Phacoemulsification in post-vitrectomy, high myopia, and shallow AC eyes

Manage the ‘ouch’ and the tight squeeze

Mastering phacoemulsification of cataracts with lens-iris diaphragm instability
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I have no financial interests in the products or techniques that I am discussing today.

I am a consultant, clinical investigator, and member of the speakers bureau for Alcon. My primary topics are surgical skills transfer and new technology.

I am a clinical investigator for Glaukos

Many thanks to my teachers and to you for attending.
Lens-iris diaphragm instability

- As fluid flows into the AC, the iris is pushed against the capsule causing reverse pupillary block
- Sudden widening of the pupil
- Sudden deepening of the AC
- Sudden pain and often patient movement
Lens-iris diaphragm instability

- High axial myopes
- Post vitrectomy
- IFIS
- Post trabeculectomy
- ‘Normal’

Lens-iris diaphragm instability

- Hydrodissection
- Phacoemulsification
- Irrigation / aspiration
- Viscoelastic removal
- Stromal hydration / refilling of AC
Managing Lens-iris diaphragm instability

- Anticipate
- Intracameral preservative free lidocaine
- Minimize sudden pressurization
- Prevent or break pupillary block

Managing Lens-iris diaphragm instability

- Irrigation
  - Reduce inflow pressure to 60-70 cm bottle height / 40-45 mm/hg IOP and raise once equilibrium achieved
  - Raise IOP ramp to maximum 2 seconds
  - Enter the eye slowly with phaco or I/A in foot position 1 if iris lifted
  - Inject fluid into AC slowly
Managing Lens-iris diaphragm instability

Pupillary block

- Do not overfill with viscoelastic
- Lift iris with second instrument before irrigation starts or if block occurs
- Lift iris or push back capsule with phaco or IA tip before irrigation starts or if block occurs
- Place 1 or 2 iris retractors
Managing Lens-iris diaphragm instability

- Anticipate
- Minimize sudden pressurization
- Prevent or break pupillary block

Shallow anterior chamber and/or increased vitreous pressure

Shallow anterior chamber

- As fluid/viscoelastic is put into the AC, the iris is pushed against the capsule causing reverse pupillary block
- Sudden movement of fluid behind iris
- Sudden shallowing of the AC
- Sudden iris prolapse
Shallow anterior chamber

Shallow anterior chamber

Shallow anterior chamber

Shallow anterior chamber Capsulorhexis

- 'Soft shell' cohesive in dispersive viscoelastic
- Microrhexis forceps through 1 mm paracentesis
- Femtosecond
Capsulorhexis - Soft Shell

Capsulorhexis - Microforceps

Shallow Anterior Chamber Hydrosissection

- Inject slowly
- Press cannula against back lip of incision to create gape in front
- Depressurize lens/AC before removing cannula
Shallow anterior chamber
Hydrodissection

Shallow anterior chamber
Phacoemulsification/IA

- Snug sleeve to incision
- Additional viscoelastic for entry
- Enter in foot position 0
- Protect the posterior capsule
- Decompress before removing tip from the eye

Shallow anterior chamber
Shallow anterior chamber

- Bimanual IA

Shallow anterior chamber

‘Uncontrollable’

- Pars plana vitreous tap
- Pars plana vitrectomy

Unstable anterior segment

- Control fluidics
  - Deep AC
    - Enter foot position 1
    - Lower bottle for entry
  - Shallow AC
    - Enter foot position 0
    - Decompress before withdrawing instruments
Unstable anterior segment

- Don’t overfill with viscoelastic
- Prevent/release pupillary block at all steps of procedure

Good luck with your complex surgeries

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