Bilateral papillitis and unilateral focal chorioretinitis as the presenting features of syphilis.

Christy E. Benson  
*University of Nebraska Medical Center, christy.benson@unmc.edu*

Mohamed K. Soliman  
*Assiut University*

Alexander Knezevic  
*University of Nebraska Medical Center, alexander.knezevic@unmc.edu*

Daisy D. Xu  
*Tenth People's Hospital*

Quan D. Nguyen  
*University of Nebraska Medical Center, quan.nguyen@unmc.edu*

*See next page for additional authors*

Tell us how you used this information in this [short survey](https://digitalcommons.unmc.edu/com_eye_articles/27).

Follow this and additional works at: [https://digitalcommons.unmc.edu/com_eye_articles](https://digitalcommons.unmc.edu/com_eye_articles)

Part of the [Ophthalmology Commons](https://digitalcommons.unmc.edu/com_eye_articles)

### Recommended Citation
Benson, Christy E.; Soliman, Mohamed K.; Knezevic, Alexander; Xu, Daisy D.; Nguyen, Quan D.; and Do, Diana V V., "Bilateral papillitis and unilateral focal chorioretinitis as the presenting features of syphilis." (2015). *Journal Articles: Ophthalmology*. 27.  
[https://digitalcommons.unmc.edu/com_eye_articles/27](https://digitalcommons.unmc.edu/com_eye_articles/27)

This Article is brought to you for free and open access by the Ophthalmology at DigitalCommons@UNMC. It has been accepted for inclusion in Journal Articles: Ophthalmology by an authorized administrator of DigitalCommons@UNMC. For more information, please contact digitalcommons@unmc.edu.
Authors
Christy E. Benson, Mohamed K. Soliman, Alexander Knezevic, Daisy D. Xu, Quan D. Nguyen, and Diana V V.

Do

This article is available at DigitalCommons@UNMC: https://digitalcommons.unmc.edu/com_eye_articles/27
Bilateral papillitis and unilateral focal chorioretinitis as the presenting features of syphilis

Christy Elizabeth Benson¹, Mohamed Kamel Soliman¹,², Alexander Knezevic¹, Daisy Ding Xu³, Quan Dong Nguyen¹ and Diana V Do¹*

Abstract

Background: Syphilis is a multisystem bacterial infection caused by *Treponema pallidum*. The incidence of infection in the United States has risen by more than 75% since the year 2000, when it was at a low of 2.1 per 100,000 people. Ocular involvement may occur in any stage of infection and may present in a variety of ways, with posterior uveitis being the most common manifestation. We report a case of ocular syphilis infection with an unusual presentation of bilateral non-granulomatous panuveitis with papillitis and unilateral focal chorioretinitis.

Findings: This is a retrospective case report with literature review. A 39-year-old Caucasian female presented with a 2-week history of bilateral ocular flashes and left eye pain. Dilated fundus examination revealed mild optic disc edema in both eyes, the right eye more than the left. In the left eye, there was an area of retinal elevation and whitening involving the peripheral retina. Fluorescein angiography, B-scan ultrasonography, and ocular coherence tomography were performed, and laboratory tests were ordered based on the clinical presentation. After rapid plasma reagin (RPR) and fluorescent treponemal antibody absorption (FTA-Abs) were positive, syphilitic uveitis was confirmed, and the patient was admitted for a 14-day course of high-dose intravenous penicillin G.

Conclusions: The first signs and symptoms of syphilis may be ocular, which can lead to a diagnostic challenge. A high index of suspicion is the key for early diagnosis of ocular syphilis. Prompt treatment with intravenous penicillin G is highly effective in resolving the infection.

Keywords: Syphilis; Retinitis; Chorioretinitis; Uveitis; Panuveitis; Papillitis

Findings

Syphilis is a multisystem bacterial infection caused by the spirochete *Treponema pallidum* [1]. It is primarily a sexually transmitted disease; however, contacts with an infected lesion and blood transmission are also potential routes of infection. The classic clinical course of acquired syphilis is divided into four stages: primary, secondary, latent, and tertiary syphilis [2]. The eye can be affected in any stage of infection and virtually all ocular tissues can be affected.

