Taiwan Journal of Ophthalmology 4 (2014) 179–183

Contents lists available at ScienceDirect

Taiwan Journal of Ophthalmology

journal homepage: www.e-tjo.com

Case report

A novel view of punctate inner choroidopathy: Characterizing the serial changes by high resolution spectrum-domain optical coherence tomography

Yu-Bai Chou [a], Yu-Chien Chung [a], Shih-Jen Chen [a,b], Fenq-Lih Lee [a,b], Chang-Sue Yang [a,b,c,*]

[a] Department of Ophthalmology, Taipei Veterans General Hospital, Taipei, Taiwan
[b] Department of Ophthalmology, National Yang-Ming University School of Medicine, Taipei, Taiwan
[c] Department of Ophthalmology, Taipei Medical University, Taipei, Taiwan

ARTICLE INFO

Article history:
Received 28 August 2013
Received in revised form
24 October 2013
Accepted 28 October 2013
Available online 11 December 2013

Keywords:
bevacizumab
optical coherence tomography
punctate inner choroidopathy

ABSTRACT

We report a case of punctate inner choroidopathy (PIC) treated with oral prednisolone and intravitreous bevacizumab injection (IVB). The case was studied and followed for 5 months by serial spectrum-domain optical coherence tomography (SD-OCT). At the early active phase of PIC, SD-OCT showed dome-shaped retinal pigment epithelium (RPE) elevation with underlying intact Bruch's membrane (BM), overlying photoreceptor inner/outer segment junction (PRJ) disappearance, and homogenous hyperreflective sub-RPE signals. After oral prednisolone and IVB, SD-OCT showed resolution of RPE changes with overlying intact PRJ. Further, the localized outer retinal layers were found to gradually move outward. Our case of PIC was followed by SD-OCT and was successfully treated with oral prednisolone and IVB. SD-OCT may play an important role in early identification of PIC and evaluation of disease progression. According to the serial changes in SD-OCT, we hypothesize that the origin of PIC is most likely to be localized at the RPE level. Early detection and intervention may prevent the progression of PIC to choroidal neovascularization and may lead to good prognosis.

1. Introduction

Punctate inner choroidopathy (PIC) is a rare idiopathic ocular inflammatory disease. It was first reported by Watzke et al in 1984 to describe the multifocal, yellow-white, well-circumscribed choroidal lesions over the posterior pole in 10 myopic female patients.[1] These lesions may evolve variably into hyperpigmented scars, with atrophic changes at the level of the inner choroid and retinal pigment epithelium (RPE), or subretinal choroidal neovascularization (CNV).[2] There is no sign of inflammation elsewhere in the eyes. Image studies have revealed fluorescent dye leakage of the active lesions on fluorescein angiography (FA)[3–6] and involvement of choriocapillaries on indocyanine green angiography (ICG).[3,7,8] However, to date, the exact localization of the origin of PIC lesions remains unclear.

With advances in the technique of optical coherence tomography (OCT), it is increasingly being used in studies for a detailed morphological view of the retina, even of the choroid. In 2012, Channa et al[9] reported characteristic findings by SD-OCT in a retrospective, observational case series with PIC lesions. They had collected 27 lesions from seven patients (8 eyes), and classified them into four categories according to the disease activity and temporal changes. The lesions with CNV were excluded. They concluded that early active lesions were characterized by RPE elevation and photoreceptor inner/outer segment junction (PRJ) disruption. However, there was no detailed description in treatment and serial follow-up by SD-OCT.

In this report, we aimed to utilize the high resolution SD-OCT with its enhanced depth imaging (EDI) mode to follow up a case with active PIC lesions treated with oral prednisolone and intravitreous bevacizumab (Avastin, Genetech, San Francisco, CA, USA) injection (IVB), and to hypothesize the original localization in this rare disease.

2. Case report

A 32-year-old Asian female with myopia initially complained of white patches of the central scotoma in her left eye from January 8,

Conflicts of Interest: The authors declare that they have no conflicts of interest.

* Corresponding author. Department of Ophthalmology, Taipei Veterans General Hospital, 201, Section 2, Shih-Pai Road, Taipei 112, Taiwan.
E-mail address: cyang2875@gmail.com (C.-S. Yang).

