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Choroidal Excavation in Vogt-Koyanagi-Harada Disease

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Key Words
Choroidal excavation · Vogt-Koyanagi-Harada disease · Optical coherence tomography · Uveitis

Abstract
Purpose: To report a case of choroidal excavation accompanied by Vogt-Koyanagi-Harada disease (VKH). ***Methods:*** A 54-year-old Japanese woman who was complaining of bilateral blurring of vision associated with headache underwent optical coherence tomography (OCT), fluorescein angiography, and indocyanine green angiography as well as a routine ophthalmological examination. ***Results:*** Fundoscopy showed papilloedema and serous retinal detachment in both eyes. Fluorescein angiography detected bilateral multifocal leakage with pooling of dye in the subretinal space. Indocyanine green angiography showed patches of hyperfluorescence and hypofluorescent spots bilaterally. A diagnosis of VKH was reached soon afterwards. OCT of the left eye revealed the presence of a unilateral choroidal excavation under the fovea and subretinal fibrin over the site of the excavation. Treatment successfully resolved VKH symptoms with gradual resolution of subretinal fibrin and fluid; however, the choroidal excavation remained. ***Conclusions:*** This case is the first report of choroidal excavation associated with VKH. Our results suggest that choroidal excavation can be induced by choroidal inflammation caused by VKH.

Introduction

Due to the increased availability of optical coherence tomography (OCT) imaging, the entity of focal choroidal excavation has gained interest in recent years. It has been well-described in healthy individuals with otherwise normal eyes [1–4]. Focal choroidal excavation has been defined as an area of choroidal excavation in the macular area detected with OCT without the existence of a posterior staphyloma or scleral ectasia [3]. The

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condition has also been described in a patient with polypoidal choroidal vasculopathy [5]. However, the etiology of the lesion is unknown. We report a case of unilateral choroidal excavation in a patient with Vogt-Koyanagi-Harada disease (VKH).

Case Report

A 54-year-old Japanese woman presented with bilateral blurring of vision associated with headache that had started 2 weeks earlier. Her general family medical history and her personal medical history, including her history of ocular disease, were unremarkable. The best-corrected visual acuity on presentation was 0.6 in the right eye and 0.1 in the left eye. The intraocular pressure was normal in both eyes. Slit-lamp biomicroscopy showed bilateral anterior chamber cells and posterior synechiae, and fundus examination showed bilateral disc swelling with exudative retinal detachment (fig. 1a, b).

Fluorescein angiography detected bilateral multifocal leakage with pooling of dye in the subretinal space in the late phase (fig. 1c). Indocyanine green angiography showed patches of hyperfluorescence and hypofluorescent spots bilaterally (fig. 1d). A spectral-domain OCT (Cirrus HD-OCT 4000; Carl Zeiss Meditec Inc.) image of the eyes showed the bilateral presence of subretinal fluid and pigment epithelial detachment. Moreover, only in the left eye was unilateral choroidal excavation detected under the fovea, and the contour of the retinal pigment epithelium appeared to be conforming to the shape of the fibrin (fig. 2a).

Systemic workup revealed positive HLA-DR4 as well as cerebrospinal fluid pleocytosis. A diagnosis of VKH was reached soon afterwards. Thus, our patient was treated with intravenous pulse methylprednisolone followed by oral prednisolone (initial dose of 40 mg/day) with tapering over a course of 6 months. Treatment successfully resolved the VKH symptoms, and serial OCT showed a gradual reduction in size and a subsequent disappearance of the subretinal fibrin and fluid (fig. 2b–d). However, 1 month after having started treatment, the eye was left with an area of choroidal excavation at the fovea despite a normal contour in the right eye (fig. 2d). There was a good recovery of visual acuity, with 1.2 and 0.9 in the right and the left eye, respectively. Presently, the patient is being followed-up without complications and medications.

