

## Abstract 1

### **AUTOLOGOUS RETINAL TRANSPLANT: BRIDGING THE GAP IN REFRACTORY MACULAR HOLE**

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#### **Introduction:**

To report the structural and functional outcomes of autologous neurosensory retinal transplant for closure of refractory macular holes (MHs), and to highlight the long term follow up findings in these patients with the neurosensory retinal transplant.

#### **Materials and methods:**

Seven eyes of seven patients with a full-thickness MH refractory to prior vitrectomy with internal limiting membrane (ILM) peel and tamponade were included. Mean axial length was  $24.5\pm 2.2$  mm (22.1-27.8 mm) and mean corrected basal diameter of the MH was  $1604\pm 700$   $\mu$ m (950-2964  $\mu$ m). Patients underwent pars plana vitrectomy, autologous neurosensory retinal transplant with short-term perfluoro-n-octane heavy-liquid followed by gas tamponade. All patients had at least 3 months follow-up.

#### **Results:**

Patients were followed for a mean of  $15.4\pm 9.9$  months (3-32 months). Complete anatomic closure of MH by OCT was achieved in 5 out of 7 eyes (71.4%). Mean corrected VA (logarithm of the minimum angle of resolution [logMAR]) improved from  $1.9\pm 0.3$  (1.3 to 2) to  $0.9\pm 0.3$  (0.59-1.3) at the last postoperative visit. The VA improved by 1.1 logMAR unit in the 5 eyes where the hole was closed (71.4%) and improved by 0.5 logMAR units in the 2 eyes where the holes remained partially open (28.6%).

One graft developed an epiretinal membrane which did not cause worsening of vision (maintained visual acuity improvement from CF to 20/80) and has been observed. Graft shrinkage over time was noted in one patient. A diabetic man with large chronic macular hole and previous heavy panretinal photocoagulation (PRP) underwent successful transplantation from a retinal tissue that had undergone PRP. Later on, this transplant tissue developed macular edema which was treated with anti-VEGF injections and improved.

Major postoperative complication was retinal detachment with proliferative vitreoretinopathy (PVR) in one eye which was successfully managed with scleral buckle, PVR peel and Silicone oil tamponade. There were no cases of endophthalmitis, suprachoroidal hemorrhage, or choroidal neovascularization.

#### **Conclusions:**

The autologous retinal transplant is a valid surgical approach for refractory MHs where there is no remaining inner limiting membrane to work with. It provides a reasonable rate for anatomical closure and a safe technique to improve visual acuity. It is important to highlight the long term follow up findings in these cases in order to improve the surgical technique, including reasonable oversizing of the graft, minimal manipulation of the neurosensory retinal transplant tissue and management of PVR

if it occurs.

**Sources:**

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3. Tanaka S, Inoue M, Inoue T, Yamakawa T, Uchio E, Grewal DS, Mahmoud TH, Kadonosono Kazuaki. Autologous Retinal Transplantation as a Primary Treatment for Large Chronic Macular Holes. *Retina* 40(10):p 1938-1945, October 2020.