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## BACKGROUND

It is well established that there is a wide range of indications for scleral lens prescription. One of the most common indications is for fitting patients with corneal irregularities.<sup>1</sup> These corneal irregularities may arise from several contributing factors, including refractive procedures such as radial keratotomy (RK). RK is a refractive surgical procedure used to correct myopia by creating radial incisions in the cornea.<sup>2</sup> Complications also include:

- Disruption of corneal irregularity leading to ectasia, visual fluctuations, and astigmatism
- Dry eyes, scarring, visual aberrations, and decreased contrast sensitivity.<sup>3</sup>

These patients may be successfully managed with scleral lenses.<sup>2</sup> With the advancement in other refractive surgery options i.e., Laser Assisted In Situ Keratomileusis (LASIK), and small incision lenticule extraction (SMILE), RK has fallen significantly out of favor.<sup>3</sup>

## CASE DESCRIPTION

A 54-year-old Caucasian male was referred for a specialty contact lens fitting for both eyes. His ocular history was remarkable for two RK procedures on the right cornea, and one RK procedure on the left cornea in late 1980's. He had a history of a vitreous hemorrhage OS six years prior, which was managed by a retinal specialist.

- VAcc: 20/60- OD PHNI, and 20/100 OS PHNI (spectacle correction)
- Cornea: RK incisions extending into the visual axis for both corneas, with relaxing incision scars within the RK scars OD
- Lens: PSC OS, and NS OU contributing to the overall reduction in visual acuity

He opted to proceed with contact lens fitting after being educated on visual expectations secondary to cataracts and ocular history of vitreous hemorrhage. He was fit with scleral lenses OU, achieving visual acuity of 20/50+ OD and 20/100 OS. Although the patient's acuity did not improve drastically, there was a significant improvement in quality of vision, a factor that can often be overlooked.

