

## Case Report

# Anterior Chamber Intraocular Lens Exposure through Prelimbal Sclera: a Case Report

Hossein Mohammad-Rabei <sup>1</sup>, MD; Amir Arabi <sup>\*1</sup>, MD, MPH; Toktam Shahraki <sup>1</sup>, MD; Amir Akhavan Azari <sup>1</sup>, MD

1. Ophthalmic Research Center, Shahid Beheshti University of Medical Sciences, Torfeh Medical Center, Tehran, Iran.

**Corresponding Author:** Amir Arabi

**E-mail:** amir\_arab\_91@yahoo.com

### Article Notes:

Received: Oct. 4, 2017

Received in revised form:

Nov. 29, 2017

Accepted: Feb. 17, 2017

Available Online: Apr. 4, 2018

### Keywords:

Lenses

Intraocular

Anterior chamber

Sclera.

### Abstract

**Purpose:** To report a case of spontaneous exposure of anterior chamber intraocular lens in a patient with history of congenital cataract surgery ten years prior to presentation.

**Report of the case:** A 27-year-old man presented with a two-year history of blurred vision, photophobia, mild ocular pain and redness in his left eye, with no history of prolonged eye rubbing, ocular surface disease or any evidence of trauma. On exam there was redness and swelling of the eyelids in the involved side; however, there was no evidence of any long standing ocular surface condition. Slit-lamp biomicroscopy disclosed an injected eye with haptic exposure of an angle-supported anterior chamber lens approximately 1 mm posterior to the limbus through the sclera. Anterior chamber was mildly inflamed and pupil was peaked towards the area of the exposed haptic. Ultrasound biomicroscopy revealed edematous and thickened sclera near the exposed tip. The dislocated lens was extracted and an iris-fixated anterior chamber lens was implanted instead. According to the size of the intraocular lens (IOL) and the white to white distance of the patient, it seemed that an incorrect selection of IOL size was the reason for the haptic exposure.

**Conclusion:** We presented a rare case of spontaneous anterior chamber lens exposure and its surgical management in a patient with an otherwise healthy ocular surface. It was concluded that an error in IOL size selection might have been the cause of spontaneous haptic exposure.

**How to cite this article:** Mohammad-Rabei H, Arabi A, Shahraki T, Akhavan Azari A. Anterior Chamber Intraocular Lens Exposure through Prelimbal Sclera: a Case Report . Journal of Ophthalmic and Optometric Sciences . 2018;2(2):35-40.

## Introduction

Angle-supported anterior chamber intraocular lenses (AC-IOLs) have been used for more than 50 years<sup>1</sup>. The most repeated clinical problems associated with AC-IOL implantation include corneal decompensation, uveitis, hyphema and glaucoma<sup>2-4</sup>. The spontaneous AC-IOL haptic tip exposure has been rarely reported<sup>5-7</sup>. Non-spontaneous AC-IOL haptic exposure related to ocular traumas also have been described in the literature and do not seem to be a rare event<sup>3,8</sup>. Here we report a case of spontaneous exposure of anterior chamber intraocular lens in a patient with history of congenital cataract surgery ten years prior to presentation. The case presented is unique since our patient did not have any history of prolonged eye rubbing, ocular surface disease or any evidence of trauma. We concluded that a mistake in IOL size selection might have caused the condition.

## Case Report

A 27 year old man presented to our ophthalmology clinic with a two-year history of blurred vision, photophobia, pain and redness in his left eye. The Patient had a previous history of bilateral cataract surgery ten years ago with placement of a posterior chamber intraocular lens in the right and a Kelman type angle supported AC-IOL in the left eye. Patient did not have a history of ocular trauma, ocular allergy or any pertinent medical conditions. He also denied prolonged usage of topical eye medications in the past two years.

