

# Spontaneous Closure of Post-traumatic Macular Hole: A Case Report

Amal Elbahi® and Khalifa Alsiwidi

Department of Ophthalmology, Tripoli Eye Hospital, Faculty of Medicine, University of Tripoli, Libya

Received 10 June 2017/Accepted 5 October 2017

## ABSTRACT

Traumatic macular hole is not uncommon condition and the best treatment guidelines are controversial, especially in young patients. Our patient is a 15 year-old boy presented with a traumatic macular hole secondary to blunt ocular trauma with a ball to his right eye, and initial vision of 0.2. We followed the patient closely with clinical exam and serial OCT imaging and vision improved to 0.8 with marked reduction of the hole diameter.

**Key words:** Trauma; Hole; Optical Coherence Topography (OCT).

## INTRODUCTION

The foveola is highly thin structure, and any trauma to the eye especially a blunt trauma can cause a full thickness macular hole. Traumatic macular hole (TMH) consider the second most common cause of macular hole after idiopathic macular hole, and it is more common in pediatric age group.<sup>1</sup>

Optical coherence tomography (OCT) can identify macular changes in macular hole with specific grading. Macular holes following ocular trauma can be thoroughly evaluated by serial OCT imaging and visual acuity. Young patients with TMH should wait at least 6 months from the date of the ocular trauma due to the possibility of spontaneous closure.<sup>2</sup>

The approach in managing TMH is controversial; whether to operate or just observe. Adding our case, several cases of TMH have been reported in the literature.<sup>3-10</sup>

## Case Report

A 15 year old boy presented with two days history of decreased vision in his right eye (OD). He was hit by a ball while he was playing football five days ago. He had no previous history of ocular or systemic diseases. His visual acuity was 0.2 in OD and 1.0 in the left eye (OS). Anterior segment examination was unremarkable. A macular hole was detected on fundus biomicroscopy of OD. OCT confirmed the presence of a full-thickness macular hole (Figure 1). The patient was followed up closely with clinical exams and serial OCT imaging were performed. Four weeks after the initial examination, his OCT began to demonstrate spontaneous resolution of this macular hole (Figure 2). At 8-week follow-up visit, his visual acuity improved to 0.8, and the patient's OCT demonstrated spontaneous closure of the macular hole (Figure 3).

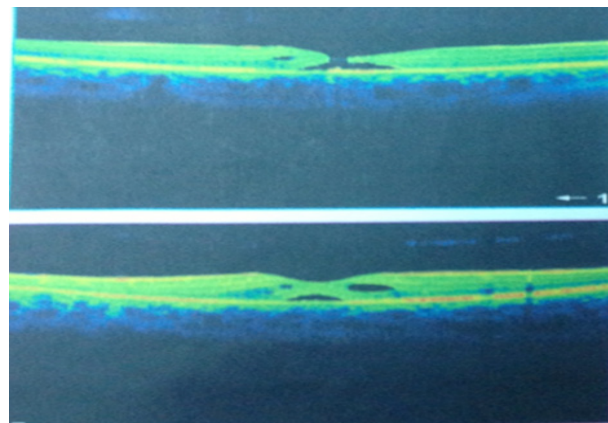


Figure 1: - OCT scan with full thickness TMH one week after trauma

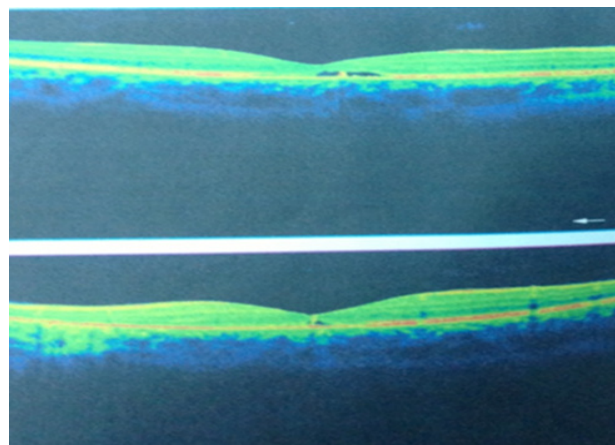
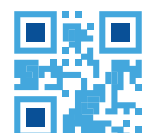


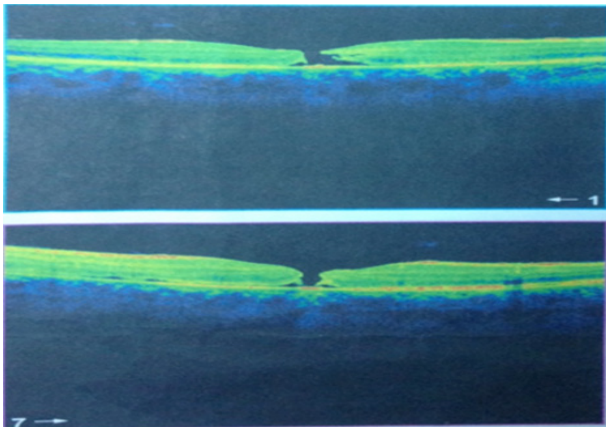
Figure 2: - OCT scan of TMH four weeks after trauma



