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A Multisystem Presentation of Secondary Syphilis with Optic Neuritis: A Diagnostic Challenge

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ABSTRACT

Syphilis is a re-emerging sexually transmitted infection known for its diverse and often deceptive clinical presentations. It can mimic a wide variety of systemic diseases, resulting in delayed or missed diagnoses. This case report describes a 39-year-old male from the Middle East who presented to ophthalmology with photopsia in the right eye. Over the preceding two months, the patient had experienced multiple unexplained systemic symptoms, started with transient skin rashes, fever, headache with hearing dysfunction followed by small and big joints polyarthritis of one month duration along with blurred vision. The patient disclosed high-risk sexual behavior, raising the suspicion of syphilis. Serological testing confirmed secondary syphilis with optic neuritis. Treatment with intravenous ceftriaxone and oral corticosteroids led to full resolution of the ocular findings, hearing dysfunction and polyarthritis. This case highlights the protean nature of syphilis, the importance of detailed social history, and the need for interdisciplinary awareness to prevent diagnostic delays in complex cases.

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Introduction

Syphilis, caused by the spirochete Treponema Pallidum, is a chronic sexually transmitted infection with a well-documented capacity to imitate other diseases. Despite a decline in incidence during the late 20th century, recent years have seen a resurgence of syphilis globally, particularly among men who have sex with men and individuals with multiple or anonymous sexual partners [1,2]. The clinical manifestations of syphilis vary by stage and may involve virtually any organ system, including the eyes, auditory system, liver, skin, and joints [3].

Ocular syphilis, which can occur at any stage of the disease, is considered a form of neurosyphilis [4]. Its manifestations include uveitis, retinitis, and optic neuritis, and it may be the first or only presenting sign of systemic infection. Early diagnosis and treatment are essential to prevent irreversible complications [5]. This case report describes an unusual presentation of secondary syphilis in a previously healthy male, where a constellation of systemic general symptoms, arthritis of small joints, auditory dysfunction and ocular symptoms led to the correct diagnosis.

Case Presentation

A 39-year-old male from the levant otherwise healthy individual, started with transient reddish maculopapular rash affecting the body, thighs, palms and soles, along with high grade fever for a few days. He experienced headache with hearing dysfunction and followed 1 month later by sustained additive fixed arthritis affecting mainly the small joints of the hands, the proximal interphalangeal and metacarpophalangeal joints, wrists, ankles and different big joints that led to rheumatology department. On review of systems, he revealed blurred vision and referred urgently to laboratory for autoimmune testing and to the Ophthalmology department.

The ophthalmic history revealed a three-week history of flashing lights in the right eye. He denied pain, diplopia, or vision loss. On examination, his decimal visual acuity was 1.0 in both eyes. However, color vision testing was significantly impaired as he was known to have congenital achromatopsia, with the right eye scoring 3 out of 17 and the left eye 2 out of 17 on Ishihara testing. There was no relative afferent pupillary defect. Anterior segment examination was unremarkable bilaterally.

Dilated fundus examination revealed subtle vitreous cells in the right eye without haze. The right optic disc appeared swollen (Figure 1A), while the left optic disc showed only mild blurring of the margins (Figure 1B). Fundus autofluorescence (FAF) showed no abnormality (Figure 1 C and D). Visual field test using Humphrey perimetry was within normal limits in both eyes (Figure 2 A and B). Optical coherence tomography (OCT) demonstrated significant thickening of the retinal nerve fiber layer in the right eye, measuring 201µ, with normal thickness in the left eye (Figure 3A).

