

Considerations for Cataract Surgery in Patients with Coexisting Retinal Disease

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CONFLICTS

- I have no relevant financial disclosures or conflicts



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Objectives

- Discuss cataract evaluation and surgery in the presence of coexisting retinal disease
- Discuss strategies to reduce risk of post-operative CME
- Discuss technical considerations in cataract surgery following prior vitrectomy
- Discuss pros and cons for combined cataract surgery and vitrectomy



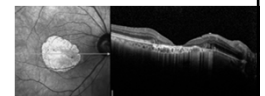
Introduction

- A large portion of cataract surgery patients have coexisting retinal disease
 - Commonly Diabetic Retinopathy (DR), Epiretinal Membrane (ERM), Retinal Vein Occlusion (RVO), High Myopia and Age-Related Macular Degeneration (AMD)
- Cataract surgery may be necessary in patients with retinal disease to better visualize the retina for medical and/or surgical management
- Prior retinal surgery is an important consideration for cataract surgeons
- Retinal disease influences the timing of surgery, technique and IOL selection



Informed Consent

- **MANAGE EXPECTATIONS!!!**
- Go beyond the basics
 - Important for the entire team including referring ODs, cataract surgeons and retinal specialists
 - Explain the anatomy and disease processes to the patient
 - Help patients understand BCVA
- Appropriate informed consent and managing patient expectations are **KEY** in the patient's understanding of their potential and real-world outcome



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
- Avoid “premium options” and monovision in these patients
 - 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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Coexisting Retinal Disease: AMD

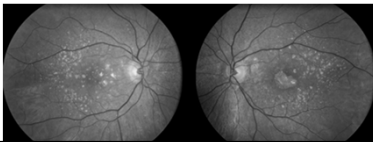
- Risk of progression from cataract surgery → historically controversial
 - Theoretically inflammatory factors following cataract surgery may exacerbate disease, but studies are inconclusive
- AAO 2016 “...risk for worsening of preexisting AMD following cataract surgery is low.”



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Coexisting Retinal Disease: Dry AMD

- Patients with geographic atrophy and reduced BCVA can greatly benefit from cataract surgery
 - Increased light exposure and peripheral vision benefit
- Long discussion may be necessary to help patient and family understand potential visual benefits



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Coexisting Retinal Disease: Neovascular AMD

- In patient's receiving ongoing treatment for nAMD two main considerations:
 - 1) Patient's response to anti-VEGF
 - 2) Date of most recent injection
- Retinal specialist will want disease “under control” prior to cataract surgery
 - Recent studies show patients with persistent SRF are stable for surgery^{1,2}
- Ideal timing for anti-VEGF injection is 1-2 weeks prior to cataract surgery



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1) Saad SS, Ryan CL, Ober MD. The effects of cataract surgery on patients with wet macular degeneration. *Am J Ophthalmol*. 2015;160(3):487-92.

2) Sano MA, Mahr MA, Narkiewicz AJ, et al. Outcomes of Cataract Surgery in Patients With Exudative Age-related Macular Degeneration and Macular Fluid. *Am J Ophthalmol*. 2018 Aug; 192:910-7.

Coexisting Retinal Disease: Diabetes

- Diabetics develop cataracts at a younger age
- Ensure that cataract corresponds to degree to visual dysfunction otherwise further studies and referral to retina specialist are warranted
 - OCT → DME
 - FA → DME, PDR, and macular ischemia
- In eyes with mild NPDR cataract surgery is less likely to cause progression³
 - Some experts recommend earlier cataract extraction in this population
- Blood sugar (hgbA1c) should be under control
- Significant diabetic pathology should be treated prior to cataract surgery

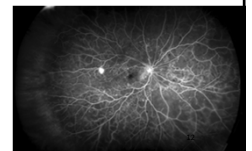


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3) Kim SJ, Egan R, Brubaker NM (2007). Analysis of macular edema after cataract surgery in patients with diabetes using optic coherence tomography. *Ophthalmology*. 2007;114:881-889

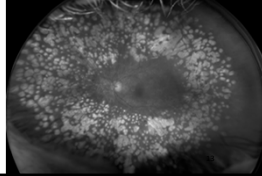
Coexisting Retinal Disease: Diabetes

- Patients with DME, PDR or severe NPDR should be evaluated by retinal specialist prior to cataract surgery
- Fluorescein angiography may reveal PDR
 - Early initiation of PRP and/or anti-VEGF therapy can reduce risk of DR progression
- FA will also assess macular perfusion status