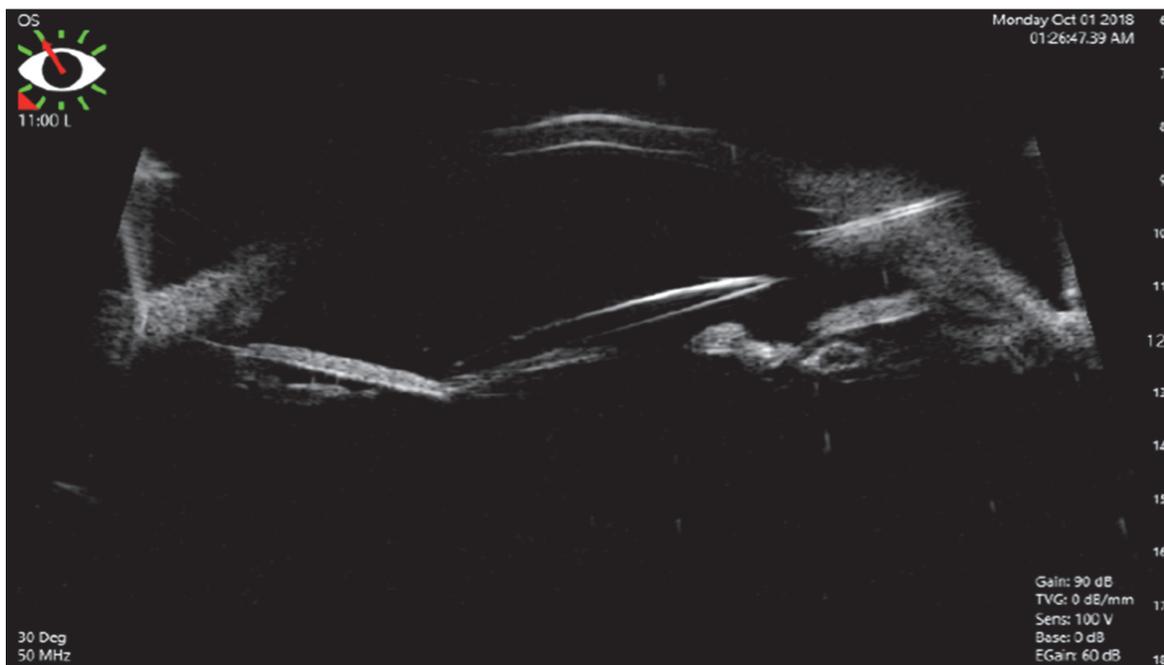
The ocular examination showed a corrected distance visual acuity (CDVA) of 10/10 in the right eye and 6/10 in the left eye. Intraocular pressures were 13 and 14 in the right and left eye respectively, and a relative afferent pupillary defect was absent. In the left eye, slit-lamp biomicroscopy disclosed mildly erythematous

and swollen eyelids. Further exam revealed an injected left eye with haptic exposure of the AC-IOL approximately 1 mm posterior to the surgical margin through the sclera. The length of exposed haptic was 1 mm (Figure 1). There was profound vascularization around the area of the exposed haptic in addition to severe papillary and follicular reaction in the superior tarsal conjunctiva related to chronic irritation from the exposed haptic. Sodium fluorescein staining did not reveal any epithelial defects or leakage. Corneal exam was unremarkable without any evidence of edema or scar. Anterior chamber was deep with presence of 1 + cell. Pupil was distorted and peaked towards the area of the exposed haptic superonasally. A patent surgical peripheral iridotomy was noted superonasally in the iris. An angle-supported AC-IOL was noted in the anterior chamber shifted superiorly with one of its haptics fixed in the angle at 4 o'clock and the opposite haptic exposed through a small defect in the sclera at 10 o'clock position. The fundus examination showed clear vitreous cavity and mild macular thickening. Ultrasound biomicroscopy revealed a tilted AC-IOL with exposure of its superior haptic through the sclera. Marked scleral edema and thickening was noted at the site of exposure (Figure 2). An ultrasound B-scan revealed no abnormality in the posterior segment and macular optical coherence tomography showed a thickened macula with a central macular thickness of 356 microns, compatible with cystoid macular edema following chronic ocular inflammation due to iris irritation by the lens. On specular microscopy the mean corneal endothelial cell density was 2859 cells/mm<sup>2</sup> with mild loss of hexagonality. White to white corneal diameter was measured to be 11 millimeters. The right eye was otherwise unremarkable.

