CASE REPORT

Syphilis: an ancient foe with multiple faces

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SUMMARY

Syphilis can have a multitude of different ophthalmological presentations. The authors present a case of a 59-year-old man, with complaints of bilateral blurred vision starting 6 months before. His best-corrected visual acuity was 20/20 in both eyes. Ophthalmological examination revealed bilateral superotemporal retinal oedema, extending to the superior macular region, with a white stippled discolouration of the corresponding retinal pigment epithelium. Laboratory work-up confirmed the diagnosis of syphilis. The patient was treated with penicillin G benzathine—2.4 million IU intramuscular weekly for 3 weeks. After treatment, a clinical improvement of the fundus lesions was observed along with a subjective improvement in visual function. Over a 12 month follow-up period, no recurrences have occurred.

BACKGROUND

Syphilis is a complex multisystem disease with protean clinical manifestations and the ability to mimic a multitude of other diagnoses.

It is caused by the infection by *Treponema pallidum*. This pathogen cannot be easily cultivated in vitro and diagnosis usually relies on the combination of: history of exposure, clinical findings and results of serological tests.¹

Ocular syphilis is an uncommon but diagnostically important manifestation of the disease. Multiple ophthalmological findings have been described, including: retinitis, papillitis, iritis, keratic precipitates, periphlebitis, vitritis as well as serous and exudative retinal detachments.²

After the widespread availability of penicillin following World War II, there was a steady decline in the incidence of treponemal infection over the next decade.¹ There has been a re-emergence of this pathogen in recent decades, particularly with the rise of acquired immunodeficiency.^{1 3 4}

There is the possibility that the previous decrease in treponemal infections, made physicians less aware of the broad spectrum of their clinical manifestations and, therefore, increased the chances of wrong or late diagnoses.

It is crucial for the clinician to always ponder over this diagnosis and its pleiotropic presentation, since treatment is very effective and delayed intervention can have dire consequences.

CASE PRESENTATION

A 59-year-old man, with no relevant medical history, presented with complaints of bilateral blurred vision starting 6 months before. His best-corrected visual acuity was 20/20 in both eyes. Slit-lamp examination of the anterior segment was

unremarkable, with no signs of inflammation. Fundus examination revealed a bilateral superotemporal retinal oedema, extending to the superior macular region, with a white stippled discolouration of the corresponding retinal pigment epithelium (RPE; figure 1), without vitritis. On the right eye, the macular involvement was more prominent.

The patient denied any previous form of skin rash, mucocutaneous lesions, fever, myalgias or arthralgias. He also denied being immunocompromised. General examination with special emphasis on the oral and genital regions revealed no mucocutaneous lesions such as ulcers or condiloma lata.

A complete neurological examination was performed in a neurology clinic and no significant findings were reported.

He denied engaging in promiscuous sexual activity and mentioned his wife as being his only sex partner. She was notified and underwent serological studies for syphilis.

INVESTIGATIONS

Optical coherence tomography showed a serous foveal detachment on the right eye and normal foveolar area in the left eye (figure 2A).

Fundus autofluorescence showed granular hypoautofluorescent lesions scattered in the posterior pole, surrounded by stippled areas of hyperautofluorescence (figure 2B).

Fluorescein angiogram showed early hyperfluorescence in the regions of RPE changes, with late leakage. Hyperfluorescence of the optic disc, with late leakage was present. Segmental enhancement of venous walls was also observed (figure 2C).

A venereal disease research laboratory test (VDRL) was positive, with a 1/64 titre and reactive serum fluorescent treponemal antibody absorbed test (FTA-ABS). Serological tests for other infectious agents such as Bartonella, Borrelia, herpes simplex virus, varicella zoster virus and HIV-1 and HIV-2 were negative. Sedimentation rate was 11 mm/h. ACE and lysozyme were normal. An interferon γ -release assay (IGRA) was also negative.

The patient was referred to a urology clinic where urethral swabs were performed, excluding infection by *Chlamydia spp* or *Neisseria spp*.

DIFFERENTIAL DIAGNOSIS

- ▶ Ocular syphilis
- ▶ Ocular tuberculosis
- ▶ Cat-scratch disease

Ocular syphilis can have a variety of ophthalmological presentations. Vitritis is the most common clinical finding described for ocular syphilis and is present in 63% of patients.⁵ Retinitis is present in 54% of cases, vessel sheathing in 29% and disc

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Figure 1 Ultrawidefield fundus photograph at presentation.

oedema in 13%.⁵ This patient presented with bilateral chorioretinitis, papillitis and vasculitis, without prodromal symptoms and he denied promiscuous sexual behaviour. Diagnosis was confirmed by a positive VDRL and FTA-ABS assay.

Ocular involvement by *Mycobacterium tuberculosis* can be associated with a vast range of clinical findings. Disseminated choroiditis is the most common presentation, being characterised by the presence of multiple, deep, yellowish lesions, located primarily in the posterior pole. It may be accompanied by disc oedema, nerve fibre layer haemorrhages, vitritis and anterior segment involvement.⁶ Other presentations are possible, namely as large focal choroidal mass (tuberculoma). Ocular tuberculosis diagnosis requires a high degree of clinical suspicion. This diagnosis was excluded by a negative IGRA test.

Bartonella hensellae is the main aetiological agent of cat-scratch disease. Ocular involvement can be included in the oculoglandular syndrome—unilateral granulomatous conjunctivitis and regional lymphadenopathy. The best-known posterior

segment manifestation is neuroretinitis, which includes optic disc oedema and neuroretinitis. The most common posterior segment manifestation is, however, focal retinochoroiditis. Our patient had bilateral involvement with discrete optic disc oedema, retinal oedema and RPE changes, but no macular star figure. Similarly, signs of vasculitis were present in the retinal angiogram, which does not support the diagnosis. Also, no prodromal flu-like syndrome and no regional adenopathy were present. Finally, serology was negative.

TREATMENT

The patient was treated with penicillin G benzathine—2.4 million IU intramuscular weekly for 3 weeks.

OUTCOME AND FOLLOW-UP

After treatment, a clinical improvement of the fundus lesions was observed (figure 3), along with a subjective improvement in visual function.

Figure 2 (A) Optical coherence tomography; (B) fundus autofluorescence and (C) fluorescein angiogram at presentation.

Figure 3 Ultrawidefield fundus photograph and autofluorescence, optical coherence tomography and fluorescein angiography, 3 months after the initial evaluation.

Over a 12-month follow-up period, no recurrences have occurred. Serum VDRL titre decreased to 1/8.

DISCUSSION

Ocular syphilis can present very differently from patient to patient. It is a diagnosis that should always be considered in any form of intraocular inflammation, since treatment is effective and delayed intervention can be catastrophic.

Ocular syphilis is a form of neurosyphilis.⁷ Cerebrospinal fluid analysis can play a role in diagnosis and prognosis in this group of patients.¹ We avoided performing lumbar puncture, since we felt that it would neither add to the diagnosis nor change the therapy instituted.

Penicillin remains the gold standard for treatment. Some authors propose different regimens, particularly in what concerns route of administration.²⁻⁷ We opted for a regimen more favourable posologically, ensuring compliance while maintaining safety and efficacy.²

Learning points

- ▶ Ocular syphilis can assume multiple clinical presentations.
- ▶ Ocular syphilis is a form of neurosyphilis.
- ▶ Penicillin G benzathine—2.4 million IU intramuscular weekly for 3 weeks can be an effective therapeutic regimen in this group of patients.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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