BJCR
Brazilian Journal of Case Reports

PCAA
Publicações Científicas de Acesso Aberto

Case Report

A case of a rare autoimmune disease: Vogt-Koyanagi-Harada disease

Banyama Marie Diabri [1], Yannick Laurent Tchenadoyo Bayala [1,*], Marcellin Bonkoungou [1], Awa Traore [1], Joëlle Wendlassida Stéphanie Zabsonre/Tiendrebeogo [1], Dieu-Donné Ouedraogo [1]

[1] Rheumatology Department, Bogodogo University Hospital, Ouagadougou, Burkina Faso.

* Correspondence: bayalayannick7991@gmail.com.

Abstract: Vogt-Koyanagi-Harada (VKH) disease is a rare autoimmune disorder. It is exceptional in black sub-Saharan Africans. A 27-year-old dermatology patient with progressive segmental vitiligo associated with bilateral visual acuity loss, headache, and hearing loss. Hypocromic macules were noted extending to the inner surface of the upper lip and to the right jugal region. Examination of the skin revealed poliosis of the moustache and scalp. Slit-lamp inspection revealed numerous corneal keratic precipitates. Optical coherence tomography (OCT) revealed chorioretinitis scarring in the right eye and macular and papillary atrophy in the left. Tone luminance audiometry revealed a 1st degree major hearing loss of the bilateral mixed type. We made the diagnosis of VKH syndrome. The patient received a bolus of methylprednisolone followed by prednisone. VKH disease is not common in sub-Saharan Africa. It is essential to consider this disease in all cases of segmental vitiligo.

Keywords: Vitiligo; Uveitis; Hypoacusis; Vogt-Koyanagi-Harada.

Citation: Diabri BM, Bayala YLT, Bonkoungou M, Traore A, Zabsonre/Tiendrebeogo JWS, Ouedraogo DD. A case of a rare autoimmune disease: Vogt-Koyanagi-Harada disease. Brazilian Journal of Case Reports. 2025 Jan-Dec;05(1):bjcr7.

Received: 22 February 2024
Accepted: 14 May 2024
Published: 29 June 2024

1. Introduction

Vogt-Koyanagi-Harada (VKH) disease is a rare systemic autoimmune disease with manifestations mainly affecting the eyes, ears, skin, and nervous system. [1]. The disease is mediated by Th1 lymphocytes targeting melanocytes, so all body tissues made up of melanocytes can be affected. [2]. The origin of this condition remains unknown, although numerous infectious triggers have been suggested. VKH disease is uncommon and mainly affects dark-skinned Asian, Middle Eastern, Hispanic, and Native American populations. [1]. However, it is rarely described in black sub-Saharan Africans [3]. In this case report, we describe VKH disease in a black sub-Saharan African subject of Burkina Faso origin, discovered during follow-up of vitiligo.

2. Case Report

A 27-year-old patient who had been regularly treated in dermatology for 5 years for vitiligo of undetermined aetiology and who had no other specific pathological history. He was seen in a dermatology consultation for a progressive extension of the vitiligo lesions associated with a bilateral decrease in visual acuity, headaches and hypoacusis. The vitiligo lesions have been evolving for 5 years, and the etiology was not known. However, the extension of vitiligo, hypoacusis, and decreased visual acuity appeared progressively over the past month. Examination of the skin and appendages revealed hypocromic macules extending to the inner surface of the upper lip and the right jugal region (Figure 1).

Figure 1. Hypocromic macules extending to the inner surface of the upper lip and the right jugal region.

The same placard-like lesions were found on the forehead. The mucous membranes were healthy, and examination of the skin revealed poliosis of the moustache and scalp, with no alopecia. In the diagnostic timeline to explore the etiological diagnosis of this vitiligo, we first investigated the decreased visual acuity in the ophthalmology department and then the hypoacusis in the otorhinolaryngology department. Visual acuity was 1/10 in the right eye and 3/10 in the left. Bilateral conjunctival congestion was noted. Slit-lamp inspection revealed numerous mediumsized keratic precipitates on the corneal endothelium, with extensive cellular infiltration and marked dilatation of the anterior chamber. Both pupils showed synechiae. Intraocular pressure was 17 mmHg in both eyes.