Uveitis occurs in approximately 10% of cases of secondary syphilis and in up to 5% of cases who have progressed to tertiary syphilis [3,4]. The uveitis that occurs with syphilis may be granulomatous or non-granulomatous [5], and it can affect one or both eyes in the anterior, intermediate, or posterior segments.

Syphilis earns its name as the ‘great masquerader’ in its ability to produce a myriad of signs and symptoms that may mimic various diseases [6]; therefore, syphilis should be kept in the differential diagnosis of ocular inflammation. Unfortunately, when ophthalmologic involvement becomes the presenting signs and symptoms, the proper diagnosis and treatment may be delayed [3,7]. Such a delay in treatment may result in irreversible visual loss and significant systemic morbidity.

* Correspondence: dianado@unmc.edu

¹Stanley M Truhlsen Eye Institute, University of Nebraska Medical Center, 3902 Leavenworth Street, Omaha, NE 68105, USA

© 2015 Benson et al; licensee Springer. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.
Case report

A 39-year-old healthy Caucasian female from rural Nebraska presented with a 2-week history of bilateral flashes and left eye pain. This was associated with redness in both eyes. The patient was generally healthy with no history of eye discharge or trauma. An extensive review of symptoms was performed, which was negative. There was no previous history of eye diseases or surgery. The patient had no chronic medical conditions.

On examination, the patient’s visual acuity was 20/20 in both eyes. Slit-lamp examination revealed 1+ conjunctival injection in the right eye and 2+ in the left eye. The corneas were clear in both eyes. Anterior chamber examination using slit-lamp biomicroscopy showed 0.5+ and 2+ cells (non-granulomatous) and flare in the right and left eyes, respectively. The pupils were equally round and reactive to light without evidence of relative afferent papillary defect in either eye. There was trace nuclear sclerosis and pigment deposits in the crystalline lens of the left eye and 1+ vitreous cell in the left eye. Intraocular pressure was within normal limits in both eyes. Fundus examination revealed mild optic disc edema in both eyes, the right eye more than the left, with 0.3 cup-to-disc ratio of both eyes. There was a subtle retinal elevation and well-defined area of whitening involving the retina in the left eye. The macula and vessels showed no visible abnormalities in either eye (Figure 1A,B).

Fluorescein angiography showed hyperfluorescence corresponding to the peripheral whitening with perivascular leakage in both eyes (Figure 2A,B,C). B-scan of the superonasal quadrant did not reveal a corresponding elevation or abnormality (Figure 3A,B). OCT of the lesion revealed retinal infiltration with hyperreflective dots (Figure 4).

Anterior chamber paracentesis was performed at the slit lamp and sent for herpes simplex virus (HSV) and varicella zoster virus (VZV) PCR and gram stain. Other lab tests were ordered including complete blood count, complete metabolic panel, erythrocyte sedimentation rate, C-reactive protein, syphilis serology, HSV and VZV titer, human immunodeficiency virus (HIV) antibodies, chest X-ray, and MRI of the brain and orbit with and without contrast. The patient was not treated with steroids while waiting for the laboratory results to return.

Acute-phase reactant was elevated, HIV antibodies were negative, and rapid plasma regain (RPR) and fluorescent treponemal antibody absorption (FTA-Abs) were both reactive. After the diagnosis was confirmed to be syphilitic uveitis, the patient was admitted for high-dose intravenous penicillin G 24 million units per day. Lumbar puncture was recommended to evaluate for CSF antibodies, but the patient declined this invasive test. After the complete 2-week course of parenteral therapy, her ocular findings resolved dramatically.

Discussion

Uveitis is the most common ocular manifestation of syphilis and is bilateral in more than 50% of cases; however, syphilitic uveitis is considered a rare cause of uveitis, accounting for 1.6% to 4.5% of cases [8].

