Advanced Anterior Segment Problems: From Familiar to Foreign

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- I developed the course material and information independently
- I have no relevant financial disclosures
- I will be discussing off label use of some medications and devices.

Structure of the Anterior Segment

- Cornea
- Iris
- Ciliary Body
- Lens
- Anterior Chamber
- Posterior Chamber
Penetrating Keratoplasty (PKP)

Indications:
- Keratoconus
- Corneal Scar
- Other

Pre-Op Management:
- Optimize Cornea
- Lens Status
- Concurrent procedure
Surgical steps and techniques: PKP

Post-Op Management
- Medications
- Suture Removal
- Refraction
- Glasses
- Contact lens

Penetrating Keratoplasty PKP

Possible Surgical Complications
- Intra-Op
- Post-Op
  - Immediate
  - Long-Term
Deep Anterior Lamellar Keratoplasty (DALK)

Indications:
- Similar to PKP, except no endothelial compromise
- Scars (not full thickness)
- Keratoconus (without hydrops or full thickness scar)

Pre-Op Management:
- Similar to PKP
- Consideration for concurrent procedure

Surgical steps and techniques: DALK

Post-Op Management:
- Similar to PKP
- Possible Surgical Complications
  - Similar to PKP
  - No endothelial rejection
Descemet's Stripping Endothelial Keratoplasty (DSEK)

- Indications:
  - Fuch's Endothelial Dystrophy
  - Bullous Keratopathy
  - Other Endothelial loss/injury

Pre-Op Management:
- Lamellar vs Full Thickness
- Stenosis
- History of prior surgery/hardware
- Visibility
- Discussion of Post-op requirements
- Optimize Cornea
- Concurrent Procedure

Surgical steps and techniques: DSEK

- Wound
- Descemotome
- Insertion
- Positioning
- Apposition
- Wound Closure
Descemet’s Stripping Endothelial Keratoplasty (DSEK)

- Post-Op Management
  - Positioning
  - Medications
  - Re-bubble
  - Refraction

- Possible Surgical Complications
  - Intra-Op
  - Post-Op
    - Immediate
    - Long Term

Descemet’s Membrane Endothelial Keratoplasty (DMEK)

- Indications:
  - Fuch’s Endothelial Dystrophy
  - Bullous Keratopathy
Descemet's Membrane Endothelial Keratoplasty (DMEK)

**Pre-Op Management:**
- DMEK vs DSEK vs Full Thickness
- Scar
- History of prior surgery/hardware
- Lens Status
- Visibility
- Discussion of Post-op requirements
- Optimize Cornea
- Concurrent Procedure
- URI

**Surgical steps and techniques: DMEK**
- Wound
- Descemetorhexis
- Insertion
- Positioning
- Apposition
- Wound Closure

**Post-Op Management**
- Positioning
- Medications
- Re-bubble
- Refraction
Descemet’s Membrane Endothelial Keratoplasty (DMEK)

- Possible Surgical Complications
  - Intra-Op
  - Post-Op
    - Immediate
    - Long-Term

Corneal Transplantation

- PKP
- DALK
- DSEK
- DMEK

OSSN: Case Presentation

- CC: Growing lesion OS
- HI: 80 yo white man
  - History left cheek BCC s/p MOHS
  - Farmer
  - Growth OS for over 1 year
  - Intermittent eye redness
  - No pain
  - Vision unchanged

- POH: POAG OU
  - Latanoprost qhs, brimonidine BD
  - Denies trauma/surgery
- PMH: COPD, BCC
- Social: previous tobacco use; farmer
- Family: no known h/o skin malignancy
OSSN

- 20/20 VA OU
- Pertinent External exam: scar on cheek
- SLE/DLE OD normal except mild MGD, cataract, and cupping.