# When Quality Outweighs Quantity: Scleral Lens Considerations for Post-Refractive Keratotomy Patients

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FIGURE 1: Tomography OD

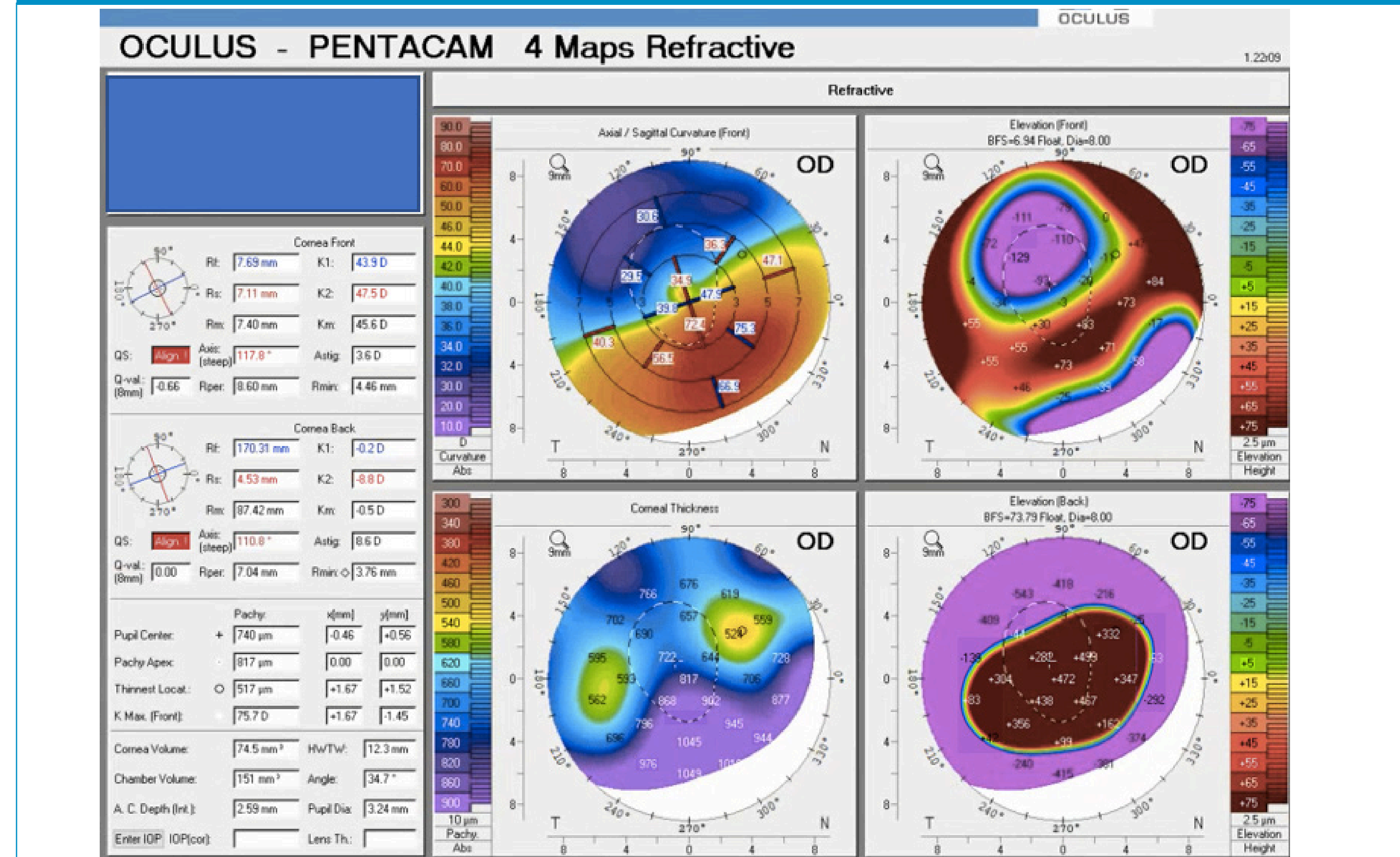


FIGURE 2: Tomography OS

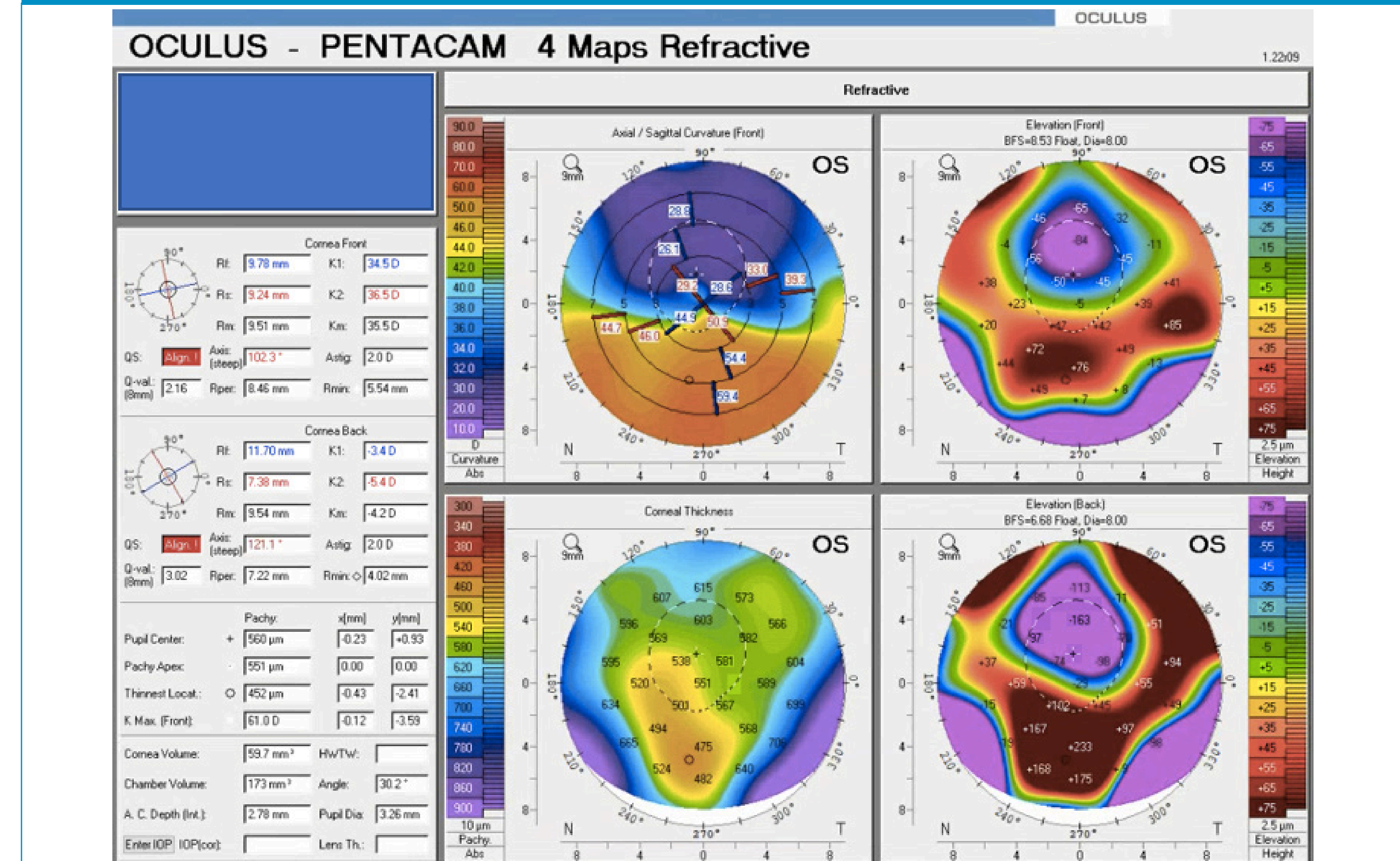


FIGURE 3: RK Incisions OD

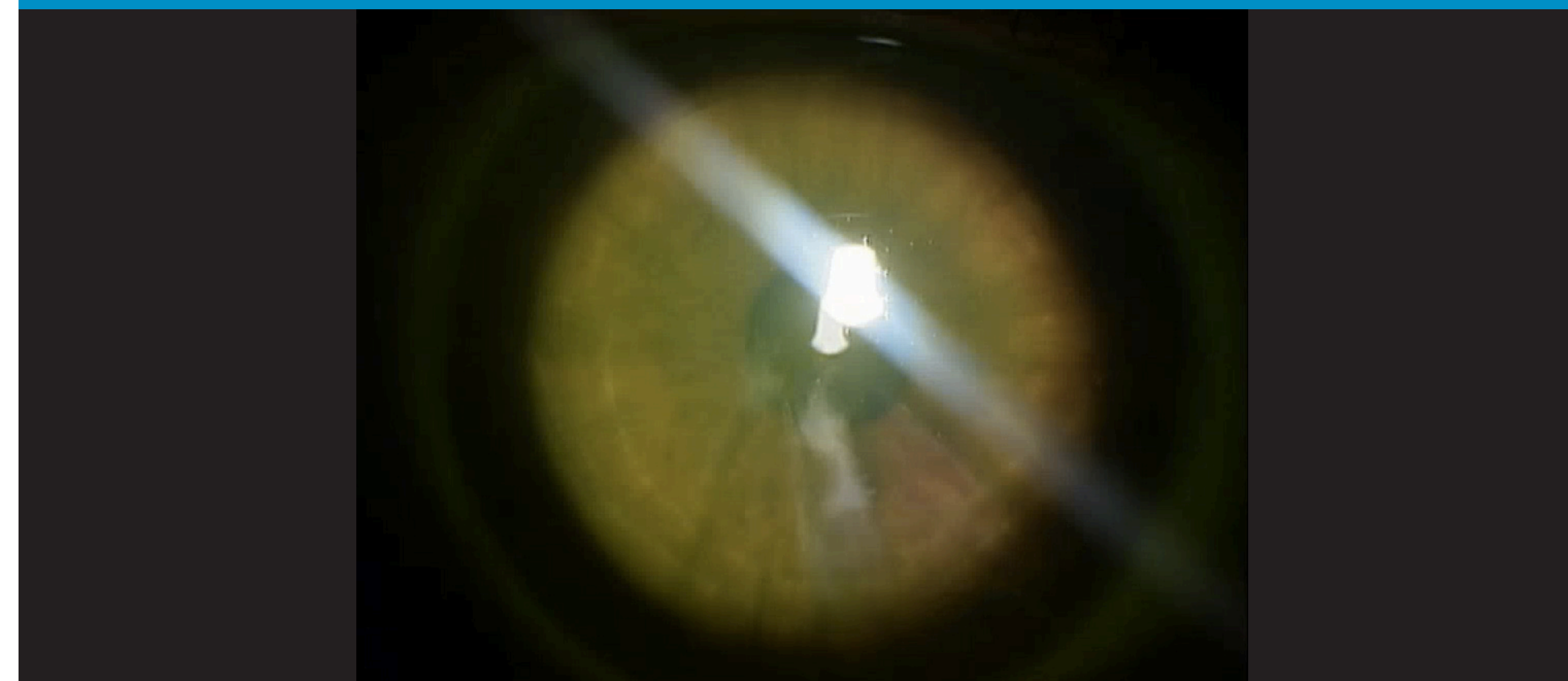


FIGURE 4: RK Incisions OS

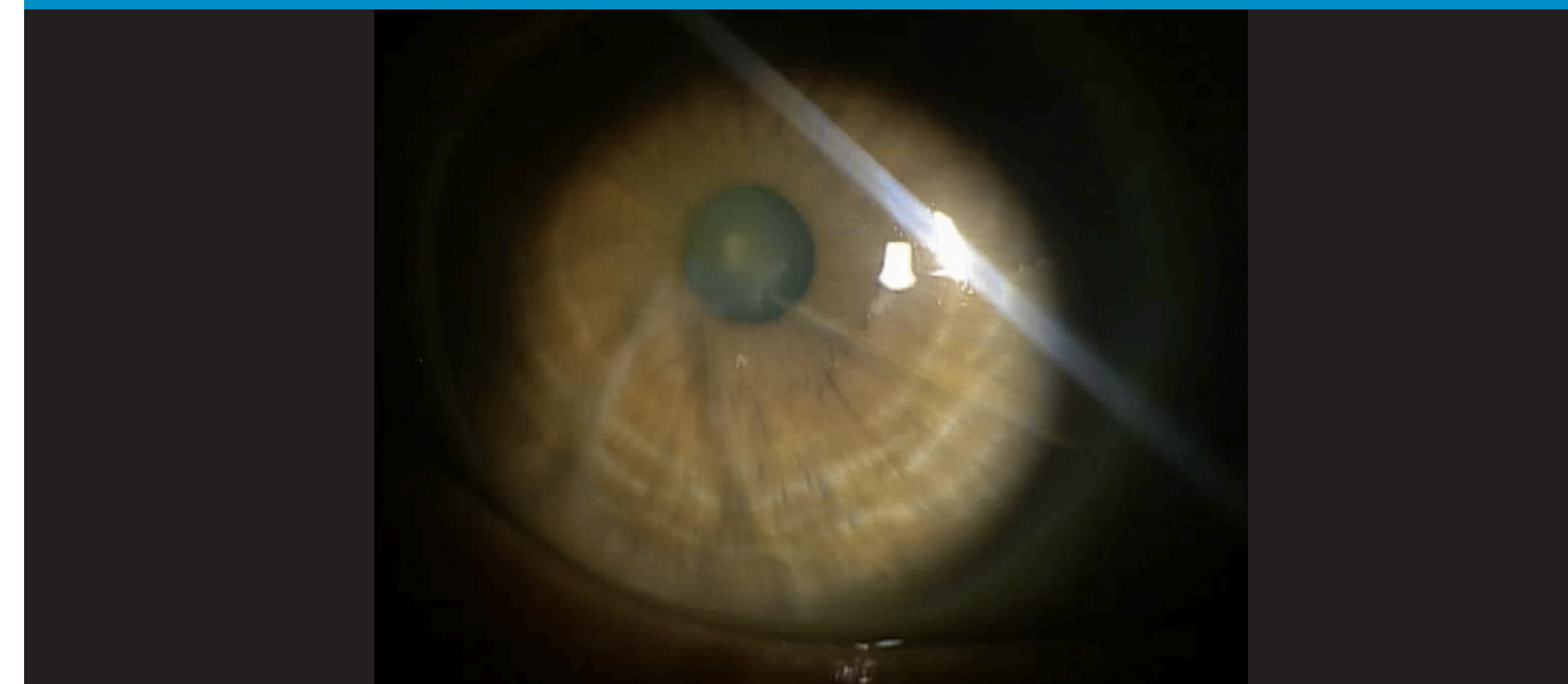


FIGURE 5: Scleral lens OD

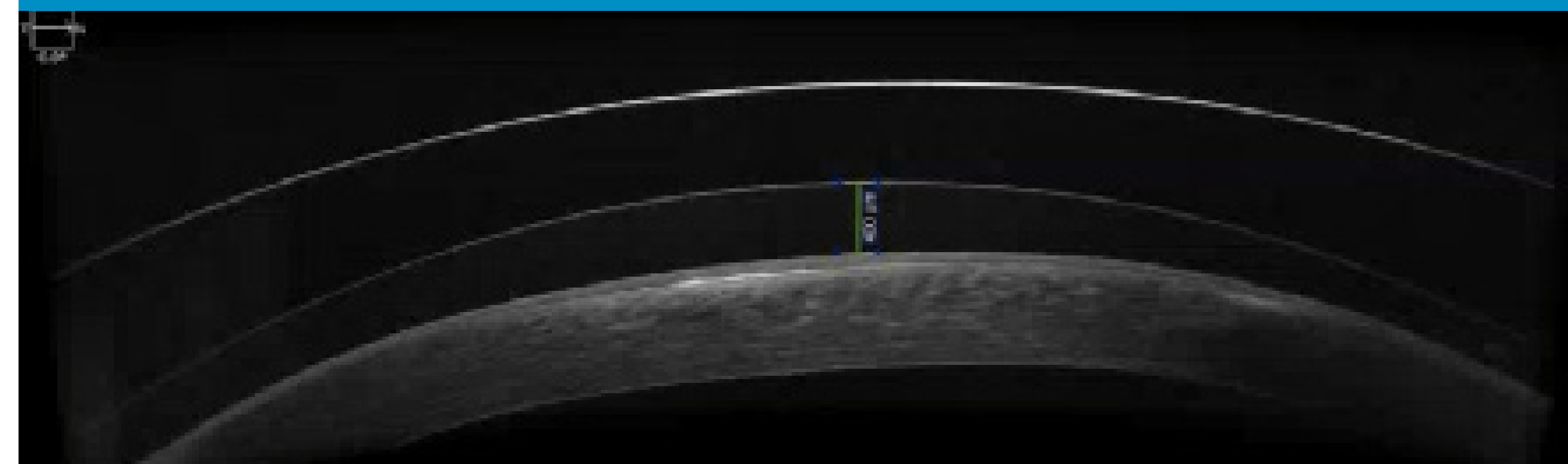