After complete evaluation of the patient,



**Figure 1: Exposed AC-IOL haptic from the sclera, posterior to the limbus of the left injected eye**



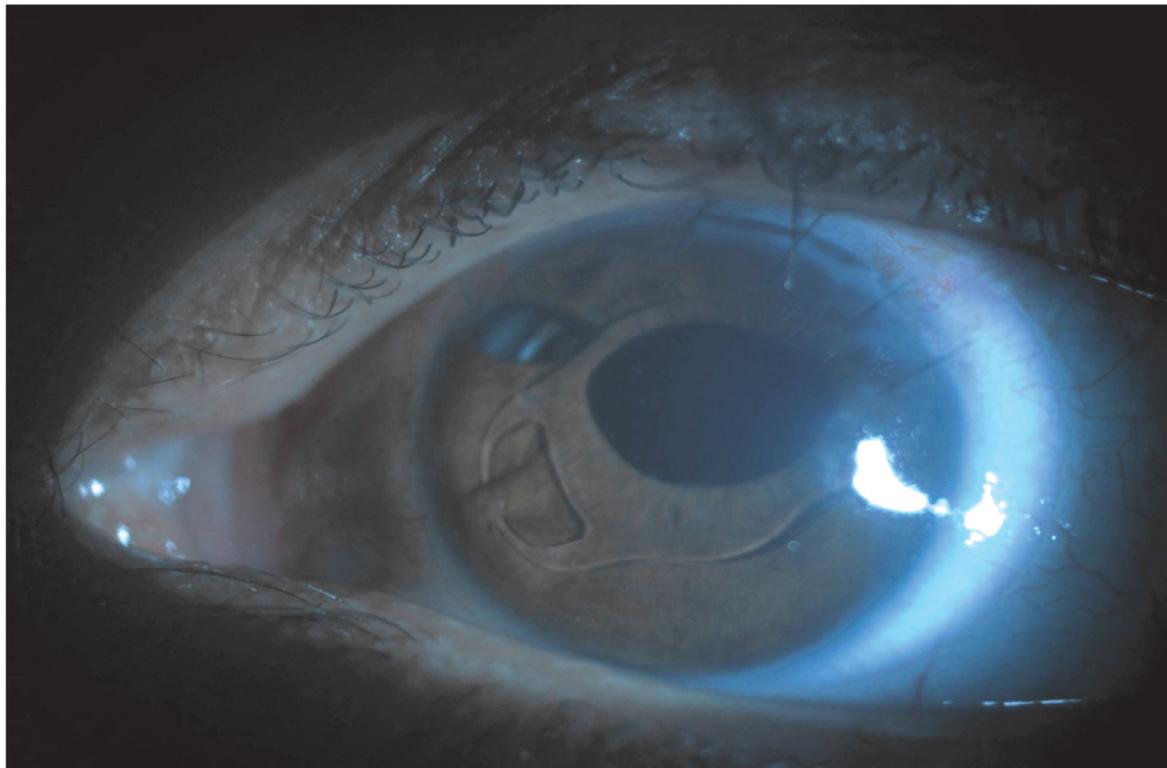
**Figure 2: Exposed haptic tip near the edematous sclera in ultrasound biomicroscopy of the left eye**

extraction of dislocated angle-supported anterior chamber intraocular lens was planned. The operation was performed one week later without any complication and an iris-fixated AC-IOL was inserted. Patient was started on topical nonsteroidal anti-inflammatory and corticosteroid eye drops with instructions to follow up. On the last follow-up examination four months postoperatively, ocular symptoms were completely resolved, anterior chamber reaction was diminished significantly and the best corrected visual acuity of the affected eye had improved to 7/10 (Figure 3).

