IOL DISLOCATION AND RETINAL DETACHMENT – A STUDY BY ULTRASOUND BIOMICROSCOPY

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Summary. A retrospective consecutive noncomparative case series of 5 eyes (5 patients) with IOL dislocation and retinal detachment is reported. Following thorough ophthalmic exam, an ultrasound biomicroscopy (UBM) of the ciliary area was performed in order to evaluate the position of the IOL haptics, the ciliary body area, the vitreous base and far retinal periphery. In all eyes, the haptics were in various positions – behind the iris, in the capsular bag, in the ciliary sulcus, in front of pars plana. UBM proved to be a very useful imaging technique for assessment of IOL haptic subluxation and the accompanying changes in the ciliary body and anterior vitreous, which may play a role in the occurrence of retinal detachment in pseudophakic eyes and its unsuccessful scleral buckling surgery.

Key words: *IOL, dislocation, retinal detachment, ultrasound biomicroscopy*

INTRODUCTION

Cataract surgery is the most common operation performed by ophthalmologists. Although it has a very high success rate, certain complications may occur. Intraocular lens (IOL) malpositions range from simple decentration to luxation into the posterior segment. Subluxated IOLs involve such extreme decentration that the IOL optic covers only a small fraction of the pupillary opening. Luxation involves total dislocation of the IOL into the posterior segment. Decentration of an IOL may be the result of the original surgical placement of the lens, or it may develop in the postoperative period because of external (eg, trauma, eye rubbing) or internal forces (eg, scarring, peripheral anterior synechiae, capsular contraction, size disparity) [2-5].

The IOL rarely dislocates completely onto the retinal surface. It usually lies within the anterior vitreous with one haptic still adherent to the capsule or iris. It

may cause a vitreous hemorrhage by mechanical contact with ciliary body vessels. The IOL may be related to retinal detachment or cystoid macular edema secondary to vitreous changes. Rhegmatogenous retinal detachment (RD) develops in 0.5 to 1.0% of eyes even after modern cataract surgery [2-9] and is the most common potentially blinding complication of this procedure [6-14].

The frequency of IOL dislocation has increased in the past few years because phacoemulsification has a steep learning curve, and, as it becomes more popular, more complications are occurring. Surgeons are more reluctant to implant anterior chamber IOLs and aggressive placement of posterior chamber IOLs in the presence of capsular tears has become more common.

Ultrasound Biomicroscopy is a noninvasive real time diagnostic method [11] allowing excellent resolution for anterior segment structures (incl. the IOLs) with magnification similar to a low power light microscopy specimen. The high ultrasound frequency (50 MHz) leads to substantially higher axial and lateral resolution (50 μm) however at the expense of decreased penetration (5-6 mm) [12]. It does not depend on ocular media transparency.

Purpose: To study the relationship between IOL haptic position and ciliary body, vitreous base and peripheral retina in pseudophakic eyes with retinal detachment.

Design: Retrospective consecutive noncomparative case series of 5 eyes (5 patients).

MATERIAL AND METHODS

For the period 01.05.2003 – 01.12.2003, five patients with pseudophakic total rhegmatogenous retinal detachment were admitted to the Department of ophthalmology at University Hospital “Alexandrovska”, Sofia, Bulgaria. Following a thorough ophthalmic exam, UBM was performed using a wire lid speculum and an orbital cup (modified swimming goggles), thus improving the access to the ciliary sulcus, ciliary body and peripheral retina [1]. A mixture of methylcellulose and sterile saline served as coupling medium. The IOL haptic position and any changes in the ciliary body, vitreous base and far retinal periphery were assessed.

RESULTS

In all patients, the IOL haptic position was revealed. The IOL haptics appeared on UBM as highly reflective lesions with “comet-tail” like reverberations behind them. Such a finding is typical for a foreign body (actually the IOL optic and haptics are a foreign body within the eyeball). In patients № 1 (right eye) and № 2 (left eye), the first IOL haptic was in the bag and the second was in the ciliary sulcus. In patient № 3, right eye, one haptic was with retroiridal position (Fig. 1) and the other was

subluxated just below pars plicata (Fig. 2). The retinal detachment did not stop at ora seratta rather than continued anteriorly as a ciliary epithelium detachment (Fig. 3). There were some opacities with intermediate acoustic reflectivity around the ciliary body – a possible sign for an early anterior proliferative reaction. In patient № 4 (left eye), the first haptic was again behind the iris, almost in the ciliary sulcus (Fig. 4), while the other was in front of pars plana (Fig. 5). Besides the detached retina, we visualized with UBM a slit-like ciliary body detachment. Some opacities with intermediate acoustic reflectivity were evident. Scleral buckling surgery failed in last three eyes.

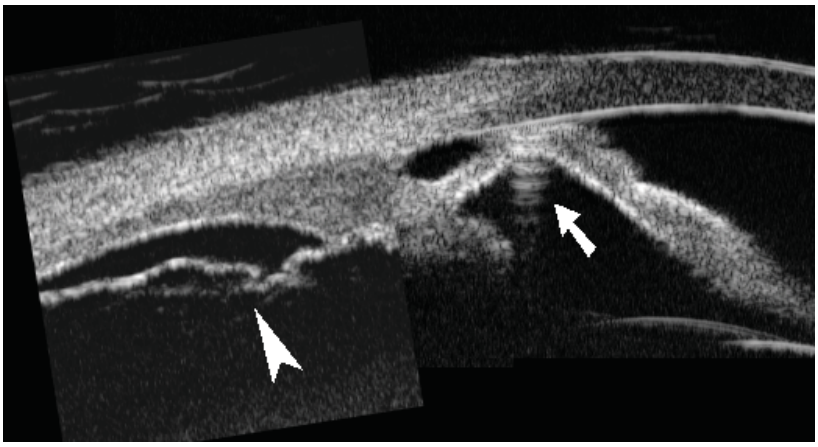

Fig. 1. The IOL haptic is pushing the iris and causes irido-corneal touch (arrow). The detached retina continues in detached ciliary epithelium (arrow head)

