

Herniation of the Retina in the Central Macula in an Adult after Iridocyclitis

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Abstract

Purpose: To report an unusual case of retinal hernia in the central macula in an adult after iridocyclitis.

Case report: We report a case of a 46-year-old male who presented with blurred vision 2 weeks after complete resolution of acute iridocyclitis. Anterior segment and vitreous body examinations were unremarkable. Yellowish spots in the macular area were observed. Spectral domain optical coherence tomography (SD-OCT) imaging of the macula showed loss of the inner segment/outer segment (IS/OS) photoreceptor junction, with irregularity of the retinal pigment epithelium (RPE), and a V-shaped hernia of the retina into the choroid. The macular lesions emerged as mild window defects on fluorescein angiography and were visualized as hypofluorescent patches on all-phase indocyanine green angiography. At a one month follow-up, the best-corrected visual acuity improved to 20/20, which was followed by partial restoration of the IS/OS line, but a V-shaped hernia of the retina remained unchanged on SD-OCT.

Conclusion: Ophthalmologists should be alert to the changes in OCT of the macula in patients after iridocyclitis and further research on the cause and possible predisposing factors for retinal herniation is warranted. (*Eye Science* 2014; 29:174–177)

Keywords: retinal herniation; macula; optical coherence tomography; iridocyclitis

Introduction

Herniation of the retina in the central macula into the choroid is unusual. The disruptions in Bruch membrane (BM) and retinal pigment epithelium (RPE)

and space formation caused by tissue loss are thought to be the conditions of retinal hernia into the choroid¹. Despite RPE defects, the inner retina never herniates into the choroid due to the integrity of BM². Likewise, retinal herniation has not been reported in only BM disruption. Spectral domain optical coherence tomography (SD-OCT), as a non-invasive imaging modality, provides cross-sectional images of the retina and information consistent with that obtained from histologic sections³. Using SD-OCT, herniation of the retina was revealed in patients with punctate inner choroidopathy (PIC) in stage IV and in two patients with Stargardt disease^{1,4}. Channa et al., in 2012, also described a macular lesion in PIC with focal disruption of the RPE; the lesion seemed to be dragged outwards with back shadowing, and there was an associated focal choroidal thinning⁵. Herein, we report a case of retinal hernia in the central macula in an adult after iridocyclitis.

Case report

A 46-year-old male presented with acute left ocular redness, pain, and blurred vision for 2 days. His past medical history was unremarkable. The best-corrected visual acuity (BCVA) was OD: 20/20 and OS: 20/80. Refractive error was OD:1.25 and OS:1.75/0.50 ×70°. In the left eye, keratic precipitates were positive; anterior chamber flare and activity cells were both graded 2+ without hypopyon and inflammatory cells in the vitreous cavity. Fundus examination and SD-OCT imaging of the macula (Figure 1) were unremarkable. The diagnosis of acute iridocyclitis in OS was confirmed. Prednisolone acetate eye drops, tropicamide or atropine eye drops, antibiotic eye drops, and subconjunctival dexamethasone injection were administered, and complete resolution

of his iridocyclitis was evident by the fourth post-treatment day. His BCVA improved to 20/20 and his fundus examinations were unremarkable.

However, BCVA in the OS decreased to 20/40 2

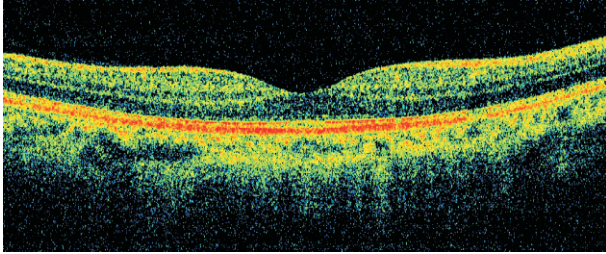


Figure 1 Spectral domain optical coherence tomography (SD-OCT) line scan through the macular lesion showing unremarkable features in this patient with iridocyclitis

weeks later. The anterior segment and vitreous body examinations were normal. Yellowish spots in the macular area were observed (Figure 2a). SD-OCT imaging of the macula showed loss of the inner seg-

ment/outer segment (IS/OS) junction with irregularity of RPE and a V-shaped hernia of the retina into the choroid (Figure 2b). The macular lesions emerged as mild window defects on fluorescein angiography (Figures 3) and were visualized as hypofluorescent patches on all-phase indocyanine green angiography (Figures 4). At one month follow-up, BCVA in the OS improved to 20/20, which was followed by partial restoration of the IS/OS line, but a V-shaped hernia of the retina remained unchanged on SD-OCT.

Discussion

The reports of retinal hernia into the choroid are extremely limited. Using SD-OCT, herniation of the retina was observed in patients with punctate inner choroidopathy (PIC) in stage IV. Zhang et al. described a 5-stage evolution of retinal hernia: choroidal infiltration, formation of sub-RPE nodules, and then choroidal nodules, regression, and

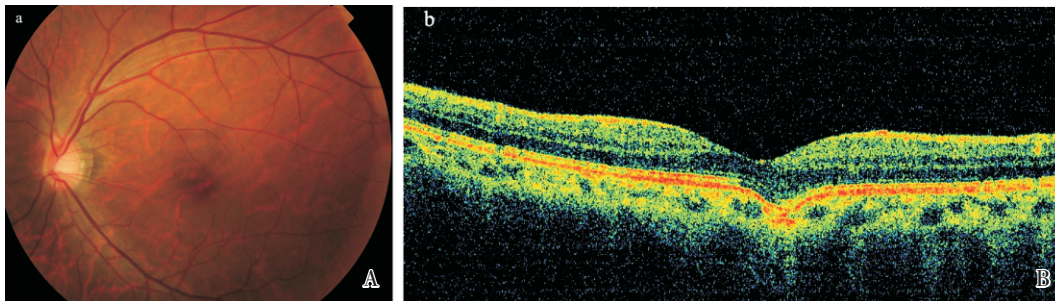


Figure 2 a. Fundus color photograph showing yellowish spots in the macular area 2 weeks following resolution of iridocyclitis in the left eye. b. Spectral domain optical coherence tomography (SD-OCT) line scan through the macular lesion showing a V-shaped hernia of the retina into the choroid.

