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Address for correspondence: Dr SD Pande, Changi General Hospital, 2 Simei Street 3, Singapore 529889. Email: shrikantpande@yahoo.co.uk

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lesson of the month (2)

Considering syphilis in aseptic meningitis

Clinicians need to consider syphilis in the differential diagnosis of macular or papular rashes with neurological conditions, particularly aseptic meningitis, as early diagnosis and treatment lead to a better prognosis.

Lesson

In March 2007 a 45-year-old heterosexual male presented to the medical assessment unit with a three-week history of headaches, occasional vomiting and more recent confusion. He had no previous medical problems except a recent history of a widespread rash, which was treated by his general practitioner as chickenpox. On examination there was a faint macular rash over his entire body, including palms and soles, no neurological deficit or signs of meningial irritation. Routine baseline blood tests were normal and a computed tomography (CT) head scan showed evidence of a small lacunar infarct in the left occipital lobe. A lumbar puncture was performed and cerebral spinal fluid (CSF) analysis showed a white cell count of 208×10^6 cells/l (predominantly lymphocytes), a normal glucose and a raised protein of 2.3 g/l. Bacterial stains and culture were negative as were blood cultures. Polymerase chain reaction for varicella zoster, herpes simplex and enterovirus were negative. He was treated empirically with intravenous acyclovir and ceftriaxone for three days before all these culture results were available. He subsequently made a very good recovery. As part of a screen for other causes of aseptic meningitis, syphilis serology was requested which was positive for immunoglobulin M (IgM) antibody and venereal disease research laboratory (VDRL) was positive with a titre of 1:64. This was confirmed with a repeat sample. The patient therefore continued treatment with ceftriaxone for two weeks. As part of contact tracing his wife, who was asymptomatic, was screened for syphilis and was found to have positive serology. She was treated with a standard regime of benzathine penicillin. On follow-up, both showed good responses serologically and both patients tested negative for HIV.

Sarup Tayal, consultant, Department of Genito-Urinary Medicine; **David Chadwick,** consultant, Department of Infectious Diseases and Travel Medicine; **Girish Chawla,** GP specialty training registrar, Department of Genito-Urinary Medicine

The James Cook University Hospital, Middlesbrough

Discussion

Syphilis is an important and growing public health problem: there were 3,702 new cases diagnosed in the UK during 2006,[1] a dramatic increase from the 301 reported cases in 1997. The effects of untreated or inadequately treated infection include serious cardiovascular and neurological disease. In addition, still birth and congenital syphilis may complicate pregnancy. Antibiotic treatment is very effective and antibiotic resistance rates are very low. Neurosyphilis may present in a number of ways. Aseptic meningitis usually occurs in secondary syphilis, while late neurosyphilis may present with neuropsychiatric disorders, cerebrovascular accidents, uveitis or optic neuritis, myelopathy or tabes dorsalis, cranial neuropathies or seizures.[2] In the pre-antibiotic era tabes dorsalis was the most common presentation.[3] In a large study of neurosyphilis in the 1970s, most cases were asymptomatic and the remainder had atypical syndromes; only 49% had a reactive non-treponemal serum test for syphilis. Since then diagnostic assays have improved considerably. The syphilis serology tests include non-treponemal (usually the rapid plasma reagin or the VDRL) and treponemal (the treponema pallidum particle agglutination (TPPA) or

hemagglutination (TPHA) test). The false positive tests are more likely with non-treponemal tests and are confirmed with additional specific treponemal tests to exclude it. False positive results can still occur due to Lyme's disease, rheumatoid arthritis, malignancies, HIV or drugs; false negative results may also occur in patients with HIV.[4] Imaging of the brain can sometimes aid diagnosis.[5] Our patient had evidence of a lacunar infarct in the occipital area on scanning, which was unlikely to have been due to neurosyphilis, since he presented with secondary syphilis. Aqueous crystalline penicillin for 10 to 14 days is the ideal treatment for neurosyphilis, however, ceftriaxone or other forms of penicillin are often effective.

Patients may be partially treated for syphilis inadvertently, commonly with penicillins for respiratory or urinary tract infections, or with third generation cephalosporins for suspected bacterial meningitis or pneumonias, possibly leading to atypical presentation. All patients with secondary syphilis need to be followed up after treatment with serological markers (VDRL) for any evidence of therapeutic failure, and patients with neurosyphilis need follow-up CSF serology. Partner testing and treatment is of paramount importance. In conclusion, clinicians need to consider syphilis in the differential diagnosis of macular or papular rashes and most neurological conditions, particularly aseptic meningitis. Early diagnosis and treatment will lead to a better prognosis.

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Address for correspondence: Dr SC Tayal, Department of Genito-Urinary Medicine, The James Cook University Hospital, Middlesbrough TS4 3BW.
Email: Sarup.Tayal@stees.nhs.uk

Lesson of the month

Authors please note – due to the popularity of this feature, we now have sufficient papers to publish until 2011, and are no longer accepting submissions for lesson of the month until further notice.