Commentary: Persistent macular hole: A long way to go

The management of macular hole (MH) has come a long way from the time Kelly and Wendel introduced their pioneer work in 1991.[1] Pars plana vitrectomy with posterior vitreous detachment induction with or without internal limiting peeling (ILM) along with gas tamponade and post-op positioning is the most widespread surgical technique showing consistent results anatomically as well as functionally. The MH (MH) closure rate has been reported to be 85–90% after primary surgery.[2] Persistent, large, or recurrent MH is a surgical challenge. There are ongoing advances in surgical techniques, however, there is no consensus on the success of a single technique.

Persistent MHs are seen in about 8–44% of eyes and initial size and stage of the MH is an important determinant of the outcome.[2] The mechanism behind non-closure or reopening of holes is not well understood and residual traction from an epiretinal membrane (ERM) or poor postoperative face-down positioning has been proposed to be the responsible. Chronic MHs and the absence of an elevated cuff of subretinal fluid at the margin of MH also have shown to affect outcomes.[3]

A variety of adjuvant procedures have been attempted to improve the MH closure rates in these refractory cases. Enlargement of ILM rhexis, autologous transplantation of internal limiting membrane, or neurosensory retinal free flap as MH plugs have shown closure. Autologous serum, thrombin, autologous whole blood, transforming growth factor-beta 2, autologous platelet concentrate, and autologous gluconated blood clumps have been used as a chorioretinal adhesive to assist in MH closure.[2]

A number of agents like indocyanine green (ICG), brillant blue G (BBG), and triamcinolone acetonide (TA) have been used for chromo vitrectomy in MH surgeries to assist in better visualization of preretinal tissues.[4]

Triamcinolone acetate aid in posterior vitreous detachment by making transparent vitreous more visible. There are case reports with contradictory views on the role of residual TA in MH closure. Some reports claim that residual TA doesn't interfere with MH closure while few cases reports raised concern regarding the residual crystals clogging the hole and interfering with hole closure. TA can accumulate at the edges of MH or straddle the hole edges and hence inhibit closure by mechanical blocking the physiological interactions between the sensory retina and the retinal pigment epithelium (RPE).[5] There are reports asserting the benefits of the macular plug with TA in persistent MH helping in the closure.[6]

No direct retinal toxicity with TA has been observed in vitrectomised and non-vitrectomised eyes in a dosage of 2–4 mg but an increase in intraocular pressure is a concern and postoperative monitoring of IOP is important.[7]

There are reports of spontaneous closure of inflammatory MH with the treatment of uveitis, closure after surgical intervention as well as closure with a peribulbar injection of steroids is reported.[8] In idiopathic MH, the role of TA remains controversial.

MH surgery has evolved over the last decade with various macular plugs showing successful anatomical closure and the use of preservative-free TA looks promising and requiring larger studies.

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References

1. Kelly NE, Wendel RT. Vitreous surgery for idiopathic macular holes. Results of a pilot study. Arch Ophthalmol 1991;109:654-9.
2. Tam ALC, Yam P, Gan NY, Lam WC. The current surgical management of large, recurrent, or persistent macular holes. Retina 2018;38:1263-75.
3. Ip MS, Baker BJ, Duker JS, Reichel E, Baumal CR, Gangnon R, *et al*. Anatomical outcomes of surgery for idiopathic macular hole as determined by optical coherence tomography. Arch Ophthalmol 2002;120:29-35.
4. Hernández F, Alpizar-Alvarez N, Wu L. Chromovitrectomy: An update J Ophthalmic Vision Res 2014;9:251-9.
5. Kumar A, Sinha S, Gupta A. Residual triamcinolone acetonide at macular hole after vitreous surgery. Indian J Ophthalmol 2010;58:232-4.
6. Sen AC, Kohli GM, Mitra A, Talwar D. Successful management of persistent macular hole after macular hole surgery with intravitreal triamcinolone acetonide: A case report. Indian J Ophthalmol 2020;68:1193-6.

7. Callaway NF, Gonzalez MA, Yonekawa Y, Faia LJ, Mandelcorn ED, Khurana RN, *et al*. Outcomes of pars plana vitrectomy for macular hole in patients with uveitis. Retina 2018;38:S41-8.
8. Kampougeris G, Cheema R, McPherson R, Gorman C. Safety of Triamcinolone acetonide (TA)-assisted pars plana vitrectomy in macular hole surgery. Eye 2007;21:591-4.

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