VISION SCIENCE AND EYE HEALTH JOURNAL

CASE REPORT

A Case of Chronic Incomplete Vogt-Koyanagi-Harada (VKH) Disease with Systemic Involvement in a 57-Year-Old Woman

Authors:
Camilla A. Prakoeswa[1,2]
Ismi Zuhria[1,2*]

Affiliations:
[1]Department of Ophthalmology, Faculty of Medicine, Universitas Airlangga, Surabaya, East Java, Indonesia.
[2]Department of Ophthalmology, RSUD Dr. Soetomo Surabaya, East Java, Indonesia.

Corresponding author:
Ismi Zuhria
ismi.zuhria@yahoo.com

Dates:
Received: 23 April 2024
Revised: 30 April 2025
Accepted: 05 June 2025
Published: 26 July 2025

DOI:
https://doi.org/10.20473/vsehj.v4i3.2025.81-85

Abstract

Introduction: Vogt–Koyanagi–Harada (VKH) disease is a systemic disorder that involves tissues containing pigmented cells. It is thought to be caused by an autoimmune T-cell-mediated process against melanocytes in systemic organs, particularly the eyes. VKH disease is a chronic, bilateral, diffuse, granulomatous panuveitis that involves integumentary, neurologic, and auditory aspects, which affects females and darkly pigmented ethnic groups. Here, we presented a rare case of VKH disease in a seronegative spondyloarthropathy patient. **Case Presentation:** A 57-year-old woman complaining of blurry vision in both eyes for three years. She was previously diagnosed with spondyloarthropathy, osteoarthritis, type 2 diabetes, hypertension, and dyslipidemia. Both eyelids exhibited periocular vitiligo and poliosis and were slightly hyperemic. Both eyes had perilimbal vitiligo and fine brown keratic precipitates. The anterior chambers were deep and quiet; however, the patient had posterior synechiae in both eyes. The fundus examination showed a sunset glow fundus appearance. **Conclusions:** VKH is a chronic disease that can relapse and recur. While the disease's prognosis is overall favorable, it is determined by the duration and frequency of recurrent inflammation episodes; thus, early detection and prompt treatment are essential for success. Poor visual prognosis is predicted by a larger number of complications, an older age at disease onset, a longer median duration of the disease, delayed treatment initiation, and a higher number of recurrent episodes of inflammation. To preserve vision, patients often require lifelong immunosuppressive therapy and need to be educated about the signs and symptoms to watch for when their condition relapses.

Keywords: Vogt-Koyanagi-Harada (VKH) disease; spondyloarthropathy; immunosuppressant therapy

Introduction

Vogt–Koyanagi–Harada (VKH) disease is an autoimmune systemic disorder which involves tissues containing pigmented cells such as in eyes, ears, skin, hair, and the meninges.[1],[2] Although the true pathophysiology of the disease is not well understood, current leading theories suggest an autoimmune T-cell mediated process against melanocytes in systemic organs, especially the eyes.[3] There are four stages in the natural history of VKH disease: prodromal, acute uveitic, chronic, and chronic recurrent. The disease's stage determines the clinical manifestations. Patients who present shortly after the onset of the disease may experience neurologic and auditory symptoms, accompanied by impaired vision caused by exudative retinal detachments or optic disc swelling.[1] In contrast, a patient who presents months to years after the initial episode will exhibit anterior uveitis symptoms and fundus examination findings of diffuse choroidal depigmentation.[1] The ever-increasing collaboration between ophthalmologists and rheumatologists is facilitating the prompt diagnosis and improved multidisciplinary management of patients with inflammatory ocular involvement associated with numerous systemic diseases.[4],[5] For instance, acute anterior uveitis in patients with spondyloarthropathies is more excruciating and terrifying than their back pain,

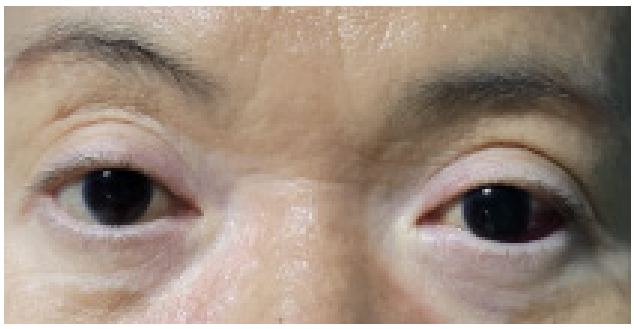

Figure 1. External examination revealed eyelash poliosis, periocular vitiligo, and upper eyelid hyperemia in both eyes.

so many of these patients will seek ophthalmology consultation immediately. In addition, they are referring patients with various forms of noninfectious chronic ocular inflammation requiring immunomodulatory therapy (IMT) to rheumatologists due to their increasing reliance on managing this therapy.[4] In this case report, we will discuss a case of incomplete VKH disease with spondyloarthropathy in a 57-year-old woman.

