Case Report

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Ocular syphilis mimicking Vogt–Koyanagi–Harada disease

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Abstract:

The study aimed to present a case of ocular syphilis mimicking Vogt–Koyanagi–Harada (VKH) disease. This is an observational case report. A 59-year-old female with Sicca syndrome and rheumatoid arthritis presented to the ophthalmologic department with blurred vision of the right eye for 5 days accompanied by color sensation loss in both eyes. Bilateral disc hyperemia and serous retinal detachment at the posterior pole were noted in her both eyes by fundus examination. Fluorescein angiography revealed bilateral late dye leakage from the disc and posterior choroid. Optical coherence tomography showed bilateral subretinal fluid and choroidal thickening. The impression of her condition was VKH disease initially. However, she was later diagnosed with bilateral ocular syphilis with optic neuritis which was proved by laboratory data. After appropriate antimicrobial agent treatment, her best-corrected visual acuity, serous retinal detachment, and disc hyperemia improved. There was no recurrent intraocular inflammation even without systemic steroid or immunosuppressive therapy control during the following 1 year. Ocular syphilis can mimic many other ocular inflammatory diseases including VKH disease. It is necessary to differentiate infectious causes from inflammatory origins due to the substantially different treatment and prognosis.

Keywords:

Masquerader,Ocular syphilis, Vogt–Koyanagi–Harada disease

Introduction

Vogt–Koyanagi–Harada(VKH) disease typically presents as bilateral ocular inflammation and extraocular manifestations. Ocular involvement includes early and late stage. "Sunset glow fundus" which means choroidal depigmentation and "Sugiura's sign" representing perilimbal vitiligo belong to the hallmark of chronic stage,[1,2] while bullous detachment and choroidal thickening account for acute stage.[1,2] Typical fluorescein angiography(FAG) findings include hypofluorescent and hyperfluorescent dots,[3,4] while optical coherence tomography (OCT) is useful when detecting serous retinal detachments.[5]

Syphilis is a well-known masquerader in medicine. Ocular syphilis can be categorized as anterior segment or posterior segment. There were no specific clinical presentations and image signs for the diagnosis of ocular syphilis. VKH disease and posterior ocular syphilis share some common features as disc hyperemia, posterior uveitis, and exudative retinal detachment.[6,7] It is hard to distinguish between these two diseases. Here, we reported a case presumed VKH disease but turned out to be ocular syphilis at last.

Case Report

A 59-year-old female with Sicca syndrome and rheumatoid arthritis presented to our department with blurred vision of the right eye for 5 days. She has been diagnosed with retinal vascular occlusion in the left eye 2 months ago. Her best-corrected visual

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acuity (BCVA) was 0.03 in the right eye and 0.2 in the left eye. Intraocular pressure was 15 mmHg in the right eye and 17 mmHg in the left eye. There were no keratic precipitates, neither flares nor inflammatory in the anterior chambers. There was also no vitritis in her both eyes. Bilateral disc hyperemia and serous retinal detachment at the posterior pole in her both eyes were noticed by fundus examination [Figure 1]. FAG revealed bilateral late dye leakage from the disc and posterior choroid [Figure 2]. Color sensation loss in both eyes was also noticed. OCT showed bilateral subretinal fluid and choroidal thickening, with right eye more copious than the left eye [Figure 3]. The patient denied ocular pain, headache, hearing impairment, or other neurological signs. Under the tentative diagnosis of VKH disease, she was admitted for intravenous methylprednisolone pulse therapy.

However, positive rapid plasma reagin (RPR) (1:256) and *treponema pallidum* hemagglutination (TPHA) (1:2560) were reported during admission, while HIV test showed a negative result. Her diagnosis was revised as bilateral ocular syphilis with optic neuritis and serous retinal detachment. As she is allergic to penicillin, intravenous ceftriaxone and oral minocycline were given for 14 days, and the steroid was discontinued instantly. Two weeks after the treatment, her BCVA recovered to 0.5 in the right eye and 0.9 in the left eye. Serous retinal detachment and disc hyperemia in her both eyes improved gradually [Figure 4]. During the following 1 year, there was no recurrent intraocular inflammation even without systemic steroid or immunosuppressive therapy or antibiotics [Figure 5]. Her BCVA improved to 1.0 in both eyes and intraocular inflammation remained quiescence.

