Managing the Malpositioned IOL

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Content
Assessment of the displaced IOL
Approach to retrieval, fixation/exchange options
Fixation techniques
Iris fixation
Scleral suture fixation
Intrascleral haptic fixation

In the OR where the excitement begins ......Videos only!!

- Techniques for retrieval – examples
- Techniques for fixation – examples
- Techniques for exchange – examples

Wrap up

Q&A

Assessment of the Displaced IOL

Clinical Assessment

1. Naked or encased in capsular bag- integrity, inflatability
2. Extent and location of zonulysis
3. IOL haptic design & material
4. Position of IOL when supine
5. Vitreous in AC
6. Retinal assessment
7. Endothelial cell count
8. Refractive error in both eyes
9. Reason for subluxation
10. Previous ocular surgeries/systemic disease e.g. TPPV/atopic dermatitis

Predisposing Factors - PC IOL Subluxation

1. Zonular weakness
   a. Pseudoexfoliation syndrome
   b. Connective tissue disease e.g. Marfan’s syndrome
2. Chronic uveitis
3. Post-vitrectomy
4. Increased axial length
5. Blunt trauma including atopic dermatitis
6. Surgical trauma
7. Capsular contraction syndrome (PXE, DM, uveitis)
Causes of PC IOL Subluxation

Early (weeks)
- IOL instability
  - PCR – inadequate capsular support
  - Zonulysis

Late
- Progressive capsular phimosis
  - Silicone IOL
- Small CCC
- Previous scleral/iris fixated
  - Suture related problems

Approach to retrieval, fixation/exchange options

Surgical Options – Retrieval
- Determine IOL position
  - Assess accessibility
- Retrieval from anterior segment
  - Microforceps grasping haptic or optic
  - 27 G needle for anterior assisted levitation
- Posterior
  - Posterior assisted levitation using 27 G needle
  - Trans pars plana vitrectomy

Surgical Options – the IOL
- Keep IOL
- Exchange for new PC IOL
  - Different haptic design
  - Different IOL power
Old one damaged

- Exchange for iris clip IOL

**Surgical Options – IOL Fixation Technique**

- Suture fixation to
  - Sclera – directly or after inserting CTS
  - Iris
- Intrascleral haptic fixation to sclera (glued IOL)
- Iris clip IOL - retropupillary

**Decision Making – Retrieving IOL**
Decision Making – IOL Fixation Options

**Type of IOL**

- **3 piece**
  - Iris fixation
  - Scleral fixation
  - Exchange
  - Suture in CTS
  - Suture CCC +/- haptic

  - Iris clip IOL
  - Fixate new 3 pc IOL iris/sclera

- **Single piece**
  - Exchange
  - Fixate 3 pc IOL to iris/sclera

**IOL Fixation Techniques for 3 piece IOL**

**Iris fixation**
- Normal iris/pupil
- Fix both haptics
- No bag preferred

**Scleral fixation**
- Fix one haptic
- Possible to fix both haptics
- Bag/no bag

**IOL exchange**
- Haptic breaks or kinked
- Multifocal IOL
- Inappropriate power

**Choice of IOL**
- 3 piece IOL
- Iris clip
  - Need quick fix e.g. unfit, elderly

**IOL Fixation Techniques for Single Piece IOL**

**Suture in CTS**
- Intact CCC
- Ability to dissect open bag
- Anchor 1 or 2 sites

**Suture CCC**
- Intact fibrotic CCC to sclera
- Suture CCC and haptic of single piece IOL through bag to sclera

**IOL exchange**
- Previous options unsuitable e.g. MI60 plate haptics
Iris Fixation of PC IOL

Stepser Sliding Knot
Scleral Fixation using Hoffman Corneoscleral Pockets

- Additional paracentesis
- Pull haptic and iris up towards incision to tie
- Suture may not be snug

Iris Fixation using McCannel Suture

Cross-section View

Knot tying completed

Knot settle within pocket as IOL positioned posteriorly

Microscope View
Case scenarios to illustrate techniques

PAL – 25G Needle
AAL – 27G Needle – Clothed IOL
Locate the Naked IOL – Scissor Vitrectomy
Forceps Assisted Fixation – Naked IOL, No vitrectomy
Forcep Delivery – Vitrectomy
Clothed IOL – Stripped, Vitrectomised
Iris Fixation converted to Glued IOL
Anteriorly Subluxated PC IOL – SF
Half Bow Sliding Knot
Anteriorly Subluxated IOL – CTS insertion
Scleral Fixation of CCC
Subluxated CTR/IOL complex
Current State of the Art
**Summary**: Managing Malpositioned IOLs

Various techniques – dependent on IOL position

Reposition

Anterior – microforceps or needle

Posterior - needle

Stabilization

Iris fixation

Siepser sliding knot

Scleral fixation

Modified Hoffman corneo-scleral pocket suturing

Intrascleral approach