

Prevalence of Exfoliation Syndrome in Patients Scheduled for Cataract Surgery: A Hospital-based Study in Northern Jordan

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Abstract

Purpose: To assess the frequency of exfoliation syndrome (XFS) in Jordanian patients scheduled for cataract surgery.

Methods: A retrospective chart review was conducted on 445 consecutive patients who had cataract surgery at our center over one year. Data collected included age, sex, presence of XFS, predominant type of lens opacity and intraocular pressure (IOP).

Results: Mean age of the total study population was 64.1 years (range 40-97). Average age was higher in the XFS group in comparison to the non-XFS group. XFS was present in 46 patients out of 445 patients (10.3%), of whom 54% were unilateral. Mean IOP was higher in the XFS group. Nuclear sclerosis was the predominant lens opacity in both groups with a higher frequency in those with XFS.

Conclusions: XFS is relatively common in Jordanian patients scheduled for cataract surgery. Careful diagnosis and scrutiny of XFS in cataract patients may help to prepare for and avoid potential surgical complications.

Keywords: Exfoliation syndrome, intraocular pressure, lens opacity.

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Introduction

Exfoliation syndrome (XFS) is an age related, generalized disorder of the extracellular matrix characterized by the production and progressive accumulation of a fibrillar extracellular material in many ocular tissues. It is the most common identifiable cause of open-angle glaucoma worldwide, accounting for the majority of cases in some countries.¹

The reports on the prevalence of XFS varies widely due to differences in age, sex, race, ability to detect early stages of the disease, thoroughness of the exam and awareness of the observer as well as other factors yet-to-be defined.^{2,3,4} Prevalence studies have been conducted on diverse populations, including general populations, persons over a certain age, patients taken from eye clinics or general medical clinics, patients with cataracts, glaucoma patients,

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hospitalized glaucoma patients and glaucoma patients undergoing surgery. These differences have produced much confusion in literature and should be taken into account when comparing series.⁵

An example of this variation is illustrated by Forsius⁶ who looked at persons over age 60 in varied groups including Lapps, Eskimos, Icelanders, Peruvian Indians, and Tunisians. He found a prevalence ranging from 0% in Greenland Eskimos to 21% in Icelanders.

Several studies recently showed a relation between XFS and cataract formation.^{3,7-21} Nuclear cataracts are found more frequently in eyes with XFS than eyes without it.^{9,18,22} A high rate of posterior subcapsular cataracts have also been reported.¹⁶

In this study we aimed at evaluating the frequency of XFS in Jordanian patients scheduled for cataract surgery and also to describe the predominant type of lens opacity and the IOP in this group compared to the non-XFS group.

Materials and Methods

Patients above the age of 40 years who had cataract surgery at our center over a one year period were enrolled in this study. This study was approved by the Institutional Review Board of our center. Cataract surgery was done by five of the authors (WS, HJ, SA, FO, AG).

A retrospective chart review was conducted on 445 consecutive patients. Demographic parameters like age and sex as well as clinical features including the presence of XFS, the type of lens opacity and preoperative IOP were gathered and recorded on the total population of the study. The diagnosis of XFS was based initially on the presence of typical exfoliation material on the anterior lens surface and/or pupillary margin after dilating the pupil.

The population of the study was then divided into two groups: the XFS group and the non-XFS group. The gathered data was then analyzed and relevant comparisons between the two groups were made.

Results

A total of 445 consecutive patients (males: 255, females: 190) aged 40-97 years were included in this study. The mean age was 64.1 ± 11.1 years. XFS was found in 10.3% (46 patients) with a male to female ratio of 1.7/1 (males: 29, females: 17). XFS was unilateral in 54% of the cases. Although it was not statistically significant ($P=0.242$), the mean age of the patients with XFS (74.5 ± 10.2 years) was higher than that of those without XFS (63.0 ± 10.6 years).

Nuclear sclerosis was the dominant lens opacity in both groups with a higher frequency in the XFS group compared to the non-XFS group (77% and 70%, respectively). Preoperative IOP was higher in the XFS group preoperatively (16.0 ± 4.0 mmHg) compared to the non-XFS group (14.8 ± 3.6 mmHg), but that difference was not statistically significant ($P=0.181$).