OSSN

- Location
  - Interpalpebral
  - 95% Limbal

- Appearance
  - Gray or white
  - Flat or elevated

- Feeder vessels

OSSN: Diagnosis

- Diagnostics
  - Stains
  - Imaging
  - Biopsy
OSSN: CIN


OSSN: Differential Diagnosis

- Neoplastic
  - CIN
  - SCC
  - Keratoacanthoma
  - Conjunctival lymphoma
  - Melanoma

- Inflammatory
  - Nodular scleritis
  - Phlyctenulosis
  - Other benign lesions
  - Pharyngitis
  - Panus

- Other benign lesions
  - Pterygium
  - Pannus
  - Other granulomas
  - Conjunctival inclusion cyst

OSSN: Medical Management

- Observation
- Fluorouracil (5-FU)
- Mitomycin C (MMC)
- Interferon α2b (IFNα2b)

- Side Effects
- Cost
- Adjuvant vsPrimary
OSSN: Surgical Management

- Indications for Surgery:
  - Biopsy
  - Primary treatment
  - Post pre treatment with medication

- Steps and Techniques:
  - No Touch Technique
  - Excise lesion with 4mm margins
  - Crye edges of conjunctiva
  - Consider topical agent on cornea/scleral bed
  - Closure
    - Debride bare
    - Simple Closure
    - Amniotic membrane

OSSN: Post-Op Treatment

- Consider adjuvant medications
- Monitor
  - Healing
  - Recurrence

- Possible Complications
  - Immediate
    - Poor wound healing
  - Long Term
    - Limbal stem cell loss
    - Recurrence

Mucous Membrane Pemphigoid (MMP aka OCP)

- 78 yo F presents with 1-2 years of chronic redness, intermittent FB sensation
  - No discharge
  - No h/o allergic reaction
  - No trauma
  - Ocular Sx: CECOL, Oil
  - Using Artificial Tears
Mucous Membrane Pemphigoid (MMP aka OCP)

- 38 yo M with 2 month h/o “pink eye” OD
- No discharge
- No decreased vision
- No response to abx
- No h/o trauma, travel
- No h/o allergic reaction
- No ocular meds
Mucous Membrane Pemphigoid: Diagnosis and Differential

- Clinical Findings
  - Inflammation
  - Forniceal scarring
  - Symblepharon
  - Trichiasis
  - Corneal break-down/melt
  - Biopsy

- Differential
  - Prior Conjunctivitis with scarring
  - SJS
  - Medication toxicity
  - Surgical Scarring
  - Burns/Chemical Exposure
  - Trachoma

Mucous Membrane Pemphigoid: Treatment

- Medical Management
  - Key to controlling disease
  - Available agents:
    - Dapsone
    - Methotrexate
    - Other Immunosuppresants

- Surgical Considerations
  - Timing
  - Lid procedures
  - Epilation

Mucous Membrane Pemphigoid: Complications

- Acute
  - Irritation
  - Dry Eye
- Intermediate
  - Scarring
  - Trichiasis
- Chronic
  - Symblepharon
  - Poor Healing/ loss of limbal stem cells
  - Melt
  - Infection
  - Perforation
  - Blindness
CC: Painful Corneal Ulcer, Right eye
HPI: 64 yo WM Contact Lens wearer presents after 15 days of pain, redness, blurry vision, OD. Treated at outside Ophthalmologist for bacterial and herpetic ulcer, OD
  - No hot tubs, fresh water exposure
  - No trauma
  - CL wear daily; No swimming or sleeping in lenses
  - Currently on azithromycin, Valtrex 1g TD
  - Off Abx x 5 doses

Exam:
  - Va: OD(sc): CF OS(cc CTL): 20/30
  - Pupils: no view OD; no APD
  - IOP: OD: 8
  - HVF: Full OU
  - EOM: Full OU

SLE OD:
  - SC: 3+ injection, discharge
  - K: 5.5x 5.5 ring infiltrate with central edema, + radial perineuritis
  - AC: no hypopyon
Acanthamoeba: Diagnosis

- Symptoms
- Clinical Findings
- Diagnostics
  - Culture
  - Confocal

Acanthamoeba: Differential Diagnosis

- Infectious Keratitis
  - Acanthamoeba
  - Bacterial
  - Herpetic
  - Fungal

Acanthamoeba: Treatment

- Medical Management
  - Chlorhexidine
  - Povidone
  - Brolene
  - Oral Azoles
  - Other
  - Long course required

- Surgical Considerations:
  - Biopsy
  - Corneal transplant

Image Sources:
Acanthamoeba: Complications

- Acute:
  - Medication failure
  - Perforation
  - Need for PK

- Chronic:
  - Scar
  - Sclerokeratitis
  - Recurrence

Questions?