

Pupillary Block Due to Reverse Implantation of Angulated Posterior Chamber Intraocular Lens

Açılı Arka Kamara Göz İçi Lensinin Ters Yerleştirilmesine Bağlı Pupil Bloğu

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Case Report

Olgu Sunumu

ABSTRACT

A sixty nine year old noncompliant female patient who underwent phacoemulsification had a inadvertently reverse implantation of angulated intraocular lens to ciliary sulcus after a posterior capsular rupture. Patient developed pupillary block and IOP rise on postoperative day 1. Anterior chamber was reformed and IOP returned to normal levels following a neodymium:YAG laser peripheral iridotomy. Reverse implantation of the angulated IOLs to the ciliary sulcus has a potential to induce pupillary block which could be relieved by laser peripheral iridotomy.

Key Words. Intraocular lens, phacoemulsification.

ÖZ

Fakoemülsifikasyon cerrahisi geçiren 69 yaşındaki uyumsuz bayan hastada, arka kapsül yırtılması sonrası silier sulkusa açılı göz içi lensi ters olarak yerleştirildi. Ameliyat sonrası birinci gün pupil bloğu ve göz içi basınç artışı gelişti. Neodymium:YAG lazer kapsülotomi sonrası ön kama-ra yeniden oluştu ve göz içi basıncı normal seviyelere geri döndü. Açılı lenslerin silier sulkusa ters yerleştirilmesi pupil bloğu riski taşır ve bu durum lazer periferik iridotomi ile düzeltilebilir.

Anahtar Kelimeler: Göz içi lensi, fakoemülsifikasyon.

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INTRODUCTION

Pseudophakic pupillary block is a well-known complication of cataract surgery particularly associated with anterior chamber intraocular lens implantation.¹ Pupillary block after posterior chamber IOL implantation, although relatively uncommon, has also been described.^{2,3} Pupillary block results when posterior surface of iris and anterior surface of optic or anterior lens capsule come into close proximity to disrupt aqueous flow.²⁻⁴

Here, we present a case of pupillary block secondary to reverse implantation of angulated posterior chamber IOL to ciliary sulcus.

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CASE REPORT

A sixty nine year old female patient with dense cortico-nuclear cataract in the left eye without any other ocular pathology underwent phacoemulsification surgery under topical anesthesia. During cortex aspiration, posterior capsule rupture with vitreous loss occurred. After the retained lens material and vitreous were removed with vitreous cutter via the cataract incision, insertion of an angulated Morcher lens (92S type, Morcher GmbH, Stuttgart, Germany) through 3.2 mm incision was attempted. Because of an uncontrolled head movement of the patient, the IOL was tumbled and placed to ciliary sulcus in reversed configuration.

On postoperative day 1, best corrected visual acuity (BCVA) was 20/200 with -3.50 diopters of spheric equivalent (SE) of refraction. Anterior chamber was shallow with forward displacement of iris-intraocular lens diaphragm (Figure 1). Cornea was mildly edematous with an elevated IOP reaching 43 mmHg on Goldman applanation tonometry. Gonioscopy showed 360 degree closure of the irido-corneal angle. Upon dilatation with cyclopentolate 1%, anterior chamber was reformed; IOP decreased to 19mmHg with resolution of corneal edema. BCVA increased to 20/30. Dilated slitlamp examination revealed that the IOL haptics were positioned counterclockwise. A significant space filled with transparent fluid was present between anterior lens capsule and IOL optic (Figure 2). Patient was discharged with topical cyclopentolate 1% two times daily and timolol 0.5% once-daily in addition to routine cataract drops.

After two uneventful weeks, we halted cyclopentolate drops. Two days thereafter, patient presented with pain, photophobia and decreased vision in her left eye. Anterior chamber was shallow with increased IOP (48 mmHg) and corneal edema. BCVA was 20/400. Neodymium:YAG (Nd:YAG) laser peripheral iridotomy was performed at 2 O'clock position. As soon as the iridotomy was made, anterior chamber was reformed with a gush of turbid fluid. Angle was open in every quadrant

on gonioscopy. One month after the Nd:YAG laser iridotomy, anterior chamber was deep with a clear cornea (Figure 3). IOP was 16 mmHg on applanation. However, the space between anterior lens capsule and IOL optic remained to a lesser extent. BCVA was 20/20 with SE of -2.0 D.

