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**Macular Hole Associated Retinal Detachment in High Myopic Patients: Case series and Overview of a Novel Surgical Technique**

Safwan Tayeb, Irina Sverdlichenko, Peng Yan

**Introduction:** Macular hole retinal detachment (MHRD) occurs in highly myopic eyes and is presumed to happen due to anteroposterior vitreoretinal traction and reduced retinal adherence to the choroid. Treatment usually involves pars plana vitrectomy (PPV) with internal limiting membrane (ILM) peel and gas or oil tamponade. However, this can be technically challenging, not always successful and carries risk of indocyanine green toxicity. The present study aims to describe two cases of MHRD and discusses a novel surgical technique in the management of these cases.

**Methods:** Complete ophthalmologic work-up was done including visual acuity, fundus examination and optical coherence tomography (OCT).

**Results:** Case 1 was a 57-year-old female with past ocular history of high myopia and amblyopia OD was seen in retina service for decreased vision in the right eye (OD). At presentation her visual acuity (VA) was counting fingers OD, and 20/60 left eye (OS). OCT demonstrated myopic foveoschisis, grade 3 full thickness macular hole and MHRD OD and foveoschisis with intraretinal fluid OS. Pneumatic retinopexy was performed to reattach the retina prior to PPV with ILM peel, air fluid exchange and amniotic membrane plug. At one year follow up, VA improved to 20/200 OD with reattachment of the retina, closure of the macular hole but with persistent small defect.

Case 2 was a 54-year-old female with past ocular history of bilateral LASIK for high myopia, presenting with sudden loss of vision OS due to MHRD OS. Her visual acuity was 20/200 OS. Pneumatic retinopexy was performed to reattach the macula preoperatively. Subsequently, the patient underwent PPV, ILM peel and gas tamponade. At one month follow up, VA improved to 20/60 OS with reattachment of the retina and full closure of the macular hole on OCT.

**Conclusions:** Treatment of MHRD has traditionally been with PPV, ILM peel and gas tamponade, sometimes resulting in failure of MH closure and recurrent detachment. Our cases demonstrate the use of pneumatic retinopexy to reattach the retina prior to PPV. This technique avoids challenges and risks associated with ILM peeling of the detached retina and may improve the outcomes of the surgery.