Case Report

Ocular Syphilis Presenting as Acute Necrotizing Retinitis in a Human Immunodeficiency Virus-Positive Patient

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Abstract

The incidence of ocular syphilis is increasing in the developing world even in the era of effective human immunodeficiency virus (HIV) treatment, as there is a potential increase of high-risk sexual behavior. Ocular involvement in the form of uveitis is seen in all stages of syphilis. Diagnosis begins with ophthalmologic examination, but requires serologic testing for confirmation. Ocular syphilis presents with unusual presentations or mimics other diseases and is identified by serological screening. It is curable with a relatively short course of antibiotic treatment, making its recognition a priority. All ophthalmic manifestations of syphilis should be treated with a Centers for Disease Control and Prevention-approved neurosyphilis regimen. In this report, we present a case of necrotizing retinitis with no response to antiviral treatment. On subsequent serological testing it was proved as syphilis in a HIV-positive patient who responded well to intravenous antibiotics with rapid visual recovery. Hence, awareness of this disease will promote early diagnosis and treatment.

Keywords: Human immunodeficiency virus, ocular syphilis, panuveitis, vasculitis

Introduction

Syphilis has varied ocular manifestations, but may become atypical in the presence of human immunodeficiency virus (HIV). Necrotizing retinitis due to syphilis in HIV coinfection is a diagnostic challenge because of multiple reasons. First, its clinical picture mimics viral etiologies.[1] Second, HIV coinfection demonstrates aberrant serological responses. Third, there was poor response to antiviral therapy for the presumed viral etiology, but good response to intravenous penicillin. As HIV patients are at an increased risk of various opportunistic infections, retinitis can be the only presenting feature of ocular syphilis. Hence, a high index of clinical suspicion of syphilitic retinitis and initiating penicillin therapy are the logical approaches during a diagnostic dilemma in HIV patients. This case scenario highlights the need for screening for syphilis and HIV as routine laboratory investigations in all cases of ocular inflammation.

Case Report

A 34-year-old male was referred to us with a provisional diagnosis of panuveitis in the left eye with B-scan ultrasonography report showing retinochoroidal thickening [Figure 1]. The patient was on topical steroid and cycloplegic treatment, and investigations (complete blood count, erythrocyte sedimentation rate, Mantoux test, and chest X-ray) were normal. On examination, vision in the left eye was 6/36 p, and anterior segment showed 3+ cells and trace hypopyon. Funduscopy showed dense vitritis with disc and second-order vessels hazily seen with a patch of retinitis in the superior quadrant. The right eye was normal. The diagnosis was revised as acute necrotizing retinitis due to viral etiology. Intravitreal injection ganciclovir (2 mg/0.1 ml) was given and oral valacyclovir 1000 mg thrice a day was started.

The patient presented 10 days later with pain and deterioration of vision. Visual acuity was 6/24 in the right eye and hand movements in the left eye. Funduscopy of the right eye showed mild vitritis with areas of retinal exudates along the superior

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vascular arcade, and the left eye had very dense vitritis with traction bands attached to the disc [Figure 2]. HIV, ELISA, and serum *Treponema pallidum* hemagglutination assay (1:32) were reported positive. CD4 count was 232/mm^3, so the final diagnosis of ocular syphilis was made. The patient denied a history of skin lesions and multiple sexual partners. He was started on antiretroviral therapy. Cerebrospinal fluid (CSF) study was normal for cell count, protein, and glucose and negative for venereal disease research laboratory (VDRL). Intravenous ceftriaxone 1 g twice daily was given for 14 days, as the patient was allergic to injection penicillin. Oral steroids (1 mg/kg body weight) in tapering dose were added after 1 week of antibiotic therapy. At a 3-week follow-up, vision improved to 6/6p in the right eye and 6/9 in the left eye. In both the eyes, vitritis and retinal exudates also resolved with persistent traction band over the disc in the left eye [Figure 3]. At a 3-month follow-up, vision and fundus findings in both the eyes were stable. The patient's wife was also screened for HIV and syphilis and reported negative for both.

