

## A Clinical Survey of Pseudoexfoliation Syndrome in Sulaimaniya City- Kurdistan Iraq

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### Original Research Article

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**Abstract:** Background: Pseudoexfoliation syndrome (PXF) is a well-known clinical condition associated with cataract and the more serious blinding secondary open angle glaucoma that lead silently if unilateral or asymmetrical to irreversible loss of vision as the condition will not diagnosed and treated early, so our objective is to estimate the size of the problem so we can plan to overcome the serious blinding outcome in the future. Objectives: 1-Assess the clinical condition frequency. 2-Assess associated complications as cataract and glaucoma (PXG). Settings and Design: Descriptive cross-sectional study of partially random sample. Patients and methods: Partially selected elderly Kurds patients aged 55 years or above those visited Aso eye hospital for any reason, we enrolled 252 patients, 128 female and 124 male patients in the survey, Full slit lamp examination, visual acuity, refraction, fundoscopy and intraocular pressure measurement by Applanation tonometer were done to the patients. Statistical analysis used: Microsoft excels 2010. Results: Of total 252 patients examined, we report 73 patients (146 eyes) have the syndrome; this represents a frequency or relative prevalence of about 29%. 30(44%) are females and 43 (56%) are males, so female to male ratio was about 2/3, of the affected 73 patients, 56 (76.7%) patients have the disease in both eyes (112 eyes) and 17 (23%) patients (34 eyes) of them was affected in one eye, of those affected 73 patients, 60 (82.2%) patient aged 65 years or above, 67(91.7%) of them were moderate to heavy smokers. 15 patients(20.5 %) have glaucoma and only 3 know that and already on anti-glaucoma therapy, 12 patients (80%) have glaucoma in one eye with variable loss of visual acuity and visual field and discovered for first time. Of the affected 73 patients, 60 patients (82.2%) have visual acuity equal or less than 3/60 at least in one eye of variable causes which regarded as legally blind. All 73 patients have cataract of variable maturity, 30 patients (60 eyes) bilaterally and 43 patients unilaterally (43 eyes), for 3 patients surgery done and the remaining 70 patients have variable cataract at least in one eye and they are candidates for surgery. Conclusions: The syndrome is present in high percentage in elderly population, increasing with age and it is a bilateral disease although asymmetrical, it is associated with significant decrease in visual acuity by cataract formation or by glaucoma or both, treatment must be given early before permanent damage to the optic nerve.

**Keywords:** Pseudoexfoliation syndrome (PXF), Exfoliation syndrome (XFS), cataract, Pseudoexfoliation glaucoma (PXG), intraocular pressure (IOP), visual acuity (VA), Visual field (VF).

### INTRODUCTION

Pseudoexfoliation is a condition characterized by a distinctive fibrillary degeneration of the lens capsule. This material, although most easily visualized on the lens capsule, is actually present throughout the anterior segment of the eye and has been found to exist systemically in the skin and blood vessels [1].

The terms exfoliation syndrome and Pseudoexfoliation syndrome are now most commonly used to designate this disorder and are used interchangeably in current literature. However, since

recent ultrastructural studies indicate that the material on the lens capsule is derived, at least in part, from the lens, it is proposed that the disorder could be called exfoliation syndrome (XFS) [2].

PEX refers to amyloid-like deposits on pupillary border, anterior lens surface, and posterior surface of iris, zonules and ciliary processes, it can be complicated with Pseudoexfoliation glaucoma is a type of secondary open-angle glaucoma associated with Pseudoexfoliation (PEX) syndrome [3].

The prevalence of XFS increases steadily with age in all populations. The reported prevalence both with and without glaucoma has varied widely, reflecting true differences due to racial, ethnic, or other as yet unknown factors; the age and sex distribution of the patient cohort or population group examined; the clinical criteria used to diagnose XFS; the ability of the examiner to detect early stages and/or more subtle signs; the method and thoroughness of the examination; and the awareness of the observer. It comprises as much as 50% or more of the open-angle glaucoma in some countries, including Norway, Ireland, Greece, and Saudi Arabia [4].

A precise understanding of the pathogenesis of XFS remains elusive. However, the pathologic process in intra- and extraocular tissues is characterized by the progressive accumulation of an abnormal fibrillar matrix, which is the result of either an excessive production or an insufficient breakdown or both, and which is regarded as pathognomonic for the disease based on its unique light microscopic and ultrastructural criteria [4].

