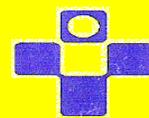




SPONTANEOUS CLOSURE OF STAGE IV IDIOPATHIC FULL-THICKNESS MACULAR HOLE AND LATE REOPENING AS A LAMELLAR MACULAR HOLE



Castro-Navarro J, García-Fernández M

Hospital Universitario Central de Asturias. Ophthalmology Department. Oviedo (SPAIN).

INTRODUCTION

Spontaneous closure of traumatic macular holes is described as a common event in the peer-reviewed literature. However, the spontaneous closure of stage III and IV idiopathic macular holes has been reported in less than 15 cases in the literature, this being an extremely rare event. Furthermore, there are only two reports about spontaneous reopening of a spontaneously closed macular hole. However, to the best of our knowledge there are not papers describing the reopening as a lamellar macular hole after a long-standing spontaneous closure of a full-thickness macular hole (FTMH).

METHODS

A 67-year-old Spanish man was referred to our hospital with a complaint of decreased vision in his right eye and metamorphopsia for approximately 11 months. He did not report any trauma.

A complete ocular examination, including, among others, determination of Best Corrected Visual Acuity (BCVA), funduscopy and Optical Coherence Tomography (OCT), was performed.

RESULTS

AT FIRST VISIT, his BCVA was 0.5 in the right eye (RE) and 1.0 in the left eye. Anterior segment examination revealed a bilateral nuclear sclerosis with no further abnormalities.

Funduscopy revealed an image of a full-thickness macular hole in RE.

OCT examination showed a stage IV FTMH according to its size (more than 400 μ) and according to the posterior vitreous detachment, the latter only visible on funduscopy examination. We also appreciated some cystic spaces on both edges of the hole, and a small epiretinal membrane (ERM). We observed clear irregularity of the junction of inner and outer segments of photoreceptors.

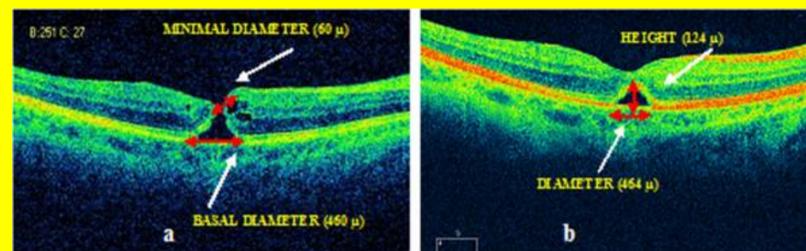
THREE MONTHS LATER, his BCVA remained without change. OCT scans revealed a closed macular hole. We observed an elevation of the photoreceptor layer and of the external limiting membrane over a cystic space, and a defect in the continuity of the photoreceptor layer.

SEVEN MONTHS LATER, his BCVA remained the same. An OCT examination showed the disappearance of the cystic space, and a normal foveal contour.

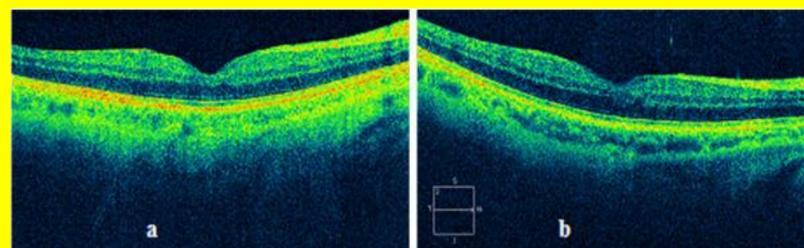
AT 13 MONTHS LATER, his BCVA improved to 0.7. An OCT scan showed no changes.

TWO YEARS LATER, his BCVA remained unchanged but on OCT scan we surprisingly observed a lamellar macular hole, according to the Haouchine criteria: irregular thinning of foveal base, break in the inner fovea, intra-retinal split (dehiscence of the inner foveal retina from the outer retina), normal perifoveal retinal thickness and absence of a full-thickness foveal defect.

