

## Re-retinal detachment after silicone oil removal

Greetings from the Editors desk!

I would like to wish all the readers a happy and healthy holiday season.

We have a host of original articles such as, an intriguing article by Dr. Sarkar highlighting the independent roles of pharmacology and optics in determining accommodative performance with phenylephrine.

Dr. Rao's article, blotchy pigments in the anterior chamber angle opens a new horizon in the study of angle closure.

Vitreo-retinal surgery and medical retina is a special area of interest for me personally and this issue showcases articles such as Dr. Maho Oishis work on contrast sensitivity in patients of RP and Dr. Manish Nagpal's article on silicon oil removal.

Silicon oil removal is especially a complex topic and the timing and post-removal consequences are daunting and variable.

Various tamponading agents are available to the retinal surgeons nowadays. Silicone oil has many desirable physicochemical properties. Although, its use can lead to a variety of well known complications in the anterior segment, including cataract, glaucoma, and keratopathy, silicone oil is generally well tolerated in the posterior segment. As a general principle, once the objectives of the tamponade have been achieved and the retinal status is stable in order to minimize the long term complications associated with its use.<sup>[1]</sup> When a surgeon chooses vitrectomy for Retinal Detachment (RD), the benefits of an encircling band are debatable. The addition of Scleral Buckling (SB) in combination with vitrectomy often is related to the presence of inferior retinal breaks, to supplement the presumably less effective tamponade at the inferior retina.<sup>[2-5]</sup> The addition of SB does result in a prolonged operating room time. Whereas the choice of buckling element in cases of retinal detachment is shown to improve surgical results but some other authors have reported shaving the vitreous base, the addition of SB maybe avoided.<sup>[6-9]</sup> Some studies have shown Proliferative Vitreo Retinopathy (PVR) was more common with the Pars Plana Vitrectomy (PPV) plus SB approach than with PPV alone in Re Retinal Detachment (RRD) with inferior breaks.<sup>[9,10]</sup> Authors have shown that an additional buckling element is protective against re-retinal detachment post Silicon Oil Removal (SOR).

Regarding 360 degree laser retinopexy, many surgeons perform it as continuous band around a meridian defined by either the posterior limit of the retinal breaks or by the posterior edge of encircling buckle either in the operating theater or at the slit lamp. The laser acts as a firebreak in the event of posterior migration of an occult anterior detachment or re-opening of previously tamponaded breaks.<sup>[11-13]</sup>

Now comes the question of retinal detachment post silicone oil removal in rhegmatogenous retinal detachments. Proposed mechanisms for re-detachment after oil removal include the opening of pre-existing breaks that had been adequately tamponaded by the oil, the posterior migration of an occult rhegmatogenous RD and new break formation. The use of supplemental retinopexy both preoperatively and before removal of silicone, has previously been advocated as a potential means of reducing the incidence of retinal re-detachment after removal of silicone oil.

Authors even have taken into account that if retina is attached under emulsified oil it tends to remain attached post SOR.

In my experience, the important causes of failure in silicone oil-filled eyes include re-proliferation that could be either focal or diffuse, leaking peripheral inferior retinal break without proliferative vitreoretinopathy (PVR), or intrinsic retinal contraction.

Such cases are usually managed by removal of tractional elements after removal of silicon oil, the procedure which increases surgical time and also increases risk of total detachment. I and my surgical team have tried a new technique for management of such cases. As routine pars plana vitrectomy, three ports are placed within the pars plana 3 or 3.5 mm from the limbus, the inferotemporal port is used for Densiron 68 infusion instead of Balanced Salt Solution (BSS) infusion and the superior ports are utilized for other instruments and light pipe. After assessing the extent of the persistent or recurrent inferior retinal detachment, PVR tractional membrane (if any) which were preventing the retina from being settled, were peeled off using either forceps or cutter under silicon oil. Using the facility of simultaneous dual mode viscous fluid injection and extrusion of newer vitrectomy machines aspiration of the persistent subretinal fluid through already present or induced retinotomy is done simultaneously with injection of Densiron 68 in order to maintain the intraocular pressure. Since the Densiron 68 is heavier than the regular silicon oil and water, it goes under the silicon oil filling the vitreous cavity to settle over the retina producing tamponade for the inferior part of the retina, without being mixed with already existed silicon oil or losing its unique physical property.

To summarize, we all should be innovative and try and understand the pathology at a cellular level so as to overcome the difficulties we face in surgery, and its consequences. Studies such as the ones in this issue are a stepping stone to succeed in successful management.

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