

Commentary: Elevation in intraocular pressure following vitreoretinal surgery

Elevation in intraocular pressure (IOP) post vitreoretinal surgery, be it external buckle or pars plana vitrectomy, is well-known. There are several mechanisms proposed for early rise in IOP like increased inflammation, hyphemia, silicone oil overfill, choroidal or supraciliary effusion, pupillary block, steroid-induced elevated IOP, and worsening of preexisting glaucoma.^[1-3] Emulsified silicone oil, steroid response, worsening of primary open-angle glaucoma, and neovascular glaucoma are some of the mechanisms for late postoperative elevation in IOP.^[2,4,5] Understanding the underlying mechanism is critical for appropriate treatment. The postoperative rise in IOP is reported as early as 5–12 h,^[1] and can occur many years after surgery. Several surgeons have reservations about recording IOP on a postoperative day one. With the available evidence of close to 15% eyes developing elevated IOP by 1 day,^[1] postoperative IOP estimation objectively in the immediate postoperative period is very important to pick up early elevation in IOP and start appropriate treatment and also plan to follow-up.

Despite the variable prevalence of IOP elevation with different retinal pathologies or surgical techniques, as is shown in the current study,^[6] the elevation in IOP was maximally noted in the early postoperative period with close to 50% eyes developing a rise in IOP within 1 month after surgery.

Studies have shown an increased risk of open-angle glaucoma after vitrectomy and phakic status to be protective,^[7] and lens extraction as a strong risk factor for the development of late-onset

open-angle glaucoma even in eyes with uncomplicated pars plana vitrectomy.^[5] Oxidative stress to the trabecular meshwork (TM) post vitrectomy and post lens extraction, direct obstruction, inflammation of TM, toxicity to the TM could contribute to elevated IOP. The other new risk factors noted in the current study include age younger than 50 years and male gender.^[6] Vitreoretinal surgery for retinal detachment and vitrectomy for proliferative diabetic retinopathy seem to have a higher risk for IOP elevation. Medical management seems effective to control the IOP, however, the need for long-term IOP control and surgical intervention has to be remembered.^[4] In the current study, although in 90% eyes the IOP normalized by 6 months, 10% eyes needed to continue antiglaucoma medications beyond 6 months which may increase if the follow-up was longer.^[6] Hence post vitreoretinal surgery IOP monitoring becomes very important both in the immediate postoperative period and in the long-term. In those with a family history of glaucoma or preexisting glaucoma, further elevation in IOP has to be expected and treatment tailored accordingly.

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References

1. Anderson NG, Fineman MS, Brown GC. Incidence of intraocular pressure spike and other adverse events after vitreoretinal surgery. *Ophthalmology* 2006;113:42-7.

2. Ichhpujani P, Jindal A, Katz LJ. Silicone oil induced glaucoma: A review. *Graefes Arch Clin Exp Ophthalmol* 2009;247:1585-93.
3. Sahoo NK, Balijepalli P, Singh SR, Jhingan M, Senthil S, Chhablani J. Retina and glaucoma: Surgical complications. *Int J Retina Vitreous* 2018;4:29.
4. Honavar SG, Goyal M, Majji AB, Sen PK, Naduvilath T, Dandona L. Glaucoma after pars plana vitrectomy and silicone oil injection for complicated retinal detachments. *Ophthalmology* 1999;106:169-77.
5. Koren L, Yoshida N, Escario P, Niziol LM, Koren IV, Musch DC, *et al.* Incidence of, risk factors for, and combined mechanism of late-onset open-angle glaucoma after vitrectomy. *Retina* 2012;32:160-7.
6. Pillai GS, Varkey R, Unnikrishnan UG, Radhakrishnan N. Incidence and risk factors for intraocular pressure rise after transconjunctival vitrectomy. *Indian J Ophthalmol* 2020;68:812-7.
7. Chang S. LXII Edward Jackson lecture: Open angle glaucoma after vitrectomy. *Am J Ophthalmol* 2006;141:1033-43.

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