Case presentation

A 57-year-old woman presented to the outpatient clinic complaining of blurry vision in both eyes; however, not as severe as it was three years ago, when she could not even see objects more than one meter away. She lost most of her vision suddenly after she felt a recurring headache. She was then given oral medication, the name of which she forgot, and her vision gradually improved after a few months. She was assessed with bilateral disc edema at that time, with a normal head magnetic resonance imaging result. Up until this day, though, her vision was not as good as it was five years ago before the symptoms began. She also often felt a dry and gritty sensation in both eyes, which had been present for about five years and had worsened over the last three years. Dry eye medication provided some relief; however, the symptoms persisted. She had no history of trauma, previous eye surgery, and review of the systems revealed that the patient had chronic fatigue and tired easily. She also suffered from frequent headaches without any history of unconsciousness, seizures, or unilateral weakness. However, she complained of numbness and tingling in her fingers, stiff joints, stiff lower back, and muscle aches that got worse over the past years. She had worse hair loss in the past two years.

She had no history of trauma, ocular surgery, or family with the same complaints. She wore spectacles only for near activities. Previously, she was treated with atropine in both eyes twice daily, two types of preservative-free artificial tears, and ocular lubricant gel. She routinely attended check-ups at the internal medicine department and was diagnosed with spondyloarthropathy, bilateral knee osteoarthritis, insulin-dependent type 2 diabetes mellitus, hypertension, and dyslipidemia.

Her vision was 6/63 and 6/15 for the right and left eye, respectively, with no improvement with pinhole. Her intraocular pressure was 13 and 15 mmHg. Schirmer testing resulted in only 5 mm for the right eye and 3 mm for the left eye. She also had only three seconds and four seconds of tear break-up time in the right and left eyes, respectively. Both eyelids had periocular vitiligo and poliosis, and were slightly hyperemic (Figure 1). Both eyes had palpebral conjunctival concretions, and only the left eye had subconjunctival haemorrhage in the temporal area. Both eyes' corneas had perilimbal vitiligo, also known as the Sugiura sign. Both also had fine brown keratic precipitates in the endothelial layer and minimal punctate fluorescein tests. The anterior chambers were deep and quiet; however, the patient had posterior synechiae at the 2-4 o'clock position and 6-8 o'clock position on the right eye, and at the seven o'clock position for the left eye. Her pupils were dilated with atropine, with the right eye having a more irregular contour. Both eyes had cataracts, with the lens opacities classification system (LOCS) Grading of NO4NC4C1P3 in the right eye and NO3NC3C1P2 in the left eye (Figures 2 and 3).

Fundal reflexes for both eyes were positive, with a sunset glow fundus appearance, characterized by an orange-red decolorization (Figure 4). Both optic nerve heads had defined borders, normal color, and peripapillary atrophy, with no signs of exudative retinal detachment. Optical coherence tomography revealed normal macular thickness; however, the ganglion cell layer and inner plexiform layer were thinning in the right eye, which can be used to predict the visual prognosis of the right eye (Figure 5). Fluorescein angiography and indocyanine green angiography were not performed in this patient because they were unavailable at our center.

The patient had her spine x-ray photo four years prior, with the results of degenerative disease of the spine with pseudoanterolisthesis VL 4 to VL 5 grade I, degenerative disc disease, and spondylosis lumbalis, right Sacroilitis grade I. The patient was diagnosed with incomplete VKH Disease, dry eye disease, and spondiloarthropathy. We administered the patient atropine eye drops once daily, artificial tears, and omega-3 supplementation.