The constant rubbing of the pupil scrapes the material off the midzone of the lens giving rise to a central disc and a peripheral band of PXF, with a clear zone between, the peripheral bands is granular and has a well-delineated inner border with multiple radial striations. It can be detected only after the pupil has been dilated; Cataract surgery is more hazardous due to a combination of poorly dilating pupil, increased risk of zonular dialysis and capsular tear. Other problems include a postoperative pressure spike, corneal oedema, increased incidence of capsular opacification and contraction, and IOL subluxation [5].

PEX syndrome is a systemic degenerative disorder that is characterized in the eye by deposits of an irregular meshwork fibrillar eosinophilic material. This material may be found in the structures of the anterior and posterior chambers. This condition may be associated with cataract, glaucoma or both. The precise composition of the PEX material has not yet been identified. Studies suggest an important role of proteoglycans in the pathogenic pathway in PEX syndrome [6].

#### AIMS AND OBJECTIVES

- 1-Assess the clinical condition frequency in the specified elderly age group.
- 2-Assess associated vision affecting complications as cataract and glaucoma.

#### PATIENTS AND METHODS

Any Kurd patients those aged 55 years and more attend Shaheed ASO eye hospital consultation rooms from 8:30 a.m. to 12.30 p.m. taken for the study. After taken oral agreement for complete questionnaire form (appendix: 1) including general information, visual acuity using Snellen chart exam, full ophthalmology examination, slit lamp examination, Tonometer using Applanation tonometer, Fundoscopy with slit lamp using +78D or +90 D.

We excluded any patient having any other ocular pathology or previous ocular surgery.

#### RESULTS

Of 252 patients examined we reported 73 patients (146 eyes) to have the PXF syndrome so the relative prevalence or the frequency represents 28.96%.

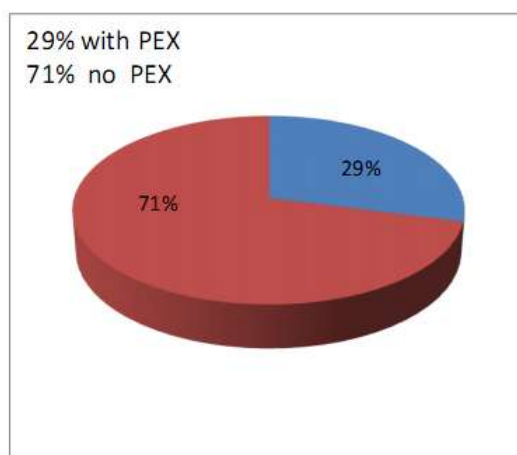
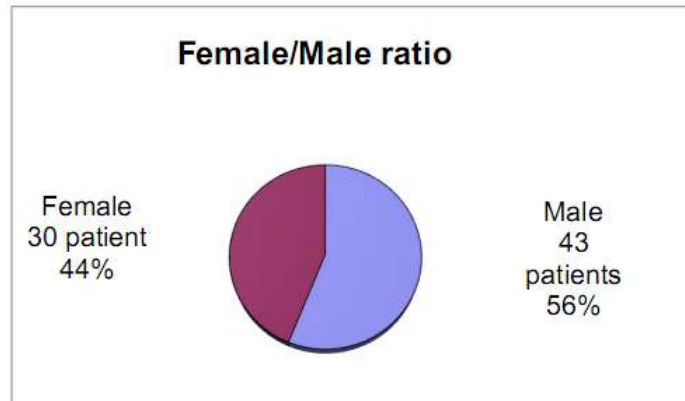
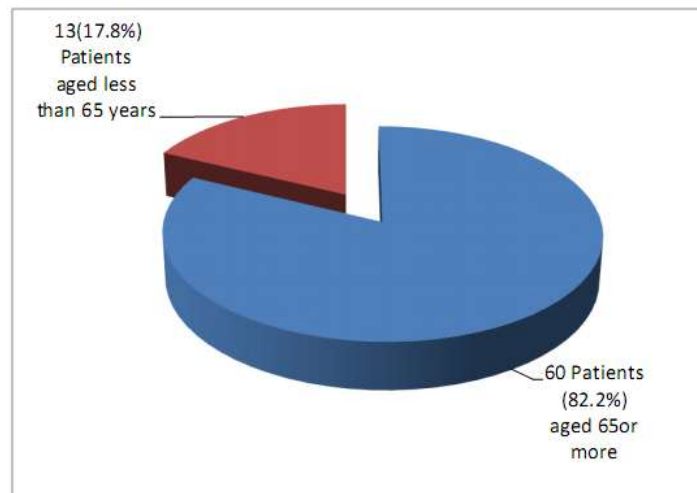


