

Commentary: Management of proliferative vitreoretinopathy in recurrent retinal detachment

Proliferative vitreoretinopathy (PVR) is the most common cause of recurrent rhegmatogenous retinal detachment (RRD) after surgical repair. It is characterized by cellular proliferation leading to the formation of contractile preretinal membranes, intraretinal fibrosis, and subretinal bands. The usually used postoperative tamponading agents, like silicon oil and gas,

used after RD surgery are lighter than water. This causes compartmentalization of the vitreous cavity and the migrated retinal pigment epithelium (RPE) cells get collected along with aqueous humor in the inferior vitreous, leading to PVR changes in the inferior retina.^[1]

Several authors have described relaxing retinectomy as a successful technique for the treatment of eyes with recurrent RD caused due to PVR. Various types of retinectomies like circumferential retinectomy, 360-degree retinectomy, radial retinectomy, and their combinations have been described.^[2,3] However, retinectomies are also associated with a number

of intra- and postoperative complications. Intraoperative complications include retinal and choroidal bleeding as well as slippage of retina. These bleeds can sometimes be difficult to control, not only making the surgery difficult but also lead to postoperative inflammation and PVR. Postoperative complications, including hyphema, hypotony, keratopathy, macular pucker, and PVR, have been reported in as high as 50% of eyes undergoing retinectomy.^[2-8]

Banerjee *et al.* described a case series of five nondiabetic patients who developed neuropathic corneal ulcer following retinectomy.^[7] Retinectomies expose a large area of RPE to the vitreous cavity, thus increasing the chances of further PVR. Bueste *et al.* described the various forms of PVR causing recurrent retinal detachment after retinectomy. These include posterior focal or diffuse contraction, macular pucker causing detachment at the posterior pole, fibrosis of the retinectomy edge, severe inferior folding of the retina (SIRF), anterior PVR in the nonretinectomized area, and beyond-the-edge proliferation (BTEP).^[4] SIRF has been defined as the severe contraction of the inferior retina which overcomes the strength of adhesion provided by retinopexy leading to upward retraction of the inferior retina.^[4,8] BTEP has been described as the proliferation anterior to and continuous to the retinectomy edge.^[4,6]

We try and avoid retinectomy as much as possible. We prefer to reserve it for third surgery in case of recurrent RD. One of the most common causes of recurrent RD is incomplete vitreous removal. RRD is often associated with vitreoschisis and a layer of cortical vitreous is often left behind. We regularly stain using triamcinolone acetate to look for the presence of a remnant layer of vitreous sheet. In case of the presence of any vitreous membranes, it is meticulously removed. The perfluoro-n-octane-assisted Mega Weiss-Ring technique described by our group is helpful in removing the posterior vitreous cortex.^[9] The second step is removing all the anterior PVR membranes. Caution should be made not to create a retinotomy while dealing with such membranes. Tabandeh described the use of two membrane scrapers to gently stretch the retina-PVR complex and create a plane of dissection for the primary management of RRD associated with severe PVR.^[5]

Shroff *et al.* have described the “Tug of war” technique using end-gripping forceps for the release of traction in a relatively atraumatic manner, thus avoiding the need for retinectomy.^[10] The authors are correct in proposing that pulling the membranes in opposite directions till they visibly snap reduce the risk of causing iatrogenic retinal tears and in case of tears, they will generally be smaller compared to the large relaxing retinotomies. Extreme care has to be exercised in phakic eyes due to the risk of lens touch.

The best method of managing such eyes is the prevention of postoperative PVR. Short- and intermediate-term postoperative perfluorocarbon liquid tamponade has shown promising results for the treatment of complicated RRD apparently due to its high density which reduces the empty space available in the inferior vitreous cavity, thus preventing the resultant PVR changes.^[1] Various intravitreal pharmacological agents like 5-fluorouracil, heparin, daunomycin, colchicine, retinoids and methotrexate have been tried with mixed success for the prevention of PVR and resultant recurrent RD.^[11]

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