

GLAUCOMA CAPSULARE; (ROLE OF FILTRATION SURGERY)

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ABSTRACT... **Purpose of Study:** To emphasize the role of filtration surgery in the treatment of glaucoma capsulare. Moreover the study also highlights the importance of thorough ocular examination and diagnosis as the condition is likely to be missed. **Material, Methods and Results:** This study was conducted to find out the results of filtration surgery (trabeculectomy) in such cases. Forty cases with pseudoexfoliation glaucoma presenting in the Dept of Ophthalmology PAF Hospital Mushaf Sargodha were included. These patients were initially treated with topical medications for three months. Thirty cases that showed poor response to drugs were operated upon and a trabeculectomy was performed. Postoperative pressure readings were recorded twice weekly for the first two months and then once monthly for four months. After a follow-up of six months, twenty five cases (83.33%) were effectively controlled without any added medications whereas five cases (16.67%) required addition of a single drug to achieve the desired effect. **Conclusion:** The response to medical treatment is generally not satisfactory and surgery has to be undertaken as a final resort. Trabeculectomy is the safe and effective operation in glaucoma capsulare (pseudoexfoliation glaucoma).

Key words: Glaucoma, Pseudoexfoliation. Trabeculectomy

INTRODUCTION

Glaucoma Capsulare is also known as pseudoexfoliation glaucoma. This condition was first described by Lindberg in 1917. Vogt, Busaca and Hoven(1937)made important contributions to understand this condition. Pseudoexfoliation syndrome is a relatively common but easily overlooked cause of chronic open angle glaucoma⁶. Pseudoexfoliation syndrome (PXS) is a widespread degenerative intraocular condition wherein a grey-white fibrillogranular extracellular matrix material similar to amyloid is deposited on the anterior capsule of the lens, anterior iris surface, ciliary processes, zonules, adjacent to iris vessels, in the trabecular meshwork anterior vitreous face and sometimes even in the conjunctival connective tissue⁸. Secondary trabecular block glaucoma is thought to result from a combination of clogging-up of the trabeculum by pseudoexfoliation material and / or pigment released from iris as well as trabecular endothelial dysfunction³. Pseudoexfoliation

syndrome occurs worldwide in the aging population. It has been documented in numerous populations, including Europeans, the Japanese Icelandic Families Navaho Indians, and Pakistan⁹. The prevalence of this condition increases with increasing age. Among patients with pseudoexfoliation changes, the likelihood of the development of increased intraocular pressure and glaucoma appears to be greater in men.

In eyes that develop pseudoexfoliation glaucoma, intraocular pressure is generally higher than in eyes with primary open-angle glaucoma. Presumably due to higher intraocular pressures, optic nerve damage and visual field loss are generally greater in PXS as compared with primary open-angle glaucoma¹.

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Ocular examination should include pupillary examination on slit lamp, tonometry, gonioscopy, ophthalmoscopy and visual fields. Tonography and iris angiography have remained principally research tools⁸.

Differential diagnosis includes pigmentary glaucoma and primary open angle glaucoma¹⁰ The medical treatment of pseudoexfoliation glaucoma is similar to that for primary open-angle glaucoma and includes the use of topical beta-blockers, epinephrine agents, as well as systemic/topical carbonic anhydrase inhibitors or combinations. However, this glaucoma tends to be less responsive to medical therapy than in primary open-angle glaucoma and a higher percentage of patients require surgical intervention. Argon laser trabeculoplasty (ALT) is initially very effective in decreasing intraocular pressure in pseudoexfoliation syndrome but the long term result are not satisfactory. Bimanual trabecular aspiration is recently described procedure with early results comparable to trabeculectomy but fewer complications⁸.

MATERIAL AND METHODS

We conducted this study to find out the results of trabeculectomy in our patients presenting with pseudoexfoliation glaucoma. A prospective study was carried on the patients with raised intraocular pressure above 21mm Hg reporting in eye department PAF Hospital Mushaf from June, 2005 to July, 2008. The age of the patients ranged from 55-80 years (table-I).

