Sustained closure of surgically repaired macular hole after proliferative vitreoretinopathy

Dear Editor,

There are some reports in which a persistent closure of a surgically repaired macular hole in patients with subsequent retinal detachment (RD) with submacular fluid is described. Here, we report a patient with postoperative macular hole closure who subsequently developed proliferative vitreoretinopathy (PVR) with submacular fluid. Despite the submacular fluid and tangential traction due to PVR, the macular hole remained closed.

A 66-year-old man presented with a two-month history of decreased visual acuity and metamorphopsia in the left eye. On initial examination, his best-corrected visual acuity was 20/200 in the left eye. Fundus examination and optical coherence tomography (OCT) disclosed an idiopathic Stage 3 macular hole [Figures 1A, 2A].

The patient underwent pars plana vitrectomy combined with phacoemulsification, intraocular lens implantation, internal limiting membrane peeling, and sulfur hexafluoride gas tamponade. Intraoperatively, a large iatrogenic oral dialysis was found in the superonasal quadrant, and scleral bucking was added. The patient was kept face down positioning for 10 days. The patient was asked to maintain facedown position for two weeks.

Two weeks later, his visual acuity was 20/100 in the left eye. The anatomic closure of the macular hole was achieved and confirmed by OCT [Figures 1B, 2B]. There was no rhegmatogenous RD.

Twelve weeks after the initial vitrectomy, visual acuity decreased to 20/300. Proliferative vitreoretinopathy (Grade CP-12, Type 1) with submacular fluid had developed [Figure 1C]. No defect was observed in the fovea and the previous iatrogenic oral dialysis became unsealed partially. The OCT images demonstrated submacular RD without the reopening of the macular hole [Figure 2C]. Vitrectomy with membrane peeling and silicone tire encircling was performed and retinal reattachment was achieved. The patient kept face down positioning for two weeks. The patient was asked to maintain facedown position for 10 days. After the second surgery, the macular hole remained closed and final visual acuity was 20/200.

A histopathologic study of repaired macular holes after vitrectomy has shown the plugging of a retinal defect by glial tissue. Hainsworth et al. reported four patients who underwent a successful surgical closure of macular holes and subsequently...
developed rhegmatogenous RD with macular involvement. No reopening of the original macular hole occurred in these four patients. Hainsworth et al.,1 surmised that the adhesion of macular hole edges to the underlying retinal pigment epithelium is not the main mechanism of hole closure and that the reapproximation of hole edges and the glial bridging of residual foveal defects are important mechanisms.

Tabandeh et al.,3 reported two cases of macula-involved RD after macular hole surgery. The macular hole remained closed in a case that developed RD 24 months after macular hole surgery, but opened in another case that developed RD two weeks after surgery. They presumed that the seal was not mature enough to withstand the forces generated by the shifting subretinal fluid in the latter case. In our patient, PVR was clinically evident 12 weeks postoperatively. Therefore, the seal might have matured.

In the present report, we describe a sustained closure of a surgically repaired macular hole after PVR with submacular fluid. Despite the submacular fluid and tangential traction to the macula, the macular hole remained closed. This finding suggests that the postoperative adherence of macular hole edges is occasionally firm enough to overcome the tangential traction of PVR.

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