The most common presentation of syphilitic uveitis varies between several reports [5,9,10]. According to a review article of 143 patients with syphilitic uveitis, the most common presentation is posterior uveitis followed by panuveitis [11]. Panuveitis, as seen in our case, most commonly occurs during the second stage of syphilis. Although the presentation may vary greatly between affected patients, there are certain features considered to be characteristic of syphilitic uveitis. As in our case, ground glass retinal opacification associated with retinal vasculitis is considered to be characteristic for syphilitic uveitis. Another distinctive feature described is acute syphilitic posterior placoid chorioretinitis (ASPPC) [12].

Standard testing used to screen for syphilis include non-treponemal tests of Venereal Disease Research Laboratory (VDRL) and RPR labs; however, these tests are nonspecific and may yield false positive results due to cross-reactivity. The gold standard tests used to confirm infection include FTA-Abs and dark field microscopy of the tissue [3]. Additionally, syphilis increases the risk of HIV transmission by
two to five times, and co-infection is common; therefore, every patient diagnosed with syphilis should also be tested for HIV [11].

Since the optic nerve and retina are considered to be extensions of the CNS, ocular syphilis is regarded as a variant of neurosyphilis; thus, every patient with syphilitic uveitis should undergo lumbar puncture and CSF analysis for the detection of neurological involvement [13]. However, some authors argue that this is only necessary with neurological symptoms or higher RPR titre values [14]. Cerebrospinal fluid findings indicative of tertiary syphilis include greater than five white blood cells per microliter, elevated CSF protein levels, and treponemal or non-treponemal antibodies [15].

According to the CDC, Nebraska is ranked 48 among 50 states reporting at least one case of primary and secondary syphilis with 0.4 cases per 100,000 populations compared to the U.S. rate of 5.0. The rate among males was 0.8 cases per 100,000 population compared to the U.S. male rate of 9.3. The rate among females was 0.1 compared to the U.S. female rate of 0.9 which show how rare syphilis is in this particular area.

Figure 2 Fluorescein angiography of the left and right eyes. (A) Fluorescein angiography of the left eye: early hyperfluorescence corresponding to the area of retinal whitening and haziness. (B) Fluorescein angiography of the left eye: late frame shows perivascular leakage in the same area (vasculitis) together with late hyperfluorescence of the disc. (C) Fluorescein angiography of the right eye: late hyperfluorescence and leakage from the disc.

Figure 3 B-scan ultrasound of the right and left eyes. (A) B-scan ultrasound of the right eye: elevation of optic nerve head. (B) B-scan ultrasound of the left eye: no visible elevation could be appreciated in the superonasal quadrant of the left eye.
The CDC recommends high-dose IV penicillin G 18 to 24 million units per day for 10 to 14 days. For HIV-positive patients, they also recommend an additional treatment of intramuscular benzathine penicillin at a dose of 2.4 million units weekly for 3 weeks. If severe penicillin allergic, one can consider ceftriaxone, oral doxycycline, or azithromycin. The Jarisch-Herxheimer reaction (JHR) can occur in up to a third of neurosyphilis patients following penicillin therapy [16]. The reaction usually includes fever, sweating, and temporary worsening of symptoms of disease. Some authors suggest the use of steroids prior to antibiotics in cases of severe neurosyphilis to prevent JHR [16].

Despite the rarity of the disease in certain areas, syphilis serology should be routinely done in every case of uveitis that requires investigation. Intravenous penicillin G is a highly effective treatment resulting in a dramatic improvement [17]; thus, early diagnosis and prompt treatment of syphilitic uveitis prevents potential irreversible complications.

Consent
Written informed consent was obtained from the patient.

Abbreviations
CDC: Centers for Disease Control and Prevention; OCT: optical coherence tomography; PCR: polymerase chain reaction.

Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
CEB: Acquisition, analysis and interpretation of data, and drafting the manuscript. MKAS conceived and designed the study; acquired, analyzed, and interpreted the data; and drafted the manuscript. AK wrote the abstract and participated in drafting the manuscript. DDX acquired the data. QDN revised the manuscript. DVD acquired the data, revised the manuscript, and gave final approval of the version to be published. All authors read and approved the final manuscript.

Disclosure
This paper is presented as a case report at the FIOS meeting, ARVO on May 2014 at Orlando, FL, USA.

