Oblate Scleral Lenses for Intacs: A Case Series

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BACKGROUND

Intacs are implantable intracorneal ring segments (ICRS) that may be a surgical option for some keratoconic patients. FDA approved in 2004 for the treatment of keratoconus (KC), they are designed to flatten the cornea to reduce visual distortion. Patients who have Intacs can be very challenging to fit with contact lenses secondary to the oblate nature and irregularity of the cornea that they may create. This case series describes three patients who underwent Intacs procedures and were successfully fit with oblate scleral lenses.

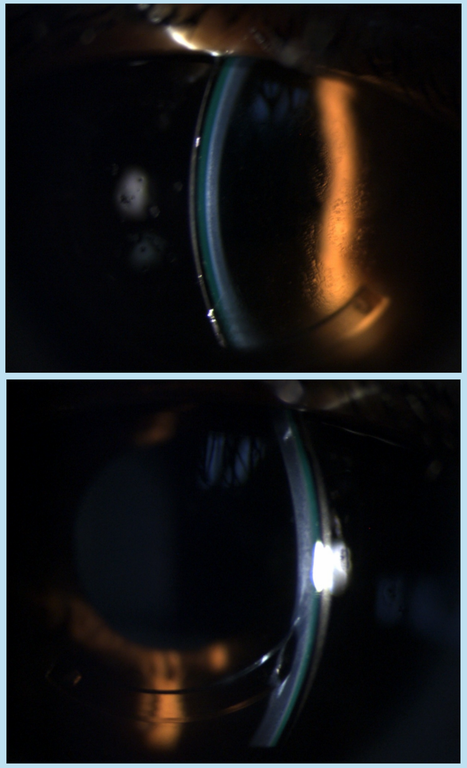
CASE SERIES

Patient 1, a 30- year-old Hispanic female presented with a history of keratoconus, Intacs OU, and no previous contact lens wear.

- Entering uncorrected acuities:
  - OD: 20/800
  - OS: 20/400
- Manifest refraction:
  - OD: -7.25-1.25x180, VA 20/100
  - OS: -6.25-1.00x180, VA 20/125
- Pentacam:
  - OD: 2.50 diopters of corneal astigmatism, pachymetry 367 microns
  - OS: 0.75 diopters of corneal astigmatism, pachymetry 347 microns
- An oblate scleral lens design was selected to prevent corneal touch around the area of the inferior Intacs OU and improved her vision to 20/25 OD and 20/20 OS.

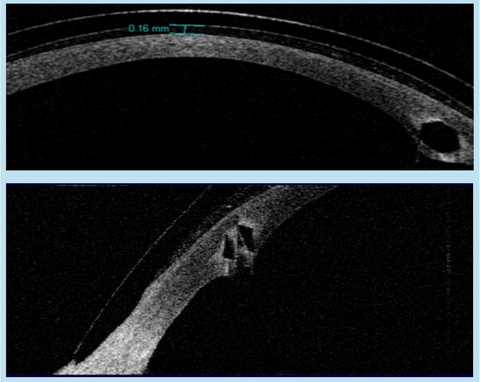
FIGURES 1A AND B

Patient 1: Oblate Scleral Lens Evaluation OD, OS Demonstrating Adequate Central and Inferior Clearance.



FIGURES 2A AND B

Visante OCT Images of Adequate Clearance Over the Intacs with the Oblate Lens Profile After 8 Hours of Wear.

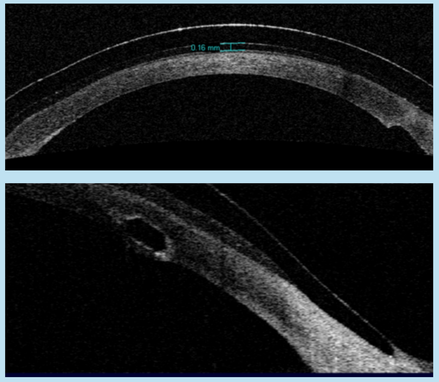


Patient 2, a 47-year-old African American male presented with a history of keratoconus OU, and was status-post PKP OD, and Intacs OS. He had previously worn corneal GPS but discontinued wear due to discomfort.

- Entering corrected acuities:
  - OD: 20/500
  - OS: 20/25
- Manifest refraction:
  - OD: -10.50-1.25x125, VA 20/80
  - OS: +1.50-3.25x085, VA 20/25
- Corneal Tomography:
  - OD: 3.50 diopters of corneal astigmatism, pachymetry 504 microns
  - OS: 0.66 diopters of corneal astigmatism, pachymetry 481 microns
- An oblate scleral lens design was selected to prevent any corneal touch around the Intacs OS and improved his vision to 20/25+ OD and 20/20 OS. The patient also noted marked improvement in comfort as compared to his previous corneal GPs.

FIGURE 3A AND B

Visante OCT Images of the Oblate Scleral Lens Design After 6 Hours of Wear OD (s/p PKP) and OS (s/p Intacs). Vault Over Intacs was Decreased by 75 Microns to Improve the Overall Fit.

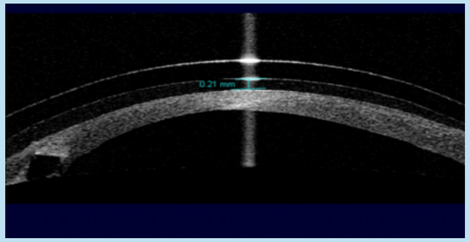


Patient 3, a 27-year-old Asian male presented with a history of keratoconus, no contact lens wear and Intacs OD.

- Entering uncorrected acuities:
  - OD: 20/80
  - OS: 20/20-
- Manifest refraction:
  - OD: plano-1.00x065, VA 20/50
  - OS: plano, VA 20/20
- Pentacam:
  - OD: 1.25 diopters of corneal astigmatism, pachymetry 391 microns
  - OS: 0.41 diopters of corneal astigmatism, pachymetry 460 microns
- An oblate scleral lens design was selected to prevent any corneal touch around the area of the Intacs OD improving his vision to 20/15 OD. Both eyes also had corneal crosslinking performed. A scleral lens design enhanced comfort as he was only wearing one lens on one eye.

FIGURE 4

Visante OCT Image of the Oblate Scleral Lens Design Demonstrating Adequate Clearance Over Intacs. Vault Over Intacs was Decreased by 75 Microns to Improve the Overall Fit.



CONCLUSIONS

When fitting patients status-post Intacs with contact lenses, it is important to minimize stress to the cornea to prevent extrusion. High Dk materials are necessary to promote excellent oxygen transmission to reduce risk of corneal hypoxia and neovascularization. Oblate scleral lenses may be a successful option for these patients to restore vision and maintain optimal corneal health.

CONTACT INFORMATION

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