

The prevalence of pseudoexfoliation syndrome in King Hamad University Hospital

Archchana Rajmohan¹, Parastou Rahimi¹, Aysha Nusef², Aysha Ahmed², Muhammad A. Mian²

Access this article online
Quick Response Code:

Website: www.saudijophthalmol.org
DOI: 10.4103/sjopt.sjopt_80_23

Abstract:

PURPOSE: The aim of this study is to determine the prevalence of pseudoexfoliation syndrome in patients with cataracts in King Hamad University Hospital (KHUH) and rates of complication in pseudoexfoliation (PXF) patients postoperatively and 2-year follow-up.

METHODS: A retrospective analysis was conducted on medical records of PXF patients who underwent phacoemulsification and extracapsular cataract extraction in KHUH, Bahrain, between August 31, 2016, and December 30, 2018.

RESULTS: From the 458 cases analyzed, there were 17 patients with PXF (3.71%). One patient per-operatively experienced posterior capsular rupture (5.88%). Zero patients experienced complication in 2 years of follow-up.

CONCLUSION: This is the first study investigating the prevalence rate of PXF in Bahrain and rates of complication for PXF patients undergoing cataract surgery. This study contributes to further understanding the epidemiology of this disease and its racial variation, for PXF patients to better understand the rate of risks involved in cataract surgery, and for surgeons to create appropriate surgical plans that help reduce the risk of complications commonly seen in these patients.

Keywords:

Cataract surgery, extracapsular cataract extraction, phacoemulsification, pseudoexfoliation syndrome

INTRODUCTION

Pseudoexfoliation (PXF) syndrome is a common ocular age-related disorder. It is a disorder of the extracellular matrix and is commonly associated with severe chronic secondary open-angled glaucoma and cataract. It consists of abnormal extracellular fibrillary material on components of the eye, such as the lens capsule, ciliary body, and trabecular meshwork. It is considered a systemic disease, affecting extraocular tissue such as the lung, skin, blood vessels, and meninges.^[1]

The diagnosis of PXF can be done clinically, by observing the PXF material on the anterior lens surface of a dilated pupil. PXF is strongly associated with lens opacification and is the most common cause for patients' with PXF

requiring surgery. However, surgery for these patients is considered challenging as a result of their weakened zonules and poor mydriasis. Complications that could result intraoperatively or postoperatively include vitreous loss, zonular ruptures, dislocation of the implanted lens, or anterior capsule fibrosis. A previous study on extracapsular cataract extractions (ECCes) found that the presence of PXF and small pupil size were significant risk factors causing vitreous loss.^[2] PXF eyes do not respond well to mydriatics, and mechanical enlargement of the pupil can cause iridal hemorrhage and increase postoperative inflammation. Zonular weakness is attributed to the most serious surgical complication with PXF patients as there is a three to 10 time increased risk of lens dislocation and zonular rupture and five-fold risk of vitreous loss.^[1]

A study by Narendran *et al.* also found that patients who had PXF had significantly higher

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Rajmohan A, Rahimi P, Nusef A, Ahmed A, Mian MA. The prevalence of pseudoexfoliation syndrome in King Hamad University Hospital. Saudi J Ophthalmol 2023;37:342-4.

¹Faculty of Medicine, Royal College of Surgeons in Ireland (MUB), ²Department of Ophthalmology, King Hamad University Hospital, Busaiteen, Bahrain

Address for correspondence:
Dr. Muhammad A. Mian,
Building 2435, Road 2835,
Block 228, P. O. Box:
24343, Busaiteen, Bahrain.
E-mail: muhammad.atif@
khuu.org.bh

Submitted: 09-Apr-2023

Revised: 03-May-2023

Accepted: 09-May-2023

Published: 24-Jul-2023

complication rates.^[3] Drolsum *et al.* found patients who underwent cataract surgery and had PXF had a 2.6-fold increase in a zonule or capsule tear or vitreous loss.^[4] Another study found a postoperative higher inflammatory response and significant intraocular pressure drop in patients with PXF undergoing phacoemulsification.^[5]

There is supporting evidence suggesting that PXF has a genetic basis. There is an increased risk in those related to affected patients and a higher concordance rates in monozygous patients.^[6] The disease is also found to be related to the lysyl oxidase-like-1 gene abnormality.^[7] PXF incidence increases with age, but is rarely found before 50 years of age. PXF is also found worldwide, with higher frequencies in specific regions and ethnic groups, thus suggesting an important racial variation. It has a prevalence rate of 7.4% in India, 3.4% in Japan, and 4.7% in England.^[8] Current literature lack studies investigating the rate of prevalence of PXF in people with cataracts in Bahrain. This study aims to determine the prevalence rate of PXF syndrome in the cataract population at the ophthalmology clinic in King Hamad University Hospital (KHUH) as well as the rate of complications postoperatively in PXF patients undergoing cataract surgery.

METHODS

This retrospective study was approved by the ethics review board of KHUH, Bahrain. The evaluated data was recorded from the theatre logbook in KHUH on patients residing in Bahrain, ages 10–90, who underwent phacoemulsification (Phaco) or ECCE surgery between August 31, 2016, and December 30, 2018. All surgeries were performed by one surgeon. Prior to the surgery, a full ophthalmic evaluation was conducted. Patient's demographic, comorbidities, and presence of PXF were noted. The presence of PXF was identified and diagnosed by the presence of PXF material on one or more of the anterior segment structures. All PXF patients undergoing surgery had a 3-piece lens placed. The outcome of the surgery, defined as if a complication was absent or present, was noted during surgery and during follow-up appointments. Patients were followed for 2 years postoperatively to monitor any postoperative complications such as lens dislocation, phacodonesis, and posterior capsule rupture. IBM Corp. Released 2019. IBM SPSS statistics for windows, version 26.0. (Armonk, NY: IBM Corp) was used to calculate prevalence rates using frequency tables.