Fig-1: Frequency of PEX in the study group

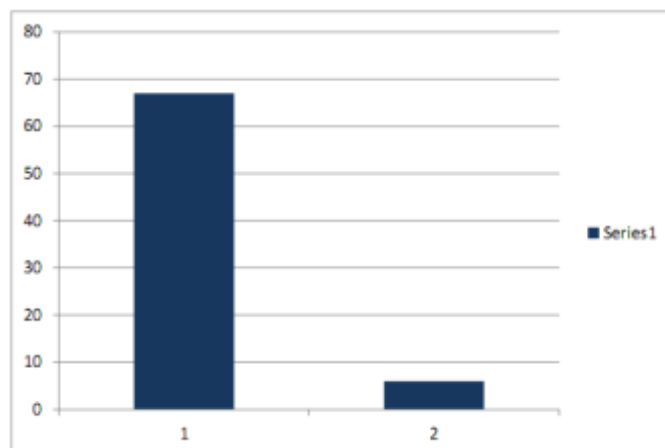


**Fig-2: Female to male ratio (30 patients are females and 43 are males, so female to male ratio about 2/3)**

Of those affected 73 patients, 60 patients (82%) aged 65 years or more.



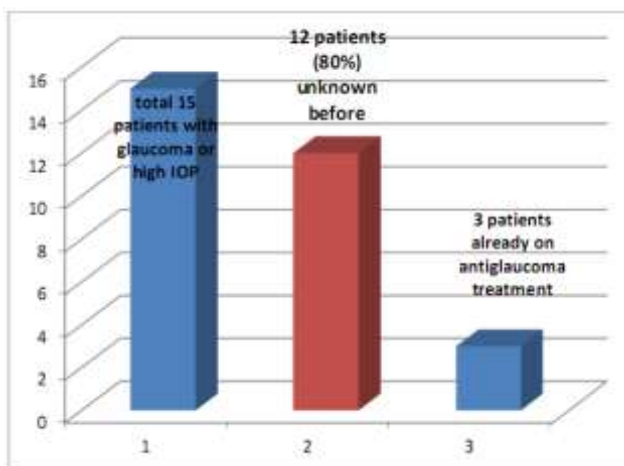
**Fig-3: Patients aged 65 years of age or more**



**Fig-4: smokers vs. non-smokers**

Up to 15 (20.5%) patients have glaucoma, 12(80%) patients of them newly discovered to have

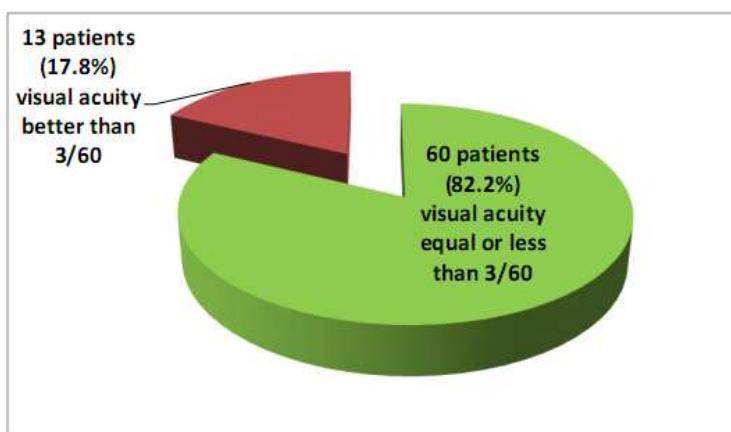
glaucoma and only 3 know that and already on anti-glaucoma therapy.



