Introduction

- Discussion of the decision-making process related to performing cataract surgery in patients with corneal disease
  - Fuchs' Endothelial Dystrophy
  - Herpes Simplex Keratitis
  - Keratoconus
  - Discussion of correction of post surgical refractive error

Fuchs' Endothelial Dystrophy

- Preoperative evaluation
  - Careful history
  - Slit lamp examination
  - Pachymetry
  - Specular Microscopy

Fuchs' Endothelial Dystrophy

- Surgical decision-making
  - History - vision worse in AM, better as day progresses, suggestive of corneal edema
  - Slit lamp exam - clinical edema
    - Epithelial
    - Stromal +/- Descemet's Folds

- Specular Microscopy
  - Examination of endothelial cell morphology and number
    - Cell count < 1000 cells/mm² concerning
    - Use as a guide - no set numbers necessitate performing triple procedure (DSAEK or DMEK/CE/IOL)
Fuchs' Endothelial Dystrophy

- Surgical decision-making
  - Pachymetry - measurement of corneal thickness
    - Excellent gauge of endothelial cell function
    - Most useful in choice of surgical procedure

Fuchs' Endothelial Dystrophy

- Surgical decision-making – no set numbers
  - Pachymetry < 0.6 mm with no corneal edema by exam or hx
    - Cataract Extraction alone
  - Pachymetry > 0.6 mm
    - Consider Triple procedure (DSEK/DMEK c CE/IOL)

Fuchs' Endothelial Dystrophy

- With proper selection of surgical procedure, excellent results can be expected
  - Triple procedure (DSAEK vs DMEK/CE/IOL) - good prognosis
  - Cataract extraction: if done atraumatically - less/no edema

Fuchs' Endothelial Dystrophy

- Important to carefully discuss with patient
  - Cataract surgery alone may still cause corneal decompensation
  - Triple procedure postoperative visual recovery slower than CE/IOL alone

Conditions often confused with Fuchs'

- Conditions with similar appearance to Fuchs' Dystrophy
  - Other corneal dystrophies (ie: Macular, Central Cloudy Dystrophy of Francois, Posterior Crocodile Shagreen, Posterior Amorphous Stromal, Posterior Polymorphous, Meesemann's, Reis-Bucklers')
  - Herpes Simplex stromal keratitis
  - Interstitial Keratitis

Posterior Crocodile Shagreen
Central Cloudy Dystrophy of François

Reis-Buckler’s Corneal Dystrophy

Conditions often confused with Fuchs’

- Differentiation:
  - History
  - Slit lamp examination
  - Pachymetry

Surgical Decision-Making

- Do the best procedure based on clinical situation
  - Density of nucleus
  - Pupil size
- Planned ECCE vs Phaco
  - Can have an excellent result with either technique

Phacoemulsification Techniques

- When proceeding with Phaco/IOL alone, the goal is to perform surgery with minimal trauma to corneal endothelium
- Can be achieved by careful technique
  - Minimize anterior chamber turbulence
  - Endolenticular phaco
  - Liberal use of dispersive viscoelastic

Triple Procedure Techniques

- DSAEK or DMEK/Phaco/PCIOL
  - Standard Phaco/PCIOL technique
  - Careful removal of viscoelastic – use a cohesive viscoelastic
    - Residual viscoelastic can interfere with adherence of DSAEK/DMEK tissue
  - Standard DSAEK/DMEK technique
  - Must adjust IOL calculations as typically see a hyperopic shift in Endothelial Keratoplasty
    - About 1 D with DSAEK
    - About 0.5 D with DMEK

Herpes Simplex Keratitis

- Stromal Keratitis
- Epithelial Keratitis
- Concerns about reactivation after intraocular surgery
  - Cataract surgery
  - Corneal transplantation

Wait at least 4-6 months after last clinical activity
- Prophylaxis with oral Acyclovir/Valtrex/Famvir
  - Acyclovir – 400 mg PO BID
  - Valtrex – 500 mg PO BID
  - Famvir – 250 mg PO BID
- Aggressive treatment of postoperative inflammation
  - Consider PO steroids if severe

Keratoconus and Cataract Surgery

- Can be a difficult management decision
- Must first assess contribution of Cornea to decreased vision
  - Optimize vision with RGP Refraction
- Choice of IOL – Decision-making process dictated by Corneal Stability
  - Toric vs. Standard IOL?
  - Multifocal IOL?

If need both PK/DALK and CE/IOL - ?do as triple?
- Better as staged procedure with PK/DALK first
- Combined procedure, difficult to predict spherical equivalent and astigmatism post op

Management of Residual Refractive Error in Cataract Surgery

- Cataract Surgery = Refractive Surgery
  - Goal is not only best corrected visual acuity, but best uncorrected VA
  - Especially true with Premium IOLs
- Optimize refractive results
- Careful choice of procedure to correct refractive error
- How soon can you do the procedure?

Refractive stability
- Corneal topographic stability
- Standard preop workup
  - Refraction
  - Slit Lamp/fundus
  - Evaluate eye, ocular surface in particular
  - Pachymetry
  - Wavescan
Management of Residual Refractive Error in Cataract Surgery

- Options?
  - Limbal Relaxing Incisions
  - Femtosecond Laser vs Manual
  - Laser Vision Correction
  - LASIK vs PRK
  - IOL Rotation/Exchange
- Decision-making process - understand patient’s symptoms
  - Amount of residual myopia/hyperopia
  - Amount of residual astigmatism

Summary

- Corneal Disorders present different challenges in Cataract surgery
- Recognizing the problems and management issues key to selection of best procedures
- Optimal presurgical planning and surgical decision-making leads to excellent surgical results

THANK YOU