

Iris prosthetic IOL implantation after strabismus surgery and 4-year follow-up in a case of long-standing traumatic aniridia

Abstract

I report here a 32 years old aphakic male patient with external strabismus and traumatic subtotal temporal aniridia in the right eye. Visual acuity was counting fingers from 2 meters and intraocular pressure (IOP) was 12 mmHg in this eye. He exhibited -18 prism diopter exophoria with a clear cornea and open visual axis, but only showed a half intact iris on the nasal side. No posterior segment pathology was detected during fundus and ultrasonographic examinations. Initially, I performed 6-mm resection of the medial rectus muscle for his external squint in January 2012; then I performed iris prosthetic scleral intraocular lens implantation in October 2012. Even on the postoperative first day, the patient was happy with his new vision and outlook. His visual acuity was 12/20 and IOP was 24 mmHg. His last examination was performed in October 2017; his final visual acuity was 16/20 and IOP was 18 mmHg.

Keywords: traumatic aniridia, aphakia, iris prosthetic intraocular lenses, recovery of visual disturbances

Volume 8 Issue 2 - 2018

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Received: February 25, 2018 | **Published:** March 21, 2018

Introduction

Post-traumatic iris defects, combined with crystalline lens abnormalities, are among the major complications of globe injuries.¹ Individuals who lack adequate iris tissue suffer from glare, photophobia, visual field disturbances, and other visual disturbances that can cause social, mental, and psychological problems.² Such patients suffer from severe visual impairment, secondary to aphakia.³ Herein, I describe an approach for the management of an aphakic, exophoric eye with traumatic aniridia, which was found in a patient who underwent transscleral fixation of an artificial iris prosthetic intraocular lens (IOL), 10 months after strabismus surgery.

Case report

The patient was a 32-year-old aphakic male who had exhibited traumatic subtotal temporal aniridia and divergent strabismus in the right eye since the age of 13. I first examined him in 2012; his visual acuity was counting fingers from 2 meters, while the intraocular pressure (IOP) was 12 mmHg in this eye. He exhibited -18 prism diopter exophoria and a mostly clear cornea. He also exhibited an open visual axis with a temporal loss of nearly half of the iris. No pathology was detected in the posterior segment during direct fundus examination, ultrasonography, or optical coherence tomography. Initially, I performed a 6-mm medial rectus muscle resection on the right eye to correct his divergent strabismus in January 2012. Ten months after this operation, his Ophtec 311 Aniridia Lens II arrived at our clinic.

Under general anesthesia, two conjunctival limbal-based trigonal flaps were made at the 3 and 9 o'clock meridians before performing a superior 9.7 mm clear corneal incision. After hitching the 9-0 polypropylene looped sutures with a long-curved needle (PC-9; Alcon Surgical, Fort Worth, TX, USA) to the haptic of iris prosthetic polymethyl methacrylate IOL, the haptics were tightly attached. After passing the needles through the marked scleral points, the

IOL was implanted and retracted, such that it was stabilized and well-centered after the withdrawal of both needles through the pars plana. Polypropylene sutures were tied to the sclera, and the suture knots were buried into the sclera on both sides. To ensure placement within the sclera, the suture ends were buried along with the knots. The corneal incision was sutured with a 10-0 non-absorbable nylon suture, while the conjunctiva was subsequently closed with an 8-0 nylon suture (Vicryl®, Ethicon).

Even on the postoperative first day, the patient was happy with his new vision and outlook. His visual acuity was 12/20, while his IOP was 24 mmHg. He demonstrated a significant astigmatism (-2.75x155). His last examination was conducted in October 2017; his visual acuity was 16/20 and his IOP was 18 mmHg. His autorefractometry was -0.75 (-0.75x165) and he was thankful and pleased to function without glasses (Figure 1-4).



Figure 1

Figure 1 Pre- and post-operative ultrasonography.

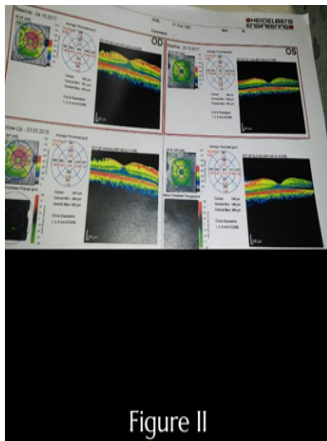


Figure 2 Pre- and post-operative optical coherence tomography.



Figure 3 Iris prosthetic intraocular lens.



Figure 4 Final outcome.

Discussion

Iris defects combined with aphakia are serious problems that are frequently encountered after globe injuries.^{4,5} Aside from aesthetic aspects, partial or total loss of iris tissue may also contribute to various degrees of glare, photophobia, and visual impairment.^{6,7} In patients with major iris defects, an artificial iris prosthesis provides satisfactory anterior segment reconstruction with remarkable visual and functional outcomes.⁸ Various implants have been developed for the treatment of aphakia with aniridia, such as the Morcher black-diaphragm IOL (Morcher 67F BDI, Morcher). The Ophtec iris reconstruction lens (Ophtec USA, Boca Raton, FL, USA), with the color options of brown, blue, and green, has been reported to provide better cosmetic outcomes, as well as remarkable visual improvements.^{9,10} A lack of effective iris tissue or pigmentation allows excess light into the eye, causing both photophobia and an inability to open the eye normally.¹¹ These patients suffer from image degradation because of an increase in higher order aberrations in the optical system that occur with increased pupil size. A fixed 4-mm pupil size of Ophtec 311 IOL decreases these visual disturbances, thus improving visual acuity, in a manner that combines with its provision of pseudophakic dioptric advantages.^{12,13}

Conflicts of interest

No financial support was received for this study.

Acknowledgments

None.

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