

BACKGROUND

- The BostonSight Prosthetic Replacement of Ocular Surface Ecosystem (PROSE) device is a custom designed scleral lens that provides an optimal environment to protect and support the ocular structures and surface, improving comfort and visual function.
- Ocular surface disease like limbal stem cell deficiency (LCSD) is an indication for treatment with PROSE device.
- Filtering blebs are a surgical procedure to reduce intraocular pressures in patients with glaucoma.
- However, blebs pose a challenge in scleral lens fittings. Lens design changes must be considered to avoid compromising the glaucoma treatment.
- Alternative treatments: rigid gas permeable lenses or piggyback to avoid conjunctival erosion.

PURPOSE

- Describe the use of fenestrations and channels with the PROSE device in a patient with LCSD and filtering bleb

CASE BACKGROUND

- A 72-year-old white male presents for a contact lens fitting due to symptomatic dry eye.

OCULAR HISTORY:

- Dry Eyes OU, Corneal Ectasia OD, LCSD OD
- Glaucoma OU, s/p tube shut OU, shunt removal OS 2/2 endophthalmitis, Xen Stent OD
- Irregular conjunctiva superiorly and scarring 2/2 glaucoma surgery, h/o Fluorouracil (5Fu) injections
- Pseudophakia OU, s/p cataract surgery with LRI that may be contributing to neurotrophic state
- The patient is heavily reliant on his right eye after endophthalmitis and shunt removal OS which resulted in distorted and reduced vision.

PERTINENT FINDINGS

SPECTACLE VA

- OD 20/100 PH 20/25, OS 20/60, PH NI

REMARKABLE SLIT LAMP FINDINGS

- OD: Thick bleb 3:00 superior conjunctiva, diffuse corneal staining, LCSD extending into superior visual axis

SCLERAL LENS FIT

ADJUSTMENTS MADE TO THE LENS DURING A 2 MONTH PERIOD:

LENS	FIT
Initial Fit: 16.0mm trial	Too large, inf decentration, mechanically pushed inferior by bleb; requires smaller diameter
PROSE 14.5mm	After 4 hours of wear: mild 360 edge staining, no erosions or defects
PROSE 14.5mm + Superior Nasal Channel	After 3 hours of wear, mild edge staining 360 and mild diffuse MCE and mild corneal haze
PROSE 14.5mm + 2 Fenestrations + Connecting Channel	Minimal to no edge staining