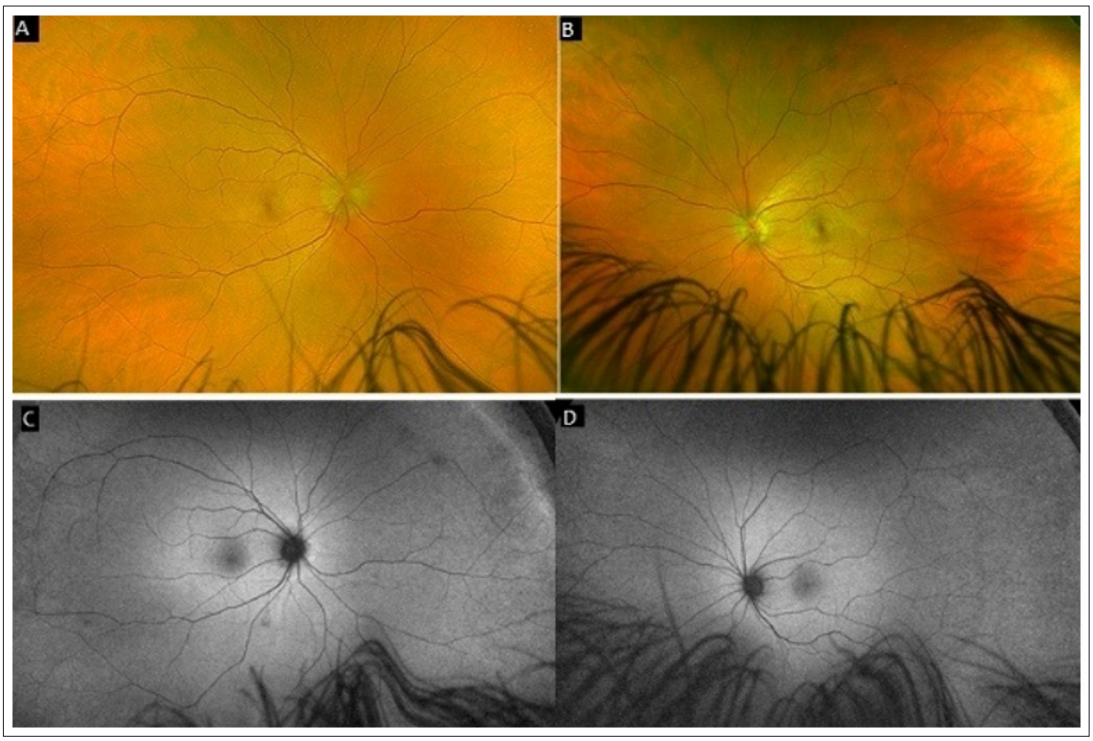

Figure 1: s Optos Color Fundus Images Showing Swollen Right Eye Optic Disc (A) and Slightly Blurred Margins in the Left Eye (B). Autofluorescence Images show No Abnormal Autofluorescence (C and D)

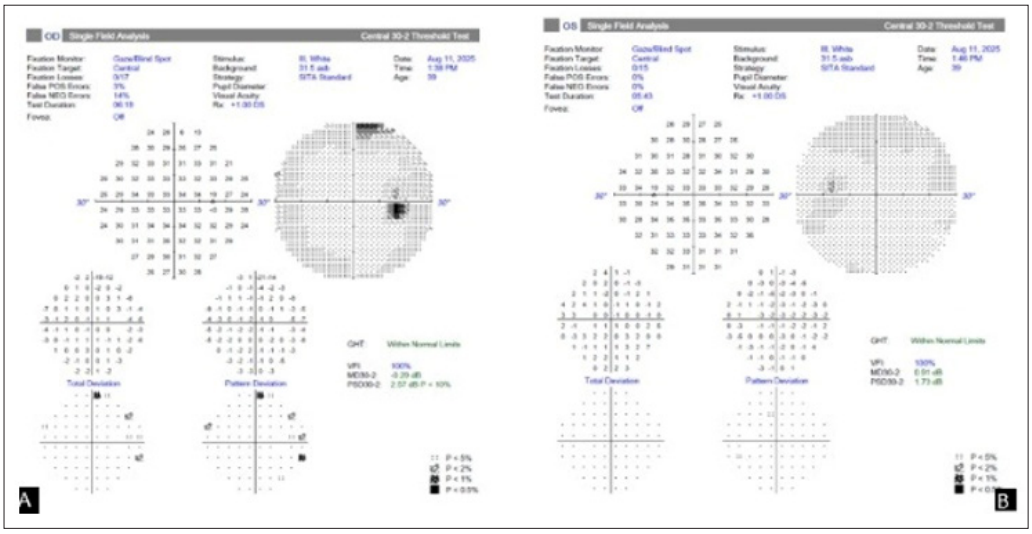

Figure 2: Humphrey Visual Field Showing Normal Visual Field Test both Eyes (A, B)

The patient confirmed a series of systemic symptoms that had emerged over the previous eight weeks starting with non-pruritic, maculopapular rash on his thighs and trunk. The rash lasted for three weeks and did not respond to topical treatment or a three-week course of oral fluconazole and resolved spontaneously. Two weeks after the rash appeared, he experienced tinnitus and muffled hearing and received a ten-day course of oral prednisolone and antihistamines for presumed allergic rhinitis. The symptoms persisted, and a subsequent ENT evaluation misdiagnosed Eustachian tube dysfunction. He was prescribed a nasal corticosteroid spray and antihistamines, which also failed to provide relief. Audiometric testing revealed mild high-frequency sensorineural hearing loss in the right ear and moderate loss in the left.

