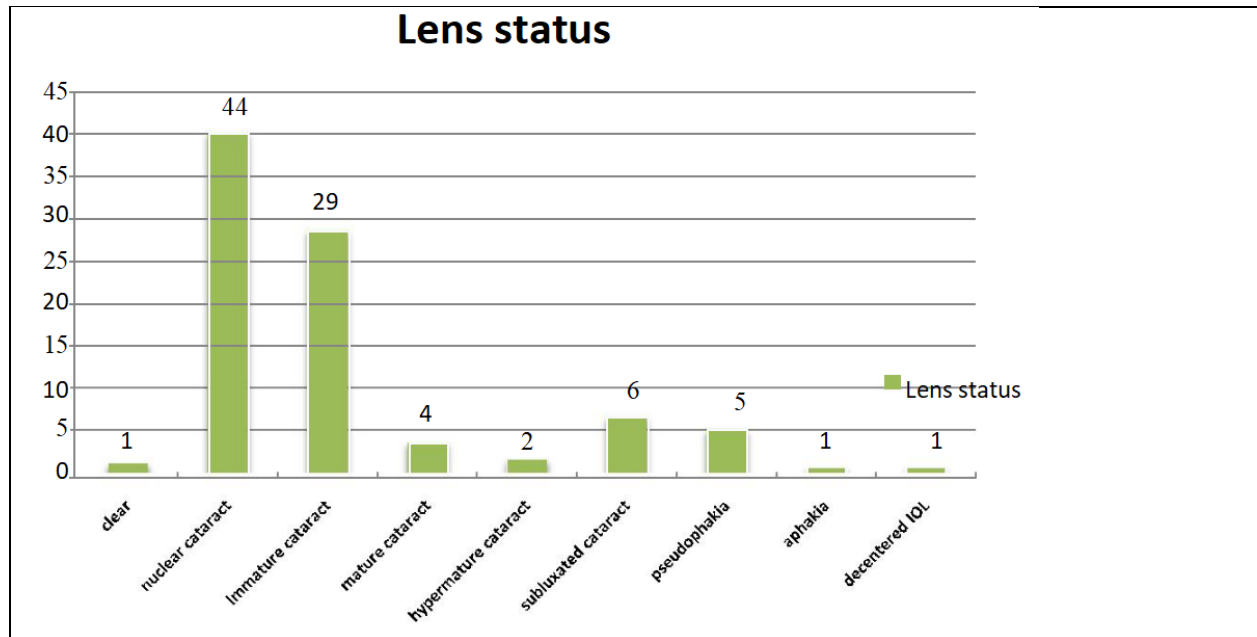


Figure 2: Lens status

44 (44%) eyes had nuclear cataract, while cortical cataract was seen in 39(39 %) eyes.

Pseudoexfoliation syndrome	No of cases	%
With glaucoma	26	52%
Without glaucoma	24	48%

Table 5: Glaucoma association

Out of the total 50 patients with pseudoexfoliation, 26(52%) patients had glaucoma while 24(48%) had no glaucoma.

Type of glaucoma	No of patients	%
Open Angle Glaucoma	16	61.50%
Angle Closure Glaucoma	10	38.46%
Total	26	100

Table 6: Type of glaucoma

Among the 26 patients with glaucoma, 16(61.50%) had open angle glaucoma and 10(38.46%) had angle closure glaucoma. Thus open angle glaucoma is more common in pseudoexfoliation syndrome.

Optic nervehead	No damage (no of eyes)	Early glaucomatous damage (no of eyes)	Advancedglaucomatous damage (no of eyes)	Total (no. of eyes)
Open angleglaucoma	6	15	11	32
Angle closureglaucoma	8	6	6	20

Table 7: Optic nerve damage

Out of the 32 eyes with open angle glaucoma, no optic nerve damage was seen in 6(18.76%) eyes, early glaucomatous damage was seen in 15(46.87%) eyes and advanced glaucomatous damage in 11(34.37%) eyes. Out of the 20 eyes with angle closure glaucoma 8(40%) showed no damage, 6(30%) eyes showed early damage and 6(30%) eyes showed advanced glaucomatous damage.

DISCUSSION

In this study, the most common age group overall was 61-70 years. In bilateral pseudoexfoliation the most common age group was 61-70 years, in unilateral pseudoexfoliation the most common age group was 51-60 years. The mean age was 63.71 years and only 6% of the patients were less than 50 years. Hence, exfoliation syndrome is a disease of the elderly.

64% of pseudoexfoliation patients were males and 36% were females. There was a male preponderance in both unilateral and bilateral groups. Taylor⁴ and Resnikoff⁵

et al suggested that pseudoexfoliation syndrome could be related to environmental factor, ultraviolet light and hence the male preponderance in this study can be explained to some extent by the fact that Indian males are more likely to have outdoor activities than females.

74 % of patients had bilateral pseudoexfoliation and 26% had unilateral exfoliation. It could be due to the possibility that the unilateral cases invariably become bilateral at a later date. The higher incidence of bilateral exfoliation in this study is in accordance with various other studies by Bartholomew⁶ and Colin.J⁷.

28 patients had poor pupillary dilatation. This is a recognized entity in pseudoexfoliation syndrome due to intrinsic degenerative changes occurring in the sphincter pupillae. The increased incidence of nuclear cataract found in this study is in accordance with similar reports from other study by Sood⁸

52% of exfoliation patients had glaucoma while 48% had no evidence of glaucoma. Thus, there is a definite association of glaucoma in pseudoexfoliation syndrome. The study by Henry et al⁹ found 5 and 10 year cumulative probabilities of initially non-glaucomatous eyes with exfoliation developing glaucoma to be 5.3% and 15.4% respectively. A study by Epstein¹⁰ et al 1994 has also highlighted the increased incidence of angle closure glaucoma in pseudoexfoliation syndromes.

Of the 26 patients with glaucoma, 16 had open angle glaucoma and 10 had angle closure glaucoma. Thus open angle glaucoma is more commonly associated with pseudoexfoliation syndrome. Out of 16 pseudoexfoliation patients with bilateral open angle glaucoma all had pseudoexfoliation in both eyes. Advanced glaucomatous optic nerve damage is noted more in open angle glaucoma.

CONCLUSION

Pseudoexfoliation syndrome (PXS) is the most common identifiable cause of secondary glaucoma, the prevalence of which increases with age. It is a common condition in the elderly population. Bilateral pseudoexfoliation appears to be more common than unilateral pseudoexfoliation. Males were predominant in group of pseudoexfoliation patients with glaucoma while females predominated in group of pseudoexfoliation patients without glaucoma. Pseudoexfoliation syndrome is definitely a risk factor for the development of glaucoma and it is more commonly associated with open angle glaucoma, but may predispose to angle closure glaucoma also. Advanced glaucomatous optic nerve damage is noted more in association with open angle glaucoma.

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