14.5MM SMALL DIAMETER LENS

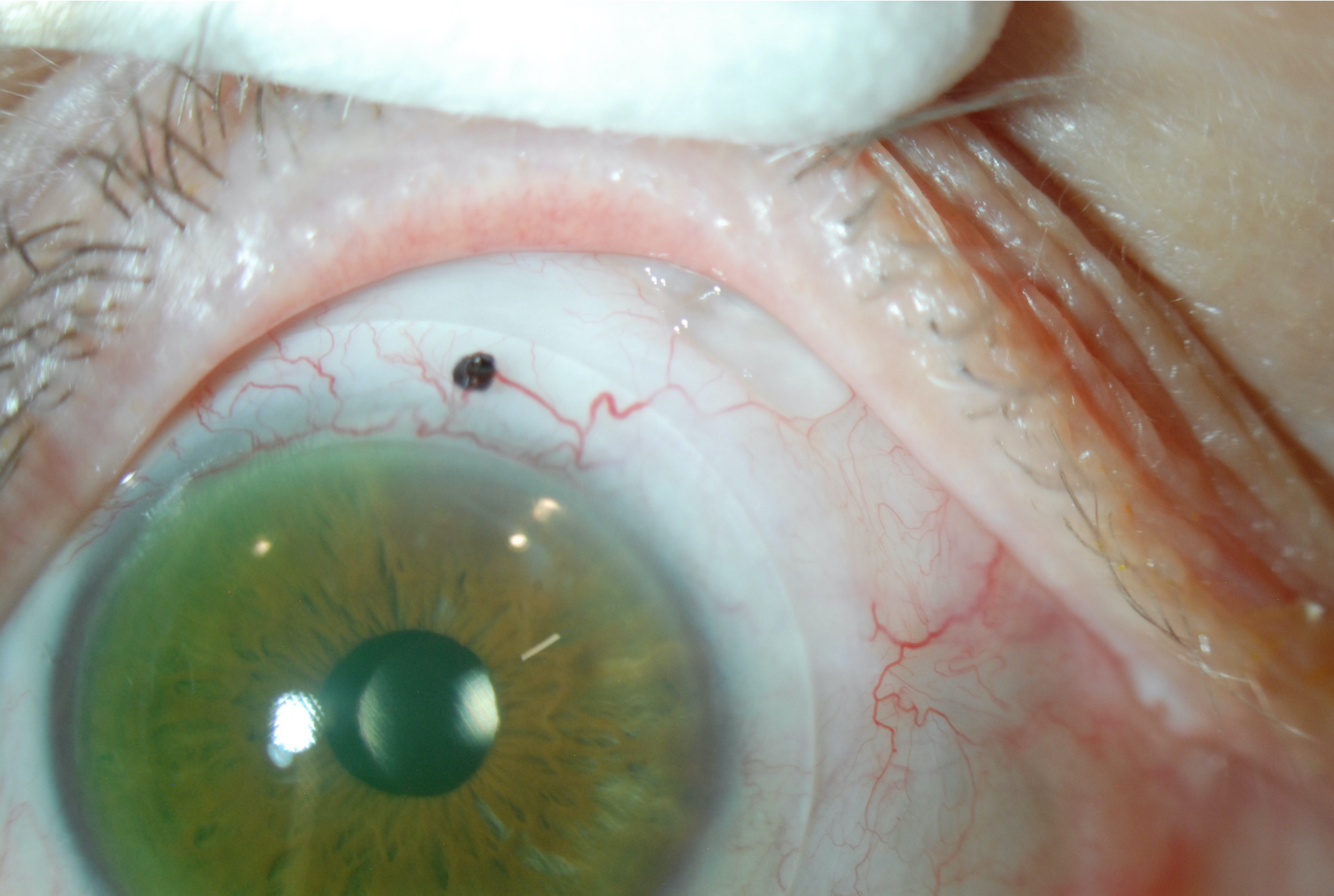


Figure 1: Filtering bleb with 14.5mm small diameter lens; lens anteriorly clears bleb by 2mm