Otoscopy was normal on ENT examination. There was no involvement of other pairs of cranial nerves, and examination of the nervous system and other systems was unremarkable. Biochemical examination of the cerebrospinal fluid revealed pleocytosis, with lymphocytes accounting for 80%, and normal glycorrhachia and proteinorrhachia. The haemogram was unremarkable, as were the renal and hepatic functions. Papillary and macular OCT revealed a chorioretinitis scar with an interpapillomacular membrane in the right eye and macular and papillary atrophy in the left (Figure 2). Luminal tone audiometry revealed a major hearing loss of 1er degrees of mixed type on both sides (Figure 3).

Cerebral CT was unremarkable. Paraclinical examinations for other autoimmune diseases were inconclusive. Given this clinical picture, we made the diagnosis of an acute attack of VKH disease in view of the vitiligo, deafness and bilateral panuveitis based on the diagnostic criteria of The International Committee on Nomenclature Classification and the American Uveitis Association of VKH syndrome of 2001. The patient received a 240 mg bolus of methylprednisolone for 3 days, followed by oral prednisone at a dose of 1 mg/kg/day, with 10% regression every 10 days for 6 months.

3. Discussion

As far as we know, this is the first case of VKH disease to be reported in Burkina Faso and one of the rare cases described in sub-Saharan Africa because this disease is rare in black African patients. VKH disease, also known as Vogt-Koyanagi-Harada syndrome, was described by Vogt in 1906, Harada in 1926 and Koyanagi in 1929. It is a bilateral,

chronic and diffuse granulomatous panuveitis, presenting with serous retinal detachment and often associated with neurological, auditory and dermatological involvement [4]. The incidence of the disease is estimated at 1:40,000, with a variable geographical distribution [5]. VKH disease accounts for 4-11% of endogenous uveitis and predominates in young adults and women [6].

Figure 2. Optical coherence tomography imaging unveiled chorioretinitis scarring within the right eye, alongside discernible macular and papillary atrophy.

