Unfolding the Difficult DMEK Graft

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Disclosures

- Haag-Streit: Lecture Honoraria
- Mastel: Consultant
- Interactive Medical Publishing Inc: Ownership Interest

These disclosures are relevant to this talk:
- Products are seen in the videos
- Published e-book on DMEK in iBooks store
- DMEK Utilizes:
  - Off-label use of IOL injectors
  - Off-label use of trypan blue dye

Difficult Grafts

- The point-locked fold
- The tight scroll
- The folded graft
- Partial graft ejection
The point locked fold represents a collapsed DMEK scroll. The graft cannot be unfolded until the scroll lumen is re-formed.

Push and hold for several seconds over the point of the fold. Upon release the scroll should re-form. It may take a few attempt at this step until the fold is resolved.

Donors less than 45 years old make very tight scrolls. Do not accept donor tissue this young if you are not an experienced DMEK surgeon.
Age difference in DMEK donors

Older Donor: 50-70 yrs
Younger Donor: 35-45 yrs

These images demonstrate the difference between a typical 60 year-old donor and a 39 year-old donor. Which one would you rather unfold? Although the younger donor may have a higher cell count, the graft may sustain more damage during opening and negate this advantage.

Unfolding the tight scroll

This video demonstrates the no-bubble, shallow chamber approach to unfolding a tight DMEK scroll. The shallow (not flat) chamber allows for the tight scroll to be opened, and then holds the graft open. The AC depth must be perfect for this maneuver.

The Folded Graft

- Caused by aggressive irrigation jet
- Gently deepen chamber
- Gently irrigate without over-pressurizing
- Push-hold-release

Aggressive irrigation during attempted graft unfolding can cause the scroll to fold in half. This is a very difficult situation to resolve. Avoid this complication by being very gentle at all times. There are no successful aggressive maneuvers in DMEK.
Injecting BSS until the eye is firm will create a pressure differential that can cause partial or full graft expulsion from the eye. In this case, immediately soften the eye and then pull the graft back into the AC (do not attempt to push).

Leaking wounds and pressure differentials attract DMEK grafts and can lead to graft ejection.

BE GENTLE.

- Small controlled movements of graft
- No large fluctuations of AC depth.
- Change AC volume by no more than 100-200µL
  - 2-4 drops of BSS at a time
- Graft is like water:
  - DMEK grafts flow like fluid... including out of the eye
“Be Water”

Be Water.

Pearls

• Keys to success:
  • Practice, Patience, Patients
  • May take several times to get it right
  • First several cases will be frustrating
    • May initially take longer in surgery than usual
    • May need to use trypan to re-stain in AC
  • Don’t take short cuts
  • Be shallow, Be Soft, Be Water

Once mastered, DMEK will produce amazing results and happy patients.

It is a challenging learning process, but it’s worth it!
Thank You

• Questions???

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