



**Service Priorities and Programmes**  
**Electronic Presentations**

**Convention ID:** 992

**Submitting author:** Dr Shaheeda MOHAMED

**Post title:** Associate Consultant, HKEH, KCC

**A Prospective Study of Vitrectomy, Inverted Internal Limiting Membrane Flap Repositioning, & Autologous blood for Macular Hole Retinal Detachment in High Myopia**

*Mohamed S(1)(2), Tsang CW(1)(2)*

*(1)Hong Kong Eye Hospital*

*(2)Department of Ophthalmology & Visual Sciences, the Chinese University of Hong Kong*

**Keywords:**

Macular Hole Retinal Detachment

High Myopia

Internal Limiting Membrane Flap Repositioning

Autologous blood

Vitrectomy

**Introduction**

Macular hole retinal detachment (MHRD) occurs most commonly in highly myopic eyes, defined as axial length measurement greater than 26.5mm. Long axial lengths and posterior staphyloma can lead to myopic traction maculopathy (MTM) and cause macular hole formation and subsequent MHRD. Conventional surgical repair of macular hole retinal detachment consists of pars plana vitrectomy, internal limiting membrane peeling, gas or silicone oil tamponade, and prone positioning. However, macular hole closure rates in high myopia are still poor, ranging from 10% to 91%, compared with idiopathic macular hole closure rates of 80% to 100%.

Inverted internal limiting membrane (ILM) flap technique is an alternative technique which has been proposed for surgical repair of macular holes in high myopia. By leaving a rim of ILM around the macular hole and inverting the edges to bridge the gap, it may facilitate the proliferation of glial cells and promote macular hole closure. Autologous blood and blood components have a long history of application in vitreoretinal surgeries to improve macular hole closure rate.

**Objectives**

To report the surgical results of pars plana vitrectomy (PPV), internal limiting membrane peeling (ILMP), inverted ILM flap repositioning (ILR), and autologous blood for macular hole retinal detachment (MHRD) in highly myopic eyes.

**Methodology**

This prospective interventional study included 16 eyes of 16 patients with MHRD who underwent PPV, ILMP, inverted ILM flap repositioning, autologous blood (acting as a seal and biological glue), and 12%C3F8 gas tamponade, with follow up for 1 year. Anatomic outcomes were evaluated with fundus examination and swept-source

optical coherence tomography (SS-OCT). Best-corrected visual acuity (BCVA), baseline and intraoperative characteristics were evaluated.

### **Result**

The mean age was  $62.4 \pm 10.1$  years, and mean axial length was  $29.46 \pm 1.38$  mm. All eyes had a posterior staphyloma. 56.3% of eyes had incomplete posterior vitreous detachment. Retinal detachment extended beyond the macula in 87.5% (4 of 16 eyes had total retinal detachment), and was confined within the macula in 12.5% of eyes. All eyes underwent cataract extraction at or prior to surgery. After a single surgery, the retinal reattachment rate was 100%, and the macular hole closure rate was 87.5%. Only 1 eye had persistent subretinal fluid after gas reabsorption, which subsequently resolved. The mean BCVA improved significantly from  $1.57 \pm 0.28$  logMAR before surgery to  $0.80 \pm 0.31$  logMAR at 6 months and at final follow up ( $p=0.01$ ). Vitrectomy with inverted ILM flap repositioning and autologous blood for MHRD in highly myopic eyes produces good anatomical and functional outcomes.