

A Rare Case; Bilateral Macular Pseudohole and High Hypermetropia in 7-Years Old Child

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Abstract

Background: To report a 7-years old child with bilateral macular pseudohole and high hypermetropia.

Methods: Full ophthalmic examination including The Watzke-Allen test, retinal photographs and optical coherence tomography was performed.

Results: There were bilateral high hypermetropia and ambliopia. There were no history of ocular diseases, trauma or surgery. Uncorrected visual acuity was counting finger at 3 meters in each eye. Manifest refraction was +13.0+1.0@90 OD, +13.5+1.0@90 OS. Best corrected visual acuity was 20/70 in the right eye and 20/70 in the left eye. Cover tests were normal. There were macular hole views in both eyes. Optical coherence tomography findings were compatible with epiretinal membrane and macular pseudohole.

Conclusion: The coexistence of bilateral idiopathic epiretinal membrane and bilateral high hypermetropia in a child is noteworthy and first in the literatures.

Keywords: Hypermetropia; Idiopathic epiretinal membrane; Macular pseudohole

Introduction

Epiretinal Membrane (ERM) is characterized by wrinkling or distortion of macular surface caused by glial cell proliferation. It is a common disorder that affects visual acuity, especially in patients older than 50 years. Occasionally, ERM can develop in children and young adults. Epiretinal membranes are generally associated with ocular inflammatory or vascular diseases, tumors, trauma, and ocular surgery. Many ERMs, which are usually seen bilateral and asymmetric, are called idiopathic or primary because of no known causes [1].

Macular pseudohole (MPH) is thought to be caused by centripetal contraction of previously present ERM [2]. Macular pseudoholes, as the name suggests, have the appearance of macular holes. Visual acuity is usually good in contrast to macular holes, but sometimes there may be metamorphopsia. The macular tissue still has full-thickness, and an Optical Coherence Tomography (OCT) may provide definitive diagnostic differentiation of a MPH.

We present a case of 7-years old child with bilateral MPH secondary to idiopathic ERM and bilateral high hypermetropia.

Material and Methods

We evaluated a 7-years old boy with bilateral MPH. Full ophthalmic examination, manifest refraction, uncorrected and best corrected visual acuity, cover tests, the Watzke-Allen test, retinal photographs and 3D spectral domain optical coherence tomography 2000 (Topcon) was performed.

Results

Case report

In detailed history, it was his first visit to an ophthalmologist. He had never used glasses. There were no history of ocular inflammatory or vascular diseases, trauma or ocular surgery. Uncorrected visual acuity was counting finger at 3 meters in each eye. Manifest refraction was +13.0+1.0@90 OD, +13.5+1.0@90 OS. Best corrected visual acuity

was 20/70 in each eye. Cover tests were normal. In retinal examination, there were bilaterally thin and glistening membrane and surface wrinkling at the macular region with well-demarcated, round defect image located in the center. Macular view was similar to ERM reflex designation and macular hole formation (Figure 1A, Figure 1B). After a brief explanation, we tried to perform the Watzke-Allen test. A vertical beam light was presented to the fovea using slit lamp beam with a fundus lens. The test was negative. There was a verticalization of the foveal margin and thickened foveal edges in OCT. Foveal thickness was 240 microns in the right eye, 210 microns in the left eye. Optical coherence tomography findings were compatible with ERM and MPH (Figure 2A, Figure 2B).

Discussion

Epiretinal membrane is a disorder characterized by proliferation of abnormal tissues on the surface of the central retina or macula. Idiopathic ERM may occur as a result of glial cells migration through defects like retinal pits or holes in the internal limiting membrane, and rarely from the optic nerve head in association with posterior vitreous detachment [3].

In a study evaluating young patients with ERM, it is reported that membran formation occurred in approximately 1 in 20,896 individuals younger than 19 years of age (range, 4 months to 18 years). The causes of ERM were trauma (38.6%), uveitis (20.5 %), idiopathic conditions (27.3%) and other causes (13.6%) [1]. Benhamou and associates

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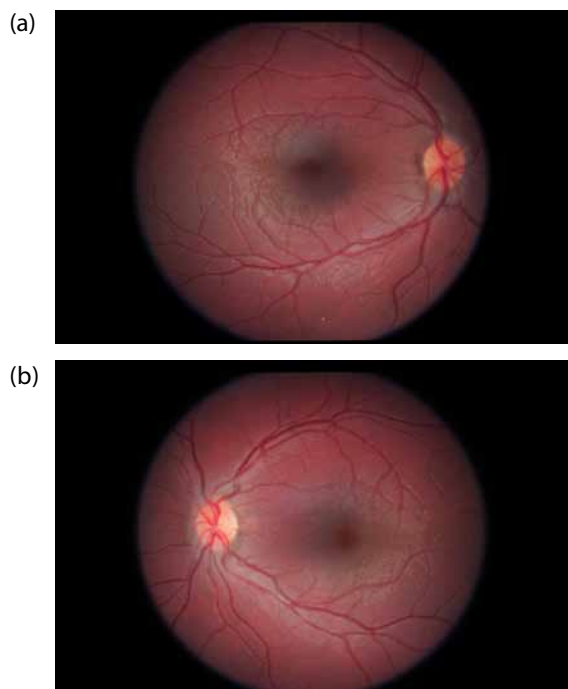


Figure 1: The view of epiretinal membrane and macular hole view: A right eye, B left eye.