Discussion and conclusions

VKH disease is a chronic, bilateral, diffuse, granulomatous panuveitis that involves the integumentary, neurologic, and auditory aspects.[6] VKH disease is an autoimmune reaction to melanocyte-related proteins. The aggression starts from the choroid and extends anteriorly in the eye or to other sites if

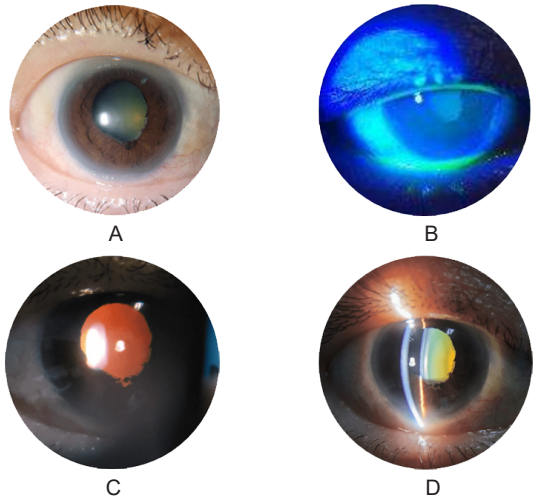

Figure 2. Right eye anterior segment examination revealed poliosis, conjunctival concretions, perilimbal vitiligo, and fine brown keratic precipitates (KPs) on the endothelial layer; (A) Fluorescein staining showed minimal punctate epithelial erosions; (B) The iris exhibited posterior synechiae at the 2–4 o'clock and 6–8 o'clock positions; (C) The pupil was irregular in shape and measured 6 mm in diameter under atropine, and (D) The lens appeared hazy with a grading of NO4NC4C1P3.

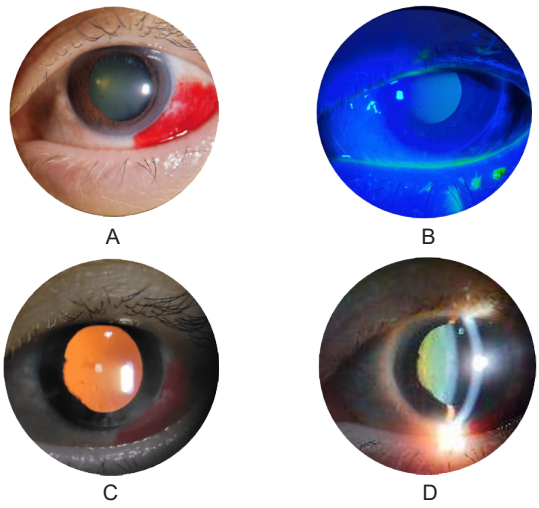

Figure 3. Left eye anterior segment examination revealed poliosis, temporal subconjunctival injection, conjunctival concretions, perilimbal vitiligo, and fine brown keratic precipitates (KPs) on the endothelial layer; (A) Fluorescein staining showed minimal punctate epithelial erosions; (B) The iris exhibited posterior synechiae at the seven o'clock position; (C) The pupil measured 8 mm in diameter under atropine; (D) The lens appeared hazy with a grading of NO3NC3C1P2.

management is delayed.[7] VKH disease is thought to be linked with several human leukocyte antigens (HLA), which can be found in patients with VKH disease, including HLA-DR4, HLA-DR54, and HLA-DQ. VKH affects darker pigmented ethnic groups more severely and is more common in the adult and female population. A study[8] found four cases of bilateral VKH disease, with more than 80% of the cases involving females, and the mean age was 46 years. The findings were similar to our case, which was a woman with bilateral VKH who was 54 years old at the age of onset.

There are four stages of VKH: the prodromal stage, acute uveitic stage, convalescent stage, and chronic recurrent stage V. The prodromal stage is characterized by flu-like symptoms presenting before ocular involvement. Patients often complain about headache, nausea, neck stiffness, hearing impairment, tinnitus, fever, orbital pain, photophobia, and allodynia.[5] In rare cases, patients may show neurological findings such as cranial neuropathies, hemiparesis, aphasia, transverse myelitis, and ganglionitis.[5] Cerebrospinal fluid (CSF) analysis can be performed on patients in this stage, and the results may reveal lymphocytic pleocytosis with normal glucose levels that lasts for up to eight weeks.[5]

The acute uveitic stage is characterized by the sequential blurring of vision in both eyes, typically occurring one to two days after neurological signs appear. The stage is characterized by bilateral granulomatous anterior uveitis, a variable degree of vitritis, posterior choroid thickening, optic nerve swelling, and multiple exudative retinal detachments.[5] Swelling of the optic nerve in this stage is commonly found in patients older than 50 years old, similar to our case. A study reported[9] that a patient with VKH disease showed bilateral RNFL thickening even after six months of systemic steroid therapy. It is believed that the older the patients are, the more likely they are to have optic nerve edema.[3]

