# Photogenic with Flash: using prosthetic lenses for photophobia

Julie Song, OD, Irene Frantzis, OD, David Libassi, OD

## Background

An iris coloboma is a congenital abnormality that occurs at a rate in 1 of 10,000 births[1]. Colobomas are, however, not limited to the iris. Colobomas can affect different anterior structures in the eye besides the iris, such as the uvea and the lens. In the posterior portion of the eye, multiple ocular structures can also be impacted, such as the retina, the optic nerve, and the choroid. Within the embryonic development process, colobomas of anterior and poster eye can develop during the second month of gestation as the closure of the embryonic fissure is expected to be occurring[2]. Colobomas can even affect areas outside of the globe, such as the eyelids[3]. While colobomas that affect the globe are often located in the inferior and nasal portion of the globe due to the embryonic development process, colobomas of the eyelids typically affect the superior and medial upper eyelid[4].

What sets the classic keyhole pupil presentation of the iris coloboma apart from the rest of the coloboma presentations is its ability to cause symptoms of glare and photophobia due to additional light entry. While spectacle tints are an adequate option for combating photophobia, its usage is limited in patients who have activities of daily living where spectacle tints are not compatible or who are concerned with cosmesis. In these patients, prosthetic contact lenses are an acceptable alternative for photophobia management.

## Case Description

A 27-year-old white female presents with complaints of distance vision blur, glare, and photophobia secondary to iris coloboma OD. She reports that her right eye chronically becomes ptotic in photographs with flash photography and she gets nervous when she must take pictures at night. At previous eyecare provider appointments, the patient mentioned that she was offered prosthetic contact lens fitting for the purposes of cosmesis, but she was never interested because she felt comfortable with the appearance of her iris coloboma as is.

Her systemic medical history is largely unremarkable, and her medication list only includes Vienva 0.1 mg-20 mcg tablet QD for birth control.

### Manifest Refraction

| | OD | OS |
|---|---|---|
| Entering Visual Acuity with Habitual Spectacles | 20/30+1 | 20/20-1 |
| Manifest Refraction | +0.75-2.25X015 | -3.25-1.00X180 |
| Spectacle BCVA | 20/30+2 | 20/20-2 |
| Final Spectacle Prescription | Plano-1.25X015 | -3.25-1.00X180 |

### Slit Lamp Examination

| | OD | OS |
|---|---|---|
| Angles/PI | Open angle | Open angle |
| Adnexa | Adnexa normal | Adnexa normal |
| Eye Lids | Lids normal | Lids normal |
| Sclera/Conjunctiva | White and Quiet | White and Quiet |
| Cornea | Normal endothelium, epithelium, stroma, and tear film | 2 mm neovascularization at 10:00 and 1:00, trace superior punctate keratitis centrally |
| Iris | Iris coloboma with 2 strands of posterior synechiae | Iris normal |
| Anterior Chamber | Anterior chamber is deep, no cells, no flare | Anterior chamber is deep, no cells, no flare |
| Lens | Clear lens capsule, cortex, and nucleus, pigment on anterior lens capsule | Clear lens capsule, cortex, and nucleus |

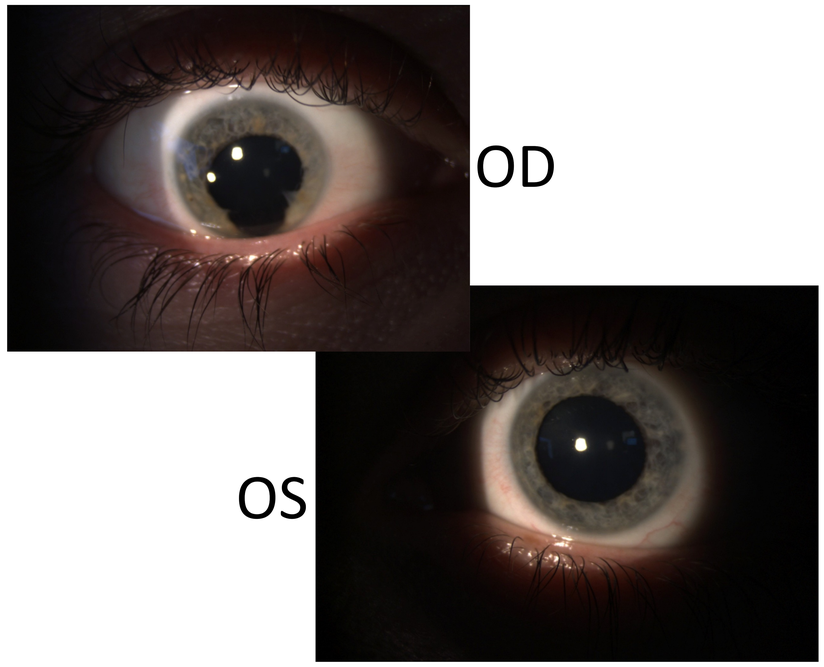
## Contact Lens Fitting

### Trial lens fitting for prosthetic soft contact lens:

| Trial | Power | Brand | Type | Base Curve | Diameter | Color | Material | Design |
|---|---|---|---|---|---|---|---|---|
| 1 | Plano Sph | Orion | Biocolors Sphere | 8.6 | 14.3 | CB3 | Methafilcon A 55% | 6 mm clear pupil, HVID 11.25 mm |
| Final | +0.75-2.25X015 | Orion | Biocolors Toric | 8.6 | 14.3 | CB3 | Methafilcon A 55% | 5 mm clear pupil, HVID 12.25 mm |

### Improvement in Lid Positioning with Flash Photography:

| | OD | OS |
|---|---|---|
| Vertical Aperture without Prosthetic Soft Contact Lens | 4 mm | 8 mm |
| Vertical Aperture with Prosthetic Soft Contact Lens | 7 mm | 8 mm |




## CONCLUSIONS

Prosthetic soft lens fitting in patients with pupil and iris abnormalities varies depending on the case presentation. In patients with mild symptoms or with small areas of pupil abnormalities, a multiple-packaged colored lens or a silicon hydrogel lens with UV-induced tint could be sufficient. For patients with more moderate-severe symptoms and larger areas of pupil abnormalities, a custom hydrogel prosthetic lens will be more appropriate. Custom ordered prosthetic lenses are available in iris only, pupil only, or iris plus pupil configurations. Iris imprints are available in just an overprint for patients who are less photophobic or in an overprint plus an opaque underprint for patients who are more photophobic. In cases where patients have light colored eyes, color matching can be difficult. In these patients, a prosthetic lens is often necessary in the opposite eye to ensure equal matches in color especially when an underprint is necessary. In our patient's case, she had heterochromia with blue-green eyes and was satisfied with iatrogenic induced heterochromia with only wearing one prosthetic lens. An overprint only soft prosthetic lens demonstrated improved lid positioning during flash photography.

## REFERENCES

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