Full length title: Acute syphilitic necrotizing retinitis associated with placoid chorioretinitis in an immunocompetent patient.

Running title: Variability in ocular syphilis

Authors:

Elke O. Kreps, MD, PhD[1,2], Haneen Jasim, MBChB, FRCOphth[1], Sunil Mamtora, MBBS[1], Andrew D. Dick, FRCOphth, FMedSci [1,3,4,5]

1. Bristol Eye Hospital, University Hospitals Bristol and Weston, Lower Maudlin Street, Bristol BS1 2LX, United Kingdom
2. Department of Ophthalmology, Ghent University Hospital, Ghent, Belgium
3. University College London, Institute of Ophthalmology, London, United Kingdom
4. Academic Unit of Ophthalmology, Translational Health Sciences, University of Bristol, Bristol, UK
5. NIHR Biomedical Research Centre of Ophthalmology, Moorfields Eye Hospital, London, UK

Corresponding author:

Elke O. KREPS

Department of Ophthalmology, Ghent University Hospital

Corneel Heymanslaan 10

9000 Ghent

Belgium

Elke.kreps@ugent.be

The authors have no conflicts of interest to disclose. No funding was obtained for this research.

Key words: necrotizing retinitis; ocular syphilis; placoid chorioretinitis

Brief summary statement:

Necrotizing retinitis is a rare, rather atypical feature of ocular syphilis, whereas acute posterior placoid chorioretinitis is a highly characteristic and specific syphilitic ocular phenotype. We report on an unusual case of necrotizing retinitis and posterior placoid chorioretinitis occurring in continuity in the same eye of an immunocompetent, HIV-negative patient.

Abstract

Purpose: We report an atypical case of combined acute syphilitic necrotizing retinitis and a contiguous acute syphilitic posterior placoid chorioretinitis (ASPPC) in an HIV-negative, immunocompetent patient.

Method: Observational case report.

Results: A 56-year-old male presented with a one-week history of pain and blurred vision in the left eye. He also complained of left-sided hearing loss for several months. Ocular examination demonstrated a unilateral panuveitis with a yellowish placoid macular lesion involving the outer retina contiguous with an ovoid area of full-thickness retinitis extending temporally. Vitreal polymerase chain reaction (PCR) analysis for HSV, CMV, VZV and T. gondii were negative but syphilis serology was reported as positive. An MRI of the head revealed bilateral enhancement along the facial nerves, more marked on the left side, consistent with syphilitic involvement. He was treated as neurosyphilis with a 14-day course of systemic procaine penicillin and oral probenecid. Oral prednisolone (1 mg/kg/day) was

commenced 24 hours prior to initiating antibiotics to prevent Jarisch-Herxheimer reaction and treat his panuveitis.

Conclusion: To our knowledge, this is the first report of combined syphilitic necrotizing retinitis and ASPPC occurring in continuity in the same eye. This case highlights the diversity of possible presentations of ocular syphilis, even in HIV-negative immunocompetent patients.

Introduction

Treponema pallidum infection can affect virtually all layers of the eye. Ocular syphilis may present with a notoriously wide range of clinical phenotypes.[1] We report an unusual case of combined unilateral acute syphilitic necrotizing retinitis and a contiguous acute syphilitic posterior placoid chorioretinitis (ASPPC) in an HIV-negative, immunocompetent patient.

Case report

A 56-year-old male presented to eye casualty with a one-week history of pain and blurred vision in his left eye. He also complained of left-sided hearing loss for several months and was otherwise healthy and not taking any regular medications. Visual acuity was 6/6 in the right eye and 6/150 in the left. Examination revealed 2+ anterior chamber cells, 2+ vitreous cells and two adjacent areas of (chorio) retinitis (Figure 1A) OS. Clinically, there was a yellowish placoid macular lesion contiguous with an ovoid area of full-thickness retinitis extending temporally (Figure 1C-F). Examination of the right eye was unremarkable. Given the initial diagnostic aetiological uncertainty with acute retinitis on presentation, he underwent an aqueous and vitreous tap and was treated with oral valaciclovir and azithromycin as well as intensive standard topical uveitis treatment while awaiting polymerase chain reaction (PCR) analysis and syphilis serology. In the subsequent 2 days, the macular placoid lesion expanded in size and vision dropped to counting fingers in the left eye. Vitreal PCR studies for HSV, CMV, VZV and T. gondii were negative. An MRI of the head revealed bilateral enhancement along the facial nerves, more marked on the left side. Syphilis serology including a rapid plasma reagin (titre of 1:256), treponema pallidum particle agglutination (titre of >1:1280) and fluorescent treponemal antibody were reported as positive. HIV testing was negative. He subsequently disclosed to having had multiple sexual partners over the previous years, predominantly with men (MSM). He also reported a macular rash on his trunk 6 months prior, which had resolved spontaneously. The patient declined a lumbar puncture but in lieu of the ocular picture and MRI findings, he was treated