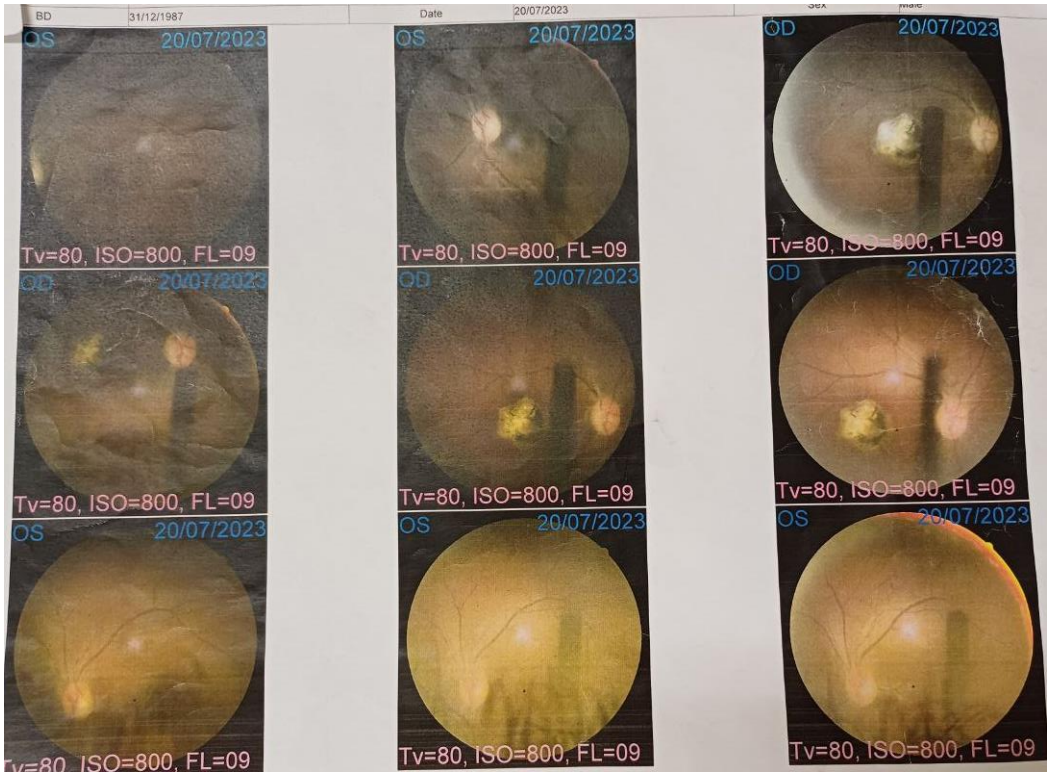
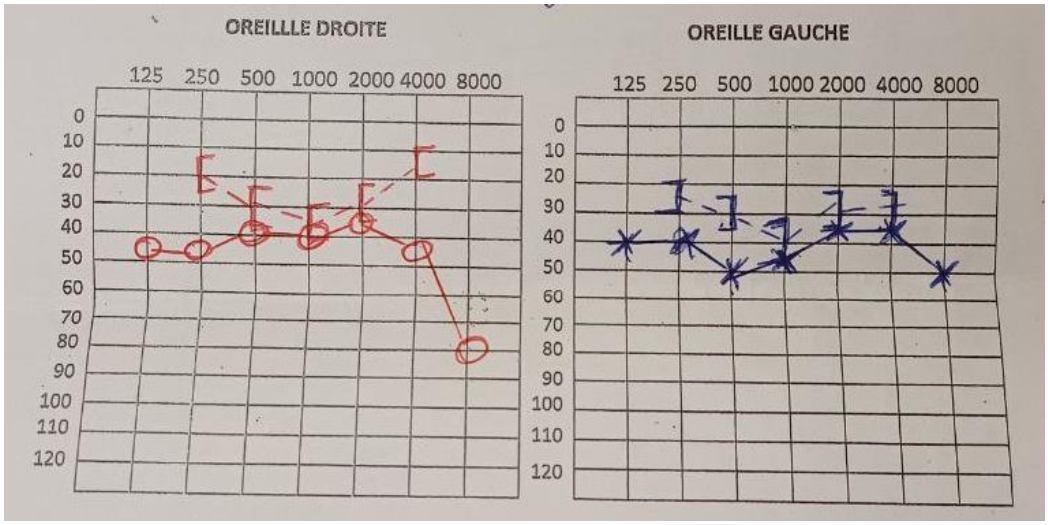


Figure 3. Luminal tone audiometry findings indicated a substantial hearing impairment, characterized as a first-degree mixed-type loss, affecting both ears.



VKH disease, which tends to be more prevalent among individuals with darker skin tones and specific genetic susceptibilities, ranked as the fourth most frequent cause of uveitis [5]. Previous research indicates that VKH disease exhibits varying prevalence rates

globally, with Japan reporting a slightly higher incidence (10.1% of all uveitis referrals), while the USA (1–4%), India (2%), and Brazil (2.5%) demonstrate relatively lower rates [5]. It generally manifests itself against a particular genetic background, as shown by the family cases documented in the literature. The socio-demographic data from the series by Alaoui et al, which reports an average age of 36 years, correspond to that of our patient. [6]. However, the male gender of our patient differs from the cases in this series, which was predominantly female, as was the series of Moroccan patients [6, 7].