They were subjected to slit lamp examination. The pupil was dilated after tonometry in all such cases and the IOP was again recorded at half hourly intervals for two to four times. The anterior lens capsule, pupillary margin and other structures of the anterior chamber were examined on split lamp for any evidence of pseudoexfoliation material. All the patients who were subjected to slit lamp examination for any reason, pseudoexfoliation was also checked.

The cases were excluded if the involved eye was already blind (No Perception of light), previous occurrence of penetrating eye trauma or surgery. or history of use of any anti glaucoma therapy prior to presentation.

Forty cases of pseudoexfoliation (in either of the eyes) with raised IOP thus detected were then followed up. A family history of glaucoma was inquired and general physical examination was performed and the patients were subjected to routine blood and urine examination along with investigations for diabetes mellitus. Any positive finding was recorded. Gonioscopy was performed in all these cases and a special note was made of the severity of pigmentation of the angle of anterior chamber. In those cases having clear refractive media, ophthalmoscopy was performed and the visual fields were recorded on Humphery visual field analyzer.

The cases were randomly divided into two equal groups. Group-A comprising twenty patients were given 0.5% Timolol Maleate (Blotim) eye drops twice daily, whereas another twenty patients in Group-B were given 2% Dorzolamide (Trusopt) eye drops twice daily and then followed up every fifteen days. A mean intraocular pressure reading of less than 21 mm of Hg was marked as the cut-off point for assessing the efficacy of treatment. After three months, the response was evaluated. The patients who did not respond adequately to medications, trabeculectomy was performed.

RESULTS

The mean age at presentation was 62 (+3.2) years (Table-I).

Age groups	Cases	%age
50-55	05	12.5%
56-60	08	20%
61-70	12	30%
71-80	15	37.5%

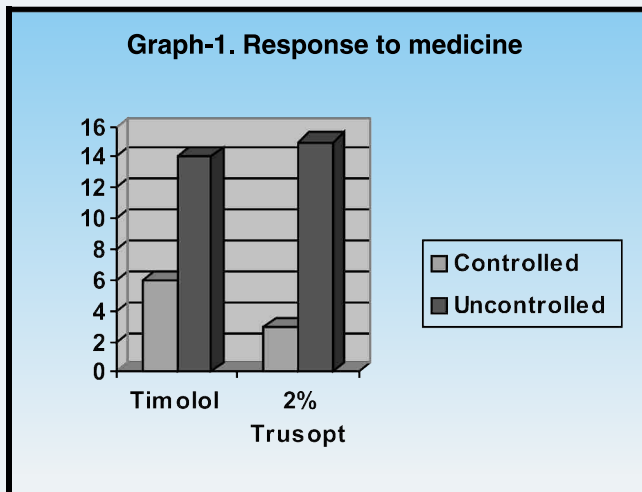
Only six female cases were found in our study that forms only 15% of the total sample of population (Table-II).

Table-II. Sex incidence

Sex	Cases	%age
Male	34	85%
Female	06	15%

No systemic abnormality was found apart from diabetes that was seen in five cases. Ten cases (25%) had unilateral pseudoexfoliation material while the rest were bilateral cases. Twenty-five cases (62.50%) had bilateral raised IOP (more than 21 mm of Hg) while fifteen cases (37.50%) had such finding in only one eye (on the side of pseudoexfoliative material). Obvious cupping was seen in 60% cases while rest of the patients did not show any positive finding due to the presence of dense cataracts. The amount of pigmentation of trabecular meshwork was proportional to the rise of intraocular pressure. Intraocular pressure was similar in both eyes (88%), whereas a difference of more than 5-10 mm of Hg was seen in 12%. Ten cases were controlled with topical medications alone and the rest of thirty cases (75%) were operated upon and trabeculectomy by a limbal approach was performed under local anaesthesia (Graph-1).

