Pearls & Oy-sterS: Neurosyphilis presenting as mesial temporal encephalitis

CLINICAL PEARL Neurosyphilis can present with a myriad of signs and symptoms. Mesial temporal lobe inflammation is a rare and under-recognized presentation of neurosyphilis that may mimic viral or limbic encephalitis. Concomitant HIV infection is common and may change the presentation of neurosyphilis.

CASE REPORT A 51-year-old right-handed Caucasian man presented with a 3-week history of personality change the presentation of neurosyphilis.

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meningitis, strokes, vertigo, optic neuritis, or uveitis. It typically occurs within the first year after acquisition of the infection. The pathophysiology involves an acute meningovascular and ocular inflammation resembling other infectious, inflammatory, or autoimmune processes of the CNS. Late or tertiary neurosyphilis is characterized by chronic infection of the brain parenchyma or the posterior columns of the spinal cord. This may lead to forgetfulness and personality changes known as general paresis, and impaired proprioception and gait imbalance termed tabes dorsalis.1

General paresis typically has a progressive course and presents many years after a treponemal infection. It is unclear when our patient was initially exposed to syphilis. To his wife’s knowledge, he had engaged in promiscuous homosexual intercourse 6–8 months prior to his presentation. Furthermore, general paresis is not known to be associated with mesial temporal lobe inflammation mimicking that of herpes encephalitis and paraneoplastic limbic encephalitis. This atypical presentation of neurosyphilis along with the unknown time of infection make it difficult to classify under the classic stages of neurosyphilis. It was previously believed that parenchymal involvement occurs in the late tertiary stages of neurosyphilis after 3–15 years of the initial infection.1

Although untreated HIV may spread to the CNS and cause insidious cognitive and behavioral changes, it is unknown to cause destructive temporal lobe lesions and seizures. The absence of other infectious and inflammatory agents and the rapid improvement on brain MRI (figure 2) following antibiotics point toward an aggressive treponemal CNS infection as the main culprit. Mesial temporal lobe involvement secondary to neurosyphilis has already been described in the literature.2–5 It is unclear what causes the T2 hyperintensity changes in the mesial temporal lobes of those patients. It is believed that the marked meningovascular inflammation causes vasogenic, cytotoxic, and interstitial edema to occur. Also, the infection-induced small-vessel ischemic changes cause gliosis to ensue.2 To our knowledge, none of the other similar cases2–5 with neurosyphilis were also found to have HIV and it is unclear what role this concomitant infection may have played, if any.

The association between neurosyphilis and HIV infection is an important one because both can be a consequence of promiscuous sexual behavior. It is thought that the genito-ulcerative chancres seen in syphilis increase the risk for viral entry during unprotected sexual intercourse. Also, the increased concentration of T cells at the site of the chancres augments the possibility of the HIV virus infecting and replicating in the host cell.1 In patients with concomitant HIV infection, neurosyphilis may progress in an aggressive and often atypical manner.1,6 It has been suggested that the course of syphilis in HIV-infected men may be altered as a result of potentiating effects of HIV on the T pallidum...
infection.7,6 According to the Centers for Disease Control and Prevention treatment guidelines, it is recommended that HIV-infected patients with neurosyphilis undergo follow-up CSF examination every 3–6 months until the cell count normalizes.7,8 One study found that HIV-infected patients with neurosyphilis are at least 2.5 times less likely to normalize the CSF-VDRL reactivity after penicillin treatment. The risk is even higher if the CD4+ T-cell count is <200 cells/μL.9 The estimated incidence of symptomatic neurosyphilis among HIV-infected persons with early syphilis was found to be 3–4 times higher (2.1% vs 0.6%) as compared with HIV-negative persons.10

Although believed to be rare, neurosyphilis should be part of the initial diagnostic workup of an atypical and rapidly progressive dementia. It should be considered in the differential diagnosis of diseases mimicking HSV and limbic encephalitides. Clinical outcome of patients diagnosed with this condition varies but early recognition and treatment are crucial to prevent further cognitive decline and morbidity.

AUTHOR CONTRIBUTIONS
Kader T. AbdeleRahman, MD, treated the patient in this case report and wrote the presented case report. Dolores D. Santamaria, MD, treated the patient in this case report and provided references for the case report. Goran Rakocevic, MD, treated the patient in this case report, provided references, and made several revisions to the case report.

DISCLOSURE
The authors report no disclosures relevant to the manuscript. Go to Neurology.org for full disclosures.

REFERENCES
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Neurology 2012;79:e206-e208
DOI 10.1212/WNL.0b013e318278b5a1

This information is current as of December 10, 2012