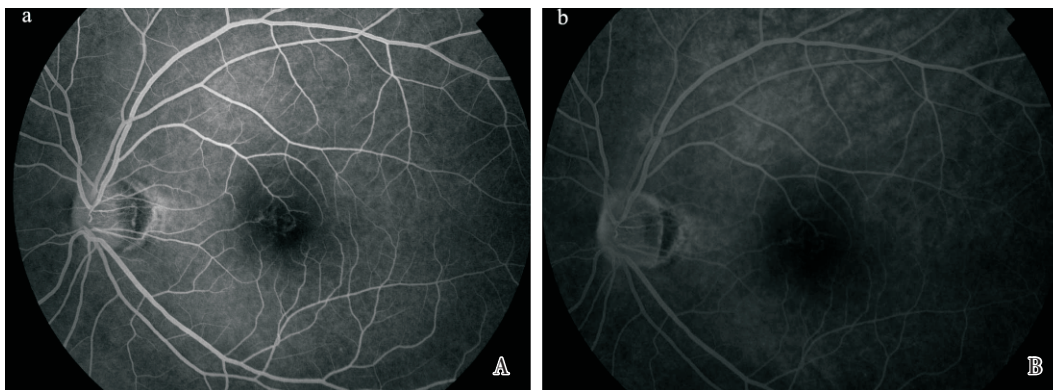


Figure 3 Fluorescence angiography (FA) showing mild window defects in the macular area. (a) hyperfluorescent spots presentation on early-stage FA. (b) hyperfluorescent spots wane in late-stage FA.

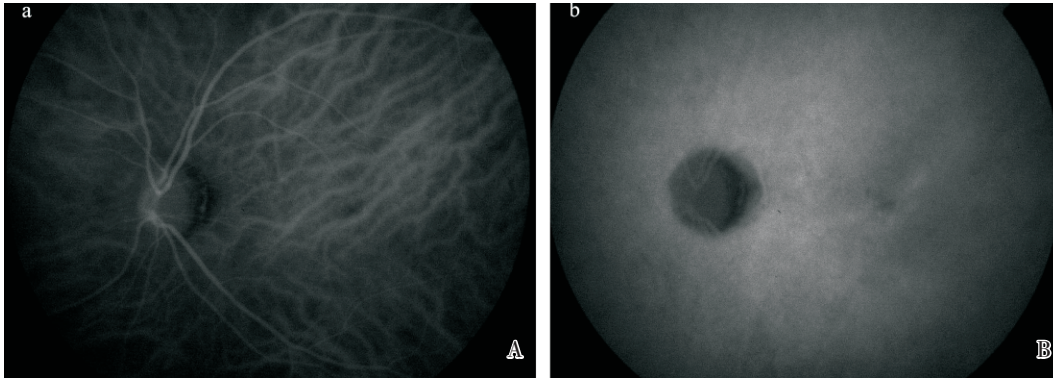


Figure 4 Indocyanine green angiography (ICGA) showing hypofluorescent patches in the macular area. (a) early-stage ICGA. (b) late-stage ICGA.

retinal herniation¹. Park et al. reported marked atrophy of the retina in the central macula with retinal hernia in two patients (three eyes) with Stargardt disease and revealed that retinal hernia within regions of geographic atrophy suggested disease progression⁴. PIC is an inflammatory multifocal chorioretinopathy. The presenting symptoms of PIC are common and nonspecific, such as blurred vision, scotoma, and metamorphopsia. In this case, when blurred vision was found, the evolution of PIC lesions from stage I to stage VI and acute lesions in the posterior pole of the fundus were not observed. There was not enough evidence that showed this patient suffered from PIC or multifocal choroiditis after iridocyclitis. A disruption of the RPE layer in a woman with solar maculopathy and a spontaneous RPE tear in a patient with high myopia were previously reported^{6,7}. The case reported here had no history of trauma or evidence of retinitis or vitritis. The refractive errors in this case were not so severe, suggesting that axial length was not likely to be a contributing factor to retinal hernia.

The cause of retinal herniation in this case is still unknown. It has been suggested that there might be some relations between iridocyclitis and retinal herniation in the central macula. We speculate that iridocyclitis and choroiditis may share a similar mechanism. Some tiny retina-choroid lesions in patients after iridocyclitis may be detected by SD-OCT that were not detected using funduscopy. The regression of choroidal infiltration is followed by the sagging of the retina and the retinal hernia may exert tension on

the surrounding inner retina, resulting in disorganization and blurred vision. In this case, since BCVA improved at one month follow-up, the related retinal hernia after iridocyclitis is suggested to be a self-limited disease with good visual prognosis, which is very similar to PIC without subfoveal choroidal neovascular membrane⁸.

Our case illustrates that retinal herniation detected by SD-OCT might not have been observed using fundus photography or fluorescein angiography. And the changes of SD-OCT of the macula in patients after iridocyclitis should be alerted. Further research on the cause and possible predisposing factors for retinal herniation is warranted.

References

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