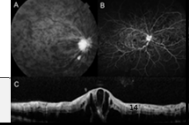
Coexisting Retinal Disease: Diabetes

- Acrylic lenses are preferred → less likely to fog during vitrectomy
- Larger capsulotomy preferred for possible future PRP
- Peri-operative NSAIDs and steroids very important to control post-operative CME



Coexisting Retinal Disease: Retinal Vein Occlusion

- Patients with a history of RVO are **30x** more likely to have post-op CME
 - Risk exists with or without preoperative CME
 - Lower threshold of blood-retina barrier breakdown
- Patients with pre-op RVO related CME should be managed in conjunction with retina specialist so that all treatment options are available
 - anti-VEGF, peri-ocular steroids, intravitreal steroids
- Patient with h/o RVO should be treated with peri-operative NSAIDs and steroid
 - Monitor closely in post-operative period with OCT



Coexisting Retinal Disease: Epiretinal Membrane

- “Blurred” vision vs “distorted” vision
 - May help determine sequence of surgery
- Risk of potential post cataract surgery CME is increased in patients with ERM
 - Standard rate of CME following CE → 1-2%
 - Rate of CME following CE for patients with ERM → 6-15%⁴
- Recent study performed by VRS and presented at Retina Society 2018⁵
 - Combined CE with PPV/MP compares favorably to the rate of CME in the literature
 - 5.9% CME in our group
 - Pre-operative leakage on FA testing is predictive of risk for CME⁴
 - Pre-op STK reduced risk of CME (0% in our sub-group)

4) Chu CJ, Johnston RL, Biscombe C, Sallam AB, Mohamed Q, Yang YC. Risk factors and incidence of macular edema cataract surgery a database study of 81984 eyes. Ophthalmology. 2016;123:318-323.

5) Doi S, Bergerson AL, Vitro DM. Incidence of CME after Combined CE/PPV with Membrane Peel for patients with Cataract and ERM. Retina Society 2018, San Francisco, CA.



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Coexisting Retinal Disease: Peripheral Retinal Pathology

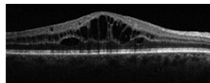
- Flap tears with or without symptoms should be treated with laser retinopexy
- Round retinal holes, lattice degeneration, white without pressure, and other peripheral retinal abnormalities are typically observed
 - Reports supporting prophylactic treatment of these pathologies are lacking
 - Retinal detachment after cataract surgery often occurs in areas of retinal tissue that previously appeared normal
- Consultation and examination with a Retina specialist is recommended in patient with a h/o retinal detachment prior to cataract surgery



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Avoiding Post-op CME

- If managed appropriately we can effectively reduce the risk of post-operative CME to near that of the regular population risk
- As discussed previously, pre-operative or intra-operative sub tenons Kenalog may be effective in reducing risk for post-op CME
- Recommended protocol:
 - In high-risk patients → Retina evaluation with FA to determine if STK is warranted
 - 3 days prior to surgery: Begin topical NSAID
 - Continue for 4-8 weeks post-op
 - Consider holding for 1 week post-op to avoid epitheliopathy in at-risk patients
 - POD1: Begin topical corticosteroid agent
 - Continue for at least one month and taper



Technical Considerations in Cataract Surgery Following Vitrectomy

- Requires caution during phacoemulsification
 - Less scleral rigidity
 - Unstable zonules → fluctuations in anterior chamber depth
 - May lower bottle height and decrease aspiration
 - Experts suggest a low threshold for capsular tension ring
 - Higher risk of intraoperative miosis
- If cataract develops quickly (weeks) following PPV → suspect posterior capsule instability
 - Careful hydrodissection and treat like a posterior polar cataract



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Pros: Combined Cataract and Vitrectomy Surgery

- Less cost to patient and health care system
- Faster visual recovery
- Increased patient satisfaction
- Improved access to the vitreous base
- More effective post-op tamponade



Cons: Combined Cataract and Vitrectomy Surgery

- Increased operating time
- Poor red reflex in cases with silicone oil or vitreous hemorrhage
- Corneal decompensation
- Cataract wound dehiscence
- Intraoperative miosis following cataract extraction
- IOL decentration
- Tamponade agents may exchange into the anterior chamber



Thank you!



High School



Thank you!



High School

Medical School

Residency



Thank you!



High School

Medical School

Fellowship

Residency

