INTRODUCTION

- Cataract surgery isn't always routine
- Two types of complex cases
  - Planned
  - Unplanned
- To be forewarned is forearmed
  - Important to recognize which cases can become complicated ahead of time and plan ahead for them

FINANCIAL DISCLOSURES

- No financial disclosures

POTENTIAL COMPLICATED CASES

- Trauma
- Pseudoexfoliation
- Postsurgical patients
  - TPPV
  - Glaucoma surgery
- Phacodonesis
- Previous inflammatory condition
  - Uveitis
  - Postinfectious (Bacterial, fungal, herpetic, Acanthamoeba)
- Dense cataracts
- White cataracts

TYPES OF COMPLICATIONS

- Pupil
- Capsulorhexis
- Zonules
- Phacoemulsification
- I/A
- IOL placement
  - Choice of IOL
  - Location of IOL

SMALL PUPIL

- Small pupil – poor dilation secondary to miotic agents, Flomax
- Options for managing
  - Stretching pupil – NOT IN FLOMAX CASES!!!
  - Iris Hooks
  - Malyugin Ring
  - I-Ring Pupil Expander - Visitec
DEALING WITH SMALL PUPILS

CAPSULORHESIS

• Radial extension of capsulorhexis – Little Technique to save rhexis

ZONULAR WEAKNESS DURING PHACO OR I/A

• Capsular Tension Ring
  • Sutured to sclera or use without suturing
  • Capsule segments
  • Sutured to sclera
• In cases with an extremely mobile lens, capsule hooks can be used to stabilize capsule during Phaco followed by either sutured CTR or segments

POST SURGICAL PATIENTS

• s/p Vitreoretinal Surgery
  • With no vitreous back pressure, anterior segment much more mobile
  • Can have zonular problems
  • Capsular rupture during previous TPPV can lead to posterior dislocation of nucleus during phaco
• Glaucoma surgery
  • Especially tube shunts – tube placement can be a problem

WHITE CATARACTS

• Intumescence cataracts – difficult management challenge
  • Capsular rupture – Argentinian Flag sign can occur easily
  • Use of viscoelastic to overfill AC and exert external pressure on capsule
  • Insert a 27 gauge needle into center of capsule and aspirate to decompress the lens
  • Use phaco probe to penetrate center of capsule and decompress the lens

CASE PRESENTATION

• 46 y.o HF RGP CL wearer referred to me with severe pain OD and a dense corneal infiltrate. Had been treated with Fortified Vancomycin and Tobramycin as well as Vigamox with worsening of her infiltrate.
  • Cultures – no growth, stains negative for organisms
  • Repeat cultures and stains performed including fungal stain & culture as well as Calcofluor White stain and culture on Non-nutrient Agar with E Coli overlay
  • Positive for Acanthamoeba
  • Treated with PHMB for over a year – finally resolved with dense central scar necessitating Penetrating Keratoplasty
  • Had extensive anterior synchiae and dense white cataract
  • Elected to do Penetrating Keratoplasty 4/23/15, to be followed by Cataract Surgery once transplant heals

-3/23/2016-
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CASE PRESENTATION
- Did well post Keratoplasty with a clear transplant
- Dense white cataract and peripheral anterior synechiae which could not be lysed at the time of her PK
  - Cataract appeared to have significant fibrosis on anterior capsule and within the lens
  - Peripheral capsule appeared abnormal
    - Possible zonular weakness/dehiscence

SURGICAL CHALLENGES
- Dense white cataract
- Abnormal anterior chamber with PAS
- Fibrosis of anterior capsule
- Possible zonular weakness/dehiscence

HOW SHOULD WE PROCEED?

FEMTOSECOND LASER ASSISTED CATARACT SURGERY
- Setting on Catalys laser for white cataracts
  - Default setting to fragment lens to a depth of 2.5 mm
  - Allows you to safely treat a lens where you can’t adequately visualize the posterior capsule
FEMTOSECOND LASER TREATMENT

VIDEO

1 MONTH POST OP

- MEDS – Pred q3H, Ilevro qD, Combigan BID
- UCVA 20/80
- MR -1.00 -2.50 x 40 -> 20/40
- PH 20/30+

SUMMARY

- Keys to successful management of complex cataract patients
  - Evaluation of patient preoperatively to identify potential difficulties during surgery
  - Preoperative planning to overcome problems
  - Execution of surgical plan
    - Adapt to changes in intraoperative conditions
  - Adjustments to postoperative regimen based on clinical status
  - Good planning and execution can result in excellent outcomes

THANK YOU
CAPSULOTOMY PARAMETERS

- Template Name: 5.0mm
- Pattern: Circular
- Diameter: 5.0 mm
- Center Method: *Pupil Maximized
- Normal Thickness of anterior capsule = 11-15 μm centrally
- Horizontal Spot Spacing: 5 μm
- Vertical Spot Spacing: 10 μm
- Pulse Energy: 4.0 μJ
- Laser Time, Capsulotomy: 1.6 s Total Energy, Capsulotomy: 0.8 J

LENS FRAGMENTATION PARAMETERS

- Template Name: Dense
- Quadrant Segmentation and Softening
- Segmentation Repetitions: 3
- Horizontal Spot Spacing: 10 μm
- Vertical Spot Spacing: 30 μm
- Anterior Pulse Energy: 8.0 μJ
- Posterior Pulse Energy: 10.0 μJ
- Anterior Capsule Safety Margin: 500 μm
- Posterior Capsule Safety Margin: 500 μm
- Total Energy, Lens Frag: 3.2 J