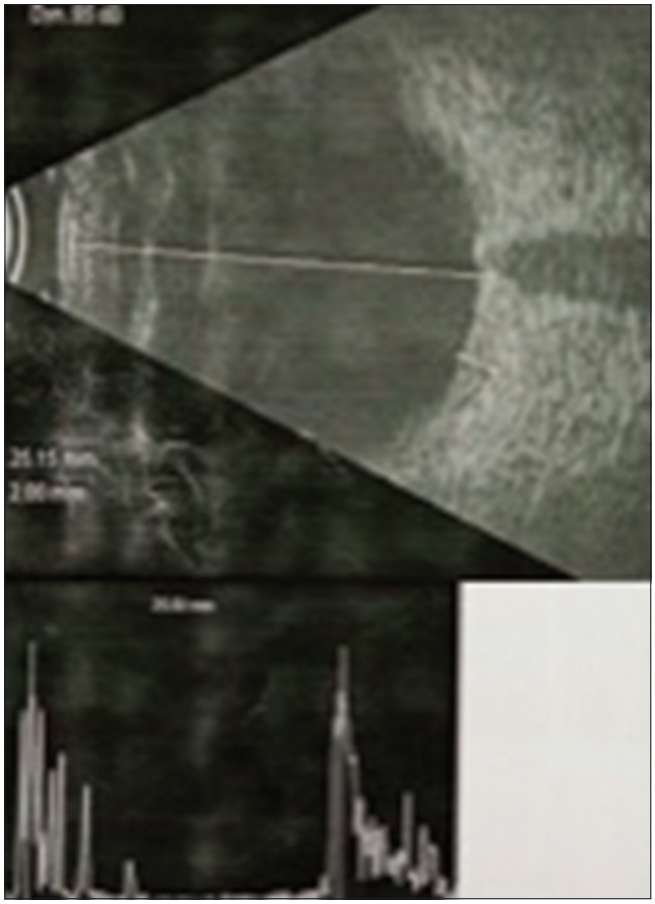

Figure 1: B-scan of the left eye showing retinochoroidal complex thickening

Discussion

Syphilis is a chronic, sexually transmitted disease caused by *T. pallidum*. Ocular involvement can occur at any stage, more frequently during secondary and tertiary stages.[2] Ocular manifestations are protean presenting as anterior or posterior uveitis, which includes vitritis, retinitis, retinal vasculitis, neuroretinitis, and papillitis.[2] It is also known as a great imitator due to varied and nonspecific clinical findings. The most common documented ocular inflammation is panuveitis and posterior uveitis.[2] Nonetheless, ocular syphilis is considered as neurosyphilis.

Ocular syphilis prevailed in the preantibiotic era, but recently has reemerged with HIV pandemic.[3] The Manchester Uveitis Clinic in a 22-year survey observed the frequency of syphilitic uveitis to be <1%, but the incidence is on the rise.[4] Uveitis is observed in up to 9% of patients coinfected with syphilis and HIV.[5] In fact, the Centers for Disease Control and Prevention (CDC) clinical advisory in the USA in 2015 reported over 200 cases of ocular syphilis.[3] British Ocular Syphilis Study also reported that HIV-positive patients had higher rates of panuveitis than HIV-negative patients.[6] Despite significant clinical experience, complexity of the interaction between these two diseases is incompletely understood; however, HIV-modulating immunologic response to *T. pallidum* remains the main mechanism.[7]

Syphilis serology should be considered when evaluating a case of intractable uveitis of uncertain origin presenting as retinitis or retinal vasculitis. The diagnosis of active disease requires a combination of treponemal and nontreponemal tests. The former "gold standard" fluorescent antibody absorption test is now largely replaced by highly specific enzyme immunoassays such as syphilis immune-capture enzyme immunoassay and rapid plasma reagin (RPR) which provide quantitative results,