DISCUSSION

Pupillary block occurs when an IOL blocks the flow of aqueous from the posterior to the anterior chamber through the pupil. The mechanism of pupillary block with posterior chamber IOLs is not clear and may be related to many factors. The anatomy of the anterior chamber angle may be altered by IOL placement in the ciliary sulcus. Capsule-iris adherence³, disruption of the zonules with forward movement of the vitreous² and pupillary capture of IOL optic⁴ are within proposed mechanisms.

In our case, the implanted Morcher lens was a monoblock foldable hydrophilic acrylic

IOL with 6 mm optic and 15 mm overall length. Since forward angulation of the haptics was 10 degrees, in reversely implanted position haptics pushed the optic forward against posterior surface of iris. The flexibility of the IOL optic and haptics combined with its large overall length might also contributed to the forward push of optic resulting in myopic shift and pupillary block.

A related case with an angulated lens implantation was reported by Xiao et al.⁵ In their case, in-the-bag reverse implantation of a posterior chamber angulated intraocular lens led to development of the capsular block syndrome one day after surgery.⁵ Nd:YAG laser peripheral anterior capsulotomy resulted in resolution of capsular block and artificial myopia. Proposed mechanism was forward push of optic by haptic due to angulation sealing anterior chamber opening.⁵ Space formed between anterior lens capsule and posterior surface of optic was potentially derived from two factors; first one was forward push of optic by haptics; second was retention



Figure 1: Anterior chamber is shallow with mild corneal epithelial edema and mid-dilated pupil.

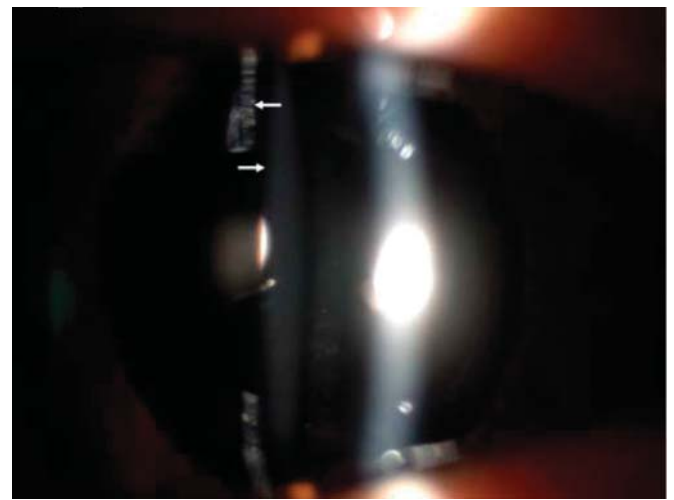


Figure 2: After pupillary dilatation, anterior chamber was reformed with resolution of epithelial edema. Space between anterior lens capsule and posterior surface of optic is apparent. Arrows show posterior border of IOL and anterior surface of anterior capsule.



Figure 3: One month after peripheral iridotomy, anterior chamber was deep and cornea was clear.

of viscoelastic material, lens remnants and prolapsed vitreous. To eliminate the second possibility, we preferred to dilate the pupils which allowed free communication between anterior chamber and the space posterior to optic. Persistence of this space and myopic shift to a lesser extent even after peripheral iridotomy suggest forward push of optic by haptics. Even in the cases without pupillary block, reverse implantation of an angulated IOL can cause a myopic shift because of forward displacement of optic.

In conclusion, reverse implantation of the angulated IOLs to the ciliary sulcus has a potential to induce pupillary block which could be relieved by laser peripheral iridotomy. In presence of accidental reverse rotation of the angulated IOL during implantation, the IOL should be turned back into its original configuration.

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