**Fig-5: Patients with high intraocular pressure (IOP)**

Of the affected 73 patients, 60 patients (82.2%) have visual acuity equal or less than 3/60 at least in one eye, which regarded as legally blind patients, although causes of poor vision could be reversible as cataract that

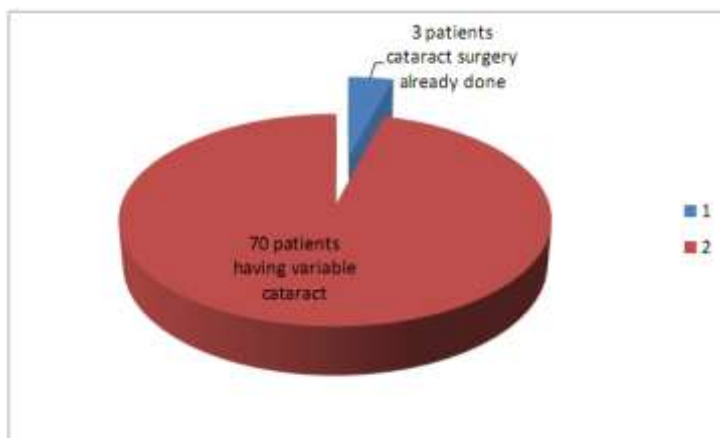
can be treated by surgery or irreversible and permanent loss as optic nerve damage because of the complication with glaucoma that passed silently and slowly.



**Fig-6: Legally blind patients with visual acuity equal or less than 3/60**

All 73 patients have variable degree of cataract at least in one eye, 30 patients (60 eyes) bilaterally and 43 patients unilaterally, 3 patient had already underwent

cataract surgery and the other 70 have cataract at least in one eye and they will be candidates for surgery.



**Fig-9: Patients with cataract that will need surgery**

## DISCUSSION

Pseudoexfoliation syndrome is a leading cause to loss of vision. Pseudoexfoliation syndrome is a well known clinical condition in certain parts of the world & well known in Kurdistan-Iraq as well, it is associated with significant problems in vision that could be irreversible if neglected or overlooked.

We estimated a prevalence of 28.96%, female/male ratio 2/3, bilaterally in 76.71% and those having high IOP 15 patients (20.5%), 12 patient (80%) did not know about glaucoma and discovered in exam for first time, only 4 patients (26.6%) know about glaucoma and they are on treatment, those aged 65 years and more represents 82%, smokers represents 91.7% of cases, almost all 73 patients have some degree of cataract at least in one eye bilaterally in 30 patients and unilateral in 43 patients.

In comparison to other studies, while the prevalence of Pseudoexfoliation syndrome in Pakistan was 6.45%; all are bilateral involvement, male to female ratio 1.5:1, all 100% found to have high IOP [7]. While the prevalence in Japan populations aged 50 years or more was 3.4% and increasing with age [8].

While in Ethiopian patients waiting for cataract surgery, they found a prevalence of 39.3% and a bilateral disease in 62.2% and they are scheduled for surgery while we have up to 70% of eyes waiting for surgery now or in near future, mean IOP significantly higher in PEX (18.4 $\pm$  3.2 mmHg) than in those without PEX (15 $\pm$  3.6 mmHg) [9].

In Australian adults, they conclude strong relation with glaucoma (odd ratio= 3.80, 95% confidence limit=1.73, 8.33) [10].

A study done on Greek populations reveals overall prevalence of 27.9%, no significant gender difference with 22.1% patients with glaucoma, results close to our one [11].

In Jordan, Al Karak province it is estimated frequency of 21.3% of those aged 40 years and more while 27.4% in those 50 years and more showing clearly increasing with age [12]. While in our condition it is 28% in over 55 years which is closer to this study.

In relation to smoking we found high percentage of ex and recent smokers up to 91.7% while this relation was overlooked from other studies.

A study from Lithuania stated Smoking duration increased age-adjusted odds for PEX. PEX did not increase risk for IHD, AH or DM [13].

## RECOMMENDATIONS

1. Young ophthalmologists, postgraduates and permanent doctors to be alerted towards the problem and the possible complication early diagnosis and treatment.
2. All ophthalmologists to treat associated glaucoma or high IOP and early do cataract surgery.
- 3- Early cataract surgery, making the new techniques and devices available with the necessary surgeon training programs
- 4- Larger studies needed to estimate the prevalence, relation to systemic complications and relation to habits, foods and drugs consumptions.
- 5- Follow up of those patients in a glaucoma unit.
- 6- Subscleral trabeculectomy operation for glaucoma or combined Phacotrabeculectomy operation when indicated.

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