

Cutting Edge Cornea Treatment, “From Outside In” - Corneal Cross Linking (CXL) and DMEK: An Update of the Two Paradigm Changing Corneal Procedures with a Review of Current Outcomes

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I. Indications for corneal crosslinking

- A. Is this ectasia?
 1. New astigmatism/change in astigmatism
 2. Decrease in BVA
 3. Pachymetry considerations
 4. Family history, age, risk factors
 5. Distorted mires
 6. Topography and Tomography – posterior changes noticed first
 7. History of LASIK/RK/PRK
- B. Inclusion criteria considerations for CXL
 1. Epi-on vs. epi off – thickness requirements
 2. Corneal scarring
 3. BVA and progressed nature of disease – is it CXL or PK
 4. Progression!

II. Crosslinking procedure

- A. Epithelium on vs. epithelium off
- B. Riboflavin loading
 1. Drops used
 2. Duration
 3. Clinical signs of adequate loading
- C. Application of UV light
- D. Post operative medication
- E. Post operative patient expectations
 1. Immediate (comfort/vision)
 2. Long-term (halting progression, not reversal)
- F. Post operative visits (Study protocol)
- G. Long-term management
 1. Visual aids/specialty contact lens fitting
 2. Monitoring for change
 - a. BVA
 - b. Cylinder correction
 - c. Serial Topographies – at least yearly to compare

III. Outcomes

- A. Results/Outcomes
 - a. German Study – Carus University, Dresden Germany
 - b. The Siena Eye Cross Study – Italy
 - c. University of Melbourne, Australia
- B. Sightline Experience
 - 1. 4 years since initial treatment performed
 - 2. Patient database/eyes and classification
 - 3. Stabilization v. Progression

IV. DMEK – Descemet’s Membrane Endothelial Keratoplasty

- A. Indications
 - 1. Fuch’s or other endothelial dystrophies
 - 2. PBK
- B. DMEK vs DSAEK?
 - 1. DMEK uses a thinner graft
 - 2. Documented improvement in BVA with DMEK
 - 3. Decreased rejection rate
 - 4. Smaller incision
 - 5. Decreased refractive shift as compared to DSAEK (.50 v 1.0 D of induced hyperopia)
 - 6. Reduction in overall corneal thickness
- C. Clinical Expectations Post-operatively
 - 1. Air Bubble/difficulty in seeing graft
 - 2. Visual acuity
 - 3. Subconjunctival hemes
 - 4. IOP
 - 5. “S” Stamp
 - 6. Sutures?
- D. Long-term post operative management
 - 1. IOP and steroid responders
 - 2. Rejection/failure of graft
 - a. Possible patient signs and symptoms
 - b. Slit lamp observations
 - 3. Pachymetry
 - 4. Visual acuity
- E. Clinical Outcomes
 - 1. Our experience the last year
 - 2. Case studies