

## Spontaneous idiopathic true exfoliation of the anterior lens capsule during capsulorhexis

Ali Tayyab, Ukasha Dukth, Saadia Farooq, Sulman Jaffar  
Department of Ophthalmology, Shifa College of Medicine, Islamabad, Pakistan.

### Abstract

We report a unique case of spontaneous per-operative idiopathic development of true exfoliation of the anterior lens capsule during capsulorhexis. A 45 year old female who underwent phacoemulsification for a cataract in the left eye, developed a partial split (the double ring sign) and eventual complete separation of the superficial lamina of the lens capsule during capsulorhexis. Radial tears developed in the

remaining lamina making the capsular bag unstable. The surgery was converted to manual nucleus expression. An intra ocular lens was implanted via scleral fixation. The final best corrected visual acuity in the left eye was 6/6. The patient is comfortable with the vision. Though a rare event, the surgeon must always be alert to the development of spontaneous idiopathic per operative true exfoliation of the lens capsule.

**Keywords:** True exfoliation, Capsule, Cataract,

Phacoemulsification, Double ring sign.

## Introduction

Idiopathic true exfoliation of the anterior lens capsule is rarely reported.<sup>1</sup> It was first described by Elschmig in glass blowers where the identified risk factor was heat. We report a rare case of per operative unilateral spontaneous idiopathic splitting of the anterior lens capsule signified by the double ring sign which eventually lead to a spontaneous and complete separation of the superficial lamina of the anterior capsule (true exfoliation) in a 45 year old female. The development of spontaneous true exfoliation after the appearance of double ring sign, to our knowledge, has not been reported before in literature.

## Case Report

A 45 year old female patient was booked for cataract surgery in the left eye in January 2010. The right eye had an uneventful phacoemulsification with foldable lens implantation. The left eye had a best corrected visual acuity of 6/18 with obscured fundus view. The right eye had the best corrected visual acuity of 6/6. The patient was a known diabetic and was on oral hypoglycaemic drugs with good glycaemic control.

There was no history of trauma, exposure to excessive heat or intra-ocular inflammation.

Peri-bulbar and topical anaesthesia was used during surgery. A bent needle cystitome was used for capsulorhexis. As the capsulorhexis was performed the surgeon noted a double ring sign signifying the splitting of the anterior capsule into a superficial and deep lamina. An attempt was made to grasp the superficial lamina which was not successful. The surgeon then tried to continue the capsulorhexis with the needle cystitome at which time the superficial lamina of the anterior capsule spontaneously, completely separated from its deeper layer. An attempt was made to continue capsulorhexis on the deeper layer which ultimately led to the formation of a radial tear which extended posteriorly. At this stage phacoemulsification was abandoned in favour of manual nucleus extraction. An intra ocular lens was implanted by scleral fixation technique to provide the best possible post-operative visual rehabilitation.

Her first Post-operative examination was done next morning which revealed a visual acuity of 1/60. The cornea had striate keratopathy with stromal corneal oedema. The anterior chamber showed a mild flare and a +2 cellular reaction. The pupil was round and reacting and the lens was in position. The intra-ocular pressure was 18mm Hg.

The patient was informed of the events of the surgery and the cause of relatively poor distance vision in the operated eye. She was put on topical 2 hourly Prednisolone acetate 1%

eye drops together with Tobramycin 3% Eye drops QID. Hypertonic Saline (10% Sodium chloride, NaCl) eye drops QID were also prescribed.

At the end of 3 weeks the best corrected acuity in the left eye was 6/6. Medication was gradually tapered off. At the last follow up visit, 6 weeks after surgery, the visual acuity in the left eye was 6/6, anterior chamber was quiet and all medications were discontinued. The patient was satisfied with the visual outcome in the left eye.

## Discussion

True exfoliation can be defined as a separation of the anterior lens capsule from its deeper layers.<sup>2</sup>

Known risk factors for development of true exfoliation include infra-red radiation and trauma.<sup>3</sup> Cases of true exfoliation that occur secondary to intra-ocular inflammation have been reported.<sup>3</sup> Our patient was not exposed to any of the risk factors nor did she have any history or clinical signs of intra-ocular inflammation or true exfoliation.

The hall mark of splitting of the anterior capsule during lens surgery is the appearance of double ring sign on the anterior capsule during capsulorhexis.<sup>4</sup>

Cases of development of spontaneous double ring sign without complete separation of anterior lamina<sup>5</sup> as well as post-operative spontaneous true exfoliation have been reported.<sup>6</sup> Our patient had an initial double ring sign, signifying a split in the anterior capsule, but unlike all other reported cases went on to develop a per-operative spontaneous and complete separation of the superficial lamina which is consistent with true exfoliation.

Diabetes mellitus was the only co-morbid that the patient had. Its role in development of this condition has not yet been established.

## Conclusion

Per-operative splitting of the anterior capsule (double ring sign) and its separation from deeper lamina (true exfoliation) during capsulorhexis can result in extended capsulorhexis and loss of all capsular support. Surgery should therefore be planned likewise.

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