

## CASE REPORT

## Spontaneous Closure of Large Base Idiopathic Full Thickness Macular Hole

NURUL AIN S, NORSHAMSIH MD, SAFINAZ MK, BASTION  
MLC

*Department of Ophthalmology, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia.*

### ABSTRAK

*Penutupan spontan lubang makula ketebalan penuh idiopatik merupakan kes yang jarang berlaku iaitu 3.5% sementara menunggu pembedahan vitrektomi. Terdapat beberapa patologi yang berkaitan dengannya seperti tarikan vitromakular dan vitreous lejang. Kes ini melaporkan seorang lelaki Melayu berumur 74 tahun telah datang dengan kabur pada mata kanan yang semakin teruk tanpa merasa sakit yang didapati mempunyai lubang makula ketebalan penuh idiopatik peringkat 4 yang telah dipastikan dengan optikal koheren tomografi. Lubang tersebut telah tertutup dengan sendirinya sementara menunggu pembedahan. Pemeriksaan rapi adalah penting kerana adanya kemungkinan untuk penutupan lubang secara spontan berdasarkan optikal koheren tomografi.*

*Kata kunci: lubang makula, optikal koheren tomografi, vitrektomi*

### ABSTRACT

Spontaneous closure of idiopathic full thickness macular hole is a rare case as it occurs in only 3.5% while awaiting vitrectomy surgery. There are few pathologies associated with it such as vitreomacular traction (VMT) and posterior vitreous detachment. We report a case in a 74-year-old man who presented with right eye painless, progressive blurring of vision with idiopathic stage 4 full thickness macular hole which was confirmed on optical coherence tomography. It closed spontaneously after sometimes while waiting for surgery. It is important to monitor closely for the possibility of spontaneous closure based on the optical coherence tomography findings.

Keywords: macular holes, optical coherence tomography, vitrectomy

**Address for correspondence and reprint requests:** Mae-Lynn Catherine Bastion. Department of Ophthalmology, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +603 91455982 E-mail: maelynnb2003@yahoo.com

## INTRODUCTION

Spontaneous closure of idiopathic full thickness macular hole secondary to release of VMT has been reported (Scassa et al. 2011) and associated with Posterior vitreous detachment (PVD) (Milani et al. 2007, García Fernández & Castro Navarro 2012). The case was rare and the base of the macular hole was less than 500  $\mu\text{m}$ . To date, there is only one case which reported large base 600  $\mu\text{m}$  which occurred in myopic eye associated with PVD (Brue et al. 2014). Hence, we report the present case as the patient had large base full thickness macular hole. Full thickness macular hole can be observed to the certain time in case of spontaneous closure in the presence of VMT or PVD and surgery can be avoided.

## CASE REPORT

A 74-year-old man with underlying hypertension and hyperlipidemia presented with bilateral painless blurring of vision for 2 years. Right eye blurring was more than the left eye. Visual acuity for the right eye was 6/36, pin hole 6/24, N14 and left eye 6/18, pinhole 6/12, N8. There was no metamorphopsia. No ocular trauma or surgery prior to this presentation. Ocular examination revealed a right eye macular hole with partial posterior vitreous detachment and bilateral cataract. Right eye Watzke-allen test was positive.

Optical coherence tomography (OCT) showed right eye full thickness macular hole with the base measuring

551  $\mu\text{m}$  using automated calliper with cystic changes at surrounding the hole (Figure 1). Hence, a Stage 4 full thickness macular hole was diagnosed. The macular hole index was very favourable for closure post-vitreotomy. Left eye cataract was removed first to facilitate rapid visual recovery. He underwent left phacoemulsification with intraocular lens implantation. Right eye vitrectomy and internal limiting membrane peeling and gas injection combined with cataract extraction was planned subsequently. However, about 2 months after he was listed, during pre-operative assessment, Watzke-Allen test was found to be negative. Repeated OCT noted spontaneous closure of the macular hole (Figure 2). His posterior vitreous was now totally detached (Figure 3). Therefore, vitrectomy was deferred. He underwent right phacoemulsification with intraocular lens implantation which was uneventful.

The patient was regularly followed-up at the eye clinic. At 1 week follow up, right eye visual acuity was 6/24, pinhole 6/24, N8 and the macular hole was closed (Figure 4). Refraction done at 1 month post right eye cataract surgery gave a best corrected vision of 6/9, N8.

## DISCUSSION

Spontaneous closure of full thickness macular hole has been widely reported in other country (Brue et al. 2014, Reinherz & Rubin 2016, Scassa et al. 2011) but not in Malaysia. As in this case, it is classified as idiopathic macular hole as there is no secondary

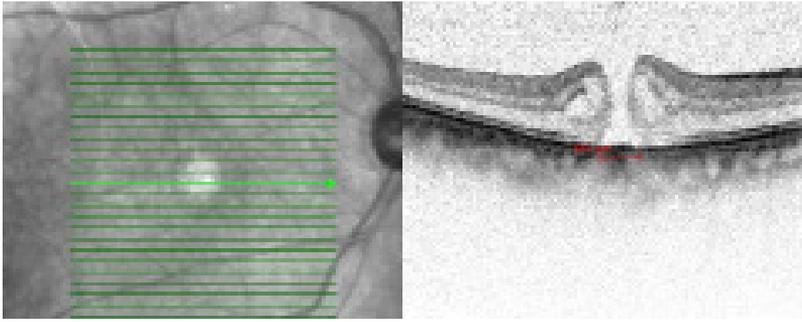


Figure 1: SD-OCT of right full thickness macular hole at presentation. The poor image quality is due to cataract.

