

Cataract Surgery Complications: The Retina Perspective

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CONFLICTS

- I have no relevant financial disclosures or conflicts



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Objectives

- Discuss cataract surgery preoperative risk factors for complications
- Review anterior segment intraoperative management of cataract surgery complications
- Discuss the urgency of referrals following cataract surgery complications
- Review retinal management of these conditions



Introduction

- Cataract surgery has a favorable outcome in approximately 98% of patients



Introduction

- Cataract surgery is overwhelmingly successful!
- From the Retina Specialist: What is the #1 reason patients are not satisfied with their cataract surgery?



Patient Education



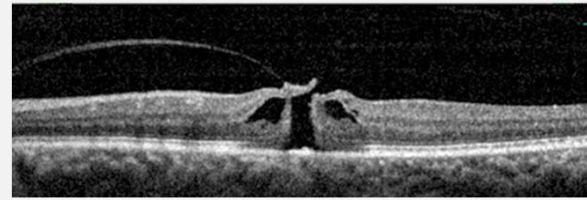
Doctors



Patients



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Prior to CE/IOL: Coexisting Retinal Disease

- Many retinal diseases including DR, DME, AMD, RVO, ERM, and more rare conditions may be exacerbated by cataract surgery
- Pre-operative documentation is important
- A good macular examination and/or OCT testing is key for evaluating potential BCVA
 - I recommend pre-op OCT testing in all patients considering cataract surgery
 - I **STRONGLY** recommend pre-op OCT testing in patients considering "premium options"
- Avoid "premium options" and monovision in patients with retinal disease
 - Toric lenses may still be appropriate to reduce glasses burden in select patients
- When in doubt → referral to a retina specialist for further evaluation



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Cataract Surgery Success

- There are many other nuances to "success" from the patient's perspective
 - Interactions with clinic staff, OR staff, referring OD, surgeon
 - Education regarding refractive outcome and goals
 - Value
 - Happy with Premium IOL package?
 - Medication costs
 - Comparison to peers



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Serious Adverse Events After Cataract Surgery

- Serious Adverse Events
 - One-year rate of endophthalmitis, suprachoroidal hemorrhage, and/or retinal detachment
- Age – No association
- Race – Likely no association
- Sex – Men are higher risk
 - Pseudophakic RDs, Endophthalmitis, α -antagonists
- Diabetes – Increased risk in PDR patients but no increased risk in NPDR patients



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Shen G, Gossman DL, Mandy KM, et al. Serious adverse events after cataract surgery among Medicare beneficiaries. Ophthalmology. 2011 Sep; 118(9):1736-1742. PubMed: 21642302. Review analysis of three cohorts of Medicare beneficiaries who underwent cataract surgery in 1994-95, 1999-2004, and 2005-2006. The results showed an increased trend in rates of serious adverse events among the cohorts and identified risk factors associated with such adverse events.

Serious Adverse Events After Cataract Surgery

- Surgeon Factors
 - Surgeon Volume – High-volume tend to have lower complication rates
 - Some confounding variables here due to case mix
 - i.e. cornea and glaucoma specialists are often treating patients who are at higher risk for complications at baseline
 - Surgeon Experience/Age –
 - Residents have higher rates of complications
 - Otherwise, in general, no trends have been consistently identified



Vitreoretinal Surgery, PA

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Intraoperative Management: Anterior Segment

- Anterior complications/challenges
 - Zonular Dehiscence, Capsular rent, Intraoperative Floppy Iris Syndrome etc.
 - Many experts are in attendance



Intraoperative Complications

- Posterior Capsular Rupture
 - Early vs late rupture
 - Ensure good anterior vitrectomy using triamcinolone
 - If dropped fragments → "don't go digging!"
 - History for the Retina Specialist: knowing cortex vs nucleus is helpful
- IOL Placement
 - Small → may consider placement in the bag
 - Any doubt → place a 3-piece in the sulcus
 - No support, bag complex, dislocated → consider ACIOL placement vs aphakic
 - Will need retina referral for pars plana lensectomy
- **Urgency:** Highly variable.
 - If retained nucleus → POD1
 - If retained cortex → Variable depending on surgeon's comfort level
 - If PC rupture but no retained lens → consider referral ~POM1 for 360 SDE with Retina Specialist



Intraoperative Complications

- Suprachoroidal Hemorrhage
 - Very rare in modern era → incidence <0.1%
 - Risk factors: older age, high pre-op IOP, history of cardiovascular disease or HTN
 - Sudden shallow of the AC, iris prolapse and loss of the red reflex
 - Suture wounds and give post-op Diamox
- **Urgency:** Very urgent!
 - POD0 or POD1
 - Consider confirming diagnosis at time of surgery with indirect ophthalmoscopy



Suprachoroidal Hemorrhage Management

- Pain control
- Patient expectations management
- IOP management → corneal edema management
- Hemorrhage will liquify at 2 weeks → consider drainage with PPV
- [Dr. Tang Suprachoroidal Hemorrhage Drainage Video](#)



