Original article:

Evaluation of Clinical Spectrum and Management of Glaucoma in Pseudo-Exfoliation Syndrome: An Institutional Based Study

Dr. Virendra Singh Chauhan

Assistant Professor, Department of Ophthalmology,
Prathima Institute of Medical Sciences, Karimnagar, Andhra Pradesh, India.

Corresponding Author: Dr. Virendra Singh Chauhan, Assistant Professor, Department of Ophthalmology, Prathima Institute of Medical Sciences, Karimnagar, Andhra Pradesh, India.

Date of Submission: 21 March 2006, Date of Acceptance: 19 May 2006

ABSTRACT

Background: To evaluate the clinical spectrum and management of glaucoma in Pseudo-exfoliation syndrome.

Materials & Methods: A total of 50 patients with pseudoexfoliation were enrolled. Complete demographic and clinical details of all the patients were obtained. Patients were subjected to detailed clinical history and complete ocular examination. Case sheet proforma were drawn up and details of each patient were recorded. All the patients were managed either surgically or by medical treatment. The treatment profile of all the patients was recorded. All the results were recorded and analysed using SPSS software.

Results: Mean age of the patients was 65.8 years. Majority proportion of the patients were males. Non-significant association was seen between glaucoma and pseudo-exfoliation. Generalized depression, Arcuate scotoma, Double arcuate scotoma, Tubular vision was seen in 36 percent, 8 percent, 6 percent, and 6 percent of the patients respectively. Medical management was done in 58 percent of the patients while surgical management was done in 42 percent of the patients.

Conclusion: PEX Syndrome is a common process, which might not only cause severe chronic open-angle glaucoma and cataract, but also a spectrum of other serious, potentially disastrous ocular and surgical complications.

Key words: Glaucoma, Pseudo-exfoliation.

INTRODUCTION

Pseudo-exfoliation syndrome so known as the exfoliation syndrome, is the most common identifiable precursor of open-angle glaucoma worldwide. An extensive body of literature has documented marked geographic variations in the population distribution of PXF, despite some studies that used the same examiner. These different rates may reflect true racial or ethnic differences, but they could also result from use of different clinical or diagnostic criteria, ability of the examiner to detect early cases, or the examination technique.8 Most of the literature devoted to PXF has examined its well-known association with glaucoma, sometimes referred to as “capsular glaucoma” or “glaucoma capsulare.”[1- 3]

Recent studies10-13 have demonstrated that PEX syndrome is a systemic process with a wide distribution of PEX material deposits in the body, including the skin, meninges, lungs, heart, and other visceral organs. In accordance, typical PEX accumulations have been detected by electron microscopy in the conjunctiva and in other peribulbar tissues of clinically involved and virtually all uninvolved fellow eyes. Another light

microscopic immunohistochemical study demonstrated abnormal deposits similar to those of classic PEX syndrome in the periphery of iris vessels of clinically unaffected eyes. Together, these findings indicate that so-called unilateral PEX syndrome is clinically asymmetric rather than truly unilateral.[4-7] Hence; the present study was conducted for evaluating the clinical spectrum and management of glaucoma in Pseudo-exfoliation syndrome.

MATERIALS & METHODS

Hence, the present study was conducted for evaluating the clinical spectrum and management of glaucoma in Pseudo-exfoliation syndrome. A total of 50 patients with pseudoexfoliation were enrolled. Complete demographic and clinical details of all the patients was obtained. Patients were subjected to detailed clinical history and complete ocular examination. Case sheet proforma were drawn up and details of each patient were recorded. All the patients were managed either surgically or by medical treatment. Treatment profile of all the patients was recorded. All the results were recorded and analysed using SPSS software.

RESULTS

Mean age of the patients was 65.8 years. Majority proportion of the patients were males. Non-significant association was seen between glaucoma and pseudo-exfoliation. Generalized depression, Arcuate scotoma, Double arcuate scotoma, Tubular vision was seen in 36 percent, 8 percent, 6 percent, and 6 percent of the patients respectively. Medical management was done in 58 percent of the patients while surgical management was done in 42 percent of the patients.

Table 1: Age and gender-wise distribution of patients

Variable		Number	Percentage
Age group (years)	**Less than 50**	13	26
	More than 50	37	74
Gender	**Males**	28	56
	Females	22	44

Table 2: Association of Glaucoma and pseudo-exfoliation

Variable	OR	95% CI
Association of Glaucoma and pseudo-exfoliation	1.65	1.58 to 1.72

Table 3: Profile of patients

Variable	Number	Percentage
Generalized depression	18	36
Arcuate scotoma	4	8
Double arcuate scotoma	3	6
Tubular vision	3	6

Table 4: Management

Variable	Number	Percentage
Medical management	29	58
Surgical management	21	42

DISCUSSION

The debate as to whether PEX is a coincidental finding or is actually the cause of open-angle glaucoma continues. Most studies suggest that the risk of developing glaucoma is cumulative and forms part of the natural course of the disease. However, a prospective 10-year follow-up study involving patients with clinically unilateral PEX showed that glaucoma may develop in the contralateral eyes before there are any signs of clinical PEX. The relative risk of conversion to glaucoma was found to be dependent on initial IOP, degree of pupillary dilation, and difference in pressure between the fellow eyes. Signs of PEX syndrome often appear later in eyes first diagnosed as having POAG. It is not clear whether this reflects an inaccurate clinical diagnosis or coincidence of two different conditions. It is conceivable that an underlying defect in aqueous humor dynamics or additional involvement of a "glaucoma susceptibility gene" may predispose for glaucoma development in PEX eyes.[6- 10] Hence; the present study was conducted for evaluating the clinical spectrum and management of glaucoma in Pseudo-exfoliation syndrome.

