

Reclaiming Sight and Confidence: Prosthetic Lenses in Iris Atrophy

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Introduction

Prosthetic contact lenses can be prescribed to mask a disfigured eye, improve visual function and enhance the patient's quality of life. Common ocular indications for soft prosthetic lenses include: opacified corneas, corneal scars, disfigured pupils, iris atrophy, and ocular albinism.¹ This case report examines the utilization of soft printed prosthetic lenses to enhance both the functional and cosmetic aspects of a patient with traumatic iris atrophy and photophobia.

Case Description

A 72-year-old Caucasian male presented for a contact lens fitting.

Chief complaint: longstanding glare and photophobia OD

Primary goal: Exploring alternative contact lens options to improve comfort compared to habitual hand-painted prosthetic lens

Ocular History:

- Penetrating ocular injury OD when he was accidentally hit with a pencil at the age of four
- Iris atrophy OD
- Traumatic cataract OD
- Cataract extraction OD, OS

	OD	OS
Habitual correction	-1.50 DS (balance lens)	-1.37-2.25x093
Best-corrected DVA	Counting fingers at 1 ft	20/20
Fit assessment (Hand painted lens)	Good movement with blink, full limbal coverage, centered	N/A
Anterior segment	Corneal scarring without inflammation, iris atrophy, and anisocoria	Iris is blue and flat without abnormalities
Horizontal visible iris diameter (HVID)	N/A	12.25 mm
Pupil size (average)	N/A	4.2 mm

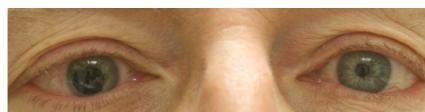


Figure 1. Iris atrophy and pupillary abnormality visible of the patient's right eye



Figure 2. The patient's habitual hand-painted prosthetic lens on his right eye

Lens Selection

While cosmesis of the hand-painted lens was excellent and comfort was acceptable, a printed prosthetic soft lens fitting yielded equally acceptable cosmesis and improved lens comfort. A printed soft contact lens design also offered better cost and reproducibility.²

The closest match to the patient's blue iris was a stormy-gray lens. A full iris occlusion and a clear open pupil design was chosen to maintain the desired cosmetic appearance and alleviate the patient's symptoms of photophobia.

The patient's left iris and pupil diameters were measured in bright, dim, and normal room illumination.

Upon excellent fit assessment of the diagnostic lens, a customized lens was ordered, and the patient returned for a one-month checkup. A power of +1.00 DS was incorporated into the lens to increase the thickness and resolve radial tearing from frequent lens handling.

The patient reported better comfort with the soft prosthetic printed lens compared to his habitual hand-painted lens. He also reported no issues with photophobia and was content with the final cosmesis.

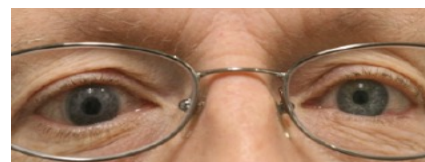


Figure 3. Finalized printed prosthetic lens in the patient's right eye

	Final Prosthetic Lens Parameters
OD	Diameter: 14.5mm Base Curve: 8.60 mm Power: +1.00 DS Iris color: Granite Underprint: Stormy Material: Hydrogel

Figure 4. Printed prosthetic lens parameters

Discussion

- Prosthetic lenses can conceal ocular disfigurement by color matching to the unaffected eye and improve visual function by controlling the amount of light entering the eye through a fixed pupil diameter and opaque underprints.
- Soft printed prosthetic lenses can effectively match most eyes and are opaque enough to conceal a larger pupil. They are also less expensive, more comfortable, and convenient compared to a hand-painted lens as they are thinner and more easily reproducible.²
- The initial step in a soft printed prosthetic lens fitting is to identify the best color match for the patient's natural iris. Combinations of iris prints and underprints can help achieve more color variations.
- The horizontal visible iris diameter (HVID) and pupil size diameter in different lighting conditions for the unaffected eye are measured to ensure a proper fit and effective concealment of disfigured areas, preventing issues such as discomfort or irritation associated with undersized or oversized lenses.³
- Complications of soft printed prosthetic lenses are uncommon. The most common complication reported from prosthetic lens wear is conjunctival hyperemia.⁴ Other complications that are not as common include giant papillary conjunctivitis (GPC) and bacterial infections.⁴ Patients with significant dry eye and moderate to severe neovascularization are not good candidates for prosthetic soft contact lenses.⁵

Conclusion

Prosthetic contact lenses can be fit to help patients conceal ocular irregularities and enhance visual function. This dual functionality not only fosters a sense of normalcy for the wearer but also contributes significantly to their overall quality of life. Clinicians should be familiar with various prosthetic contact lens indications to effectively handle and attend to patients who could greatly benefit from them.

References:

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