Combined true and pseudoexfoliation in a Saudi patient with co-existing cataract and glaucoma

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Abstract

True exfoliation and pseudoexfoliation of the anterior lens capsule are different conditions, their coexistence is rare. We report a case with clinical findings of unilateral combined true exfoliation and pseudoexfoliation in a Saudi Bedouin that was confirmed histologically. We suggest that high levels of infrared radiation in the desert may have contributed to the capsular delamination.

Keywords: True exfoliation, Pseudoexfoliation, Cataract, Glaucoma

Introduction

True exfoliation and pseudoexfoliation of the anterior lens capsule are two distinct entities. Their coexistence in the same individual is rare and has only been reported few times internationally and never been documented in Saudi or Arab patient.1–3 In this report we describe a patient with combined true and pseudoexfoliation of the anterior lens capsule in a Saudi patient that was confirmed histopathologically.

Case history

A 63 year old Saudi Male who is a nomad complaining of gradual decrease in vision of the left eye over 4 years. He had a history of poor vision of the right eye since childhood. There was no history of previous inflammation. His clinical findings on presentation are summarized in Table 1 and illustrated in Fig. 1.

The pseudoexfoliation (PXF) materials were observed in the pupillary margin and over the iris surface of the left eye, while the capsular delamination formed outward rolled edges extending from 12:30 o’clock position to 4:00, and then from 4:00 to 8:00 o’clock position. The patient’s pupil dilated poorly and hence we could not comment clinically whether pseudoexfoliative material was present on the anterior lens capsule and we were not able to clearly define the extent of capsular delamination beyond the visible 4 mm pupillary area.

The patient was put on a fixed combination of Dorzolamide 2.0%/Timolol 0.5% drops and then changed to Brimodine 0.2%/Timolol 0.5% both of which failed to reduce the IOP below 22 mmHg, plus that the patient was poorly compliant to them, for those reasons he underwent extracapsular cataract extraction and posterior chamber intraocular lens implantation (ECCE + PC IOL) with endoscopic cyclophotoagulation (ECP) of the left eye. ECCE was chosen over phacoemulsification due to the extensive PXF and delamination of the capsule and the former procedure was thought to be safer in the surgeon’s hand, and as the patient is nomad with a history of poor compliance there was a concern about the safety and efficacy of doing an incisional glaucoma procedure, and ECP was thought to be the safest in his condition.
as it needs no extra post operative care than the cataract surgery. Intra operatively the pupil was stretched using Kuglen Hooks, and the anterior capsulotomy was done with a disposable 30-gauge cystotome using a can opener technique away from the area of the capsular delamination. No difficulties or complications were encountered during this step, the anterior lens capsule was submitted for histopathology.

We noted that during ECP an unusually high power of 0.7 Watts was required to elicit a response which was attributed to the presence of PEX material over the ciliary processes. Postoperatively his vision improved to 20/40 with an intraocular pressure of 9–11 mm Hg without medications at the last visit (16 months).

The right eye maintained normal IOP throughout the follow up time, but with progressing cataract, which was eventually extracted uneventfully with mild visual improvement due to Amblyopia.

Pathology

Pathological examination of the anterior lens capsule was performed and changes described were observed away from the edge of the capsulotomy. The anterior capsule showed thickening and delamination in some areas and in other areas PAS positive fibrillar deposits consistent with pseudoexfoliative material were observed (Fig. 2).

Discussion

In this report we describe the patient with unilateral pseudoexfoliation deposits accompanied by delamination of the anterior lens capsule (true exfoliation) in one eye. Clinically the pseudoexfoliation material was visible only at the pupillary margin but on pathologic examination it was also noted on the anterior lens capsule.

The coexistence of both true exfoliation and pseudoexfoliation is rare and had been reported few times only, once by Küchle et al., in an 81-year-old female with a long history of working with porcelain in an oven. Another case was reported in the Japanese literature in an 83 year old woman without any predisposing factors.

Delamination of the anterior lens capsule has been reported in patients exposed to prolonged heat or infrared radiation, intraocular inflammation, trauma, pseudoexfoliation, and as an idiopathic entity. Our patient being a nomad spent prolonged periods of time in the desert which has high levels of infrared radiation. We suggest that such prolonged exposure to infrared radiation in the desert in this Bedouin nomad might have been a risk factor for capsular delamination. The condition however has not been previously reported in Saudi patients.

The capsular delamination presented with rolled edges in multiple locations in the pupillary area. Based on the experience during the can opener capsulotomy, we believe that capsular delamination does not interfere with the anterior capsulotomy with a can opener technique. It is possible that the simultaneous presence of both conditions may potentially cause complications during capsulorhexis. Dense pseudoexfoliation deposits might mask capsular delamination and

![Figure 1. Left eye of patients showing rolled delaminated capsule in the pupillary area (arrowheads) and pseudoexfoliative material at the pupillary border (arrows).](image1)

<table>
<thead>
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<th>Table 1. Summary of pre-operative clinical findings.</th>
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<tr>
<td><strong>OD</strong></td>
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<tr>
<td>VA Hand motion</td>
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<tr>
<td>IOP (mm Hg) 14</td>
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<tr>
<td>Cornea Central corneal scarring</td>
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<tr>
<td>A/C Deep &amp; quiet</td>
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<tr>
<td>Lens Mature cataract, no Pseudoexfoliative (PEX) deposits</td>
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<tr>
<td>A/C angle Open grade III, Sampaoleji’s line</td>
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<tr>
<td>Fundus No view</td>
</tr>
<tr>
<td>B-scan Retina flat</td>
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<td>Endothelial cell count 1475</td>
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![Figure 2. Photomicrograph showing the anterior capsule Top. Showing capsular delamination (PAS; original magnification 20×). Bottom: showing iron filing like pseudoexfoliation material on the anterior lens capsule (PAS; original magnification 20×).](image2)
following initiation of capsulorhexis, multiple layers of ante-
rior capsule might be observed causing difficulty in comple-
tion of the capsulorhexis.

The pathologic features seen in our patient were quite 
typical of what has been previously described in patients with 
capsular delamination\textsuperscript{9–11} and pseudoexfoliation\textsuperscript{13} as sepa-
rate entities. It was interesting to note that pseudoexfoliation 
 deposits were not observed in the areas where capsular delamination was prominent.

In summary, this case report highlights the presence of 
pseudoexfoliation and true exfoliation in an eye of a Saudi Bedouin. We suggest that exposure to high levels of infrared 
 radiation in the desert may play a role in capsular delamina-
tion. In addition, possible chronic and extended exposure to fire in such individuals who are directly exposed to wood burning fires may play a role in capsular delamination.

Conflict of interest

The authors report no conflicts of interest in this work.

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