Discussion

The first case of choroidal excavation was reported by Jampol et al. [1]. Since then, many reports have been published, discussing the association between choroidal excavation and central serous chorioretinopathy [2–4]. However, the current case of choroidal excavation associated with VKH is the first report in which a preexisting choroidal inflammation caused these conditions. Concerning the pathogenesis of choroidal excavation in our case, it has been speculated that subretinal fibrin might exert a direct pressure effect on the choroidal layer by disrupting its integrity. Our case suggests one of the possible mechanisms of developing choroidal excavation as a result of ocular inflammation. It is likely that the inflammation induced focal choroidal atrophy, and thinning could also contribute to the development of the choroidal excavation. A further study should be warranted to elucidate the clinical course and possible mechanism of choroidal excavation associated with VKH.

In conclusion, we report the first case of choroidal excavation in VKH. The pathogenesis of choroidal excavation still remains to be addressed; however, the current case highlights the fact that choroidal excavation can be induced by choroidal inflammation caused by VKH.

Disclosure Statement

The authors have no proprietary or commercial interest in any of the material discussed in this article.

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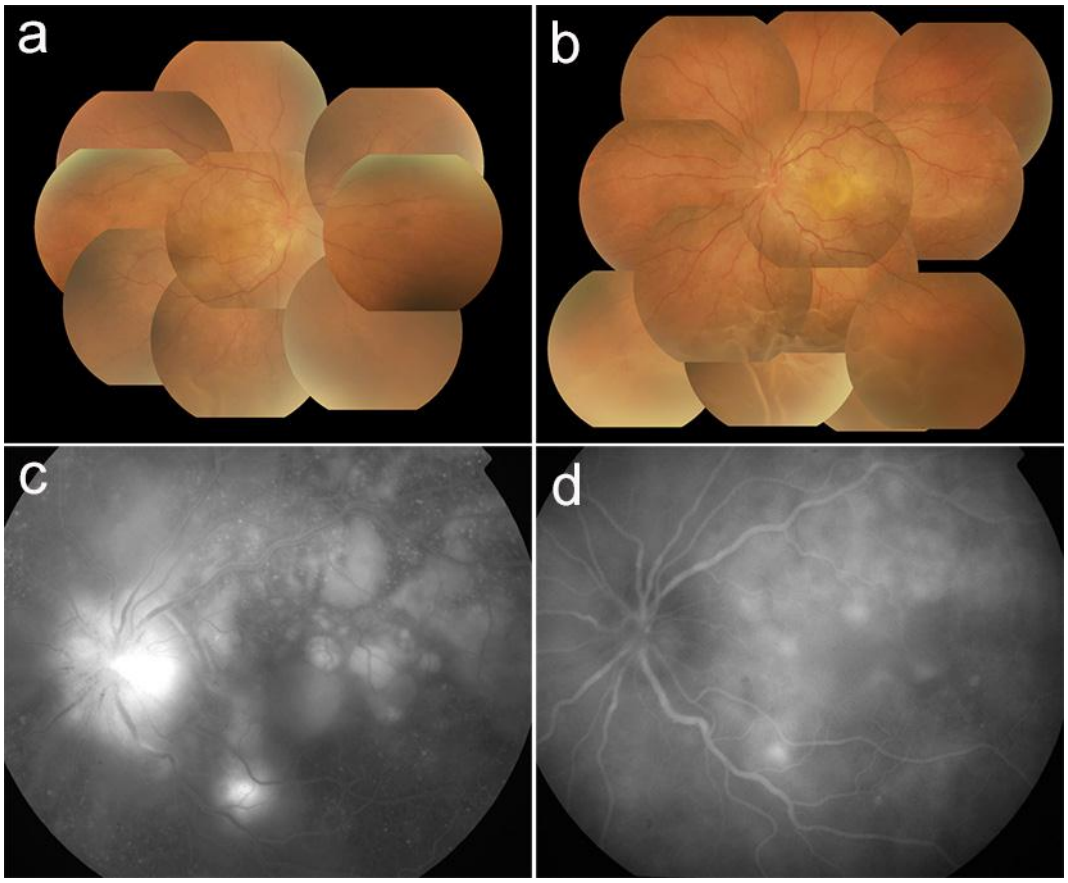

Fig. 1. **a**, **b** Fundus photos showed bilateral disc swelling with exudative retinal detachment. **c** Late-phase fluorescein angiography of the left eye demonstrated multifocal leakage with pooling of dye. **d** Indocyanine green angiography of the left eye showed areas of hyperfluorescence as well as hypofluorescent spots.

