



CLINICAL PROFILE OF PATIENTS WITH PSEUDOEXFOLIATION SYNDROME

Ophthalmology

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ABSTRACT

Objective- To study the clinical characteristics of patients with Pseudoexfoliation syndrome. **Methods-** This prospective study carried out at Mahalaxmi Eye Clinic & Laser Centre, Udupi, Karnataka consisted of 200 consecutive patients with Pseudo exfoliation who presented to the outpatient department, between January 2022 to June 2022. Recording of relevant ocular and medical history and a detailed ocular evaluation by slit lamp examination and slit lamp biomicroscopy using +90 D lens was done. **Results-** Mean age was 64.79 years with Male predominance. Most of the patients were seen in the 61-70 years age group. 53% had bilateral pseudoexfoliation and 47% had unilateral pseudoexfoliation. Incidence of glaucoma was 46%. **Conclusion-** Males predominated in all groups of pseudoexfoliation patients, unilateral and bilateral, and with or without glaucoma. There is a risk of developing glaucoma in pseudoexfoliation patients.

KEYWORDS

Pseudoexfoliation, Glaucoma, Male, Bilateral

INTRODUCTION

Pseudoexfoliation syndrome is a systemic disorder that is currently the most common identifiable specific entity leading to the development of glaucoma.¹ It is the one of the most controversial subjects in ophthalmic literature. From the clinical stand point, controversy has arisen concerning both the epidemiology and the clinical features of pseudoexfoliation syndrome.² Even the nomenclature of pseudoexfoliation syndrome remains debatable. Exfoliation, exfoliative, pseudoexfoliation syndrome are the current terms used to describe the condition. Reported prevalence rates of pseudoexfoliation vary widely in different geographic locations. Age of population, racial and ethnic composition, patients selection, clinical criteria for diagnosis, thoroughness of examination and prospective versus retrospective data collection can all affect the results³. The purpose of this investigation is to study the clinical characteristics of patients with Pseudoexfoliation syndrome.

METHODOLOGY

This prospective study was carried out at Mahalaxmi Eye Clinic & Laser Centre, Udupi, Karnataka. The study population consisted of 200 consecutive patients with Pseudoexfoliation presenting to the outpatient department, between January 2022 and June 2022.

The diagnosis of Pseudoexfoliation was made based on the deposition of pseudoexfoliation material on the pupillary margin and on the anterior capsule of lens. Recording of relevant ocular and medical history, recording of visual acuity for distance using Snellen's chart was done for these patients.

Slit lamp examination of anterior segment was done to see the following conditions: Conjunctiva was examined for the presence of pterygia and pingecula. Cornea was examined for the presence of climatic droplet keratopathy and guttae. The endothelium was examined for the presence of pigments and pseudoexfoliation material. Iris was examined for atrophic changes and for transillumination defects. Pupillary reaction was noted.

Intraocular pressure was measured using Perkins hand held Applanation tonometer. Gonioscopy was performed with Goldman's 3-mirror gonioscope. The angle width was noted. The angle structures were examined for the presence of pseudoexfoliation material, excessive pigmentation and peripheral anterior synechiae. Subjects with open angles had their pupils dilated with 5% Phenylephrine and 1% tropicamide eye drops. If the angles were occludable, Nd: Yag laser iridotomy was performed and the rest of the examination was done on the next day. Repeat slit lamp examination was done after dilatation. Pupillary dilatation was noted.

The subject was diagnosed as having pseudoexfoliation syndrome if pseudoexfoliation material was present in either or both eyes. The pattern of pseudoexfoliation material on the anterior capsule was noted. LOCS-II system was used for cataract grading. Stereoscopic

evaluation of the fundus and optic disc with indirect ophthalmoscope, and 90-D lens was done depending upon the media clarity.

Statistical Analysis

Analysis was done using descriptive statistics in the form of percentages, mean and standard deviation. The Chi-square significant/Fisher Exact test has been carried out to find out significance of proportions between mean age of incidence of pseudoexfoliation in males and females and in distribution of laterality of pseudoexfoliation with age. All the recorded data was statistically analysed by IBM SPSS Statistics version 21 (IBM Corp., Armonk, N.Y., USA).⁴ For statistical significance, p value <0.05 will be considered.

RESULTS

106 patients had bilateral pseudoexfoliation and 94 had unilateral pseudoexfoliation. Thus totally 306 eyes of 200 patients had pseudoexfoliation (Table 1)

Table 1
Laterality

Laterality	No. of cases with Pseudoexfoliation	%	No. of eyes with pseudoexfoliation
Unilateral	94	47	94
Bilateral	106	53	212
Total	200	100	306

Age and Gender distribution

The mean age of the subjects in the study was 64.79 years. There was a linear increase in the number of pseudoexfoliation patients with age upto the age of 70 years. Most of the patients were seen in the 61-70 years age group. (Table 2)

Table 2

Age groups	Unilateral		Bilateral		Total	
	No.	%	No.	%	No.	%
< 50 yrs	8	8.5	6	5.6	14	7
51 to 60 yrs	38	40.4	28	26.4	66	33
61 to 70 yrs	44	46.8	60	56.6	104	52
71 to 80 yrs	4	4.2	6	5.6	10	5
> 80	—	—	6	5.6	6	3
Total	47	100	53	100	100	100

Out of 200 patients with pseudoexfoliation, 110 were males and 90 were females. In both unilateral and bilateral pseudoexfoliation groups, there was a mild male preponderance. The average age at which pseudoexfoliation was seen was higher in females (66 ± 7.83) than in males (62.18 ± 7.52) i.e., females developed the disease at later age than males and this was statistically significant ($p < 0.05$). (Table 3).