Postoperative Complications: RLF

- Incidence: 0.3%-1.1%
- Risk Factors:
 - Dense brunescant hypermature or posterior polar cataracts
 - Topical anesthesia
 - Prior vitrectomy
 - Zonular compromise
 - Fellow eye with complicated cataract surgery
 - Floppy iris syndrome
- Small amounts of retained cortical material may be tolerated
- Persistent inflammation leads to CME, reduced visual outcomes and increased rate of RD (14.5%)



Postoperative Complications: RLF

- Management → Steroids, cycloplegics and IOP-lowering medications
- PPV/PPL is typically performed within a few days
 - Less than 1-2 weeks results in better visual outcomes
 - Need a reasonably clear cornea (IOP management)
- **Urgency:** Urgent - Refer POD1-2
- [PPV/PPL Video](#)

Adhigun, TM, Subramaniam, M, Flynn, HW, Li, Chang, S, Miller, WJ, Srinivas, NE. Current vitreal tear as a complication of attempted removal of intracapsular lens fragments during cataract surgery. Am J Ophthalmol. 2007;143:222-226.



Postoperative Complications: CME

- Incidence: 1-2% of patients with routine CE/IOL will get clinically significant CME
 - Much higher in patients with complications or risk factors
 - Clinically significant → 20/40 BCVA or worse at 4-12 weeks post-op
- OCT or angiographic evidence in up to 20% of patients
- Mechanism
 - Inflammatory
 - Mechanical (vitreous traction)



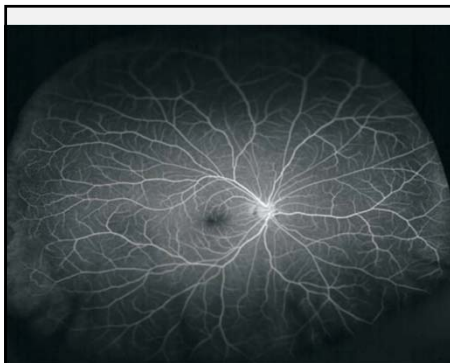
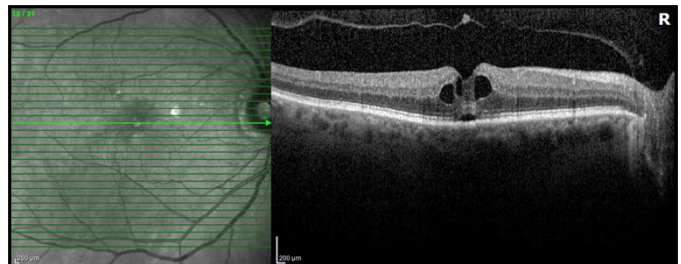
Postoperative Complications: CME

- Treatment:
 - 1) Prevention → peri-operative NSAIDs and topical steroids
 - 2) Topical treatment → extended course of NSAIDs and topical steroids
 - 3) Sub-tenons or intravitreal treatment
 - Mechanical → YAG vitreolysis or PPV
- >90% of cases will resolve at 2 years with treatment
- **Urgency:** Moderate
 - Recommend identifying the CME, starting topical drops and then referral within 1 week to retina specialist



Interesting Case

- 80 year old male 2 weeks s/p CE/IOL OD
- VA 20/60, PH 20/50
- Patient not satisfied with result



Interesting Case

- Noted to have vitreomacular adhesion on pre-op OCT
- Likely recent release of VMT without macular hole formation
- Expect resolution over the coming weeks without treatment



Postoperative Complications: Retinal Detachment

- Incidence: 1% in the year following CE/IOL
 - Pseudophakic patients have 5x risk of phakic patients of developing RD in any given year
- PVD is common in the months following CE/IOL
 - Anterior vitreous is likely disturbed
 - Protuberance of natural lens may reduce vitreous traction during eye movements
- Treatment: Typically PPV with or without scleral buckle
- **Urgency:** Determined by macular status and NPO status. Important to manage patient expectations
 - Literature suggests "Urgent not emergent"
 - Macula off → Visual prognosis is same within 1 week. VRS often repairs next available
 - Macula on → VRS will make arrangements to fix asap
 - SRF moves slowly
 - Inferior fluid more stable
 - Positioning can help



Postoperative Complications: Dislocated IOL

- Most commonly occur >10 years after CE/IOL due to zonular laxity
 - May occur as early as POD0
- May present in 5 categories
 - 1) Decentered IOL in capsular bag
 - 2) IOL partially subluxed outside of capsular bag
 - 3) Decentered IOL in the sulcus
 - 4) IOL in the capsular bag with both being subluxed and decentered
 - 5) IOL completely dislocated and sitting on the retina
- Not one size fits all for surgical options
- If 3-piece IOL → Reposition with Yamane or suture
- If 1-piece IOL → Exchange with Yamane fixation or ACIOL

• [Yamane Video](#)



Postoperative Complications: Endophthalmitis

- Incidence: Approx. 1/2000-3000 cases
- Presents within 1 week of surgery with pain decreased vision, corneal edema, increased inflammation, fibrin reaction
- Most commonly coagulase-negative, gram positive bacteria (staph, strep)
 - Presentation <2 days typically more virulent organisms
- Treatment: Tap and injection of antibiotics and/or PPV depending on clinical course
- **Urgency:** Extremely urgent!



Thank you!