RESULTS

499 cases were gathered and retrospectively reviewed. Patients with incomplete data, planned vitrectomy, or under 18 years old were excluded, resulting in a sample size of 458.

There were 17 patients with PXF out of the 458 cases, with an overall prevalence of 3.71% [Table 1]. Out of the 17 PXF patients, only one patient had a operative complication, a posterior capsule rupture (5.88%) [Table 2]. When following up these 17 patients 2 years postoperatively, no patients had complications [Table 3].

Table 1: Frequency of pseudoexfoliation syndrome

	Frequency (%)
No PXF	441 (96.29)
PXF	17 (3.71)
Total	458 (100.0)

PXF: Pseudoexfoliation

Table 2: Frequency of postoperative complications in pseudoexfoliation syndrome patients

	Frequency (%)
No complication	16 (94.12)
Complication	1 (5.88)
Total	17 (100.0)

Table 3: Frequency of complications in pseudoexfoliation syndrome patients 2 years postoperatively

	Frequency (%)
No complication	17 (100)
Complication	0
Total	17 (100.0)

DISCUSSION

The prevalence of PXF in the population was 3.71%, a lower rate in comparison to other countries such as India, with a prevalence rate of 7.4% and Pakistan with 6.45%.^[8]

Highest rates of PXF are found in Scandinavian countries, Sub-Saharan Africa and Greece.^[9] To the best of the authors' knowledge, there are no previous published reports on the prevalence rates of PXF in Bahrain.

Previous studies demonstrate that PXF patients undergoing cataract surgery are associated with a statistically increase in complications preoperatively, during, and postoperatively surgery. These complications include 4% cases of lens dislocation, 52% lens subluxation, and vitreous prolapse in 9%.^[10] In addition, in the postoperative period, there are high rates of lens dislocation as a result of zonular weakness. In this study, no complications were found in patients 2 years postoperatively. For all PXF patients, a three-piece lens was used and placed in the ciliary sulcus, instead of the frequent in-the-bag placement. This was an important procedural difference and believed to be a major contributing factor to the lack of complications found in these patients. This can influence future surgical plans and decrease complication rates.

This study is a hospital-based study, and not a population-based study, which could be a limiting factor to understanding the prevalence of PXF. Future studies should further explore the population of Bahrain to further investigate the presence of PXF and its associated complications.

CONCLUSION

The overall prevalence of PXF in our population is 3.71%. From this, only one patient had an operative complication and no patients had complications 2 years postoperatively. This

study contributes to further understanding the epidemiology of this disease and its racial variation and for PXF patients to have a better understanding of the risk of postoperative complications involved in cataract surgery. This also allows surgeons to create appropriate surgical plans that help reduce the risk of complications in these patients.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Schlötzer-Schrehardt U, Naumann GO. Ocular and systemic pseudoexfoliation syndrome. *Am J Ophthalmol* 2006;141:921-37.
- Guzek JP, Holm M, Cotter JB, Cameron JA, Rademaker WJ, Wissinger DH, *et al.* Risk factors for intraoperative complications in 1000 extracapsular cataract cases. *Ophthalmology* 1987;94:461-6.
- Narendran N, Jaycock P, Johnston RL, Taylor H, Adams M, Tole DM, *et al.* The cataract national dataset electronic multicentre audit of 55,567 operations: Risk stratification for posterior capsule rupture and vitreous loss. *Eye (Lond)* 2009;23:31-7.
- Drolsum L, Haaskjold E, Sandvig K. Phacoemulsification in eyes with pseudoexfoliation. *J Cataract Refract Surg* 1998;24:787-92.
- Sufi AR, Singh T, Mufti AA, Rather MH. Outcome of phacoemulsification in patients with and without pseudoexfoliation syndrome in Kashmir. *BMC Ophthalmol* 2012;12:13.
- Damji KF, Bains HS, Stefansson E, Loftsdottir M, Sverrisson T, Thorgeirsson E, *et al.* Is pseudoexfoliation syndrome inherited? A review of genetic and nongenetic factors and a new observation. *Ophthalmic Genet* 1998;19:175-85.
- Thorleifsson G, Magnusson KP, Sulem P, Walters GB, Gudbjartsson DF, Stefansson H, *et al.* Common sequence variants in the LOXL1 gene confer susceptibility to exfoliation glaucoma. *Science* 2007;317:1397-400.
- Pons ME, Physician A, Garcia CA, Eliassi-Rad B. Available from: <http://Emedicine.Medscape.Com/Article/1206366-Print>. [Last accessed on 2022 Mar 23].
- Olawoye OO, Pasquale LR, Ritch R. Exfoliation syndrome in sub-Saharan Africa. *Int Ophthalmol* 2014;34:1165-73.
- Scorolli L, Scorolli L, Campos EC, Bassein L, Meduri RA. Pseudoexfoliation syndrome: A cohort study on intraoperative complications in cataract surgery. *Ophthalmologica* 1998;212:278-80.