In the weeks that followed and before presenting to our ophthalmology clinic, the patient developed worsening fatigue, dark-colored urine, generalized pruritus, and additive arthritis particularly affecting the small joints of the hands. Liver function tests revealed elevated liver enzymes, including ALT at 112 IU/L, AST at 58 IU/L, GGT at 599 IU/L, and ALP at 893 IU/L, with a total bilirubin of 39 µmol/L. Abdominal ultrasonography showed hepatic inflammation and gallstones, but no biliary obstruction. The patient was treated empirically with oral antibiotics, though the exact agent was not documented.

The blood tests revealed Inflammatory markers were significantly elevated, with a C-reactive protein level of 44.1 mg/L (normal range: 0–3.3 mg/L) and erythrocyte sedimentation rate of 47 mm/hr (normal range: 0–10 mm/hr). However, an extensive autoimmune workup including ANA, anti-dsDNA, ANCA, anti-CCP, RF, complement levels (C3, C4), creatine kinase and complete blood count was unremarkable.

Given the unusual optic disc swelling alongside the previous systemic complaints and the lack of a clear systemic diagnosis, a more detailed social history was obtained during the ophthalmology review. The patient disclosed being bisexual with multiple unprotected sexual partners over the past year. This prompted testing for syphilis. Syphilis serology was positive, with a rapid plasma reagin (RPR) titer of 1:32 and elevated Chemiluminescence Immunoassay (CIA) treponemal antibodies 14.2 which was significantly elevated. Combination HIV 1 and 2 antigen and antibody test was negative, as were tests for other common sexually transmitted infections.

A diagnosis of secondary syphilis with optic neuritis was made and MRI brain was denied by the patient due to claustrophobia. The neurological examination revealed no meningeal or meningovascular signs and discussion with the neurology team confirmed their no intention to pursue lumbar puncture and cerebrospinal fluid analysis given that the patient will be treated as neurosyphilis either way. Subsequently, the patient was referred to infectious diseases department and commenced on a course of daily intravenous ceftriaxone for 14 days which was given as outpatient treatment due to concerns about neurosyphilis and the logistical difficulties of admission as an inpatient for intravenous penicillin administration [6]. Concurrently, oral prednisolone was prescribed to manage optic nerve inflammation and reduce the risk of a Jarisch-Herxheimer reaction [7]. The corticosteroid dose was tapered gradually over six weeks.

Following treatment, the patient's ocular photopsia and clinical signs resolved. OCT imaging demonstrated normalization of the optic nerve fiber layer in the right eye (Figure 3b). His systemic symptoms also resolved, and liver enzymes gradually normalized, no further episodes of visual or systemic disturbance were reported during follow-up.

