



OUTCOME OF MEDICAL AND SURGICAL MANAGEMENT OF PSEUDOEXFOLIATION GLAUCOMA

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ABSTRACT **Aim:** To study the outcome of medical and surgical management of Pseudoexfoliation glaucoma. **Materials and 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 April 2022. A detailed ocular evaluation by slit lamp examination and slit lamp biomicroscopy using +78 D lens was done. Patients with early glaucoma were started on medical management and those advanced glaucoma with cataract underwent combined surgery. Patients with medical management were divided into two groups and were started on single and combination drug therapy and were reassessed after 2 months. **Results:** Incidence of glaucoma was 46% with male preponderance. 80.43% patients had open angles and 19.57% had angle closure glaucoma. Response with combination therapy was better than compared to single drug therapy. Posterior Capsular rent occurred in 12.5%, zonular dialysis in 6.25% and iridodialysis in 3.12% of patients underwent combined surgery. **Conclusion:** Open angle glaucoma is more common in pseudoexfoliation syndrome. Pseudoexfoliation glaucoma patients respond well to combination drug therapy. The postoperative outcome of eyes with pseudoexfoliation in experienced hands is not remarkably different from normal eyes.

KEYWORDS : Pseudoexfoliation, Open angles, Combination therapy, Combined surgery

INTRODUCTION

Exfoliation syndrome was first described by Lindberg in 1917 who observed the presence of bluish-grey material deposited on the pupillary border in 50% of his patients with chronic glaucoma^[1]. Vogt, in 1926, named the condition as "capsular glaucoma" since it was believed that the white flaky material could originate from peeling of the anterior capsule of the lens.^[2] It is a systemic disorder that is currently the most common identifiable specific entity leading to the development of glaucoma.

It commonly affects the elderly with higher intraocular pressure as pseudoexfoliation glaucoma is more severe than Primary open angle glaucoma.^[3] Renewed interest in this long known entity results from better awareness of the spectrum of intraocular risk, not only for open angle glaucoma but also in conjunction with intraocular surgery especially cataract extraction. The purpose of this investigation is to study the outcome of medical and surgical management of pseudoexfoliation glaucoma.

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 April 2022.

The diagnosis of Pseudoexfoliation was made based on Deposition of pseudoexfoliation material on the pupillary margin and on the anterior capsule of lens. Patient's distant visual acuity after best possible correction in both eyes was recorded. Complete ocular examination by slit lamp bio-microscopy, fundus examination by +78D and indirect ophthalmoscopy was done. Intraocular pressure was measured using Perkins hand held Applanation tonometer. Gonioscopy was performed with Goldman's 3-mirror gonioscope. The angle width was noted. 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.

An occludable angle was diagnosed if the pigmented trabecular meshwork was not visible in more than 180° of the angle in dim illumination.

Glaucomatous optic nerve damage was diagnosed based on a combination of one or more of the following features: a) Vertical cup-disc ratio of 0.5 or more (excluding physiological cups). b) Vertical cup-disc ratio asymmetry of 0.2 or more. c) Characteristic glaucomatous excavation of the neuroretinal rim.

Open angle glaucoma was diagnosed on the basis of open angles on

gonioscopy, with glaucomatous optic nerve damage as described above along with intraocular pressure more than 21 mmHg.

Patients with established early glaucoma were divided into two groups. One group was started on Timolol 0.5% eye drops twice daily and the other on combination of Dorzolamide 2% and Timolol 0.5% eye drops twice daily. The patients were reassessed at the end of 2 months with reference to control of Intra ocular pressure and fundus changes. Patients with advanced glaucoma and cataract underwent combined surgery.

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 the incidence of open and occludable angle glaucoma in patients with and without clinically visible angle exfoliation material. 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

In our study 94 patients had unilateral pseudoexfoliation and the remaining 106 patients had bilateral pseudoexfoliation. Incidence of glaucoma in this study was 46% and 54% had no glaucoma. In both groups with and without glaucoma males were predominant (Table 1).