Discussion

The exact relationship between XFS and cataract formation is still not well understood. However, there has been increasing evidence recently for such an association.^{3,7-21} There is a higher prevalence of XFS in eyes coming for cataract surgery and a higher prevalence of cataract in eyes with XFS.⁹ Eyes with XFS with or without glaucoma have poorer visual acuity and more often lens opacification than clinically uninvolved fellow eyes.²³ Ritch and Schlotzer-Scherhardt⁵ hypothesized that cataract formation is related to ocular ischemia and that the virtually constant association he has noted clinically between unilateral cataract and asymmetric XFS, occurring in the same eye, is indicative of a greater ischemia in the involved eye. Studies implicating glaucoma as a risk factor for cataract formation did not look for XFS as a unifying factor.²⁴

In our series, the prevalence of XFS in patients scheduled for cataract surgery was found to be 10.3%. Variable results have been found in literature on the prevalence of XFS in patients scheduled for cataract surgery. Obuchowska et al²⁵ studied 1000 patients in Poland and found XFS in 8.2%. Benatiya et al²⁶ studied 837 eyes in Moroccan patients with a cataract scheduled for surgery and detected XFS in 9.8%. This percentage was higher in other series: 35.4% in Estonia,²⁷ 39.3% in Ethiopia,²⁸ 25.2% in Finland,⁹ 16.4% in Turkey,²⁹ 26% in Croatia,³⁰ 23.5% in Portugal,³¹ and 28% in Greece.^{32,33} On the other hand, the prevalence was much lower in other reports; in a Chinese series by Young et al³⁴ that studied 500 patients attending the clinic with a presumed diagnosis of cataract, the prevalence was found to be only 0.4%.

In Jordan, our series showed a slightly higher percentage of that found in another Jordanian hospital-based study that showed the prevalence of XFS to be 9.1%.³⁵ The cohort of the two studies was different and that could explain the difference in prevalence; in ours all patients had a cataract while in the study, they evaluated all the patients who attended their department.

In most series, the prevalence of XFS increases with age. Forsius³⁶ found its incidence to double every decade after age 50. In a Finn population, XFS was found in 10% of patients aged 60-69, 21% of those aged 70-79, and 33% of those aged 80-89.³⁷ Iizuka et al³⁸ in Japan found prevalence rates of 0.7% in persons aged 50-60 and 7.3% in persons over age 80. In our study, the mean age of the XFS group was significantly higher than the non-XFS group. This was demonstrated also by reports that evaluated the prevalence of XFS in a similar population like ours, patients scheduled for cataract surgery.^{28-30,32}

As shown in our series, nuclear sclerosis was the most frequent type of lens opacity in both groups with a higher frequency in the XFS group. In literature some series reported that nuclear cataract is often more frequently found in eyes with XFS than in eyes without it^{9,18,22,27,29} and others reported a higher rate of a subcapsular cataract.¹⁶

Preoperative IOP was higher in the XFS group in comparison to the non-XFS group. This is supported by many reports in literature.^{9,27,28,30,32,39} Aasved⁴⁰ found elevated IOP in 22.7% of patients with XFS as opposed to 1.2% of those without XFS. In Norway, Ringvold et al⁴¹ found 30% and 4.8%, respectively while Kozobolis et al⁴² found 28.8% and 5.4% in Crete. Summanen and Tonjum¹⁷ found similar figures among Saudis.

The drawbacks of our study include the design of the study. Conducting the same study in a prospective fashion will help to avoid missing any cases with XFS. That is, the examiner will carefully evaluate the patient looking particularly for XFS. Also, making the study a multicenter one will give a better idea on the prevalence of XFS.

Conclusion

There is a higher prevalence of XFS in eyes scheduled for cataract surgery. Nuclear sclerosis constitutes the most common type of lens opacity in this group of patients. IOP is higher in eyes with XFS syndrome than in eyes without it. Careful diagnosis and scrutiny of XFS in cataract patients may help to prepare for and avoid potential surgical complications.

To the best of our knowledge, this was the first study in the Middle East area on the Arabian population to show the prevalence of XFS in patients scheduled for cataract surgery.

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متلازمة التقشر العيني لدى المرضى الذين يعانون من وجود ساد (ماء أبيض): دراسة في مستشفى الملك المؤسس عبد الله الجامعي - شمال الأردن

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الملخص

تعتبر متلازمة التقشر العيني من الأمراض الشائعة في حوض البحر الأبيض المتوسط. تهدف هذه الدراسة تحديد انتشار هذا المرض في المرضى الذين يعانون من وجود ساد (ماء أبيض) في شمال الأردن. تم عمل مراجعة شاملة لملفات ٤٤٥ مريض متتالي ممن خضعوا لعمليات استئصال الساد في مستشفى الملك المؤسس عبد الله الجامعي على مدار عام واحد. أظهرت النتائج ان نسبة انتشار هذه المتلازمة في هذه المجموعة من المرضى هي ١٠.٣%. هذا يؤكد انتشار متلازمة التقشر العيني في المرضى الذين يعانون من وجود ساد (ماء أبيض) في شمال الأردن كما يؤكد ضرورة تشخيص هذا المرض لتلافي بعض المضاعفات خلال عمليات استئصال الساد.

الكلمات الدالة: متلازمة التقشر العيني، ضغط العين، العدسة المعتمة.