According to the latest advances in immunopathogenic mechanisms, the exact etiology of VKH disease remains unknown. However, it is believed that T cell-mediated autoimmune responses targeting melanocyte-related antigens play a role in VKH development [6]. Several studies have demonstrated that peripheral blood mononuclear cells (PBMCs) from VKH disease patients recognize peptides derived from the tyrosinase family of proteins (TYR, TRP1, and TRP2), which are involved in melanin synthesis [6]. The pathogenesis of this condition is correlated with an immune dysfunction targeting melanocytes, causing cytotoxicity and apoptosis mediated by T [6]. As melanocytes are neural crest cells and contribute to the formation of tissues such as the skin, meninges, retina, uvea, cochlea and labyrinth, the disease can affect these various organs [5]. It is also potentially associated with the detection of a melanotropic virus, Epstein Barr virus [6]. Several authors have highlighted the presence of anti-retinal antibodies, in particular anti-S-arrestin, which could be one of the preferred immune targets of this syndrome [6]. However, VKH disease is thought to occur in a genetic background linked to the association with HLA DR4/HLA DRB1-04*05, which has been reported in the Japanese population [2]. The presence of this allele is associated with a higher risk of developing this disease.

The diagnosis of VKH disease was based on the diagnostic criteria of The International Committee on Nomenclature Classification and the American Uveitis Association of VKH syndrome of 2001 with a complete VKH syndrome found in our patient [8]. This syndrome is said to be complete when there is no history of trauma or ocular surgery and there are no clinical or biological abnormalities suggestive of other ocular pathologies. In addition, there is bilateral ocular involvement such as panuveitis, neurological involvement such as hypoacusis and skin involvement such as poliosis and vitiligo. In the literature, hearing loss is asymptomatic and found in 75% of cases with an average loss of 30 dB. However, it was symptomatic in our patient in whom hypoacusis was one of the reasons for consultation. [2]. In fact, dysacusis is generally found in the prodromal phase, as well as in other neurological disorders of VKH disease, preceding the acute uveitis phase. In addition, like our case, 63% of patients in the series by Lavezzo et al had lymphocytic meningitis, which is in line with the literature. [9].

Skin involvement is found in 10 to 63% of patients with pigmented skin and in the cohort of Diallo et al it represented 93% of patients [10]. These skin lesions are generally of the poliosis, vitiligo or alopecia type, but they occur in the late stages known as convalescence phases and are rarely revealing [10]. Ocular involvement is generally the first reason for consultation in VKH disease and is a key factor in the severity of the disease. They may be located in the anterior uvea, representing the Vogt-Koyanagi variety of the disease, or in the posterior uvea, representing the Harada variety of the disease. In our patient, the ocular and ocular damage progressively developed over 3 years during the follow-up of the vitiligo. Our patient had no cerebral involvement on cerebral CT as in most cases described in the literature. Although CT cannot be used to diagnose VKH disease, it can be used to rule out differential diagnoses of neurological involvement.

The treatment of VKH disease is not well codified due to its rarity. Its treatment is a challenge for the practitioner, especially in an African context where technical facilities are limited. However, all authors agree that high-dose corticosteroid therapy improves disease activity and improves visual and ocular prognosis [10]. This prednisone- or methylprednisolone-based corticosteroid therapy may be administered for 6 to 12 months as a first-line treatment [10]. However, in cases of corticoresistance or corticodependence,

some authors recommend the use of immunosuppressants such as aziathropine, mycophenolate mofetil and tacrolimus in 2ème lines. [6]. In the event of failure, rituximab has shown results in some cases described in the literature [6].