Table-3

Sex	Unilateral		Bilateral	
	No.	%	No.	%
Males	50	53.20	60	56.60
Females	44	46.80	46	43.40
Total	94	100	106	100

Anterior segment findings and Vision

32 Patients had pterygium and 16 patients had spheroidal Degeneration. 52 patients with pseudoexfoliation did not respond to mydriatics. Pseudoexfoliation material was seen in the pupillary margin in all patients. The three classic zones of pseudoexfoliation material deposition on the lens were noted in 106 patients. Most of the patients had visual acuity <6/36. the defective vision was mainly due to the presence of glaucoma and associated cataract. (Table 4)

Table 4

	Feature	No.
Conjunctiva	Pterygium	32
Cornea	Spheroidal degeneration	16
Iris	Pupillary ruff defects	2
Pupil	Non dilation	52
Lens	Pseudoexfoliation	106
Lens	Cataract	114

Glaucoma Association

Incidence of glaucoma in this study was 46% and 54% had no glaucoma. In both groups with and without glaucoma males were predominant. (Table 5)

Table-5

Sex	Total no. of pseudo-exfoliation	With out Glaucoma		With Glaucoma	
		No.	%	No.	%
Male	110	58	53.70	52	56.52
Female	90	50	46.30	40	43.48
Total	200	108	100	92	100

DISCUSSION

The results of our study showed higher number of cases with bilateral pseudoexfoliation than unilateral pseudoexfoliation. Arvind H, Raju P⁵ et al in their study in South Indian population found almost equal incidence of bilateral and unilateral cases.⁵ European literature reports bilateral involvement to be more common (Ruprecht KW, Hoh G et al,⁶ Kozobolis VP, Papatzanaki M et al⁷ Greece). The incidence of pseudoexfoliation increased gradually with age in our study. This is similar to most other studies in India (Krishna Das R, Nirmalan PK et al⁸, Arvind H, Raju P et al⁵). The mean age of patients with pseudoexfoliation was 64.79±7.88 years, which was comparable to the mean age of patients in the study conducted by Arvind H, Raju P et al.⁵ The average age of patients in a study conducted by Ruprecht KW, Hoh G⁶ (Germany) was 73.2 years, which is higher than the average age in our study. This could mean that pseudoexfoliation occurs at a younger age in India compared to Europe probably due hot climatic condition. We found that in the younger age group, the distribution of unilateral and bilateral cases was similar, but with advancing age, the number of bilateral cases gradually increased. This could mean that, pseudoexfoliation is basically a bilateral disease with asymmetric presentation. The mean age of bilateral cases was not significantly different from the mean age of unilateral cases in our study. This result was similar to what was found by Arvind H, Raju P et al in their study in South India.⁵

Males predominated in our study. Most reports from dry and hot countries where the radiation from the sun is strong, show exfoliation syndrome to be more common in males, such as in India (Sood, 1968)⁹, in Pakistan (Mohammed S and Kazmi N 1986)¹⁰ Saudi Arabia (Summanen P and Tonjum M 1988).¹¹ The mean age of females with pseudoexfoliation syndrome was higher than the mean age of males with pseudoexfoliation. This could mean that men are affected earlier than women by pseudoexfoliation. Again this could be because most men work outside when compared to women. In our study, we found that 32 patients had associated pterygium and 16 of them had spheroidal degeneration of cornea. Forsius H, Forsman E et al¹² noted in their study that pterygium, climatic droplet keratopathy or pronounced pingecula reached its highest incidence after 60 years. This could point to a common etiology probably exposure to ultra violet radiation in the pathogenesis of all these conditions.

Incidence of glaucoma in our study was 46%. Sood and Ratnaraj⁹

reported 34% prevalence of glaucoma in their study. Epstein L, Michael Roth¹³ reported 12% incidence in USA whereas Kozart DM, Yanoff M¹⁴ reported a 7% prevalence of glaucoma in pseudoexfoliation subjects. We found males had higher risk for glaucoma in our study. Forsius H¹² noted that glaucoma may develop earlier and more frequently and severely in men.

CONCLUSIONS

Bilateral pseudoexfoliation is more common than unilateral pseudoexfoliation. The maximal incidence of pseudoexfoliation in both unilateral and bilateral cases were in the age group 61-70 years. Males predominated in all groups of pseudoexfoliation patients, unilateral and bilateral, and with or without glaucoma. There is a risk of developing glaucoma in pseudoexfoliation patients.

Conflict of interest- Nil

Financial interest- Nil

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