The convalescent stage happens several weeks later with resolution of the exudative retinal detachments and gradual choroid depigmentation resulting in a classic orange-red discoloration, also known as sunset glow fundus.[2],[5] The sunset glow fundus sign can be seen in 60-70% of patients with VKH, and often found in asian ethnicities.[2],[10] However, the sunset glow signs is very subjective and dependent of the patient's race.[10] The sign itself should not be used to diagnose VKH if no other signs are present.[10] In this stage, the patient may also show integumentary changes, such as vitiligo, alopecia, and poliosis, which our patient also demonstrated.[5] The integumentary changes may occur weeks to months or simultaneously after the onset of ocular signs and symptoms.[5]

The chronic recurrent stage is characterized by an episode of granulomatous anterior uveitis, marked by the development of keratic precipitates, posterior synechiae, iris nodules, iris depigmentation, and stromal atrophy.[5] Recurrent inflammation of the posterior segment is rare at this stage, although it is possible.[5] In this stage, visually debilitating sequelae such as posterior subcapsular cataract, glaucoma, choroidal neovascularization, and subretinal fibrosis may occur.[5] Chronic VKH is associated with complications that are vision-threatening. Those complications include cataract (typically, posterior subcapsular), secondary angle closure, glaucoma, choroidal neovascular membranes, subretinal fibrosis, and chorioretinal atrophy.[2],[11] Posterior cataracts can be found in our patient, which may be the main reason for her visual impairment.

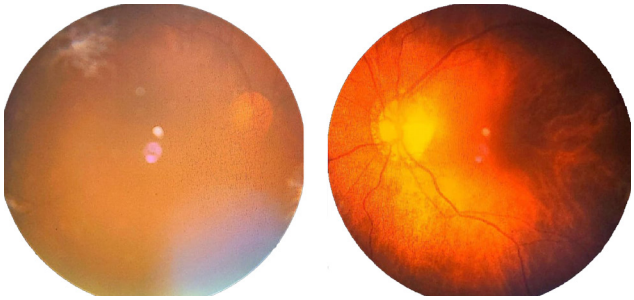

Figure 4. Both fundi show a sunset glow appearance.

VKH is diagnosed based on its clinical characteristics and distinctive appearance within the overall disease course.[12] Our patient had no history of ocular trauma or surgery. Other than spondyloarthropathy, bilateral knee osteoarthritis, insulin-dependent type 2 diabetes mellitus, hypertension, and dyslipidemia, she was not diagnosed with other systemic diseases, and she had no evidence suggestive of other ocular disease. She had late manifestations of bilateral ocular disease, which were ocular depigmentation (i.e., sunset glow fundus and Sugiura sign), and recurrent anterior uveitis. The patient had integumentary changes after the ocular signs were present (i.e., alopecia, poliosis, and periocular vitiligo). The patient said she sometimes had headaches, however, we still cannot firmly state that it was linked to her VKH condition since she also had uncontrolled hypertension, which could also cause headaches. She had no neurological and auditory signs and symptoms, thus, the patient fulfilled the criteria for incomplete VKH disease.[5],[13]

Indocyanine green angiogram (ICGA), fluorescein angiograms (FA), optical coherence tomography (OCT), and ocular ultrasonography may be used as adjective examinations for patients suspected of VKH.[2],[14] Indocyanine green angiography and fluorescein angiography may be used to directly evaluate the choroid and the retinal pigment epithelium which demonstrate delayed choroidal perfusion, peripapillary hypercyanescence, late multifocal pinpoint leakage, and pooling in areas of exudative retinal detachment.[2],[14] This modality has the sensitivity of 90-100%, however the negative side is this procedure require contrast injection, thus more invasive.[14] OCT, however, can be repeated without any risk since it is a non-invasive modality. OCT may be used to detect exudative retinal detachment and/or cystoid space in patients with VKH.[2] The downside of this evaluation is that OCT can only capture the posterior pole; thus, it cannot be used to evaluate occult choroidal inflammation.[2],[14] Ocular ultrasonography can be used in cases with media opacity. The signs that can be found in VKH patients include vitreous haze, exudative retinal detachment, diffuse choroidal thickening, and thickening of the posterior sclera.[14]