14.5MM FENESTRATED LENS

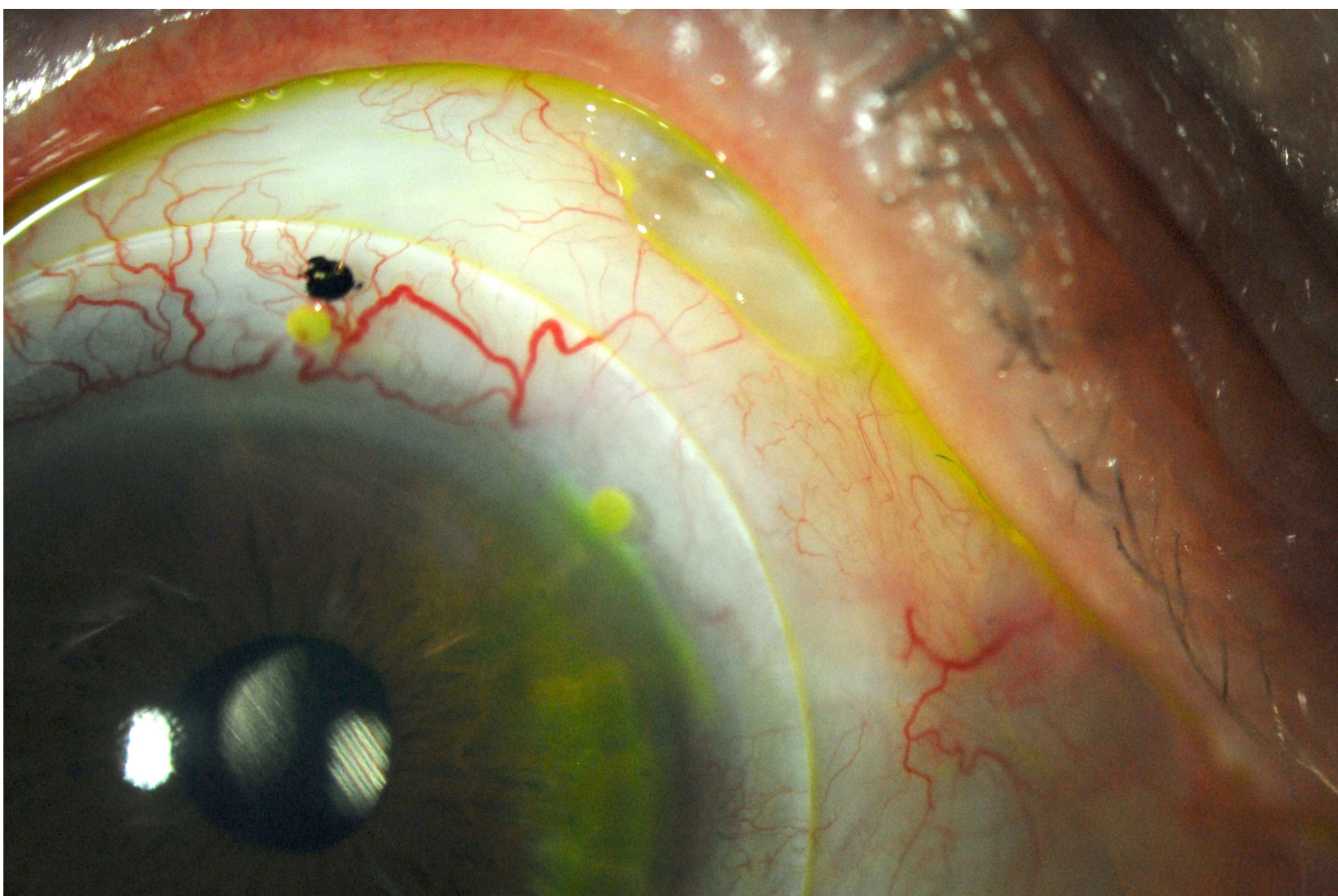


Figure 2: Filtering bleb with 14.5mm fenestrated small diameter lens

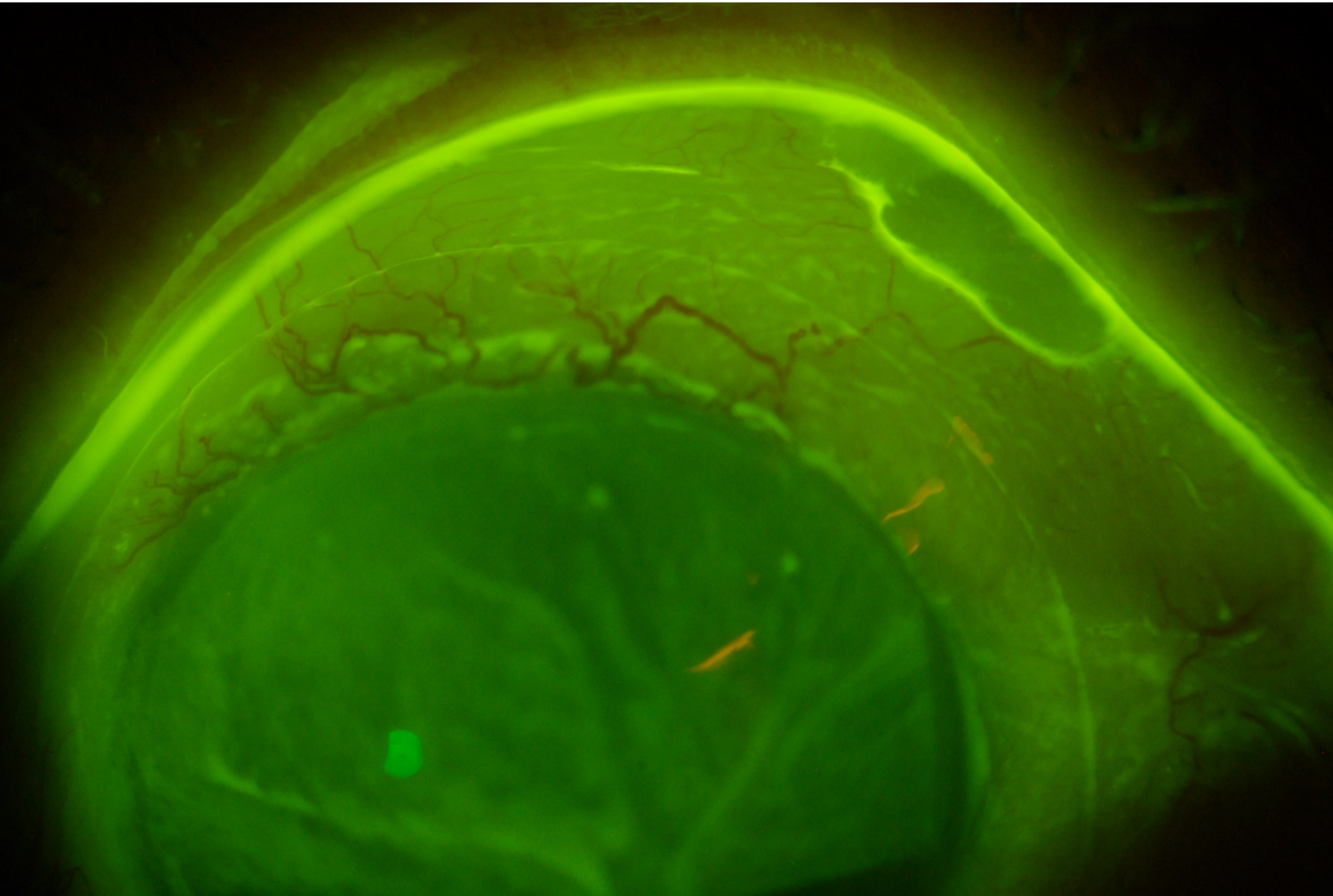


Figure 3: Edge staining with non-fenestrated 14.5 mm lens

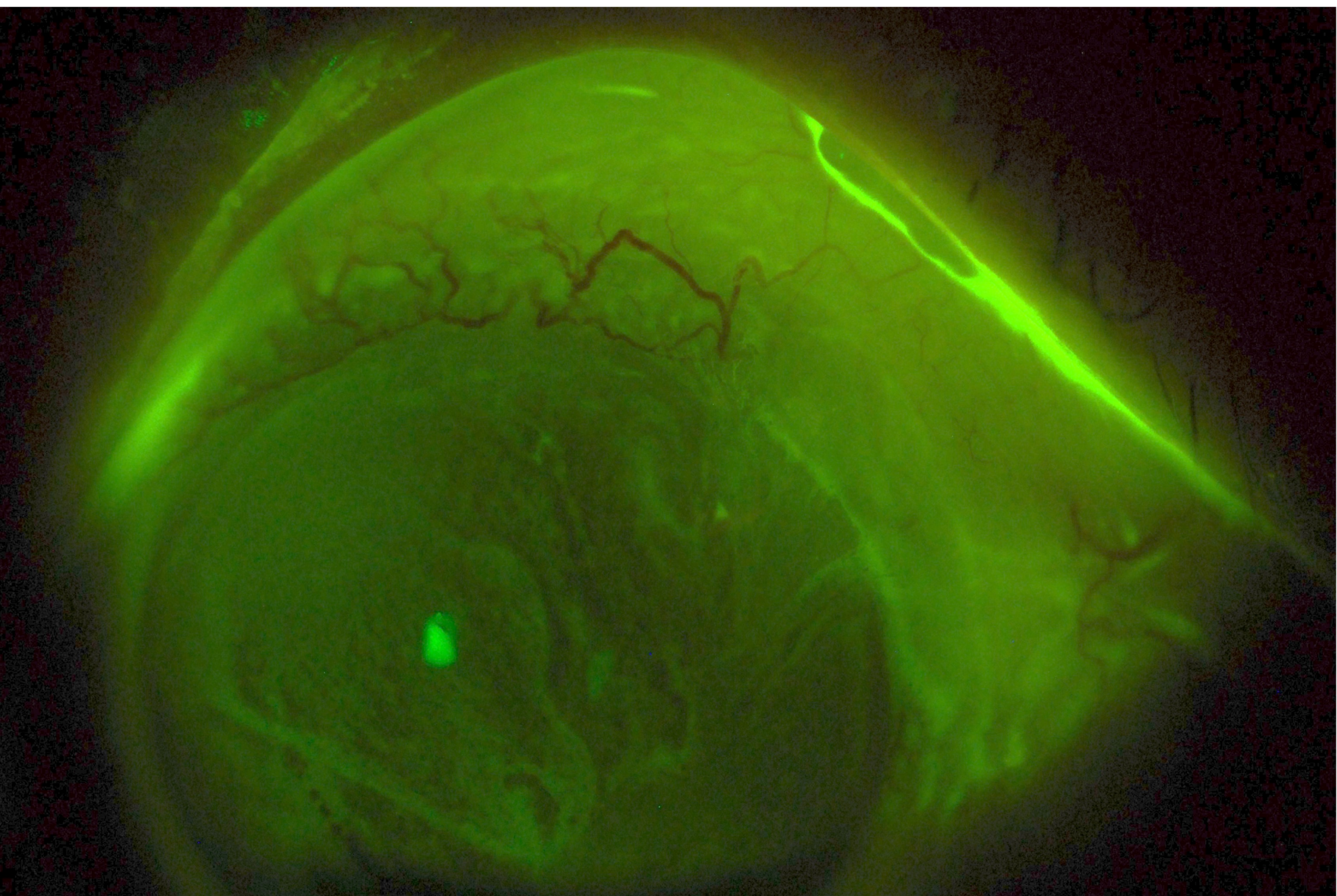


Figure 4: Minimal edge staining with fenestrated lens design

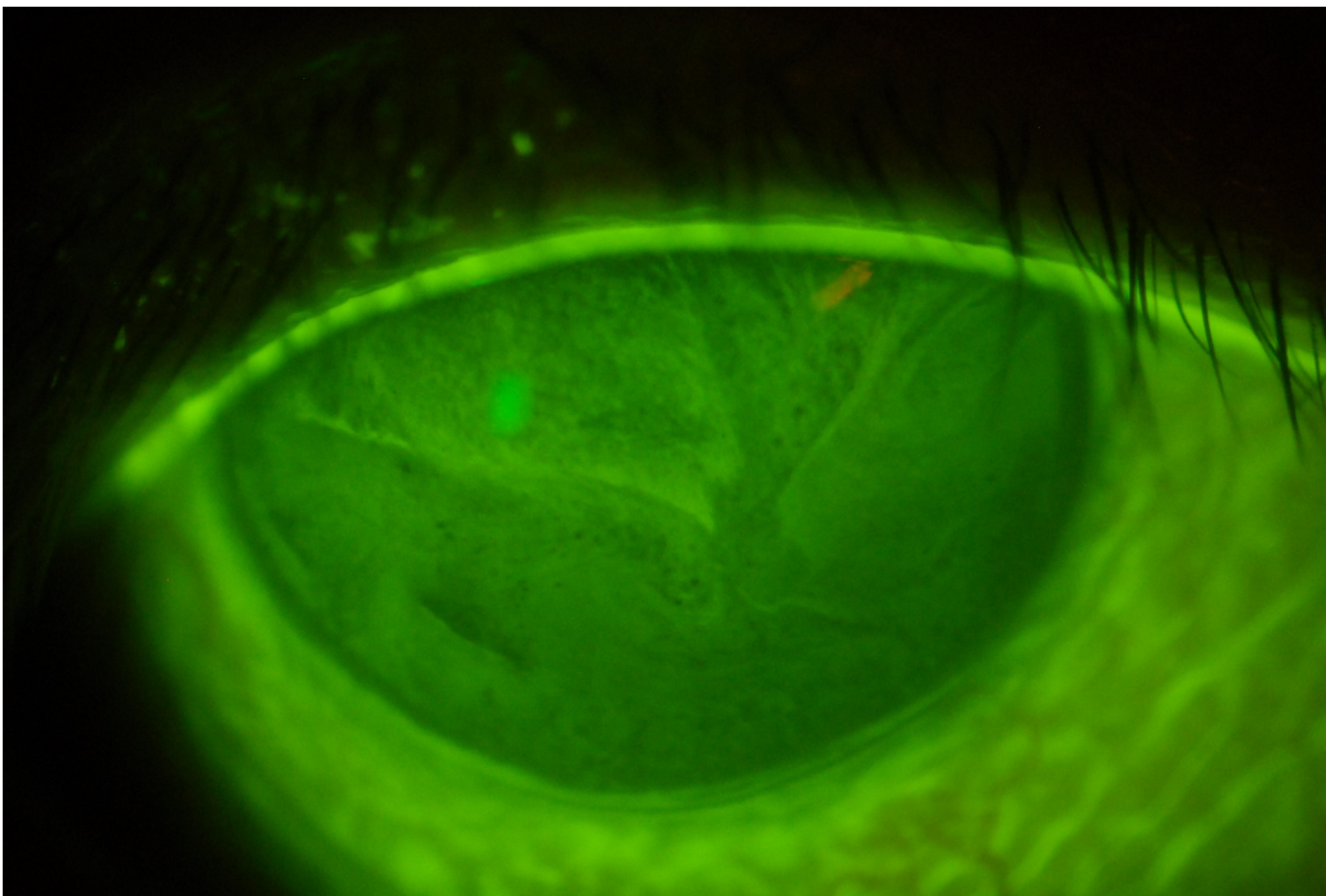


