## Financial Disclosure

**Drs. Aljaethen, Teja, Conlon:** No disclosures

**Dr. Baig:** See below

<table>
<thead>
<tr>
<th>Financial Interest/ Affiliation</th>
<th>Name of Company(s)</th>
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<tr>
<td>Grant/Research Support</td>
<td>Allergan, Bausch &amp; Lomb, Merck, Moria</td>
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<td>Employment/Honoraria/Consulting Fees/Travel Expenses</td>
<td>Alcon, Allergan, Bausch &amp; Lomb, Labtician</td>
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<td>Major Stock Shareholder</td>
<td>None</td>
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<tr>
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<td>Other Financial or Material Interest</td>
<td>None</td>
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DMEK Study

Background
 DMEK may be a superior alternative to DSAEK

Purpose
 To describe the lessons learned during early learning curve of the DMEK procedure

Methods
 Retrospective study of our first 10 DMEK surgeries (review of charts and surgical videos)

Results
 10 patients (topical anesthesia): 7 Fuchs dystrophy, 3 pseudophakic bullous keratopathy
 All 10 tissues cut by surgeon; 1 tissue loss
 Partial and total detachments = 60%
 Repeat EK needed = 3
PRE-OPERATIVE
PATIENT SELECTION
INFERIOR LASER PI

Laser Iridotomy
- Inferior laser peripheral iridotomy done pre-op
- One less step in DMEK surgery
- Reduces risk of intra-operative hyphema
- Ensure patency during surgery with instrument

GRAFT PREPARATION
PEELING
TISSUE > 50 YEARS OLD
DMEK/DALK SAME DAY
TRYPAN BLUE SOAK

HOST PREPARATION
LARGER SCORE
NO DESCEMET’S TAGS

GRAFT INJECTION
PLASTIC/GLASS INJECTOR
SUTURE WOUND

GRAFT UNFOLDING
TECHNIQUES
SLIT BEAM
FULL AIR FILL

POST-OPERATIVE
AS-OCT
DETACHMENTS

Patient Selection
- Need good view of DMEK tissue through cornea (only mild-moderate corneal edema)
- DMEK may not be good option in iris defects, aphakes, tubes
- DMEK peeling can be done to “rescue” DSAEK and UT-DSAEK perforations

Aphakic, aniridic, unicameral, tubed eye with mild corneal edema

Inferior iridotomy
- SCUBA technique using one forceps to peel
- Double trephine method (10mm trephine, peel, then 8mm trephine)
- Young donor cornea is difficult to strip (our one case of donor tissue loss occurred in 40-year-old cornea)
- Soak DMEK graft in undiluted trypan blue for 30-40 sec
- Can re-inject trypan blue (<10 sec) into anterior chamber to stain scroll if unfolding is taking long and DMEK tissue is losing color
**DMEK Lessons**

- **PRE-OPERATIVE**
  - PATIENT SELECTION
  - INFERIOR LASER PI

- **GRAFT PREPARATION**
  - PEELING
  - TISSUE > 50 YEARS OLD
  - DMEK/DALK SAME DAY
  - TRYPAN BLUE SOAK

- **HOST PREPARATION**
  - LARGER SCORE
  - NO DESCemet’S TAGS

- **GRAFT INJECTION**
  - PLASTIC/GLASS INJECTOR
  - SUTURE WOUND

- **GRAFT UNFOLDING**
  - TECHNIQUES
    - SLIT BEAM
    - FULL AIR FILL

- **POST-OPERATIVE**
  - AS-OCT
  - DETACHMENTS

### Score
- Score larger than DMEK graft size

### Graft
- Re-inject trypan blue into anterior chamber after scoring to look for Descemet’s tags that can impair DMEK graft adherence
Moving towards glass injector (less tissue damage)

- Keep anterior chamber partially collapsed & do not over-pressurize
- Suture wound well to prevent graft ejection!
- No one technique can be used all the time
- Numerous techniques to unfold graft
- Full air fill for 1 hour & patient leaves with air bubble clearing inferior PI and inferior dilated pupil edge
DMEK Lessons

PRE-OPERATIVE
- PATIENT SELECTION
- INFERIOR LASER PI

GRAFT PREPARATION
- PEELING
- TISSUE > 50 YEARS OLD
- DMEK/DALK SAME DAY
- TRYPAN BLUE SOAK

HOST PREPARATION
- LARGER SCORE
- NO DESCEMET’S TAGS

GRAFT INJECTION
- PLASTIC/GLASS INJECTOR
- SUTURE WOUND

GRAFT UNFOLDING
- TECHNIQUES
- SLIT BEAM
- FULL AIR FILL

POST-OPERATIVE
- AS-OCT
- DETACHMENTS

Essential for DMEK surgeon
Serial AS-OCTs to follow detachments
Can show and educate patients

DMEK

Completely detached scroll

Fold
POST-OPERATIVE
AS-OCT
DETACHMENTS

PRE-OPERATIVE
PATIENT SELECTION
INFERIOR LASER PI

GRAFT PREPARATION
PEELING
TISSUE > 50 YEARS OLD
DMEK/DALK SAME DAY
TRYSPAN BLUE SOAK

HOST PREPARATION
LARGER SCORE
NO DESCemet's TAGS

GRAFT INJECTION
PLASTIC/GLASS INJECTOR
SUTURE WOUND

GRAFT UNFOLDING
TECHNIQUES
SLIT BEAM
FULL AIR FILL

Observe peripheral detachments

Re-bubble larger detachments
Lessons From First 10 DMEK Cases

- **Pre-Operative**
  - Patient selection
  - Inferior laser PI before OR
- **Graft Preparation**
  - SCUBA / one forceps
  - Tissue > 50 years of age
  - Two partial trephines
  - DMEK / DALK same day
  - Soak well in trypan blue
- **Host Preparation**
  - Score larger than graft size
  - No Descemet’s tags
- **Graft Injection**
  - Plastic vs glass injector
  - Suture wound well after insertion
- **Graft Unfolding**
  - No one way: combination of techniques
  - Can use separate slit beam
  - High pressure fill for a few minutes
  - New instruments
- **Post-Operative**
  - AS-OCT
  - Can observe peripheral detachments
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- George Mintsioulis, MD
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