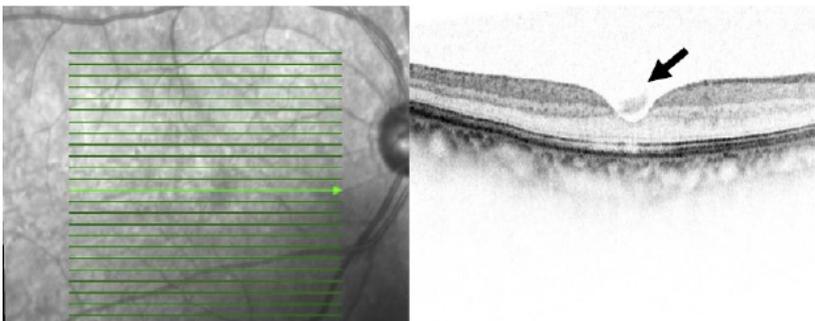


Figure 2 : SD- OCT showing spontaneous closure of the macula hole 2 months later with posterior vitreous detachment (arrow) at the macula

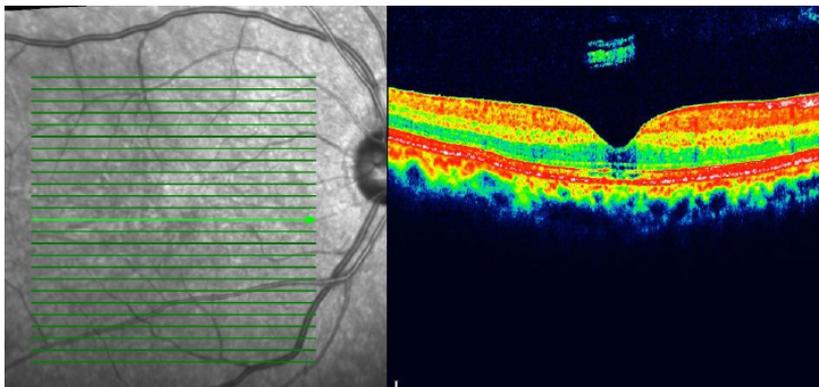


Figure 3 : SD-OCT showing more prominent posterior vitreous detachment

cause. The pathogenesis of macular hole begins with abnormal vitreofoveal attachment that leads to anterior posterior traction to the posterior hyaloid (Gass 1995).

In this case, even though the macula

hole was full thickness, the patient did not notice any metamorphopsia or central scotoma as his cataract may have attributed to his visual complaint. However, FTMH has been visualized from the fundus examination as a

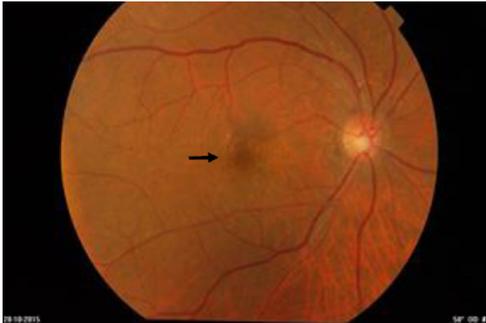


Figure 4: Colour fundus photograph of the right eye showing spontaneous closure of macula hole (arrow)

well-defined round lesion on the fovea. Symptoms of idiopathic macular holes vary with the stage. Common symptoms are metamorphopsia and blurring of vision, which was described as central scotoma in stage 4. However, in the initial stages, the patient may be asymptomatic (la Cour & Friis 2002).

The Watzke–Allen test aiding the diagnosis of FTMH as the sensitivity is 95% compared to clinical examination (Tanner & Williamson 2000). Positive Watzke–Allen test in this patient during slit lamp examination gave the evidence of displacement of the photoreceptors centrifugally at the macular hole and supported that he has FTMH (Jensen & Larsen 1998).

OCT was done and confirmed the diagnosis of FTMH stage 4. Therefore, surgical intervention was planned for this patient as FTMH rarely close spontaneously. In the vitrectomy for Macular Hole Trial, it was found that only 4% spontaneous closure of macular hole during 6 months follow up (Freeman et al. 1997). We reported this case with large base of 551  $\mu$ m that closed spontaneously and returned to the normal contour of the fovea with

good visual recovery without surgery. It contradicted with the findings that larger diameter FTMH have worse visual outcome (Ezra & Gregor 2004).

In Figure 1, there was FTMH without obvious vitreous status seen in OCT macula but could be seen clinically. However, Figure 2 showed return of the normal configuration of the foveal contour with dense vitreous clump on top of it. We hypothesize that macular hole closure is due to posterior vitreous detachment by the presence of vitreous clump on top of the normal foveal contour demonstrated by subsequent OCT imaging. Complete detachment of the posterior hyaloid reduces the antero-posterior traction forces on the fovea (Ishida et al 2004). Glial cell proliferation across the macular hole and cell proliferation at the base of the macular hole (Milani et al. 2007) are further theories behind the occurrence of spontaneous closure of FTMH.

As the rate of spontaneous closure of FTMH is low, the patient was planned for vitrectomy and ILM peeling. Recent studies showed ILM peeling leads to higher closure rate of 95% versus without ILM peeling and gas tamponade which is 45% (Kusuhara et al. 2004).

## CONCLUSION

This case highlighted the symptomatic large base MH which may close spontaneously and regain good visual acuity. Posterior vitreous detachment (PVD) promotes spontaneous closure of MH. Therefore, short period of observation is an option for patients with MH in which there is no PVD yet.

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