Mean age of the patients was 65.8 years. Majority proportion of the patients were males. Non-significant association was seen between glaucoma and pseudo-exfoliation. Generalized depression, Arcuate scotoma, Double arcuate scotoma, Tubular vision was seen in 36 percent, 8 percent, 6 percent, and 6 percent of the patients respectively. Medical management was done in 58 percent of the patients while surgical management was done in 42 percent of the patients. Mitchell et al quantified the relationship between pseudoexfoliation (PXF) and open-angle glaucoma, ocular hypertension, and intraocular pressure (IOP) in a defined older population. A cross-sectional study of 3654 people aged 49 to 97 years identified subjects with PXF during slitlamp examination. Pseudoexfoliation was diagnosed in 2.3% of subjects, and both prevalence and bilaterality increased with age. Glaucomatous damage was present in 14.2% of eyes with PXF compared with 1.7% of eyes without PXF (age- and sex-adjusted odds ratio (OR), 5.0; 95% confidence interval (CI), 2.6-9.6). This was almost unchanged (OR, 4.8) after adjustment for glaucoma risk factors and was also relatively unaffected by IOP adjustment (OR, 3.7; 95% CI, 1.8-7.6). For subjects with PXF, the relationship with glaucoma persisted, but was weaker (OR, 2.3; 95% CI, 1.0-5.0) in the multivariate model. However, the population attributable risk from PXF was only 2.7%. Ocular hypertension was also more frequent in eyes with PXF (9.3%) than in eyes without PXF (3.1%) but was of borderline significance in the multivariate model (OR, 2.3; 95% CI, 0.9-5.7). Their study confirmed the strong relationship between glaucoma and PXF.[11]

Arvind et al studied the profile of pseudoexfoliation in a population-based study. 2850 consecutive subjects aged 40 years or older from a population-based survey in a rural area of southern India underwent complete ophthalmic evaluation including history, visual acuity testing, refraction, slit lamp examination, applanation tonometry, gonioscopy, and dilated examination of the lens (including LOCS II grading of cataract), fundus, and optic disc. 108 subjects had pseudoexfoliation syndrome (3.8 %). There was a significant increase in prevalence

with age but no sex predilection. The condition was unilateral in 53 cases (49.1%) and bilateral in 55 cases (50.9%). 18 cases with pseudoexfoliation (16.7%) had high intraocular pressure (>21 mm Hg), 16 cases (14.8%) had occludable angles, and 14 cases (13%) had pseudoexfoliation glaucoma. There was a significantly higher prevalence of cataract among people with pseudoexfoliation compared to those without pseudoexfoliation ($p=0.014$). The prevalence of pseudoexfoliation syndrome in the rural population of south India was 3.8%.[12]

CONCLUSION

PEX Syndrome is a common process, which might not only cause severe chronic open-angle glaucoma and cataract, but also a spectrum of other serious, potentially disastrous ocular and surgical complications.

REFERENCES

1. Rouhiainen H, Teräsvirta M. Presence of pseudoexfoliation on clear and opacified lenses in an aged population. Ophthalmologica. 1992;20467- 70
2. Prince AM, Streeten BW, Ritch RD Ark AJ, Sperling M. Preclinical diagnosis of pseudoexfoliation syndrome. Arch Ophthalmol. 1987;1051076- 1082
3. Pohjanpelto PE The fellow eye in unilateral hypertensive pseudoexfoliation. Am J Ophthalmol. 1973;75216- 220.
4. Schlotzer-Schrehardt U, Kocar MR, Naumann GOH, et al. Pseudoexfoliation syndrome: ocular manifestation of a systemic disorder? Arch Ophthalmol 1992;110:1752–6.
5. Wishart PK, Spaeth GL, Pryzees EM. Anterior chamber angle in the exfoliation syndrome. Br J Ophthalmol. 1985;69103- 7.
6. Speakman JS, Ghosh M. The conjunctiva in senile lens exfoliation. Arch Ophthalmol. 1976;94: 1757- 59.
7. Kivelä T, Hietanen J, Uusitalo M. Autopsy analysis of clinically unilateral exfoliation syndrome. Invest Ophthalmol Vis Sci. 1997;38:2008- 2015.
8. Leske MC, Connell AMS, Wu SY, et al. Prevalence of lens opacities in the Barbados Eye Study. Arch Ophthalmol 1997;115:105–11.
9. Koliakos GG, Konstas AG, Schlotzer-Schrehardt U, et al. 8-Isoprostaglandin F2a and ascorbic acid concentration in the aqueous humour of patients with exfoliation syndrome. Br J Ophthalmol 2003;87:353–6.
10. Koliakos GG, Konstas AG, Schlotzer-Schrehardt U, et al. Ascorbic acid concentration is reduced in the aqueous humor of patients with exfoliation syndrome. Am J Ophthalmol 2002;134:879–83.
11. Mitchell P, Wang JJ, Hourihan F. The relationship between glaucoma and pseudoexfoliation: the Blue Mountains Eye Study. Arch Ophthalmol. 1999 Oct;117(10):1319-24.
12. Arvind H, Raju P, Paul PG, Baskaran M, Ramesh SV, George RJ, McCarty C, Vijaya L. Pseudoexfoliation in South India. Br J Ophthalmol. 2003 Nov;87(11):1321-3.