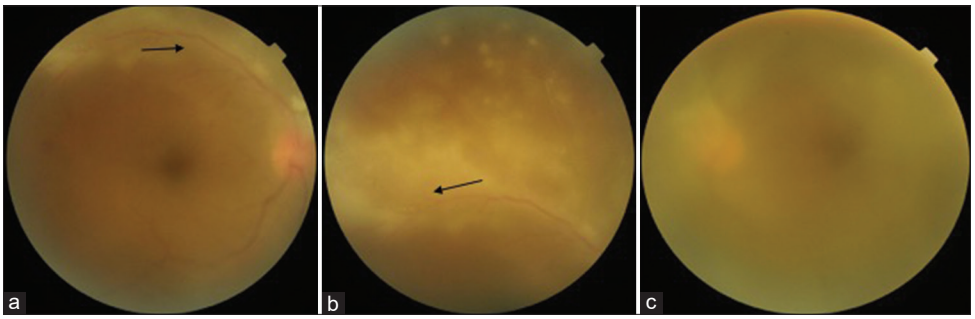

Figure 2: Pretreatment fundus photographs (a and b) of the right eye showing exudates along the superior arcade, predominantly superotemporal arcade (black arrow), and (c) left eye showing dense vitritis (Grade 3) with disc faintly seen

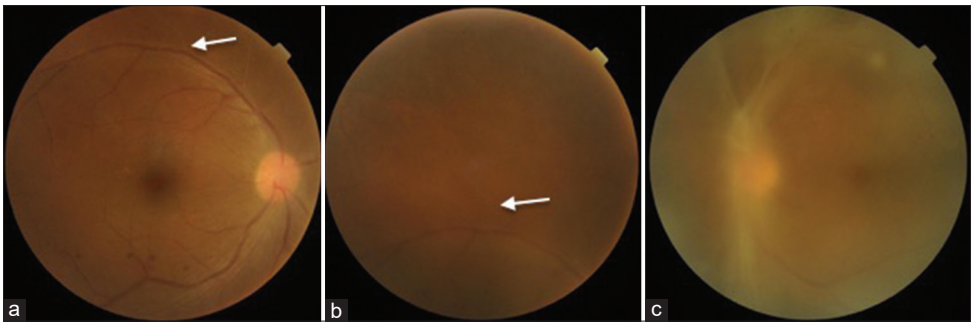

Figure 3: Post treatment fundus photographs (a and b) of the right eye showing areas of resolved retinal exudates (white arrow) and (c) left eye showing resolved vitritis with traction band over the disc and superior and inferior arcades

thereby helpful in judging treatment response.[8] In addition, all newly diagnosed patients of ocular syphilis should be tested for HIV infection, as they may have higher RPR titers and more positivity for CSF VDRL or fluorescent treponemal antibody-absorption.[7]

There is a debate on CSF analysis, as this will not change the treatment regime in the initial stage and only helps address the disease severity.[9] However, when associated with neurological features, lumbar puncture is definitely indicated.

The treatment guidelines of ocular syphilis are as per the CDC recommendation for neurosyphilis with aqueous crystalline penicillin G 18–24 million units/day, administered 3–4 million units intravenous every 4 h or continuous infusion, for 10–14 days.[3] Anshu *et al*. have stated the administration of ceftriaxone (2 g/day intramuscular or intravenous) for 10–14 days in those allergic to penicillin.[10]

Response to treatment is assessed by a four-fold decrease in the titer of the same pretreatment nontreponemal test.[8] The CDC also recommends a repeat lumbar puncture after every 6 months if CSF pleocytosis/abnormal protein/positive CSF VDRL were present initially. If CSF cell count or protein has not normalized after 6 months, retreatment should be considered.[3]

We have also given low-dose oral steroids along with antibiotic therapy in our patient with posterior uveitis and profound visual loss to combat severe inflammation. The patient was jointly managed by an ophthalmologist and a neurologist. Hence, all ophthalmologists must have a high degree of clinical suspicion of ocular syphilis in patients with nonspecific ocular inflammation and rule out coinfection with HIV. Awareness among clinicians adds to prompt diagnosis and early antibiotic therapy, thus halting the structural damage and visual impairment.

Declaration of patient consent

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

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Nil.

Conflicts of interest

There are no conflicts of interest.

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