Recent studies in managing VKH disease, corticosteroid monotherapy has been found inadequate in halting the progression of the condition, even when administered promptly and in high doses [10]. However, a combination approach involving both steroidal and non-steroidal immunosuppressive agents as first-line therapy has demonstrated efficacy in preventing chronic evolution and achieving remission [10]. For instance, in a comprehensive study involving 974 patients, corticosteroid monotherapy was compared with combined treatment, revealing a substantial reduction in chronic evolution from 44% to 2.3% with the latter approach [10]. Additionally, early intervention emerges as a crucial factor for successful disease management, emphasizing the importance of treatment within the therapeutic window of opportunity [10]. This window, typically spanning between 2 and 4 weeks from initial onset, plays a pivotal role in determining treatment outcomes, though individual variations may exist [10]. Ongoing studies seek to delineate a more precise timeframe, thereby refining therapeutic strategies for VKH disease.

In terms of the prognosis of VKH disease, certain poor prognostic factors have been identified, such as advanced age, a chronic inflammatory state with long-term corticosteroid therapy and the presence of subretinal neovessels [7]. Ocular damage is the most serious and hearing damage generally regresses within 2 or 3 months, while dermatological damage remains permanent [11].

4. Conclusion

VKH disease is not common in Burkina Faso or sub-Saharan Africa. It is essential to consider this disease in all cases of bilateral uveitis, whether or not accompanied by neuromeningeal or cutaneous signs. A high index of suspicion is recommended for early detection and prompt treatment to avoid irreversible visual loss.

Funding: None.

Research Ethics Committee Approval: We declare that the patient approved the study by signing an informed consent form and the study followed the ethical guidelines established by the Declaration of Helsinki.

Acknowledgments: None.

Conflicts of Interest: None.

Supplementary Materials: None.

References

1. Joye A, Suhler E. Vogt-Koyanagi-Harada disease. Curr Opin Ophthalmol. 2021;32(6):574.
2. Diallo K, Revuz S, Clavel-Refregiers G, Sené T, Titah C, Gerfaud-Valentin M, et al. Vogt-Koyanagi-Harada disease: a retrospective and multicentric study of 41 patients. BMC Ophthalmol. 2020;20(1):395.
3. Oluleye TS, Rotimi-Samuel AO, Adenekan A, Ilo OT, Akinsola FB, Onakoya AO, et al. Two cases of Vogt-Koyanagi-Harada's disease in sub-Saharan Africa. Int Med Case Rep J. 2016;9:373-6.
4. Herbort CP, Mochizuki M. Vogt-Koyanagi-Harada disease: inquiry into the genesis of a disease name in the historical context of Switzerland and Japan. Int Ophthalmol. 2007;27(2-3):67-79.
5. Amraoui ME, Zemmez Y, Bouhamidi A, Frikh R, Hjira N, Boui M. Vitiligo revealing Vogt-Koyanagi-Harada disease. Pan Afr Med. 2017;27(220).
6. Cristhian A. Urzua et al. Vogt-Koyanagi-Harada disease: the stepby-step approach to a better understanding of clinicopathology, immunopathology, diagnosis, and management: a brief review. Journal of Ophthalmic Inflammation and Infection. 2022; 12:17.
7. Boutimzine N, Laghmari A, Ouazzani I, Ibrahimy W, Mohcine Z. [VogtKoyanagi-Harada syndrome. Epidemiological, clinical and disease progression aspects. Twenty cases]. J Fr Ophthalmol. 2008;21(10):746-54.
8. 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(5):647-52.

9. Lavezzo MM, Sakata VM, Morita C, Rodriguez EEC, Abdallah SF, da Silva FTG, et al. Vogt-Koyanagi-Harada disease: review of a rare autoimmune disease targeting antigens of melanocytes. Orphanet J Rare Dis. 2016;11:29.
10. Moorthy RS, Inomata H, Rao NA. Vogt-Koyanagi-Harada syndrome. Surv Ophthalmol. 2005;39(4):265-92.
11. Bongomin F, Onen FS, Kaddumukasa M. Vogt-Koyanagi-Harada Syndrome in a Ugandan: Diagnostic and Therapeutic Challenges. Case Rep Med. 2019;2019:5192754.