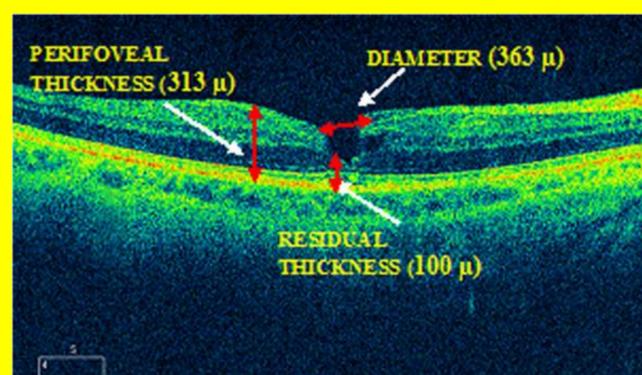
FIGURES



Cirrus optical coherence tomography (OCT) scan. (a) Scan at first visit, showing a stage IV full-thickness idiopathic macular holes (FTMH). The basal and minimal macular hole diameters were 460 μ and 60 μ , respectively. Clear irregularity of the junction of inner and outer segments of photoreceptors (IS/OS) and a small epiretinal membrane (ERM) can be observed. (b) Scan at the third month follow-up visit, revealing a closed macular hole, and a cystic space that represents the bridging effect. A disruption of the photoreceptor layer can also be appreciated. The basal diameter of the cystic space is 464 μ , and the height of the elevation 124 μ .



Cirrus optical coherence tomography (OCT) scan. Scans from the seventh-month (a) and 13th-month (b) follow-up visits, respectively, showing the disappearance of the cystic space, and a normal foveal contour, although a small interruption in the line corresponding to the photoreceptors (IS/OS) and in the external limiting membrane (ELM) can be appreciated.



Cirrus optical coherence tomography (OCT) scan. Two years later, we observed a lamellar macular hole, according to the Haouchine criteria. We also appreciated damage to the photoreceptors.

CONCLUSIONS: To the best of our knowledge, this is the first case in the peer-reviewed literature that describes the late evolution of a spontaneously closed full-thickness macular hole to a lamellar macular hole. In our patient, the mechanism of formation of a lamellar macular hole after spontaneous closure of a stage III to IV idiopathic macular hole remained unanswered.

We postulate that, considering the absence of any surgery, inflammatory or vascular diseases during the follow-up, the antero-posterior traction of the small epiretinal membrane, and consequently, the formation of intra-retinal cysts, with posterior rupture and fusion, might have played a role in the development of the lamellar macular defect.

IN THOSE CASES OF SPONTANEOUSLY CLOSED FTMH WITH ASSOCIATED ERM, we may consider PERIODIC OBSERVATION as the progression of the ERM can contribute to the formation of a lamellar macular hole, which, although infrequently, could progress to a new FTMH.

REFERENCES

- Scassa C, Bruno M, Ripandelli G, Giusti C, Scarinci E, Cupo G: Spontaneous closure of bilateral full-thickness macular holes without surgery: an eleven-year follow-up. Eur Rev Med Pharmacol Sci 2011, 15: 717–720.
- Win PH, Young TA: Spontaneous macular hole closure in bilateral macular holes. Semin Ophthalmol 2007, 22:167–169.
- Michalewska Z, Cisiecki S, Sikorski B, Michalewski J, Kuzny JJ, Wojtkowski M, Nawrocki J: Spontaneous closure of stage III and IV idiopathic full-thickness macular holes—a two case report. Graefes Arch Clin Exp Ophthalmol 2008, 246:99–104.
- Schweitzer KD, García R: Spontaneous closure of a stage III idiopathic macular hole. Can J Ophthalmol 2007, 42:127–128.
- Milani P, Seidenari P, Carmassi L, Bottoni F: Spontaneous resolution of a full thickness idiopathic macular hole: fundus autofluorescence and OCT imaging. Graefes Arch Clin Exp Ophthalmol 2007, 245: 1229–1231.
- Punjabi OS, Flynn HW, Legarreta JE, Gregori G, Pulliafito CA: Documentation by spectral domain OCT of spontaneous closure of idiopathic macular holes. Ophthalmic Surg Lasers Imaging. 2007;38:330–332.
- Ishida M, Takeuchi S, Okisaka S: Optical coherence tomography images of idiopathic macular holes with spontaneous closure. Retina. 2004;24:625–628.
- García-Pous M, Udaondo-Mirete P, Amselem-Gómez L, Salom-Alonso D, Cervera-Taulet E, García-Delpech S, Díaz-Llopis M: Spontaneous resolution of idiopathic macular hole type IV: optical coherence tomography follow-up. Arch Soc Esp Ophthalmol. 2006;81:229–232.
- Kokame GT, McCauley MB: Spontaneous reopening of a spontaneously closed macular hole. Am J Ophthalmol. 2002;133:280–282.
- Park YH, Kim SY, Lee YC: Macular hole formation, spontaneous closure, and reopening in severe hypertensive chorioretinopathy. Clin Experiment Ophthalmol. 2007;35:586–588.
- Haouchine B, Massin P, Tadayoni R, Erginay A, Gaudric A: Diagnosis of macular pseudoholes and lamellar macular holes by optical coherence tomography. Am J Ophthalmol. 2004;138:732–739.