2211-5056/$ – see front matter
http://dx.doi.org/10.1016/j.tjo.2013.10.006

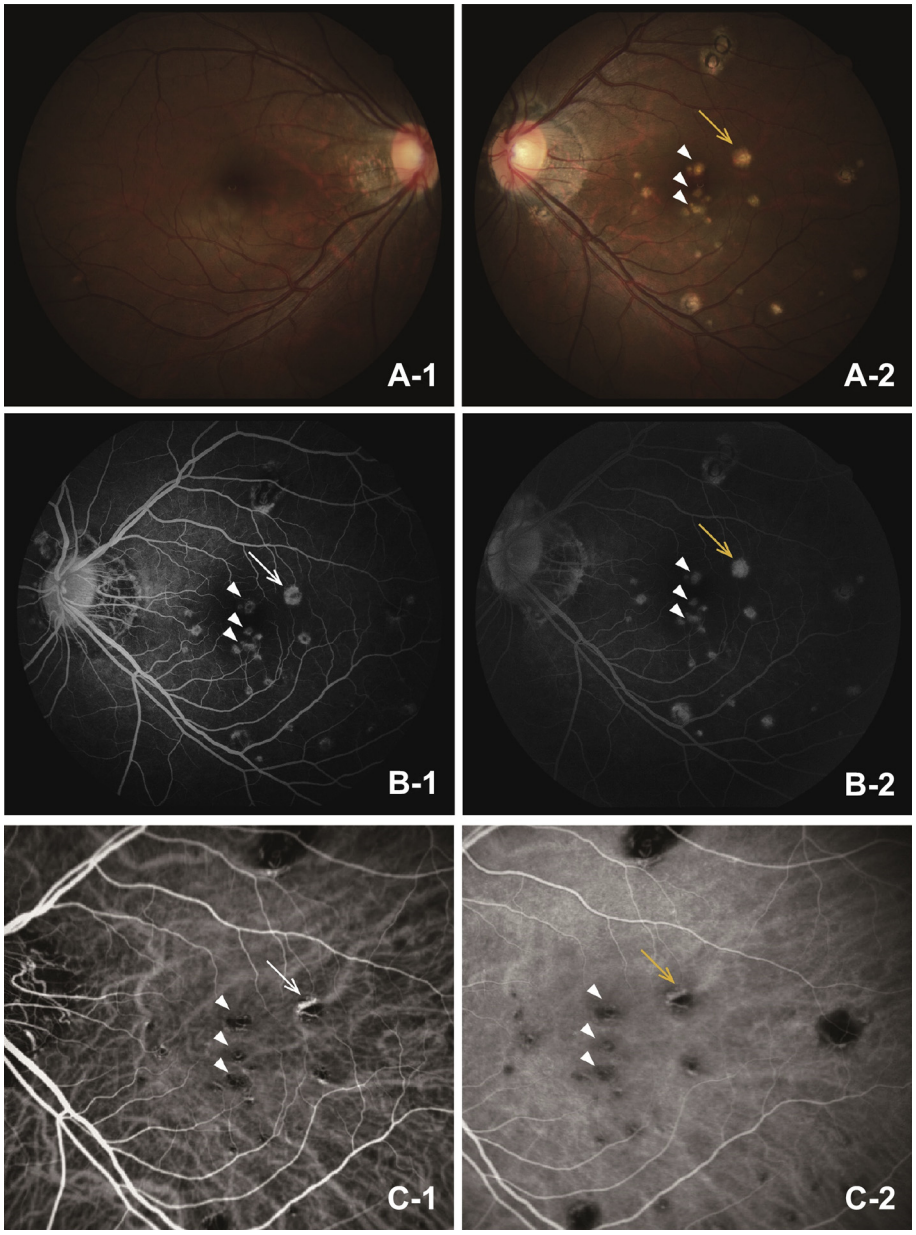

Fig. 1. (A-1 and A-2) At the first visit, the color photograph demonstrated multiple yellow-white lesions over the posterior pole in the left eye, and the three active punctate inner choroidopathy (PIC) lesions were at the fovea, causing the central scotoma (white arrowheads). (B-1 and B-2) FA revealed hyperfluorescent PIC lesions with gradual staining and mild leakage in the late phase. (C-1 and C-2) indocyanine green angiography (ICG) showed hypofluorescent PIC lesions; only one bigger active lesion temporal-superior to the fovea showed a hyperfluorescent crescent area at the margin (yellow arrow), which may represent choroidal vasculitis or oncoming neovascularization.

2013 and came to our clinic on January 11, 2013 (Day 1). She denied any systemic disease, ocular disease, or family history. She mentioned travel history to Thailand on January 4, 2013, and occasional contact history with cats; she denied any contact history with soil, bats, or birds. The serum laboratory data was normal for complete blood count and biochemistry. Enzyme immunoassays of herpes simplex virus and herpes zoster virus were also arranged, to rule out virus infection; the reports were all negative.

On ophthalmic examination, the best corrected visual acuity showed 6/6 in both eyes. The spherical equivalent refraction was approximately −7 diopters in both eyes. There were no inflammatory signs in the anterior chamber or vitreous humor. Fundoscopy revealed multiple yellow-white lesions over the posterior pole and some old punch-out lesions near the arcades (Fig. 1A). No peripheral lesion was present. FA of these yellow-white lesions revealed hyperfluorescence in the mid-phase with gradual staining and mild leakage in the late phase (Fig. 1B). ICG showed the following: multiple hypofluorescent spots in the early, middle, and late phases; the small hyperfluorescent crescent area at the margin of one hypofluorescent spot (Fig. 1C), which was temporal-superior to the fovea, may represent choroidal vasculitis[7] or oncoming neovascularization.

Cirrus SD-OCT (Cirrus HD-OCT, Carl Zeiss Meditec, Dublin, CA, USA) in high definition raster with EDI mode (software: version 6.0) was performed at the first visit and revealed (Fig. 2A): (1) dome-shaped RPE elevation with underlying intact Bruch's membrane (BM); (2) overlying disappearance of the photoreceptor junction (PRJ); (3) localized homogenous hyperreflective signals below the RPE.

On Day 1, we started to administer oral prednisolone 20 mg twice daily, then tapered the dose every 4–5 days, and stopped it