Anterior Iris Enclavation of a Black Intraocular Lens for Leukocoria.

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Abstract

A 32-year-old black woman came to our attention due to dissatisfaction with the cosmetic appearance of her blind left eye, with exotropia and leukocoria, interfering with her professional, social and personal life. At the slit lamp, we found a clear cornea, a quiet anterior chamber, a normal iris and a white pupillary reflex due to white cataract and fibrotic retinal detachment. An Artisan® pupil occluder was enclavated retropupillary, keeping the cataract intact. Strabismus was surgically corrected. Despite the uneventful immediate post-operative course, two weeks after surgery, patient presented with posterior dislocation of the pupil occluder by release of one of the haptics, inducing cataract subluxation. Intracapsular cataract extraction was performed and the pupil occluder was repositioned anterior to the iris. At one year follow-up, the eye remains quiet. Exotropia was corrected and the pupil occluder is well centered with an excellent cosmetic appearance. Patient is extremely satisfied with the outcome.

Key-words: leukocoria; black intraocular lens; pupil occluder; anterior iris enclavation.

Introduction

Leukocoria in blind eyes may interfere with personal, social and professional life. Although often treated with the use of cosmetic contact lenses, lens extraction or corneal tattooing, not all patients tolerate contact lenses, and lens extraction is not recommended in eyes with no visual potential. Both classical and femtosecond laser-assisted corneal tattooing have risks and disadvantages. The implantation of a black intraocular lens (IOL) seems to offer a more permanent solution and has been performed with good results. We present a successful case of simultaneous correction of exotropia and leukocoria, with the pupil occluder enclavated anterior to the iris.

Case Report

A 32-year-old black woman was evaluated due to the uncomfortable cosmetic appearance of her blind left eye (OS), with exotropia and leukocoria, resulting from traumatic cataract and total retinal detachment during childhood (Figure 1), which was interfering with her professional, social and personal life.

Ophthalmological examination showed an obvious leukocoria and exotropia of the OS and a normal right eye (OD). Visual acuity revealed no
light perception in OS and 20/20 in OD. Biomicroscopy of the OS showed a clear cornea, quiet anterior chamber, normal iris and a white pupillary reflex, due to white cataract and total and fibrotic retinal detachment.

After discussion of therapeutic options, and obtaining informed consent regarding the off-label use of the Artisan® pupil occluder (Ophtec, Netherlands), patient chose to proceed with surgery, which was performed under general anesthesia. In brief, two side port incisions (1 mm) were created. An adaptive visscurotomy device was injected over and under the iris, followed by the creation of a clear-corneal 5.5 mm main incision. Given there was enough space between the cataract and the iris, the Artisan® pupil occluder was implanted retropupillary, with an enclavation needle, keeping the cataract intact. Strabismus correction was performed with recession of the lateral rectus muscle and resection of the medial rectus muscle.

Despite the uneventful immediate post-operative course, re-evaluation two weeks after surgery showed posterior dislocation of the pupil occluder by release of one of the haptics, which induced cataract subluxation. Intracapsular cataract extraction was performed and the pupil occluder was repositioned anterior to the iris (Figure 2).

One year after the second surgery, the eye remains quiet. The exotropia was corrected and the pupil occluder is well centered with an excellent cosmetic appearance (Figure 3). The patient is extremely satisfied with the outcome.

**Discussion**

Management of leukocoria with a black IOL has been described with good results.2,3 Although there are other options to treat leukocoria in blind eyes, such as cosmetic contact lenses, lens extraction2 or corneal tattooing,3,4 not all patients tolerate contact lenses,1,2 and lens extraction is not recommended in eyes with no visual potential given the risk of phthisis bulbi2,3 or sympathetic ophthalmitis.3 Classical methods of corneal tattooing have some risks and disadvantages,2 and although femtosecond laser-assisted corneal tattooing provides improvements over the classical techniques, it still has associated complications and is an expensive option.4 We chose the implantation of a phakic black IOL because, in our patient’s case, not only a strabismus surgery would be performed, but also a simple cataract extraction would probably maintain the white reflex due to the total retinal detachment.2 A possible alternative would be performing strabismus surgery without the implantation of the black IOL and subsequently use a cosmetic contact lens. In our opinion, this option would increase the likelihood of a new surgery, with the consequent risk of phthisis, since the patient might not be satisfied with the result, as the cosmetic appearance with a black IOL is superior.

The Artisan® Black iris-claw 201 IOL is a polycarbonate non near infrared light transmitting IOL usually used for pupil occlusion in cases of intractable diplopia.6 This lens, as well as other iris-claw lenses,2,10 is enclavated retropupillary, and not placed in the ciliary sulcus and/or sutured to the sclera, as the black poly(methyl methacrylate) IOLs used by Osher and Snyder1 and White and McGinnity.2

It has been reported that retropupillary enclavation of iris-claw aphakic IOLs, as a surgical procedure, is a safe9 and simple implantation technique,10 avoiding the surgical challenge of a sutured posterior chamber intraocular lens.8 It has the advantage of an anatomically correct implantation site (posterior chamber implantation) as compared to endocapsular implantation,10 with a low intra-operative and post-operative risk profile,9 and a relatively low complication rate.10 In addition, it is a minimally invasive and reversible procedure. A pre-requisite for this technique is an intact iris,10 which was the case of our patient. Complications include pupil irregularity/ovalization ranging from 3.2%7 to 17.7%,8 peaked pupils (32.3%), lens decentration (5.9%),9 and spontaneous IOL disenclavation (1.6%).7

In our case, spontaneous IOL disenclavation occurred after two weeks, inducing cataract subluxation, which led to intracapsular cataract extraction and repositioning of the pupil occluder anterior to the iris. This repositioning was successful, and one year after the second surgery the pupil occluder is well centered with an excellent cosmetic appearance.

In conclusion, this case suggests that, in cases of leukocoria, the use of the Artisan pupil occluder positioned anterior to the iris can be an aesthetic correction alternative to the classic treatment with contact lenses, corneal tattooing or single crystalline lens extraction.