Discussion

We reported a case who was actually ocular syphilis but initially mimicking VKH disease. VKH disease is an ocular inflammation disease presented bilaterally and with some extraocular findings. The latest diagnostic criteria for VKH disease was established in 2001 according to the First International Workshop on Vogt–Koyanagi–Harada Disease in 1999, which was a revised version of the one in 1978.[2] The definite diagnosis of VKH disease is classified into complete and incomplete based on the spectrum of manifestations. The diagnosis of "probable VKH disease" representing the lack of nonocular manifestations suggests doctors seek for further evaluation to confirm or refuse the diagnosis of the VKH disease. The terms of "Harada's disease," "typical," and "atypical" are no more encouraged.

The revised criteria consist of five sections. First, there must be no history of penetrating ocular injury or surgery to exclude sympathetic ophthalmia. Second, there was no evidence suggestive of other ocular diseases. The differential diagnosis of VKH includes the anatomical condition of uveal effusion syndrome; infectious processes such as syphilis, herpes family viruses, toxoplasmosis, tuberculosis, or Lyme disease; malignancies such as leukemia, melanoma, or metastasis; or inflammatory diseases including sarcoidosis, Behcet's disease, and posterior scleritis.[8] The third section of VKH disease is bilateral ocular involvement either early or late occurring. The fourth and fifth components are nonocular presentations of neurological/auditory and integumentary findings such as meningismus, tinnitus, dysacusis, poliosis, vitiligo, and alopecia.[1,8]

Four stages are described in VKH disease with ocular involvement mostly in acute and chronic uveitis stage.[8] According to Rao *et al*., "sunset glow fundus" which means pale choroidal pigmentation and perilimbal vitiligo, known as "Sugiura's sign," belong to the

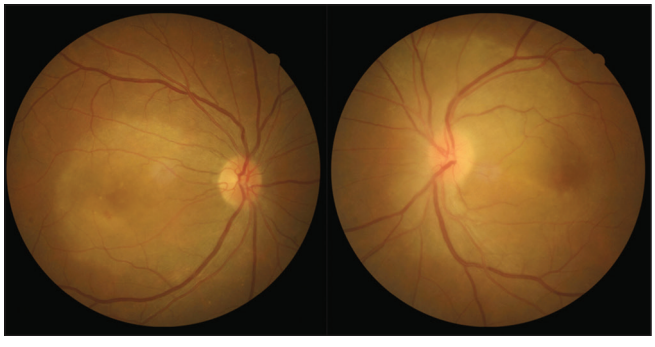

Figure 1: Bilateral disc hyperemia and serous retinal detachment at the posterior pole in her both eyes

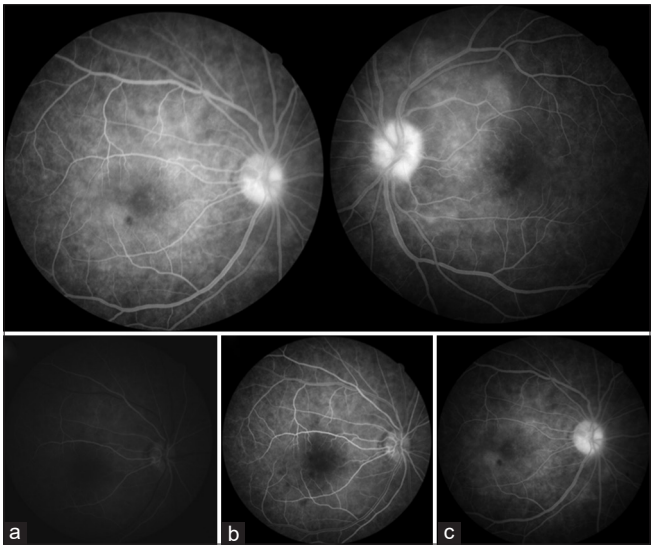

Figure 2: Fluorescein angiography revealed bilateral late dye leakage from the disc and posterior choroid. Early phase (a), mid-phase (b), and late phase (c) of fluorescein angiography in the right eye of the patient. Besides late dye leakage, there is no obvious change in the early and mid-phase

