

Challenges in The Management of Ocular Syphilis in Human Immunodeficiency Virus Patient: A Case Report

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ABSTRACT

Background: The incidence rate of syphilis has been increasing in recent years. Ocular syphilis can manifest at any stage of syphilis, either with or without Human Immunodeficiency Virus (HIV) co-infection. **Case Illustration:** A 52-year-old man presented with a complaint of blurred vision persisting for the past 6 months. Visual examination revealed NLP (no light perception) in the right eye and 6/30 in the left eye. Syphilis serology testing was positive. Patient were diagnosed with latent syphilis with ocular syphilis, along with stage I HIV infection. Patient were treated with benzathine penicillin also with antiretroviral therapy for the HIV infection. **Conclusion:** Syphilis and HIV often occur together and can influence each other. Syphilitic ulcers can serve as the port of entry for HIV infection. In HIV-infected individuals with syphilis, the symptoms of syphilis can be varied due to the immunocompromised state. Benzathine penicillin G is a first-line therapy for ocular syphilis.

Keywords: ocular syphilis; HIV; co-infection

INTRODUCTION

T Syphilis poses a significant health problem worldwide, as the incidence rate has been increasing in recent years.[1] Data from the Centre for Disease Control (CDC) for the years 2017-2018 revealed that 41.7% of all syphilis cases were co-infected with HIV.[1] Ocular syphilis can manifest at any stage of syphilis, either with or without Human Immunodeficiency Virus (HIV) co-infection.[2,3] It presents with various clinical manifestations, with uveitis being the most common.[3]

The primary and recommended drug for treating syphilis remains penicillin G, which acts as a bactericidal agent against treponemal. While ocular syphilis can be treated with penicillin, delayed treatment due to errors or late diagnosis may lead to permanent vision loss.[4]

This case report details a patient with ocular syphilis and Human Immunodeficiency Virus who underwent treatment with intramuscular benzathine penicillin G and intravenous ceftriaxone. The aim of this report is to enhance clinicians' awareness of syphilis symptoms, particularly those affecting the eyes. It is hoped that this information will contribute to a better understanding of the management of syphilis patients presenting with ocular abnormalities and HIV.

CASE REPORT

A 52-year-old man presented with a complaint of blurred vision persisting for the past 6 months. He reported experiencing black shadows resembling floating hairs that followed his eye movements. The patient denied any complaints of redness, itching, or watering of the eyes. Additionally, he mentioned a painless wound on his genitals about a year ago, which healed spontaneously.

On physical examination, all vital signs were within normal limits. Dermatologically, there were no lesions on the face, chest, back, superior and inferior extremities, palms, and soles. Visual acuity examination revealed NLP (no light perception) in the right eye and 6/30 in the left eye. Both eyelids appeared normal, and the conjunctiva was calm. In the right eye, the cornea was cloudy, and the left eye exhibited corneal scars. Further examination revealed that in the right eye, the anterior chamber, iris, pupillary reflex, and lens were difficult to evaluate. In the left eye, the anterior chamber was deep, the iris was regular, pupillary reflex was positive, the lens was clear, and the vitreous was cloudy with a haze of 0.5+. Funduscopic examination in the right eye was challenging, while in the left eye, the fundus displayed a round N II papilla with well-defined boundaries, a cup-to-disc ratio (CDR) of 0.3, arteriovenous ratio (a/v) of 1/3, and a healthy retina. Intraocular pressure measured 16 mmHg in the right eye and 15 mmHg in the left eye. (Figure 1A-1B).

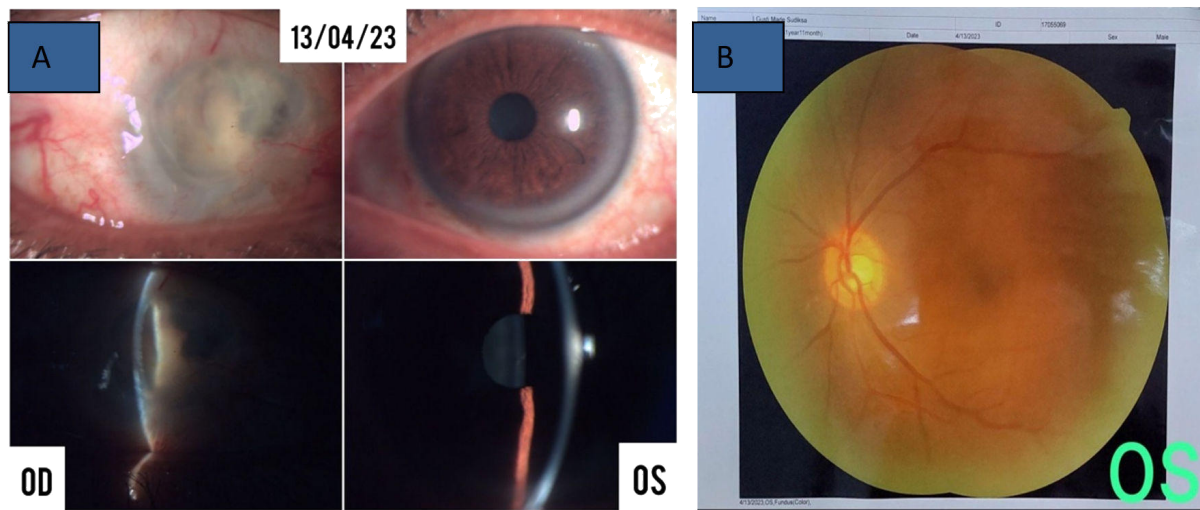


FIGURE 1: A-B. Overview of the patient's examination of both eyes using funduscopy.