Graph-1. Response to medicine



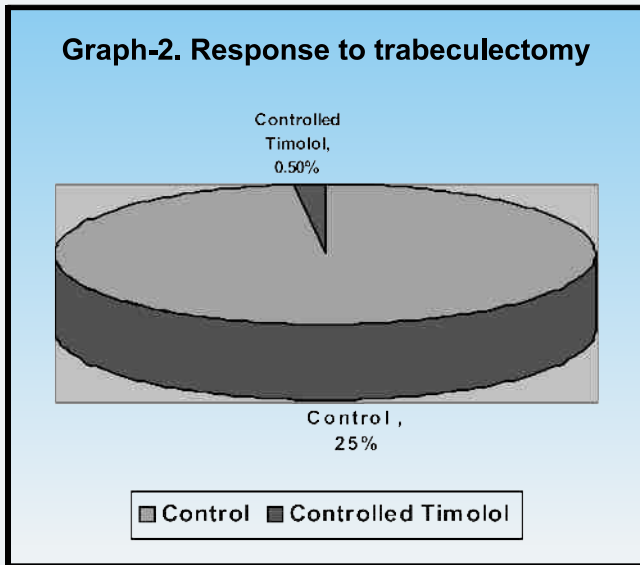
Patients were discharged on third day of operation after recording their intraocular pressures. Further follow-ups were done on weekly basis for six months. Twenty-five cases (83.33%) were very nicely controlled

postoperatively without any medications and in five cases (16.67%) 0.5% Timolol eye drops twice daily had to be added to keep the pressure below 21 mm of Hg. Complications of the procedure were minimal.

DISCUSSION

The accumulation of pseudoexfoliation material and pigment within the trabecular meshwork is generally believed to be associated with obstruction of aqueous outflow and a rise in intraocular pressure⁸. Pseudoexfoliation syndrome is diagnosed by slit-lamp examination if deposits of a fibrillogranular material on the anterior lens capsule and at the pupillary margin⁹. It is frequently associated with open angle glaucoma, melanin dispersion, poor pupillary dilatation, and may present with a specific type of pseudoexfoliative keratopathy¹². Treatment of pseudoexfoliation glaucoma has always been a subject of considerable controversy. Medications alone have proven to be ineffective in completely controlling the raised intra ocular pressure and Argon laser trabeculectomy (ALT), although promising, long-term results are not satisfactory¹⁴. We conducted our study to find out the results of filtration surgery in patients presenting in our dept with this disorder.

Out of forty selected cases, significant visual field defects were present in 26 cases and the amount of pigmentation of trabecular meshwork was found proportional to the intraocular pressure, which agrees with the description of Donaldson¹¹. After a detailed examination, the cases were randomly divided into two equal groups Group-A was given topical 0.5% Timolol eye drops twice daily whereas Group-B were administered 02% Dorzolamide eye drops twice daily for three months, with twice monthly monitoring of intraocular pressure in each case. At the end of three month, it was found out that only ten cases were satisfactorily controlled by medication alone. Trabeculectomy was thus performed in thirty cases which showed promising results as twenty five cases (83.3%) had their intraocular pressure controlled without any medications and five (16.67%) required an addition of 0.5% Timolol eye drops to achieve the desired effect (Graph-2).



Our study has shown almost similar response to surgery as mentioned in western literature. Gillies performed trabeculectomy on¹² eyes with glaucoma associated with pseudoexfoliation of lens capsule. Pressure was lowered in 25 cases with no medication and 5 cases with medication^{13,14}.

CONCLUSION

Pseudoexfoliation syndrome is a widespread condition that appears to arise from the epithelial cells of many anterior segment structures. It is important to make the diagnosis because of the risk of glaucoma and the potential difficulty in managing associated cataracts. Physical examination distinguishes capsular glaucoma from other forms of glaucoma. The diagnosis demands meticulous ocular examination follow-up of these patients, with aggressive management of increased intraocular pressure³. The longterm results of medical treatment and argon laser trabeculoplasty (ALT) are not satisfactory. Usually the response to filtration surgery (Trabeculectomy) is good.

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