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**Background**

Approximately 2.4 million ocular injuries occurring in the US annually, and may lead to temporary or permanent vision loss.<sup>[1]</sup> Dependent on its origin, ocular trauma may range from corneal abrasions to traumatic iritis, to retinopathies and detachment. Piggybacking a corneal gas permeable (GP) contact lens over a soft contact lens is an alternative option that proves beneficial when other specialty lenses are contraindicated and/or cannot be manipulated with needed parameters (i.e., filtering blebs, necessary colour options).<sup>[2]</sup>

**Case Summary**

**Patient Demographics:** 47 year-old Caucasian Male

**Chief Complaint:** Poor vision at distance and near; poor cosmesis secondary to lack of iris in left eye

**HPI:** Constant decreased vision, increased glare, and dull ache in left eye. Expressed interest in contact lens use due to inconvenience of spectacle wear with occupation as mechanic.

**Ocular History:** Ocular trauma secondary to physical assault June 2016: aphakia, aniridia, severe traumatic glaucoma, central corneal opacity, Baeveldt and Ahmed glaucoma drainage implantation, scleral patch graft, open globe repair, and PPV with gas of left eye. Full recovery of hemorrhagic choroidal detachment, vitreous hemorrhage, resolved bullous keratopathy and pupillary fibrous membranes noted, in left eye. Right eye health unremarkable.

**Medical History:** No medications reported and NKDA

Current every day smoker

**Pertinent Findings:**

**Visual Acuties (cc):** OD: 20/20<sup>-2</sup> OS: CF @ 5 ft

**Pupils:** RRLA OD, aniridia OS

**Refraction:** OD: +0.25-2.25x165 20/20

OS: +15.25-3.25x145 20/50<sup>+1</sup>

**Intraocular Pressures:** OD: 18mmHg OS: 19mmHg

**Slit Lamp Exam:**

**Lids:** No crusting, mild blocked meibomian glands OU

**Conjunctiva:** 1+ diffuse injection OU

**Cornea:** clear and intact OD, 2mm round opacity inferior/superior OS

**Anterior Chamber:** deep and quiet OU, tube shunts at 4/10 o'clock OS

**Diagnosis:**

1. Aphakia, left eye OS
2. Aniridia, left eye OS
3. Hypermetropia, left eye OS

**Treatment**

Patient fit into Boston ES corneal GP contact lens, piggybacked over an Air Optix Color Sterling Gray, with success

**GP parameters of DIA/BC/POWER**

OS: Boston ES corneal GP 9.8/8.10/+15.00DS

Inferior position with good lid attachment, acceptable NaFl pattern

Air Optix Color Sterling Grey 14.2/8.6/plano

Slight inferior position with acceptable centration

VA: 20/25<sup>-2</sup>; Patient expressed good comfort

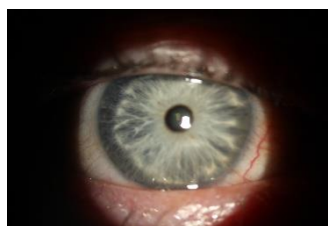


Image 1: normal OD

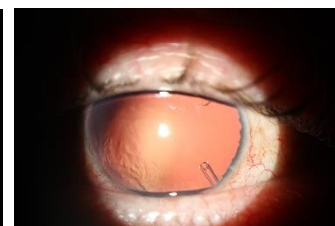


Image 2: aphakic, aniridic OS



Image 3: post-dilation OD



Image 4: Boston ES GP piggybacked over Air Optix Color Sterling Grey

**Results**

- Patient did not require correction OD, and was successfully fit with piggyback combination of Boston ES corneal GP lens over Air Optix Color Sterling Silver
- Use of GP allowed patient to regain greater independence, especially with his occupation as a mechanic
- Patient experienced resolution of glare, secondary to use of color soft lens; resolution of decreased vision, secondary to use of corneal GP lens; and increased overall comfort was noted in the left eye
- Patient was surprised and excited that both functional and cosmetic expectations were met

**Discussion**

**Traumatic Ocular Injury:**

- Traumatic injuries affect numerous ocular anatomical structures and must be managed from highest to lowest severity, with ongoing interprofessional co-management<sup>[3]</sup>
- Close long-term management is necessary for ocular (i.e. glaucoma), psychological (i.e. cosmesis), and occupational health benefits that may debilitate and highly affect quality of life
- Ocular Trauma Score (OTS) is commonly used to determine prognostic factors for ocular trauma<sup>[3]</sup>

**Challenges Encountered:**

- Fulfilling patient expectations of improvement in vision, comfort, and cosmesis: limited number of tinted specialty contact lenses available in today's industry
- Evaluating the benefits versus risks of fitting contact lenses on a vulnerable eye, without inducing additional issues, such as infection
- Patient education on monocular condition and continuous use of polycarbonate spectacles, for protection, is necessary

**Conclusion**

- Patients with aniridia and corneal irregularities will present with symptoms that greatly affect habitual activities and decrease independence
- Fitting of a scleral lens was not attempted, secondary to contraindications of Baerveldt and Ahmed glaucoma drainage device implantations and scleral patch grafts
- Fitting of a hybrid lens was not attempted, secondary to the inability of having added colour tint to the lens
- Finding a tinted colour lens to patient's unaffected eye posed as a challenge, and revealed the importance of cosmetic and prosthetic contact lenses in clinical practice

**References**

1. Tichauer MB. Ocular Trauma: 8 Potentially Devastating Eye Injuries. Medscape, Apr 2017.
2. Sherman S, Nolan W. Combining Optics and Comfort: Piggyback and Hybrid Lenses. Review of Cornea and Contact Lenses, Sep 2017.
3. Gerstenblith AT, Rabinowitz MP. The Wills Eye Manual, 6<sup>th</sup> edition. Philadelphia: Lippincott Williams and Wilkins, 2012.