The complete blood count was within normal limits. Serological tests showed VDRL at 1:64 (negative) and TPHA positive (negative). Liver and kidney function tests yielded normal results. We performed the Provider-Initiated Testing and Counseling (PITC) was conducted, revealing a reactive result. The absolute CD4 count was 148 cells/ μ L (normal range: 404-1612), CD4% 8.78% (normal range: 33-58), absolute CD8 count 1030 cells/ μ L (normal range: 220-1129), CD8% 61.06% (normal range: 13-39), with a CD4:CD8 ratio of 0.14.

Considering the patient's history, physical examination, and supporting tests, the diagnosis is late latent syphilis accompanied by ocular syphilis, along with stage I HIV infection (according to WHO staging) and the patient is on Highly Active Antiretroviral Therapy (HAART).

The prescribed treatment involved a total of 7.2 million units of benzathine penicillin administered in three divided doses, spaced one week apart during the first week. Ocular management by the eye department included P-Pred eye drops (Prednisolone 10 mg) every 4 hours topically (ODS), along with the use of artificial tears containing sodium chloride and potassium chloride (Lyteers) every 4 hours topically (ODS). Additionally, the patient was scheduled to receive intravenous injections of Ceftriaxone (2 grams) every 24 hours for 14 days, as a specific management approach for ocular syphilis. The patient was also prescribed Tenofovir (300 mg), Lamivudine (300 mg), and Dolutegravir (50 mg) to be taken orally every 24 hours. Furthermore, the patient received guidance on the follow-up schedule, which includes VDRL serological test examinations at 1, 3, 6, 9, 12, and 24 months following the initiation of therapy."

DISCUSSION

Syphilis is a systemic infectious disease caused by the bacteria *Treponema pallidum*. Chronic syphilis is divided into four phases: primary, secondary, latent, and tertiary.[5] The primary and secondary phases typically occur over a period of weeks to months, but the interval between the secondary and tertiary phases can last up to several years. [6,7]

Syphilis and HIV often co-occur and mutually influence each other. Syphilitic ulcers can serve as a source of entry for HIV infection.[8] HIV disease can impact the clinical course of syphilis, leading to a more aggressive infection due to reduced immunity in HIV-infected individuals compared to those with a single infection. It is recommended to screen all patients diagnosed with syphilis for HIV infection, and vice versa, as they share similar risk factors. [9,10] The presence of HIV coinfection is crucial in the course of syphilis because it can result in different clinical manifestations, requiring specific follow-up for these patients.[11]

Ocular syphilis is a manifestation of syphilis affecting the eye, and its prevalence increases, particularly in individuals infected with HIV, often being associated with neurosyphilis. Ocular syphilis can occur at all clinical stages of syphilis, with the most common manifestations being panuveitis and posterior uveitis.[12] Secondary symptoms may involve keratitis, iris nodules, iridocyclitis, scleritis, optic neuropathy, retinal vasculitis, and interstitial keratitis. Long-term complications of ocular syphilis include corneal opacities, cataracts, glaucoma, epiretinal membranes, macular edema, optic atrophy, and rarely, choroidal neovascularization.[13]

In general, benzathine penicillin G 2.4 million units intramuscularly for 21-28 days is the first-line therapy. Parenteral administration is recommended due to its better bioavailability. The Centers for Disease Control and Prevention (CDC) published recommendations for the therapy of syphilis coinfection with HIV. [10,11] Therapy is conducted based on the stage of syphilis without considering the HIV infection status. In primary, secondary, and early syphilis, there is a rapid growth activity of *Treponema pallidum*. Therefore, benzathine penicillin G 2.4 million units (intramuscular) is sufficient for a single injection. Therapy for late or tertiary latent syphilis, with a longer growth period of *Treponema pallidum*, requires a dose of 7.2 million units divided into three intramuscular injections, one week apart.[14]

The therapy for ocular syphilis differs in several aspects because benzathine penicillin G does not have good bioavailability in the cerebrospinal fluid. [8,12] Patients with ocular syphilis can undergo intravenous injection of Aqueous Crystalline Penicillin G or intramuscular injection of Procaine Penicillin G with Probenecid for 10-14 days. Non-penicillin alternatives include Ceftriaxone 2 grams every 24 hours intravenously for 10-14 days or doxycycline 200 mg every 12 hours orally, which has better availability in cerebrospinal fluid.[15]

One of the side effects of syphilis therapy that needs special attention is the Jarisch-Herxheimer reaction. The pathogenesis of the Jarisch-Herxheimer reaction is not known with certainty, but it is thought to be related to the release of cytokines caused by the release of lipoproteins from *T. pallidum* bacteria. In patients experiencing the Jarisch-Herxheimer reaction, plasma concentrations of the cytokines TNF, interleukin IL-6, and IL-8 increase sharply 2-4 hours after penicillin treatment. [11,14] This reaction is characterized by fever, headache, muscle aches, and weakness, which can occur within the first 24 hours after injection. The reaction is usually mild unless it involves neurological manifestations, in the eyes, or occurs in pregnant women and/or their babies.[16]

HIV coinfection in syphilis patients poses a challenge; this condition makes it difficult to assess therapy response due to fluctuating serological titers. The patient complained of progressive blurred vision in both eyes. After receiving benzathine penicillin G therapy, the patient reported an improvement in vision. However, further observation and regular evaluation are required.

CONCLUSION

Syphilis and HIV often occur together and can influence each other. Syphilitic ulcers can serve as the port of entry for HIV infection. In HIV-infected individuals with syphilis, the symptoms of syphilis can be varied due to the immunocompromised state. Benzathine penicillin G is a first-line therapy for ocular syphilis.

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