Author details
1 Stanley M Truhlsen Eye Institute, University of Nebraska Medical Center, 3902 Leavenworth Street, Omaha, NE 68105, USA. 2 Department of Ophthalmology, Assiut University Hospital, Al Gamaa St, Assiut 71516, Egypt. 3 Tenth People’s Hospital, 301 Yanchang Road, Shanghai District, Shanghai 200072, China.

Received: 15 August 2014 Accepted: 30 March 2015
Published online: 05 June 2015

References
1. Margo CE, Hamed LM (1992) Ocular syphilis. Surv Ophthalmol 37(3):203–220
2. Deschenes J, Seamone CD, Baines MG (1992) Acquired ocular syphilis: diagnosis and treatment. Ann Ophthalmol 24(4):134–138
3. Aldave AJ, King JA, Cunningham ET Jr (2001) Ocular syphilis. Curr Opin Ophthalmol 12(6):433–441
4. Jumper JM, Machemer R, Gallemore RP, Jaffe GJ (2000) Exudative retinal detachment and retinitis associated with acquired syphilitic uveitis. Retina (Philadelphia, Pa) 20(2):190–194
5. Barile GR, Flynn TE (1997) Syphilis exposure in patients with uveitis. Ophthalmology 104(10):1605–1609
6. Meehan K, Rodman J (2010) Ocular peri-neuritis secondary to neurosyphilis. Optom Vis Sci 87(10):E790–E796, Doi:10.1097/OPX.0b013e3181f561b0
7. Kiss S, Damico FM, Young LH (2005) Ocular manifestations and treatment of syphilis. Semin Ophthalmol 20(3):161–167, doi:10.1080/08820530500232092
8. Tait IA (1983) Uveitis due to secondary syphilis. Br J Vener Dis 59(6):397–401
9. Thomas S, Wielka M, Dhar J, Bibby K (2008) Syphilis presenting as acute multifocal retino-choroiditis. J R Soc Med 99(7):371–372, doi:10.1258/jrm.2007.070371

Figure 4 OCT of the lesion: irregular retinal contour with areas of retinal elevation. The individual retinal layers could not be distinguished due to infiltration with multiple hyperreflective dots. Diffuse thickening at the retinal nerve fiber layer. Irregular vitreoretinal interface with traction by partial PVD together with moderate hyperreflective dots in the vitreous.
10. Deschenes J, Seamone C, Baines M (1990) The ocular manifestations of sexually transmitted diseases. Can J Ophthalmol J Canadien d’ophthalmologie 25(4):177–185
11. Amaratunge BC, Camuglia JE, Hall AJ (2010) Syphilitic uveitis: a review of clinical manifestations and treatment outcomes of syphilitic uveitis in human immunodeficiency virus-positive and negative patients. Clin Exp Ophthalmol 38(11):68–74. doi:10.1111/j.1442-9071.2010.02203.x
12. Gass JD, Braunstein RA, Chenoweth RG (1990) Acute syphilitic posterior placoid chorioretinitis. Ophthalmology 97(10):1288–1297
13. Browning DJ (2000) Posterior segment manifestations of active ocular syphilis, their response to a neurosyphilis regimen of penicillin therapy, and the influence of human immunodeficiency virus status on response. Ophthalmology 107(11):2015–2023
14. Libois A, De Wit S, Poll B, Garcia F, Florence E, Del Rio A, Sanchez P, Negredo E, Vandenbruene M, Clumeck N (2007) HIV and syphilis: when to perform a lumbar puncture. Sex Transm Dis 34(3):141–144, doi:10.1097/OLQ.0b013e318038f2c5
15. Jay CA (2006) Treatment of neurosyphilis. Curr Treat Options Neurol 8(3):185–192
16. Kojan S, Van Ness PC, Diaz-Arrastia R (2000) Nonconvulsive status epilepticus resulting from Jarisch-Herxheimer reaction in a patient with neurosyphilis. Clin Electroencephalogr 31(3):138–140
17. Workowski KA, Berman SM (2006) Sexually transmitted diseases treatment guidelines, 2006. MMWR Recommendations and reports: morbidity and mortality weekly report. Recommendations and reports/Centers for Disease Control SS (RR-11), pp 1–44