### Discussion

Here we reported a 27 year old man with AC-IOL exposure through perilimbal sclera in his left eye, with no history of prolonged eye rubbing, ocular surface disease or any evidence of trauma. Gungel et al.,<sup>5</sup> have described

spontaneous exposure of angle-supported AC-IOL in an allergic patient where the haptic tips were exposed through the limbus in the left eye. Endophthalmitis developed in the eye and it was treated using pars plana vitrectomy and intravitreal antibiotic injection, in addition to IOL removal<sup>5</sup>. The authors speculated that forceful eye rubbing in this atopic patient might have caused limbal erosion leading to exposure of the AC-IOL<sup>5</sup>. Furthermore, they suggested that before AC-IOL implantation in patients with chronic or allergic conjunctivitis, appropriate repercussions should be taken<sup>5</sup>. Rong and Lu<sup>6</sup> reported a pseudophakic 68 year old man with a history of chronic red eye who presented with a new onset of burning and foreign body sensation 22 years after an AC-IOL implantation. Review of patient's medical records revealed that three years earlier, chronic conjunctivitis secondary to rosacea



**Figure 3: Post operative exam of the left eye with improved AC reaction, iris-fixate AC-IOL and superior corneal sutures**

had been diagnosed in this patient and he was treated with a range of topical antibiotics, antivirals, and occasional corticosteroids <sup>6</sup>. Similarly, in this case authors attributed the hepatic exposure to chronic ocular surface inflammation and eye rubbing <sup>6</sup>. Spierer and O'Brien <sup>7</sup> reported a 69 year old man with scleral perforation of one of the haptics of the AC-IOL, which had been implanted many years ago. Similar to our patient the patient's history was negative for any trauma, eye rubbing, topical corticosteroid use, or autoimmune disease <sup>7</sup>. They suggested that the AC-IOL, which was vertically aligned, had been oversized <sup>7</sup>.

The use of a flexible AC-IOL such as Kelman Multiflex in presence of capsular support deficiency during cataract surgery is well recognized, and the overall incidence of postoperative complications is satisfactory in comparison with techniques of implanting posterior chamber intraocular lenses. Corneal endothelial damage, secondary glaucoma, and chronic inflammation in the anterior chamber are the most reported complications <sup>9,10</sup>. In an analysis of 4104 explanted AC-IOLs, the lowest percentage of complication belonged to open-loop AC-IOLs, while this type of AC-IOLs had the highest explantation rate in the first year after surgery due to intraoperative complications <sup>1</sup>. The most common complications were corneal decompensation and intraocular inflammation <sup>1</sup>. On the other hand, closed-loop AC-IOLs were explanted mostly in the fifth postoperative year, and the most common complication was corneal decompensation <sup>1</sup>. Insidious and chronic mechanical irritation by the IOL was thought to cause different complications, with an increase in the rate over time <sup>1</sup>. The Kelman type lens is designed to provide compressible haptic fixation in order to reduce lens

malposition and forward vaulting of the optic <sup>11</sup>. These features will maintain an acceptable degree of clearance between the optic and corneal endothelium anteriorly as well as the optic and iris posteriorly <sup>11</sup>. The flexible-loop AC-IOL seems to have a good long-term outcome after correct placement in properly selected patients <sup>12</sup>. Any error related to correct placement can cause unusual pressure on the adjacent limbal tissue, and in long-term, destroy the limbal structure of otherwise-healthy anterior chamber. These mistakes include upside-down positioning, inappropriate size selection or tenacious flexed haptic in a well-oriented AC-IOL.