Differential diagnoses of VKH are as follows: sympathetic ophthalmia, VKH-like medication toxicity due to checkpoint inhibitors, and infectious posterior uveitis.[14] Sympathetic ophthalmia, an autoimmune condition, is a rare systemic uveitis that is a direct response to surgical history or penetrating trauma to the fellow eye. Since the patient had no history of ocular surgery or trauma, we excluded this diagnosis. VKH-like medication toxicity, mainly caused by checkpoint inhibitors, may have similar presentations to VKH and show improvement after medication discontinuation.[14] However, our patient had no history of checkpoint inhibitor usage; thus, we did not diagnose this patient with medication toxicity. Other differential diagnoses include infectious posterior uveitis, which is possibly caused by tuberculosis, syphilis, and endogenous endophthalmitis that may occur with intraocular inflammation, retinal nodules, and exudative retinal detachment.[14]

The therapy for VKH generally consists of steroids and/or IMT extended follow-up to reduce the risk of vision loss and progressive complications, with the goal of achieving zero tolerance for choroidal inflammation.[2],[5] It is recommended to treat within the therapeutic window of opportunity, which is typically two to four weeks.[5] Doses of oral prednisone

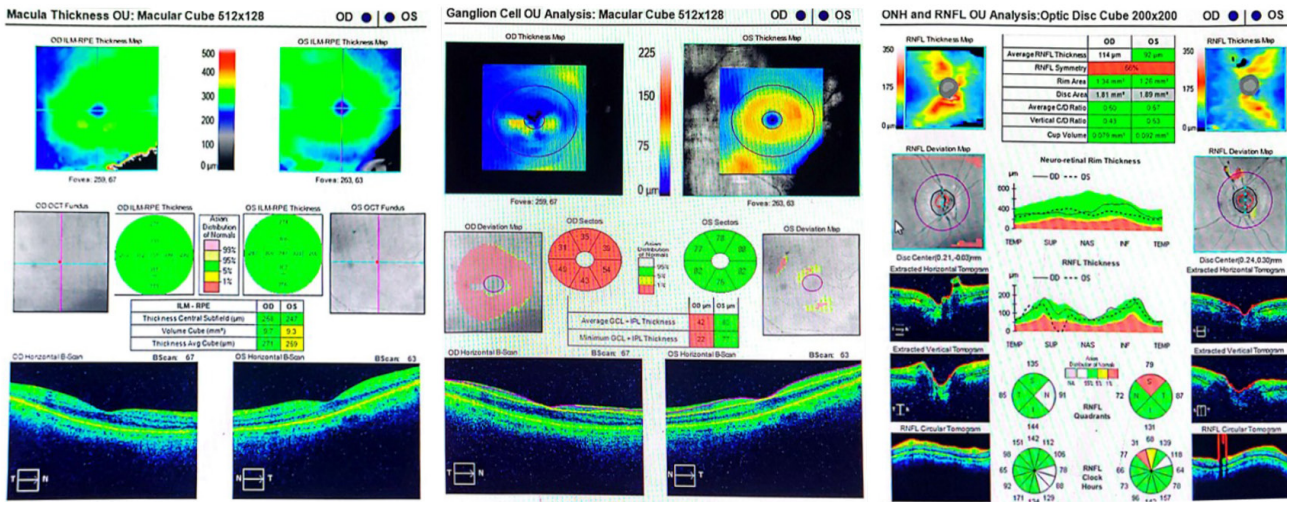

Figure 5. Thinning of the ganglion cell layer and inner plexiform layer in the right eye.

1–1.5 mg/kg/day or IV methylprednisolone up to 1 g of daily for three days may be used for corticosteroid monotherapy, in addition a combination of non-steroidal immunosuppression and steroid can be used for a quicker inflammatory control and steroid taper.[5],[14] Surgical intervention is done only to treat the complications of the disease, such as cataract, high intraocular pressure, or subsequent macular holes.[5]

The key to maintaining excellent visual acuity is aggressive therapy, early detection, very gradual tapering of oral steroids, and use of immunosuppressants.[15] The duration and frequency of recurrent episodes of inflammation determine the disease's prognosis. Poor visual prognosis is predicted by a larger number of complications, an older age at disease onset, a longer median duration of the disease, delayed treatment initiation, and a higher number of recurrent episodes of inflammation.[15] The greater the visual acuity at presentation, the greater the likelihood that the ultimate visual acuity will be enhanced.

VKH disease is a chronic systemic disease, and it is important to educate the patients that this disease can relapse and recur. While the disease's prognosis is generally favorable, early detection through a thorough clinical examination and ancillary testing, combined with prompt treatment, is crucial for achieving a successful outcome. Additionally, the physician must exclude other ocular inflammatory disorders that resemble VKH disease. To preserve vision, patients often require long-term immunosuppressive therapy and must be informed about the signs and symptoms to watch for when their condition relapses.