**Table 1::** Case series and reports of spontaneous traumatic macular hole closure.

Author	Cases	Closure achieved by	Outcome
Yamashita <i>et al.</i> <sup>6</sup> (2002)	18	1-16wks	BCVA improved in all eight eyes to 6/12 or better
Mitamura <i>et al.</i> <sup>5</sup> (2001)	11	12-52wks	BCVA improved to 6/6–6/15
Yamada <i>et al.</i> <sup>7</sup> (2002)	3	4-18wks	BCVA improved to 6/9
Parmar <i>et al.</i> <sup>4</sup> (1999)	1	2wks	BCVA improved to 6/60
Menchini <i>et al.</i> <sup>9</sup> (2003)	1	40wks	BCVA improved to 6/9
Carpineto <i>et al.</i> <sup>10</sup> (2005)	1	26wks	BCVA improved to 6/9
Yeshurun <i>et al.</i> <sup>8</sup> (2002)	1	5wks	BCVA improved to 6/60

BCVA-best corrected visual acuity.



**Figure 3:** -OCT scan of TMH two month after trauma

## DISCUSSIONS

The mechanism of traumatic macular hole is still controversial; it has been suggested that the blunt trauma to the eye produces a severe stress to the globe which may affect significantly the retina. Yanagiya *et al.*<sup>1</sup>, theorized that the force of impact when transmitted to the macula results in the rupture of the fovea.<sup>1</sup> Our patient could have the same mechanism of formation of the hole that affect the macula, and this is consistent with the theory postulated by Yanagiya *et al.*<sup>1</sup>

The spontaneous closure of traumatic macular hole is rare. It has been reported for small traumatic macular holes in young patients and can be associated with good visual recovery. It has been suggested that observation for a period of at least 4 months may be the management of choice.<sup>6</sup> In our case, during the follow-up without any surgical intervention, the macular hole resolved gradually and the visual acuity recovered within two months. In the literature there are many cases regarding the spontaneous traumatic macular hole closure and are summarized in Table 1.

## CONCLUSION

Because of the chance of spontaneous closure without surgical intervention in young population. Monitoring the visual acuity and the anatomic changes of the macular hole by serial OCT may be the management of choice.

## REFERENCES

- Kuhn F, Morris R, Witherspoon C. D. and Mann L (2006) Epidemiology of blinding trauma in the United States Eye Injury Registry, *Ophthalmic Epidemiology* **13**(3), 209-216.
- Ghoraba HH, Ellakwa AF and Ghali AA (2012) Long term result of silicone oil versus gas tamponade in the treatment of traumatic macular holes, *Clin Ophthalmol* **6**, 49-53.
- Kusaka S, Fujikado T, Ikeda T and Tano Y (1997) Spontaneous disappearance of traumatic macular holes in young patients, *Am J Ophthalmol*. **123**(6), 837-839.
- Parmar DN, Stanga PE, Reck AC, Vingerling JR and Sullivan P (1999) Imaging of a traumatic macular hole with spontaneous closure, *Retina* **19**(5), 470-472.
- Mitamura Y, Saito W, Ishida M, Yamamoto S and Takeuchi S (2001) Spontaneous closure of traumatic macular hole, *Retina* **21**(4), 385-389.
- Yamashita T, Uemara A, Uchino E, Doi N and Ohba N (2002) Spontaneous closure of traumatic macular hole, *Am J Ophthalmol*. **133**(2), 230-235.
- Yamada H, Sakai A, Yamada E, Nishimura T and Matsumura M (2002) Spontaneous closure of traumatic macular hole, *Am J Ophthalmol*. **134**(3), 340-347.
- Yeshurun I, Guerrero-Naranjo JL and Quiroz-Mercado H (2002) Spontaneous closure of a large traumatic macular hole in a young patient, *Am J Ophthalmol*. **134**(4), 602-603.
- Menchini U, Virgili G, Giacomelli G, Cappelli S and Giansanti F (2003) Mechanism of spontaneous closure of traumatic macular hole: OCT study of one case, *Retina* **23**(1), 104-106.
- Carpineto P, Ciancaglini M, Aharrh-Gnama A, Agnifili L, Cerulli AM, Cirone D, *et al.* (2005) Optical coherence tomography and fundus microperimetry imaging of spontaneous closure of traumatic macular hole: a case report. *Eur J Ophthalmol*. **15**(1), 165-169.