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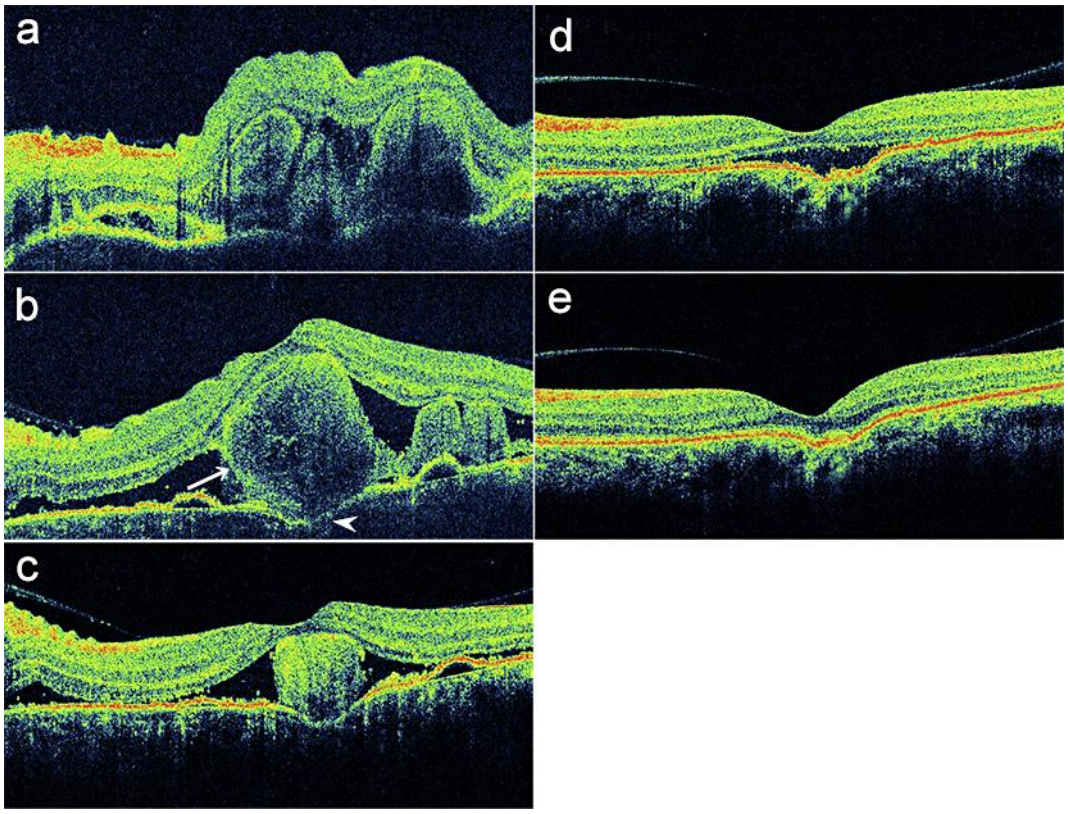

Fig. 2. Serial OCT of the left eye. **a** At the time of presentation, severe inflammation was observed with exudative retinal detachment in the foveal region. **b** One week after having started treatment, subretinal fluid and fibrin (arrow) were detected at the fovea with a choroidal excavation (arrowhead) conforming to the shape of the fibrin. OCT at 2 weeks (**c**), 1 month (**d**), and 4 months (**e**) after having started treatment showed gradual resolution of subretinal fibrin and fluid but the choroidal excavation remained.