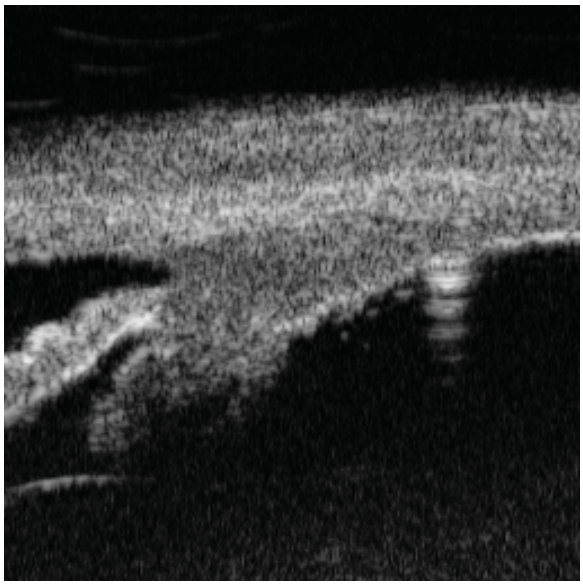

Fig. 2. The IOL haptic is below pars plicata. Well seen are the “come-tail” like reverberations behind it

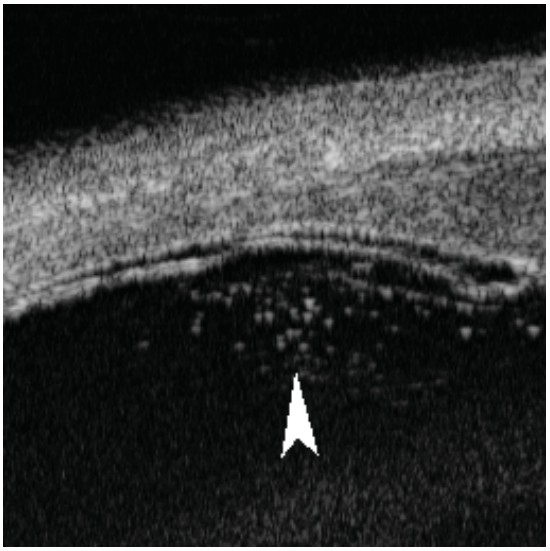

Fig. 3. The detached retina continues anteriorly as a ciliary epithelium detachment. There are some opacities with intermediate acoustic reflectivity – a possible sign for early anterior proliferative reaction (arrow head)

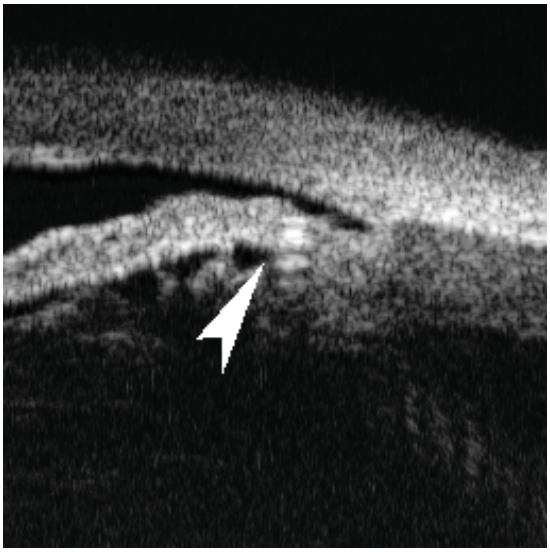

Fig. 4. The IOL haptic is below the iris, almost in the sulcus (arrow head)

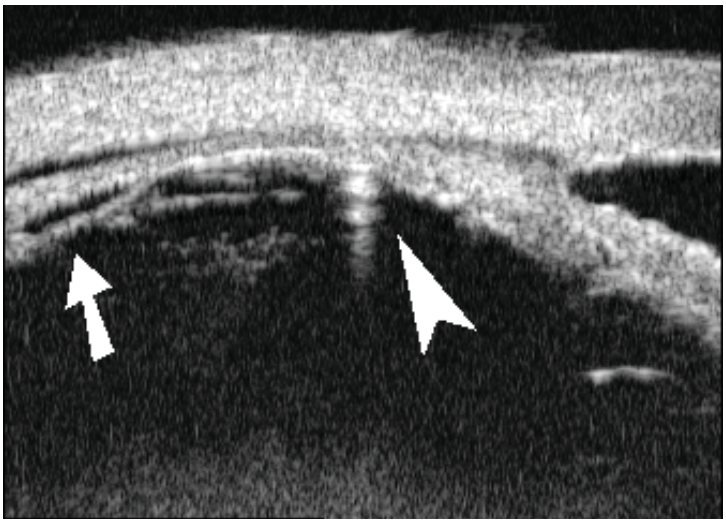

Fig. 5. The IOL haptic is in front pars plana (arrow head). Besides retinal detachment, there is a slit-like ciliary body detachment (arrow)

CONCLUSIONS

UBM is a useful technique for assessment of IOL haptic dislocation and the accompanying changes in the ciliary body and anterior vitreous, which may play a role in the occurrence of retinal detachment in pseudophakic eyes and its unsuccessful scleral buckling surgery.

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