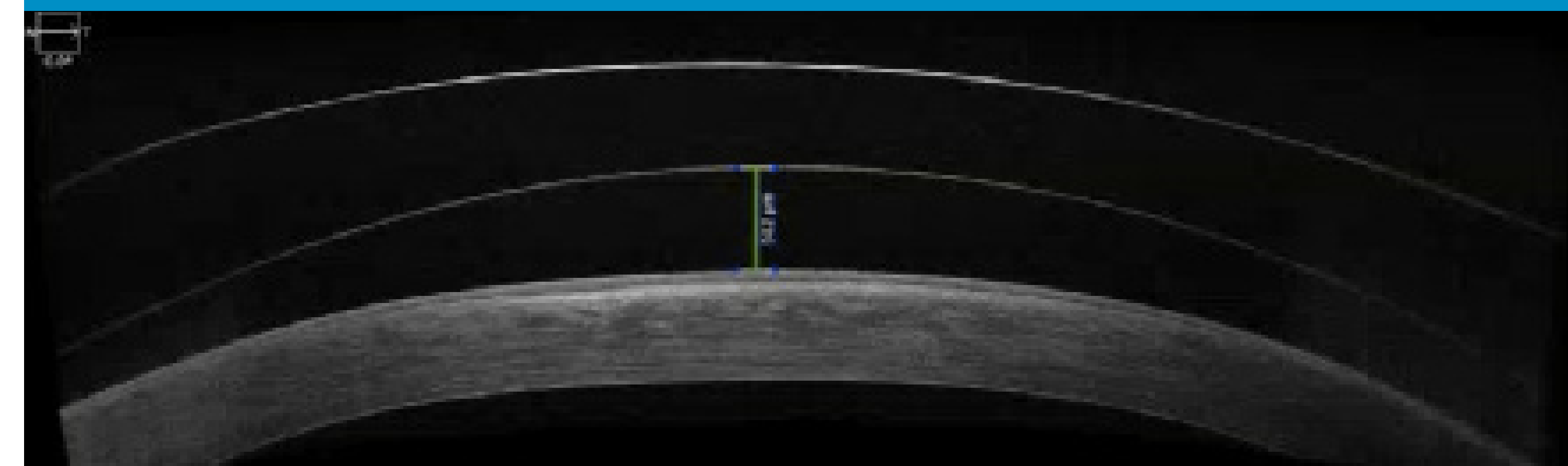


FIGURE 6: Scleral lens OS



## DISCUSSION

Scleral lenses (SL) are large diameter rigid lenses that vault over the cornea and rest on the sclera. The fluid reservoir created between the SL and the cornea results in oxygenation and lubrication, which contributes to improved comfort.<sup>4</sup> SLs increase subjective tolerance and reduce the likelihood of erosion and vascular growth as compared to conventional corneal gas permeable (GP) lenses, due to the lack of contact with old incisions and the irregular corneal surface.<sup>5</sup> Corneal GP lenses are typically too unstable making it poorly tolerated for patients.<sup>5</sup> The subjective impact of SLs make them an excellent therapeutic option for patients with RK complications such as scarring or dry eyes. In patients who have undergone RK, improving quality of vision in this way may also significantly improve quality of life.

## CONCLUSIONS

Conventional contact lens correction may not be suitable for patients with corneal irregularities, particularly from RK as they may enhance scarring and neovascularization.<sup>5</sup> Management of patients with corneal irregularities with scleral lenses is typically aimed at improving visual acuity. Perhaps a more important consideration, however, is the patient's quality of vision.<sup>6</sup>

## REFERENCES

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