Corneal Problems for the Cataract Surgeon

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Four Common Problems

• Dry Eye
• Anterior Membrane Dystrophy
• Keratoconus
• Fuch’s dystrophy

Dry Eye syndrome

• Dx: Symptoms
  – Reading and computer fatigue
  – Foreign body sensation
  – Light sensitivity
  – Symptoms worse as the day goes on
• Signs:
  – Fluorescein and Rose Bengal Staining
  – Decreased tear meniscus
  – Schirmer’s test

Fluorescein stain: Sjogren’s Syndrome

Rose-Bengal

Devitalized epithelium/mucus
Evaluation of Tear Meniscus
Fluorescein Staining
Rose Bengal/ Lissamine Green Staining

Topography
- Irregular mires on placido disc
- Missing data on color images

Slitlamp Examination

Schirmer Test

Without anesthesia
- Measures reflex tear secretion

With anesthesia
- Eliminates stimulated tearing

Other tests
- MMP-9 (InflammaDry®)
- Sjogren’s Syndrome
  - Blood draw
- LipiView®
  - Lipid layer interferometry

Consequences of Dry Eye
- IOL measurements
  - Inaccurate K-readings
- Poor vision/fluctuating vision after surgery
  - Multifocal IOL’s especially impacted

Consequences of Severe Dry Eye
- Sterile Ulcerations
- Filamentary Keratitis
- Bacterial Keratitis
Prevention and Treatment

• 1st: Identify patients at risk
• 2nd: Pre-treat if appropriate
  – Topical Cyclosporine (Restasis®)
  • 1 month pre-op (loteprednol may speed response)
  • Supplement with tears, Omega-3 (fish oil)
  • Punctal plugs if appropriate
• 3rd: Minimize Toxicity
  – Choose preservative free drops when possible
  • Moxifloxacin 0.5% (Vigamox®)
  • Taper meds as quickly as possible

Which NSAID?

• Ketorolac 0.4%
• Nepafenac (Nevanac®)
  – Can use less; stings less: 3 times per day
  – ? Toxicity?
• Illevro®
  – Can use once per day

LRI’s

• Can decrease corneal sensation
• Especially adjacent to incisions
  – Corneal sensation decreased between 1-3 months post op
  – May be more pronounced if incision at 3 and 9 o’clock (against the rule astigmatism)
Anterior Basement Membrane Dystrophy

- Signs: Map, Dot, Fingerprints
- Symptoms: Recurrent Erosions
- POST OP PROBLEMS
  - Focal Corneal edema
    - In areas where epithelium poorly adherent
  - DECREASED UCVA AND BCVA

Basement Membrane (Cogan’s Dystrophy)

Treatment

- If mild: observation
- If symptomatic recurrent erosions
  - Consider Muro 128 5% ointment at night
  - Often associated with dry eye
    - Topical cyclosporine helpful
- Consider Superficial Keratectomy
  - For decreased BCVA or UCVA
    - PTK
    - AMOIL’S BRUSH

Superficial Keratectomy

- If PTK or superficial keratectomy performed, this will change K-readings and influence IOL calculations

Keratoconus

- Identify: Screen All patients with topography
- Especially candidates for toric and multifocal IOL
- Do not implant multifocal IOL
Keratoconus, pellucid marginal degeneration: Not a candidate for incisional correction

Toric IOL in Keratoconus?
- Consider if:
  - Not able to wear RGP
    - Will often prefer vision in RGP
  - ***If toric IOL placed; RGP will not correct astigmatism after toric implantation
  - If cornea not too irregular
  - If topography, IOL master K readings, and manifest agree

Fuch’s corneal dystrophy
- Diagnosis: Guttate at Slit lamp
  - Corneal edema
- Specular microscopy

Fuch’s Endothelial Dystrophy

Fuch’s Dystrophy and Cataract
- If corneal pachymetry >600-20 or symptoms of corneal edema
  - Consider combined procedure
  - Phaco with IOL and DSAEK/DMEK
- If corneal pachy’s < 600, no sx’s
  - Phacoemulsification: (VISCOELASTIC)
    - NO MULTIFOCAL IOL’s***
      - Guttate degrade contrast sensitivity
    - **Unless able to do DMEK?
    - USE BSS (+) has glutathione
RK and cataract: Incision placement

Main Incision placement

Cataract: Compromised Corneal View

- ASCRS 2014 Poster 2822
  - Alobaidy: Endoillumination assisted cataract surgery in eyes with corneal opacities
    - Illustrates and describes in detail method of chandelier illumination for performing capsulorhexis when view through cornea is compromised

AIRES

- Acute Intraoperative Rock Hard Eye Syndrome
  - Acute intraoperative shallowing of the anterior chamber and a marked increase in intraocular pressure (IOP) during phacoemulsification surgery
    - Without evidence of choroidal hemorrhage
    - Starts sometime between the conclusion of nucleus removal and before the insertion of the IOL
- TREATMENT
  - Diamox + Mannitol + Time
  - Pars plana aspiration
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