Vitrectomy Cataract

With the introduction of small-gauge vitrectomy allowing for the treatment of vitreoretinal diseases while minimizing surgical risk, the number of vitrectomies has increased, as have the incidence of related complications such as cataract progression. Removal of these cataracts is critical for continued monitoring of the posterior segment and full visual rehabilitation. The purpose of this study, therefore, is to review the recent literature regarding risk factors for cataract formation after vitrectomy, the challenges and management strategies for anterior segment surgeons when facing post-vitrectomy cataract surgery, and the visual outcomes of patients undergoing post-vitrectomy cataract surgery.

The main considerations for intraocular lens (IOL) selection after vitrectomy include zonular stability and the presence of silicone oil. Preoperatively, regional block anesthesia should be considered for post-vitrectomy cataract surgery. In case of intraoperative complications, a vitreoretinal surgeon would ideally be readily available to overtake the difficulties encountered in cortical removal when zonular countertraction is compromised.

This review demonstrates that cataract surgery after vitrectomy can be safely performed to significantly improve the visual outcome in most post-vitrectomy patients. Although final visual acuity is primarily limited by the patient’s underlying vitreoretinal pathology, certain maneuvers and techniques can be implemented to minimize risk and ensure the best visual outcomes possible for the patient.

This study has been accepted for publication in International Ophthalmology Clinics.

1. Bascom Palmer Eye Institute / Univ of Miami, Miami, FL
2. Baylor College of Medicine, Houston, TX
3. Georgia Retina, Atlanta, Georgia

Authors: Zahra Markatia, BS,¹, Julia Hudson, MD,¹, Ahmar Sajjad, MD,² Ella H. Leung, MD,²,³, Allister Gibbons, MD1

The POST

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The main considerations for intraocular lens (IOL) selection after vitrectomy include zonular stability and the presence of silicone oil. Preoperatively, regional block anesthesia should be considered for post-vitrectomy cataract surgery. In case of intraoperative complications, a vitreoretinal surgeon would ideally be readily available and an optical biomicroscopy for certain IOLs should be present. If an ultrasound biomicroscopy is required, an immersion technique is recommended, and if silicone oil is to remain in the posterior segment, a convex-plano lens is encouraged. The authors strongly advocate using a 3-piece IOL if zonular weakness is suspected; a silicone or hydrophilic IOL should be avoided. For lens power calculations, axial length appropriate modern generation formulas should be used.

Intraoperatively, viscoelastic tamponade may prevent silicone oil bubbles from blocking the surgeon’s view, while continuous irrigation with lower infusion pressures can help maintain anterior chamber stability. Capsulorhexis may be done safely using FLACS, but scissors may also be necessary. Gentle hydrodissection is recommended in patients with potential pre-existing capsular rents, giving preference to hydrodelineation. Nuclear disassembly with chopping techniques and/or the MIloop device can help safely remove the nuclear material. Finally, the use of bimanual I/A devices can help overcome the difficulties encountered in cortical removal when zonular countertraction is compromised.

This review demonstrates that cataract surgery after vitrectomy can be safely performed to significantly improve the visual outcome in most post-vitrectomy patients. Although final visual acuity is primarily limited by the patient’s underlying vitreoretinal pathology, certain maneuvers and techniques can be implemented to minimize risk and ensure the best visual outcomes possible for the patient.

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