Multifocal Scleral Lenses: A Newer Player for Presbyopic Correction
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BACKGROUND

Presbyopia is an inevitable condition that causes gradual loss of accommodation, beginning around the fifth decade of life. When uncorrected, it creates an avoidable vision impairment amongst millions, if not billions, of people throughout the world. Studies have shown that those with corrected presbyopia report a higher quality of life in comparison to those with uncorrected presbyopia. Different approaches of treating the condition include non-invasive techniques, such as spectacles or contact lenses, as well as surgical techniques involving the cornea, lens, and/or sclera. With advances in contact lens technology, there is a decreased need to resort to surgical procedures. Multifocal contact lens options include soft, hybrid, corneal gas permeable, and scleral lenses. Soft multifocal lenses typically have an aspheric design, allowing simultaneous vision and independence from proper head positioning. However, they often provide a softer focus and may not be an optimal option for patients with critical visual demands. Corneal gas permeable multifocals are made in both aspheric and translating designs. Translating designs mimic traditional multifocal spectacle lenses and therefore are dependent on eye and head positioning. Lastly, scleral multifocal lenses are currently available in an aspheric design. Since they mask corneal irregularities and corneal astigmatism, they may provide slightly better image quality than soft multifocal lenses.

CLINICAL FINDINGS

- Spectacle Rx
  - OD: -1.00-0.50x015  20/15-2
  - OS: -1.75-0.75x006  20/15
  - Add: +2.25  20/20

- Slit lamp findings: unremarkable anterior segment
- Sphero-cylindrical over refraction:
  - OD: +0.25-1.00x105  20/15
  - OS: +0.25-1.00x085  20/20+2

Contact lenses finalized:
- OD: Onefit 2.0 MF/7.50/15.2/-2.50DS/XLC/D lens/+2.25 add  20/20
- OS: Onefit 2.0 MF/7.60/15.2/-1.25DS/XLC/N lens/+2.25 add  20/20-
- NVA: 20/20

Optical coherence tomography (OCT): showed adequate central, mid-peripheral, and limbal clearance OU. Good edge alignment OU shown by Optovue iVue OCT.

DIAGNOSIS AND MANAGEMENT

Initially there were difficulties obtaining adequate limbal vault and edge alignment. iVue optical coherence tomography was utilized to evaluate central clearance, edge alignment, and limbal clearance. With an increase in lens diameter, limbal clearance, and addition of a toric periphery, good comfort, vision, and fit were achieved. Although the multifocal was still a simultaneous vision design, the image quality was subjectively sharper at all distances in comparison to soft multifocals.

CONCLUSIONS

New advances in instrumentation and scleral lens technology offer increased options when it comes to correction for presbyopic patients. Contact lenses allow a more active lifestyle and eliminate the need for glasses. With the customizability of scleral lenses, both regular and irregular corneas can be fit in these lenses. Therefore, it is a disservice to patients to consider scleral multifocal lenses as only a last resort.

REFERENCES