Table 1

Sex	Total no. of pseudo-exfoliation	Without 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

Of the 92 patients with Pseudoexfoliation glaucoma 74 had open angles and the remaining 18 had angle closure type of glaucoma (Table 2).

Table 2: Type Of Glaucoma

Type of glaucoma	No	%	IOP > 30 mm of Hg
Open angle	74	80.43	19
Angle closure	18	19.57	2
Total	92	100	21

Out of 306 eyes with pseudoexfoliation the incidence of nuclear cataract is 47.71% and that of cortical cataract is 32.02%. In our study of 140 eyes with open angle glaucoma 42.85% had nuclear cataract and 31.42% had cortical cataract (Table 3).

Table 3

Lens status	No. of eyes			TOTAL
	Normal	Open Angle Glaucoma	Angle Closure Glaucoma	
Nuclear cataract	84	60	2	146
Cortical cataract	34	44	20	98
Immature cataract	28	40	8	76
Mature cataract	6	2	2	10
Hyper Mature cataract	-	2	10	12
Aphakia	6	-	-	6
Clear lens	4	-	-	4
PCIOL	16	36	-	52
TOTAL	144	140	22	306

Among the 92 pseudoexfoliation glaucoma patients, 32 patients with advanced glaucoma and cataract underwent combined surgery. The remaining 60 glaucoma patients were subjected to medical treatment after a detailed medical history and examination. The patients were randomly divided into 2 groups, each with 30 patients. One group was treated with Timolol 0.5% eye drops twice daily and the other group was treated with combination of Dorzolamide 2% and Timolol 0.5% eye drops 2 times daily. At the end of 2 months patients were reassessed with reference to control of Intra ocular pressure and fundus changes. 20 Patients were poor responders in Timolol 0.5% eye drops eye group and 10 were poor responders in combination of Dorzolamide 2% and Timolol 0.5% eye drops group.

Out of 32 patients who underwent combined surgery 4 patients had posterior capsular rent, 2 had Zonular dialysis and 1 patient had iridodialysis. At the end of 2 months post operative period reviewed 28 patients showed non progression of glaucoma.

DISCUSSION

Incidence of glaucoma in our study was 46% . Sood and Ratnaraj^[5] reported 34% prevalence of glaucoma in their study. Epstein L, Michael Roth^[6] reported 12% incidence in USA whereas Kozart DM, Yanoff M^[7] reported a 7% prevalence of glaucoma in pseudoexfoliation subjects. We found males had higher risk for glaucoma in our study. Forsius H^[8] noted that glaucoma may develop earlier and more frequently and severely in men. In our study, we found 19.57% eyes with occludable angles. Wishart PK et al^[9] found 18% patients with occludable angles. Krishnadas R, Nirmalan PK et al^[10] found a prevalence of 14.8% of narrow angles. Increased incidence of nuclear cataract found in our study is in accordance with similar reports from other studies i.e. Sood et al^[11] and Seland et al.^[12] Response to medical management was better with combination therapy in our study than compared to single drug therapy. Soderstrom et al^[13] study showed similar response. In our study, zonular dialysis occurred in 6.25% patients, PC rent in 12.5%, and iridodialysis in 3.12%. Avramides S, Traianidis P et al found zonular dialysis in 13%, PC rent in 10.7%.^[14] Pirrko Lumme, Laatikainen L^[15] reported zonular dialysis in 14.8% and posterior capsular rupture in 10.2%.

CONCLUSION

Open angle glaucoma is more common in pseudoexfoliation syndrome. Pseudoexfoliation glaucoma patients respond well to combination of drugs than to a single drug. Though patients with pseudoexfoliation are more prone to posterior capsular tear and vitreous loss during combined surgery, the postoperative outcome of eyes with pseudoexfoliation in experienced hands is not remarkably different from normal eyes.

Conflict of interest- Nil

Financial interest - Nil

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