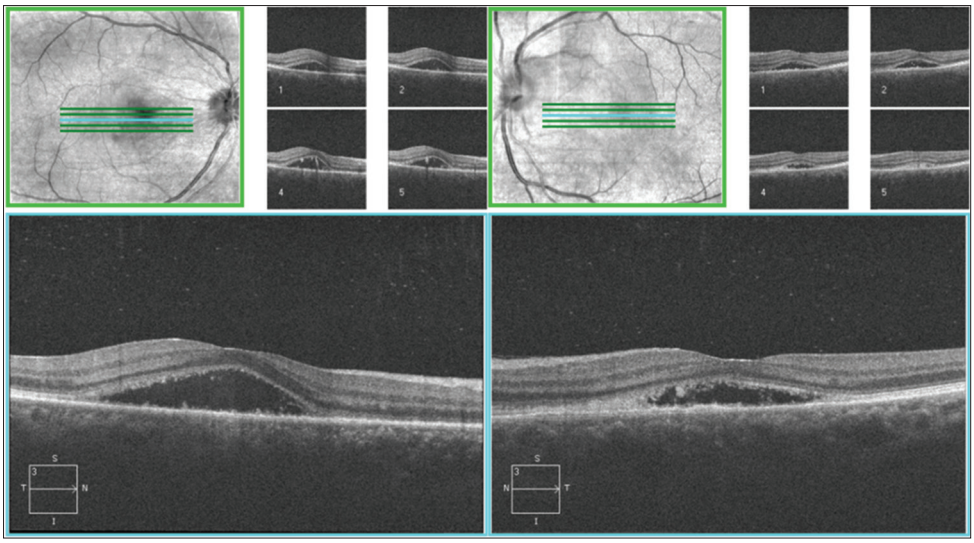

Figure 3: Optical coherence tomography showed bilateral subretinal fluid, with right eye more copious than the left eye

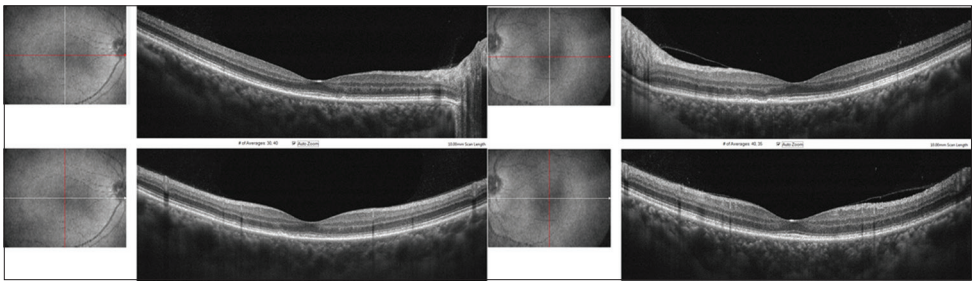

Figure 4: Post 2-week antibiotic treatment. There was no subretinal fluid in both eyes. However, some small pigment epithelial detachment with disruption of the ellipsoid zone and external limiting membrane were noted on optical coherence tomography

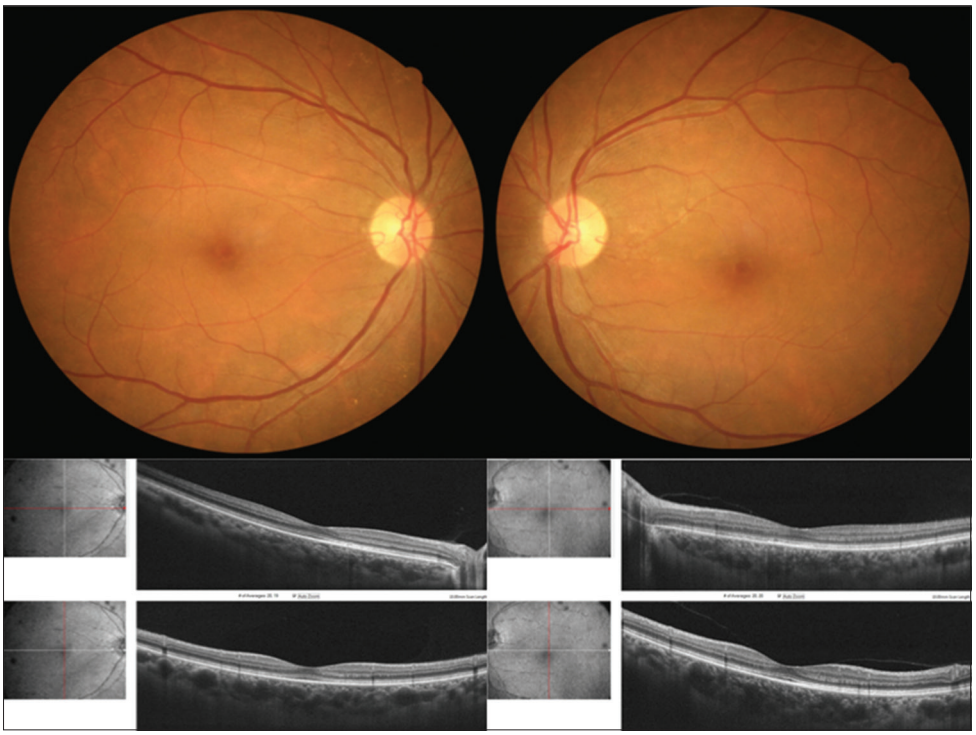

Figure 5: Seven months after the episode. Neither serious retinal detachment nor disc hyperemia was seen any more on fundus and optical coherence tomography

hallmark of chronic stage, while bullous detachment and choroidal thickening account for acute stage when comparing with other non-VKH uveitis.[1,2]