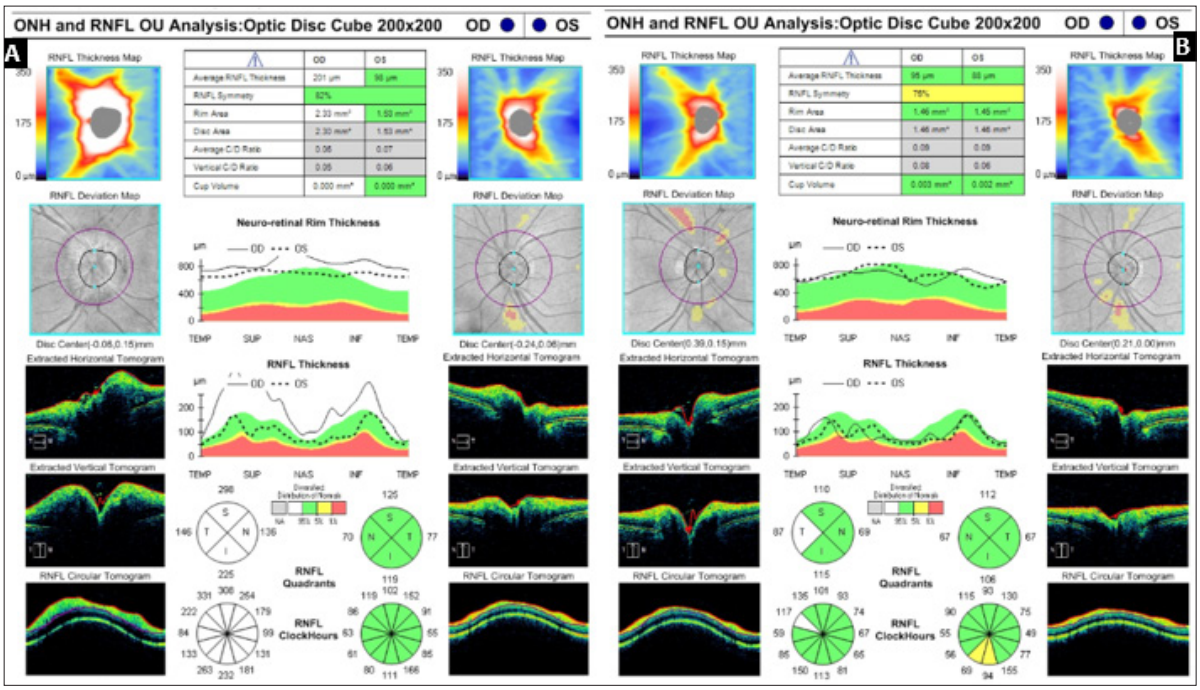

Figure 3: OCT Optic Discs Showing Significantly Increased RNFL Thickening in the Right Eye of 201µ, with Normal Thickness in the Left Eye 98µ (Fig 3A), while RNFL Thickness Appeared to be Normal on Repeat OCT Following Treatment (Figure 3B).

Discussion

This case illustrates the challenges of diagnosing syphilis when it presents with multisystem involvement that spans several medical specialties. The patient experienced a constellation of symptoms including dermatologic, auditory, hepatic, joint symptoms mimicking rheumatoid arthritis and ophthalmologic manifestations, each of which was evaluated and treated separately without a unifying diagnosis. It was only after the onset of optic disc swelling that a deeper social history was pursued, revealing risk factors for a sexually transmitted infection and ultimately leading to the correct diagnosis [8].

Secondary syphilis typically occurs weeks to months after the initial infection and can present with a wide range of nonspecific symptoms [9]. The classic maculopapular rash, particularly when involving the palms and soles, may be misdiagnosed or overlooked when the distribution is atypical. Sensorineural hearing loss, hepatitis, and joint inflammation have all been documented in secondary syphilis but are rarely recognized as such without serological testing [10, 11].

Ocular involvement in syphilis is considered neurosyphilis, regardless of cerebrospinal fluid findings [4]. Optic nerve involvement can manifest as disc oedema or optic neuritis, often with preserved visual acuity [12]. The absence of visual field defects or RAPD in this case is consistent with early or subclinical optic neuropathy. Prompt treatment with intravenous antibiotics, ideally penicillin or ceftriaxone, is essential to prevent permanent visual impairment. Corticosteroids may be beneficial as adjunctive therapy in cases with optic nerve involvement or severe inflammation [7].

This case emphasizes the importance of taking a thorough social and sexual history, especially in patients with unexplained systemic symptoms. Syphilis remains an important differential diagnosis in the era of increasing global incidence and should be considered early in the diagnostic workup of multisystem inflammatory syndromes, particularly in high-risk populations.

Conclusion

Syphilis continues to pose a diagnostic challenge due to its diverse manifestations and ability to mimic other diseases. This case highlights the critical role of comprehensive history-taking and interdisciplinary collaboration in recognizing secondary syphilis with optic neuritis. Moreover, it highlights how syphilis can mimic symptoms of rheumatoid arthritis including symmetrical small joint arthritis, hence ruling out syphilis in seronegative arthritis, especially in relatively young patients, should always be considered. Early diagnosis and appropriate treatment led to full resolution of symptoms and prevented long-term sequelae. Clinicians should maintain a high index of suspicion for syphilis in patients with unexplained systemic symptoms and consider routine screening in high-risk individuals.

Declarations

Conflict of Interest

None declared.

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Ethical Approval

Patient consent was obtained for publication.

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Author Contributions Statement

Kanaan MZ was involved in conception and design. All authors contributed to the analysis and interpretation of the data; the drafting of the paper; revising it critically for intellectual content; and the final approval of the version to be published. All authors agree to be accountable for all aspects of the work.

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