Figure 5: Prior to lens wear, LCSD OD, extending to superior visual axis

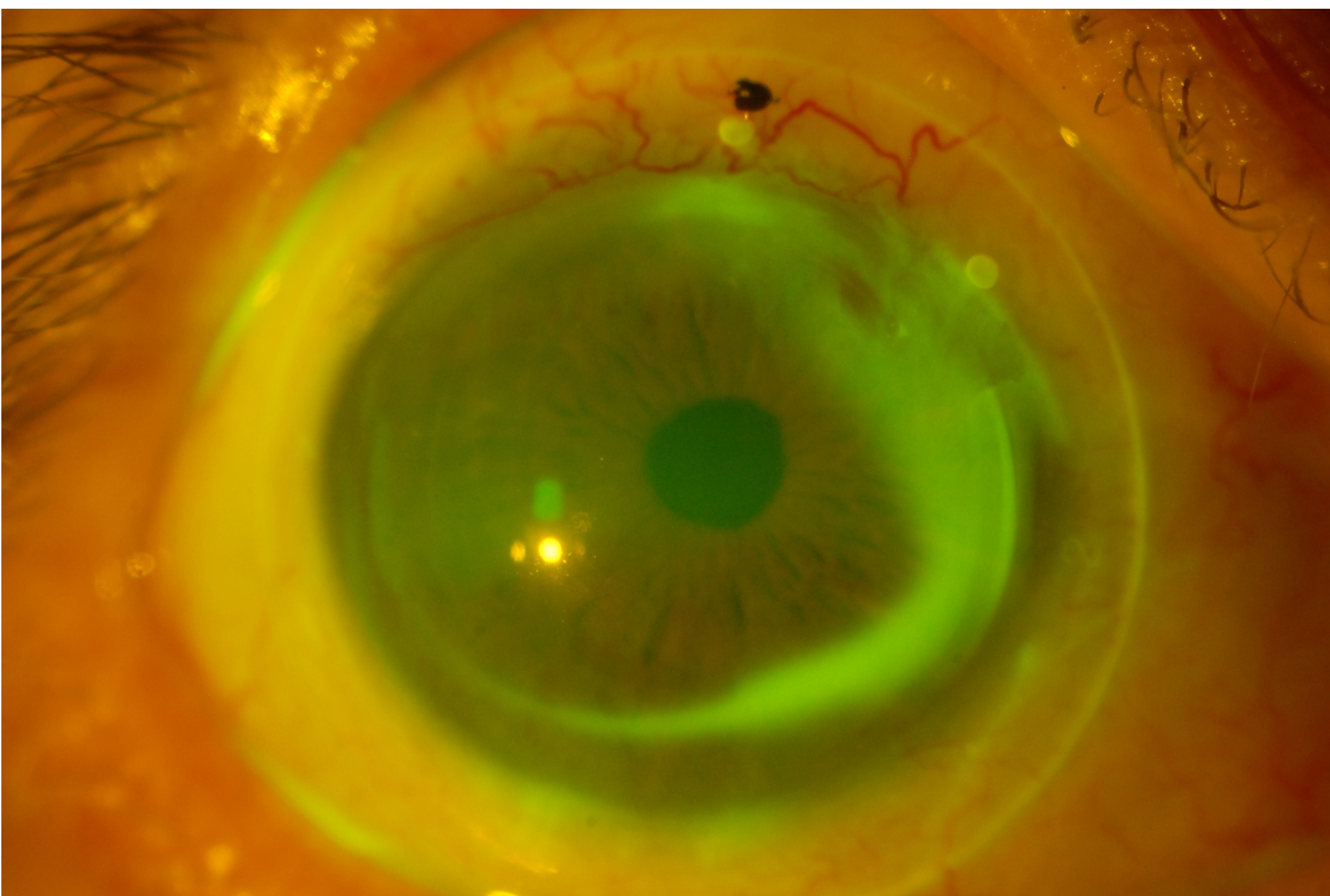


Figure 6: Patent fenestrations allowing fluorescein into fluid reservoir, demonstrating tear exchange and reduced suction

FINAL LENS PARAMETERS

- OD: BostonSight PROSE 14.5mm diameter, custom quadrant BC 7.6-8.4mm, 2 haptic fenestrations 5.81mm from center at 12:00 and 1:30 with connecting channel 20-90°, Optimum Infinite
- Fit OD: good clearance, good haptics alignment, no bubbles, no edge staining on area of bleb/ tube after removal
- BCVA OD: 20/20
- Reviewed risks of erosion and infections with patient who consented to continuing with lens wear.

DISCUSSION

SCLERAL LENS FITTING CONSIDERATIONS IN PATIENT WITH BLEB:

- Decisions will be driven by location of bleb
- Choose a small diameter to avoid bleb, (14.0-15.0mm,)
- A notch or vault can avoid the bleb but may pose some risk of erosion.
- Small diameter lens may increase suction force which can be reduced by flattened haptics, channels, and fenestrations
- 1-2 drops of Refresh Celluvisc in the reservoir can limit bubbles in fenestrated lenses on application
- Requires close follow-ups after dispenses to ensure no irritation or staining in area of bleb

CONCLUSIONS

- Small diameter scleral lenses can avoid conjunctival elevations
- However, small diameter scleral lenses may cause focal scleral compression and suction forces on the eye
- Channels and fenestrations can be introduced to reduce suction forces

REFERENCES

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