IOL OPTIONS AFTER POSTERIOR CAPSULAR RUPTURE DURING PHACOEMULSIFICATION

SAURABH CHOUDHRY
ICARE EYE HOSPITALS
NOIDA - INDIA
Course 09-401
ASCRS 2016
New Orleans

FIXATION OF THE PC IOL IN THE BAG/ SULCUS

NO CONFLICT OF INTEREST
Posterior Capsular Rupture

- Outcomes of uncomplicated cataract surgery performed by phacoemulsification in the present scenario are excellent.
- Posterior capsular rent, reported to occur in 0.5 to 7.5% of cases is a significant potential intraoperative complication of phacoemulsification.
- An improperly managed posterior capsular rent, with or without vitreous disturbance can mar these excellent outcomes.

- Dreaded complication
- All surgeons will have it
- With experience the incidence will become less
- Managing a PCR and its associated complications is the key to good visual outcomes
- Vitreous loss appears to be the crucial factor determining eventual clinical outcome.

- IDENTIFY the PCR at the earliest
- MINIMISE the extent
  - Keep your cool
  - Get to irrigation mode (FP I)
  - Lower bottle height
  - Remove the ill instrument
  - Inject dispersive viscoelastic through side port
  - Slowly remove the phaco probe
- ASSESS
Assessment of the PCR

- Size
- Location
- Condition of the Capsulorhexis margin
  - Anterior capsular support
- Associated VITREOUS PROLAPSE
- Other associated morbidity
  - Zonular Dehiscence

IOL Options - Prerequisites

- Adequate anterior vitrectomy

IOL Options

- Prior to IOL implantation the exact anatomy of the tear and the capsulozonular integrity should be determined
- Iris is gently retracted under viscoelastic cover at multiple locations
  - desirable location and orientation of the posterior chamber IOL
  - its design
  - optimal insertion technique
Options

A. Small rent with all margins visible - without vitreous disturbance – IOL IN THE BAG

B. Small rent with well defined margins - with vitreous prolapse – tear should be converted into a Posterior Continuous Curvilinear Capsulorhexis

Converting tear into PCCC

Tear unlikely to extend on
- Further vitreous egress
- Vitrectomy (easier / safer)
- Stretching of the bag / manipulation during IOL implantation
- In the late post operative period (capsularphimosis)

Choice of IOL

- Single piece hydrophobic IOL
  - Slow/smooth unfolding
  - Good memory

IOL implantation using a dialling technique may exert more force in the capsular bag than a superior haptic compression maneuver or a slowly unfolding IOL in the capsular bag
Options

A. Tear is large with peripheral extensions and poorly defined borders - posterior capsulorhexis is not possible
   - IOL should be implanted in the Ciliary Sulcus (after appropriate power adjustment from the capsular bag calculation)

IOL optic can be captured in the capsulorhexis opening
The A constant should also be considered if the IOL type/position has changed.

### Calculated IOL Power for the Capsular Bag vs. Sulcus IOL Implantation Power Change

<table>
<thead>
<tr>
<th>Calculated IOL Power for the Capsular Bag</th>
<th>Sulcus IOL Implantation Power Change</th>
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<tbody>
<tr>
<td>+5.0 D to +6.0 D</td>
<td>No change in IOL power</td>
</tr>
<tr>
<td>+9.5 D to +17.0 D</td>
<td>-0.5D less</td>
</tr>
<tr>
<td>+17.5 D to +27.0 D</td>
<td>-1.0 D less</td>
</tr>
<tr>
<td>+27.5 D to +35.0 D</td>
<td>-1.5 D less</td>
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</tbody>
</table>

### Choice of IOL

Never implant a single piece foldable IOL in the Sulcus.

Complications of sulcus SPA IOLs:
- pigment dispersion
- chronic iridocyclitis
- iris transillumination defects
- dysphotopsia
- elevated intraocular pressure
- cystoid macular edema

### IOL in Sulcus

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Regardless of where the IOL is implanted, within the bag or into the ciliary sulcus it should be positioned 90° away from the axis of the tear.

After the IOL is centred, evaluate its fixation and stability.

If the IOL shows signs of poor fixation it can be repositioned or exchanged.

Backup IOLs in appropriate powers, sizes, and designs should be available for every cataract procedure.
Pearls

Once the IOL is well centred the pupil should be constricted by injecting acetylcholine into the anterior chamber since miosis will both retard late vitreous prolapse and make any residual vitreous easy to visualize.

If the posterior capsule was torn and no vitrectomy was performed a prophylactic peripheral iridectomy should be considered.

Post op

a. Dilate patient in first few weeks to check retina
b. Monitor IOP closely due to extra OVD and manage if needed

c. Post-op medications:
   1) Antibiotics
   2) Steroid
   3) NSAID (Topical NSAID for 1-3 month due to the increased inflammation and risk of CME)
   4) Antiglaucoma & Dilating drops (as indicated)