as neurosyphilis with a 14-day course of systemic procaine penicillin and oral probenecid. Oral prednisolone (1 mg/kg/day) was commenced 24 hours prior to initiating antibiotics to prevent Jarisch-Herxheimer reaction and treat his panuveitis, as this reaction may cause a worsening of the syphilitic uveitis. The steroid treatment was tapered over the course of three weeks. During follow-up, ocular inflammation remitted, as did the clinical phenotype in the posterior pole (Figure 1B). Visual acuity at most recent clinic visit (5-week follow-up) remained compromised at 6/60.

Discussion

Posterior segment manifestations in syphilis can mimic those of other ocular conditions and systemic features of syphilis, such as the macular rash, may be fleeting, and therefore not always spontaneously reported by patients. Defined subtypes of posterior uveitis are however recognized with specificity to represent syphilitic posterior uveitis, particularly ASPPC.[1] This hallmark syphilitic phenotype refers to a large circular or oval placoid yellowish lesion at the level of the pigment epithelium in or near the macular area.[2] On fundus examination, there are typically only subtle features and these can easily be overlooked, especially when vitreous inflammation obscures the view. The optical coherence tomography (OCT) features of nodular, hyperreflective elevations at the photoreceptor-RPE junction are particularly characteristic of ASPPC and should prompt investigation for a diagnosis of syphilis and institution of early treatment. Following penicillin treatment, OCT imaging typically shows normalisation of the contour of the outer retinal layers, although restoration of photoreceptor function often lags the anatomical improvement.[3] Syphilis can also rarely present as a necrotizing retinitis, which, similar to ASPPC, occurs most often, but not exclusively, in HIV positive patients.[1] The confluent retinal necrosis may result in a ground-glass opacification within the retina, rather than the more densely white necrosis seen in acute herpetic retinitis.[1]

The clinical presentation in this case was unusual for ASPPC. Foremost, the presentation of necrotizing retinitis in continuity with placoid chorioretinitis in the same eye and that the patient was not immunocompromised (and pertinently HIV-negative). One previous report documented the simultaneous presentation of necrotizing retinitis in one eye and ASPPC in the other eye concurrent with neurosyphilis in a patient seropositive for HIV with a CD4+ T cell count of 127 cells/μL.[4] The diagnostic conundrum in patients presenting with ASPPC and necrotizing retinitis should lead clinicians to be vigilant for coinfections and employ empiric treatment to cover other causes of infectious retinitis and appropriately withdrawn as diagnostic results return. This case highlights that both phenotypes of posterior uveitis can present simultaneously in the same eye with syphilitic infection in an immunocompetent, HIV-negative patient.

References:

1. Furtado JM, Simões M, Vasconcelos-Santos D et al. Ocular syphilis. Surv Ophthalmol 2022;67(2):440-62.
2. Gass JD, Braunstein RA, Chenoweth RG. Acute syphilitic posterior placoid chorioretinitis. Ophthalmology 1990;97(10):1288–97.
3. Joseph A, Rogers S, Browning A et al. Syphilitic acute posterior placoid chorioretinitis in nonimmunocompromised patients. Eye 2007;21:1114-9.
4. Dodds EM, Lowder CY, Boskovich SA et al. Simultaneous syphilitic necrotizing retinitis and placoid chorioretinitis in acquired immune deficiency syndrome. Retina 1995;15(4):354-6.

Figure legend:

Figure 1: A placoid, yellowish outer retinal macular lesion (Figure 1A) was continuous with an ovoid, white full-thickness retinitis lesion temporally. The full-thickness retinitis was hypofluorescent in both the early (Figure 1B – 20 seconds) and late (Figure 1C – 20 minutes) phase of indocyanine green angiography (ICGA), whereas a well-demarcated hypofluorescent area corresponding to the placoid macular lesion was only visible in the late phase (Figure 1C). Optical coherence tomography (OCT, Topcon Corporation) demonstrated involvement of the outer retinal layers in the macula with irregular, hyperreflective, nodular elevations at the junction of the photoreceptors and the RPE associated with segmental loss of the ellipsoid layer (Figure 1E). The inner retinal architecture was preserved. The temporal retinal lesion (Figure 1F) was full-thickness and demonstrated complete panretinal loss of normal structure and contrary to the posterior pole lesion, showed adjacent cellular infiltration in the posterior hyaloid. On day 7 (3 days following first oral steroid dose and after 2 days of IV benzylpenicillin treatment – Figure 1D), marked improvement was seen of both lesions.