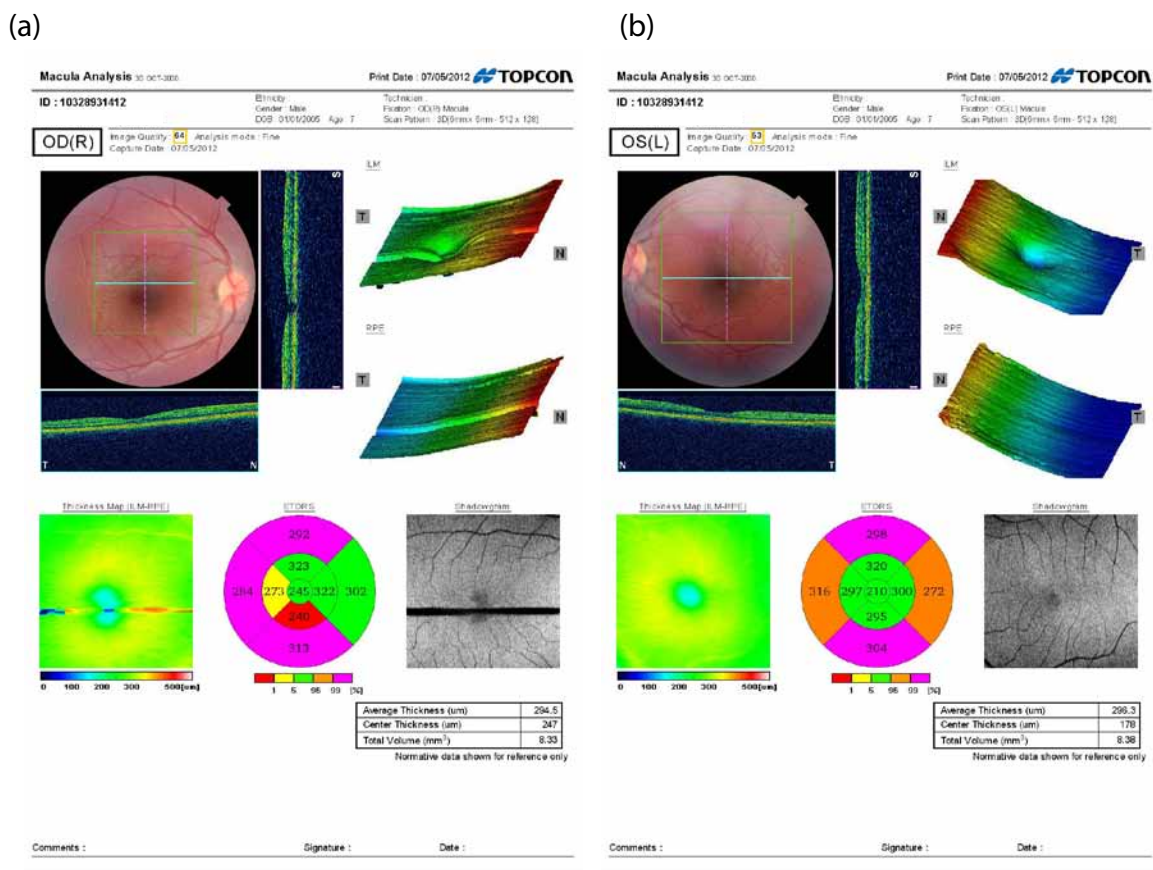


Figure 2: The view of macular pseudohole in optical coherence tomography: A right eye, B left eye.

reported idiopathic cause in 11 (55%) of 20 patients from 7 to 26 years of age [4]. There were no history of ocular inflammatory or vascular diseases, trauma or ocular surgery in our case, and ERM was evaluated as idiopathic.

Myopic refractive error is accepted as a predisposing factor of idiopathic ERM [5,6]. In a study of rural chinese adults, myopia was found to be significantly associated with primary ERMs when compared to hyperopia and emmetropia [6]. There is no report on coexistence of high hypermetropia with ERM in children, at least we could not find. In our case, cycloplegic refraction was +13.0+1.0@90 in right eye, and +13.5+1.0@90 in left eye.

Macular pseudoholes are well-demarcated, round or oval defect images occurring in the center of ERM overlying the fovea. Gass suggested that MPHs could be caused by centrifugal contraction of the fenestrated membrane, with steepening of the foveal margin, which create the appearance of a hole. Where this traction persists, it causes a progressive retinal thinning that can also evolve into a full-thickness hole [2]. In a study with ERMs among elder patients, it was reported that there was no change in visual acuity during follow-up of 1 year, but decrease in visual acuity and macular hole formation were occurred in the 18 to 36 months period of follow-up [7]. In contrast to elder patients, sufficient data is not available on MPH in children. Consistent with this, there is no report on MPH developing into macular hole in children.

The management of ERMs in young patients was discussed in many studies. Surgical intervention [4,8], spontan separation [9], or observation [8] are the ways for approach to the patients with ERM. The level of visual acuity is a determining factor for the decision of surgery. In a study patients were divided into two groups according to level of visual acuity. First group, with an initial visual acuity 20/50 or better was just observed, the second group, with a visual acuity of 20/60 or worse, underwent surgery. Visual acuity remained stable or improved in 50% of eyes in the first group, and improved 77% of eyes in the second group [8].

In our case, the initial best corrected visual acuity was 20/70.

Idiopathic ERM and high hypermetropia were two different factors that affected visual acuity of child. We thought that it would be better to follow a period of time when taking into account of the current level of patient's best corrected visual acuity and the effect of ambliopia due to high hypermetropia on last vision.

As a result, bilateral MPH secondary to idiopathic ERM is rare in children. The coexistence of bilateral idiopathic ERM and bilateral high hypermetropia in a child is noteworthy and first in the literatures.

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