References

[1] Giordano VE, Schlaen A, Guzmán-Sánchez MJ, Couto C. Spectrum and visual outcomes of Vogt-Koyanagi-Harada disease in Argentina. Int J Ophthalmol 2017;10:98–102. https://doi.org/10.18240/ijo.2017.01.16.

[2] Urzua CA, Herbort CP, Takeuchi M, Schlaen A, Concha-Del-Rio LE, Usui Y, et al. Vogt-Koyanagi-Harada disease: The step-by-step approach to a better understanding of clinicopathology, immunopathology, diagnosis, and management: a brief review. J Ophthalmic Inflamm Infect 2022;12:17. https://doi.org/10.1186/s12348-022-00293-3.

[3] Ataei Y, Samara WA, Felton WL, Brar VS. Incomplete Vogt-Koyanagi-Harada in a 14-year-old African American female with bilateral disc edema. Am J Ophthalmol Case Rep 2021;22:101114. https://doi.org/10.1016/j.ajoc.2021.101114.

[4] Lipps J, Khan MA. Vogt–Koyanagi–Harada syndrome: A rheumatologic perspective. Int J Clin Rheumtol 2010;5:255–263. https://doi.org/10.2217/ijr.10.2.

[5] American Academy of Ophthalmology. Uveitis and Ocular Inflammation. In: Sen H, Albini T, Burkholder B, Dahr S, Dodds E, Leveque T, et al., editors. 2022-2023 BCSC - Basic and Clinical Science Course, Section 9, San Francisco: American Academy of Ophthalmology; 2022.

[6] Gandhi P, Hussain S, Shah A, Reddy Y. Asymmetric and incomplete Vogt-Koyanagi–Harada syndrome: Patient's perceptive dilemma. TNOA J Ophthalmic Sci Res 2022;60:318. https://doi.org/10.4103/tjosr.tjosr_49_22.

[7] Papasavvas I, Herbort CP. Vogt-Koyanagi-Harada disease is always bilateral: Reports of unilateral cases failed to use choroidal investigations showing subclinical involvement of the fellow eye. J Ophthalmic Inflamm Infect 2021;11:6. https://doi.org/10.1186/s12348-021-00237-3.

[8] Shrestha P, Sharma S, Kharel R. Vogt-Koyanagi-Harada disease: A case series in a Tertiary Eye Center. Case Rep Ophthalmol Med 2021;2021:8848659. https://doi.org/10.1155/2021/8848659.

[9] Rasheed R, Shah K, Pillai GS, Mithun C, Radhakrishnan N, Kandula P. A perplexing case of bilateral Vogt-Koyanagi-Harada syndrome. Indian J Ophthalmol Case Rep 2022;2:120–122. https://doi.org/10.4103/ijo.IJO_1522_21.

[10] Suzuki S. Quantitative evaluation of "Sunset Glow" fundus in Vogt–Koyanagi–Harada disease. Jpn J Ophthalmol 1999;43:327–333. https://doi.org/10.1016/S0021-5155(99)00016-7.

[11] AlBahkaly S, AlKhunaizi A, Algamdi Z. Vogt-Koyanagi-Harada syndrome (review of case reports). Egypt J Otolaryngol 2012;28:275–277. https://doi.org/10.7123/01.EJO.0000418070.27183.f7.

[12] Far NY, Liu DTL. Probable Vogt-Koyanagi-Harada disease with initial unilateral ocular manifestation in a hepatitis C carrier. J Ophthalmic Inflamm Infect 2012;2:235–237. https://doi.org/10.1007/s12348-012-0082-x.

[13] Read RW, Holland GN, Rao NA, Tabbara KF, Ohno S, Arellanes-Garcia L, et al. Revised diagnostic criteria for Vogt-Koyanagi-Harada disease: Report of an international committee on nomenclature. Am J Ophthalmol 2001;131:647–652. https://doi.org/10.1016/s0002-9394(01)00925-4.

[14] Stern E, Nataneli N. Vogt-Koyanagi-Harada Syndrome. StatPearls [Internet] 2023. https://www.ncbi.nlm.nih.gov/books/NBK574571/ (accessed April 2, 2025).

[15] American Academy of Ophthalmology. Vogt-Koyanagi-Harada Disease. Eye Wiki 2025. https://eyewiki.org/Vogt-Koyanagi-Harada_Disease (accessed April 2, 2025).