There is no image-related component mentioned in the revised criteria. However, typical FAG of VKH disease includes hypofluorescent dots due to choroid granuloma and choroid depigmentation and hyperfluorescent dots due to exudative retinal detachment.[3,4] OCT is useful in VKH disease to detect serous retinal detachments.[5]

Syphilis is one of the greatest masqueraders in medicine since it can involve multiple organ systems, demonstrating variable clinical manifestations. It can be classified into four stages including primary, secondary, latent, and tertiary forms. The overlap between different stages can exist.[9] The first two stages may have some obvious or insidious lesions which may be found on appearance. The tertiary stage may appear as gummatous syphilis, cardiovascular syphilis, and late neurosyphilis (general paresis or tabes dorsalis).[6] Ocular involvement might occur throughout the course of untreated syphilis. Ocular syphilis is considered to be a type of neurosyphilis.[6,7,10,11] It can be categorized as anterior segment (conjunctivitis, episcleritis, scleritis, and keratic precipitates) and posterior segment (papillitis, chorioretinitis, retinitis, retinal vasculitis, vitritis, exudative retinal detachment, and optic and cranial neuropathies).[7,12] Among them, panuveitis is the most common ocular presentation.[13] However, it has been reported that panuveitis is the predominant diagnosis among HIV-positive patients, whereas posterior uveitis is the most common diagnosis in HIV-negative patients which was compatible with our patient.[14] Serous retinal detachment has also been reported as one of the presentations of ocular syphilis, and poor visual outcome was associated with progression to rhegmatogenous or tractional retinal detachment, persistent exudation, and chorioretinal atrophy.[13]

Optic nerve involvement is uncommon in ocular syphilis, especially in HIV-negative patients as in this case. It can be unilateral or bilateral and manifests variably as anterior optic neuritis, retrobulbar optic neuritis, and optic perineuritis.[15] Optic perineuritis is usually asymptomatic and has reasonably good central vision with constricted peripheral visual field. However, rapid loss of central vision may be noted in optic neuritis.[15] The treatment regimen of syphilitic optic neuropathy is the same as other neurosyphilis.[10,15] The benefit of adjunctive corticosteroid therapy either in oral or intravenous form is still inconclusive.[15] Both of ocular syphilis and optic neuropathy will have a good prognosis after proper treatment.

The aforementioned signs may be easily confused with VKH disease when ocular syphilis is confined to the posterior segment. There are no specific image findings for the diagnosis of ocular syphilis, either. Thus, syphilis should be considered as one of the differential diagnoses of any intraocular inflammatory disease even it is <2% of all uveitis cases.[16,17] Besides, it is necessary to exclude infectious causes from inflammatory diseases due to the substantial differences across the treatment strategies and prognosis.

In this case, the results of clinical presentations and multimodal images did not rule out syphilis infection. However, VKH disease was initially preferred since she has some systemic autoimmune diseases such as Sicca syndrome and rheumatoid arthritis. It may easily link with VKH disease in this case because VKH is also a kind of autoimmune disease.[8] On the other hand, we arranged the antibody-based serum test including nontreponemal and treponemal test for the sank of excluding syphilis infection. Eventually, bilateral ocular syphilis was diagnosed under the positive results of RPR and TPHA. We administered suitable antibiotics rather than steroid pulse therapy. Good treatment effects corresponded to the diagnosis of syphilis infection rather than VKH disease.

Conclusion

We reported a case whose initial impression was VKH disease due to her underlying history of autoimmune disease but eventually turned out to be bilateral ocular syphilis. Besides, this patient who was HIV negative had optic involvement which was more common in HIV-positive patients. Ocular syphilis can mimic many other ocular inflammatory diseases including VKH disease. It is necessary to differentiate infectious causes from inflammatory origins due to the substantially different treatment and prognosis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent form. In the form, the patient has given her consent for their images and other clinical information to be reported in the journal. The patient understands her names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

The authors declare that there are no conflicts of interests of this paper.

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