Use of Scleral Lenses in a Recurrent Ectasia Following a Posterior Penetrating Keratoplasty

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Abstract: Recurrent ectasia in a penetrating graft is a rare occurrence in the literature. This case highlights the use of scleral lenses as a safe and effective treatment in recurrent keratoconus following a posterior penetrating keratoplasty.

I. Case History
- 74 y/o white male
- Consult from Ophthalmology for severe thinning at interface and h/o poor vision OD
- OHx: s/p PKP OD 1991 secondary to keratoconus with progressively worse vision OD, Pellucid Marginal Degeneration OS
- MHx: Coronary Artery Disease, Hypertension, Hyperlipidemia, Renal Stones, Gastroesophageal Reflux Disease
- Medications: Aspirin, Toprol XL, Lipitor, Lisinopril, Urocit, Proscar, Uroxatrol, Nexium
- Ocular Medications: Pred Forte QD
- Other information:
  - Multiple failed contact lens fits prior to referral
  - Referred from VA to BAMC Ophthalmology and subsequently referred to our resident medical contact lens clinic

II. Pertinent Findings
- BCVA with Glasses 20/200 OD, 20/25-2 OS
- BCVA with Scleral Lens 20/20- OD, 20/20 OS
- SLE- 70% thinning at inferior nasal interface OD, Pellucid OS
- Endothelial Cell Count: 773 cell/mm²
- Corneal Topography: K’s 115 D at steepest on Tangential
- Anterior Segment OCT: severe thinning at interface
- Pachymetry at interface ~200 microns

III. Differential Diagnoses
- N/a; diagnosed by Ophthalmology and referred for specialty fit

IV. Diagnosis and Discussion- Recurrent ectasia in a penetrating keratoplasty
- Recurrent ectasia in penetrating grafts is a rare occurrence
- Ongoing debate of what factors play a role in the development of the ectasia
- Clinically, recurrent ectasia is diagnosed on an average of two decades after PK and the ectasia is preceded by thinning of the graft-host junction

V. Treatment, Management
- Initial: Blanchard MSD Lens inserted OU
OD: 1st lens no clearance, 2nd lens minimal clearance with 4D of flexure
OS: 1st lens 100 microns clearance, with over refraction 20/20

• F/u 1: New MSD lenses inserted OU- Increased sagittal depth OD, OS
  o OD: 100 microns central clearance with touch over inferior nasal aspect, with over refraction 20/20-2
  o OS: 150 micron clearance, OR yields 20/20 vision

• F/u 2: Increased Sagittal depth OD, OS
  o OD: touch over steepest part on inferior nasal cornea, still unable to clear
  o OS: successful fit

• F/u 3: Abandoned previous lens design due to inability to clear interface
  o Oblate design with larger diameter allows for clearance of interface

• F/u 4: Dispensable lenses OU
  o 20/20- OD, 20/20 OS
  o Co-management with surgeon; delaying surgery due to great outcome with scleral fit
  o Strict wearing schedule and highest DK material available

VI. Conclusion
• Scleral lenses are a safe and effective treatment of this condition
• Achieve great vision with a highly irregular surface
• No increase in rejection episodes with scleral lenses as compared to natural course of disease

Comments: Anterior Segment OCT, Corneal Topography, and multiple slit lamp photos available