In our case, as mentioned before there were no history of frequent eye rubbing, allergic ocular surface disease, and prior ocular trauma following AC-IOL implantation. Also, according to the site of haptic exposure, gravity factor does not seem to be an effective factor for what had happened in the patient, and there was no evidence of backwards implantation of the AC-IOL. The diameter of extracted AC-IOL was 13 mm, while the white to white corneal diameter of the eye, evaluated by specular microscopy, was only 11 mm. In our opinion this difference suggests that imperfect selection of the AC-IOL size in our patient may have caused an extraordinary pressure on scleral tissue, chronic ischemia and edema leading to destruction of tissue. Consequently, in the absence of any external factor, the mismatched AC-IOL had found its way through the sclera.

### Conclusion

We presented a rare case of spontaneous anterior chamber lens exposure and its surgical management in a patient with an otherwise healthy ocular surface. It was concluded that an error in IOL size selection might have been

the cause of spontaneous haptic exposure.

#### Authors ORCIDs

Hossein Mohammad-Rabei:

 <https://orcid.org/0000-0003-3653-6272>

Amir Arabi:

 <https://orcid.org/0000-0002-6523-7733>

#### References

1. Auffarth GU, Wesendahl TA, Brown SJ, Apple DJ. Are there acceptable anterior chamber intraocular lenses for clinical use in the 1990s? An analysis of 4104 explanted anterior chamber intraocular lenses. *Ophthalmology*. 1994;101(12):1913-22.
2. Sawada T, Kimura W, Kimura T, Suga H, Ohte A, Yamanishi S, et al. Long-term follow-up of primary anterior chamber intraocular lens implantation. *J Cataract Refract Surg*. 1998;24(11):1515-20.
3. Kumar A, Nainiwal SK, Dada T, Ray M. Subconjunctival dislocation of an anterior chamber intraocular lens. *Ophthalmic Surg Lasers*. 2002;33(4):319-20.
4. Smith PW, Wong SK, Stark WJ, Gottsch JD, Terry AC, Bonham RD. Complications of semiflexible, closed-loop anterior chamber intraocular lenses. *Arch Ophthalmol*. 1987;105(1):52-7.
5. Gungel H, Altan C, Baylancicek DO. Endophthalmitis due to exposure of anterior chamber intraocular lens haptic tip. *J Cataract Refract Surg*. 2009;35(9):1633-6.
6. Rong X, Lu Y. Spontaneous exposure of angle-supported anterior chamber intraocular lens haptic tip. *J Cataract Refract Surg*. 2016;4(1):1-4.
7. Spierer O, O'Brien TP. Spontaneous Scleral Perforation of an Anterior Chamber Intraocular Lens. *Case Rep Ophthalmol*. 2016 9;7(1):249-52.
8. Biedner B, Rothkoff L, Blumenthal M. Subconjunctival dislocation of intraocular lens implant. *Am J Ophthalmol*. 1977;84(2):265-6.
9. Apple DJ, Brems RN, Park RB, Norman DK, Hansen SO, Tetz MR, et al. Anterior chamber lenses. Part I: Complications and pathology and a review of designs. *J Cataract Refract Surg*. 1987;13(2):157-74.
10. Apple DJ, Hansen SO, Richards SC, Ellis GW, Kavka-Van Norman D, Tetz MR, et al. Anterior chamber lenses. Part II: A laboratory study. *J Cataract Refract Surg*. 1987;13(2):175-89.
11. Fintelmann RE, Kim SK, Hwang DG. Upside-down lens syndrome: ocular complications secondary to inverted implantation of the Kelman Multiflex anterior chamber intraocular lens. *Am J Ophthalmol*. 2011;152(1):122-5.
12. Drolsum L. Long-term follow-up of secondary flexible, open-loop, anterior chamber intraocular lenses. *J Cataract Refract Surg*. 2003;29(3):498-503.

#### Footnotes and Financial Disclosures

##### Conflict of interest:

The authors have no conflict of interest with the subject matter of the present study.