Revitalization of the Anterior Segment: Corneal Transplantation and Secondary Lens Repair

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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

Comeal Transplantation

PKP

DALK

DSEK

DMEK
Endothelial Dysfunction

- Signs and symptoms:
  - Corneal Edema +/- bullae
  - Guttae
  - Scar
  - Decreased vision (worse in AM)
  - Foreign body sensation/ intermittent pain

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

Medical Management

- Observation
- Hypertonic Saline
- Bandage Contact Lens
- Topical Steroid (if post op cause)
Indications for Surgery

- Persistent corneal edema
- Visual Obscuration (edema or guttae)
- Painful Bullae/recurrent erosion
- Concurrent Cataract Surgery

Pre-Op Management

- Lamellar vs Full Thickness
  - Scar
  - History of prior surgery/ hardware
  - Visibility
- Type of endothelial transplant- DMEK vs DSEK
  - Video- DMEK tissue prep
  - Discussion of Post-op requirements
  - Optimize Cornea
  - Concurrent or Staged Procedure
Pre-Op Management

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  - Video- DMEK tissue prep
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Surgical steps and techniques: DSEK

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

- Wound
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- Insertion
- Positioning
- Apposition
- Wound Closure
Post-op Management

- Positioning
- Medications
- Re-bubble
- Refraction

Possible Surgical Complications

- Intra-Op
- Post-Op
  - Immediate
  - Long Term
Endothelial Dysfunction: On the horizon

- DWEK
  - Stripping without graft
  - Currently small studies
  - Only for Fuch's with centralized guttae
  - Longer healing time than DMEK
  - Not all patients clear
- Rho-Kinase Inhibitors
  - Activate endothelial cell migration
  - Decrease healing time
  - Not currently available in the US at proper concentration

Lens Replacement/ Refixation

- 57 yo F presents for evaluation of corneal edema and dislocated IOL
- OS: BCVA 20/400
- H/o CEIOL OU in her 30s
- H/o RD OS s/p repair 1 year prior with persistent macular edema
- Multiple steroid injections and Ozurdex x1
- Ozurdex migrated around dislocated IOL to AC
- Now with corneal edema
- 3-piece PCIOL visibly subluxed inferonasally on exam
57 yo F presents for evaluation of corneal edema and dislocated IOL

OS: BCVA 20/400

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3-piece PCIOL visibly subluxed inferonasally on exam

67 yo M presents for cataract evaluation

OS: BCVA 20/60-2 BAT 20/100

MRx: OD: +0.25 +1.25 x 30 OS: -2.00 +1.75 x 90

H/o trauma to the left eye

Exam with 1+ NSC, 1+Cortical and PSC

Suspected zonular weakness nasally
1/17/2019

Lens Replacement/Refixation

- Signs and symptoms
  - Decreased vision
  - Visibly dislocated IOL
  - Chronic inflammation
  - Chronic low grade pain
  - Gonioscopy- IOL in angle
- Indications for surgery
  - Aphakia
  - Dislocated IOL
  - Uveitis-Glaucoma-Hyphema syndrome
Medical Management

- Observation
- Contact lens
- Topical NSAIDS or steroids

Surgical Management

- Iris Fixation
- Scleral Fixation
- Concurrent or staged procedures
Surgical Management

- Iris Fixation
- Scleral Fixation
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Surgical Management

- Iris Fixation
- Scleral Fixation
- Concurrent or staged procedures
- Videos

Post-op Management

- Medications
- Monitoring
- Refraction
Possible surgical complications

- Immediate
- Long term
- Additional procedures
  - Corneal transplant for endothelial dysfunction
  - Pupilloplasty

Corneal Transplantation

PKP  DALK  DSEK  DMEK
References


Questions?