Neurosyphilis Manifesting as Longitudinally Extensive Transverse Myelitis

Sir,

Syphilis, caused by *Treponema pallidum* infection, is a sexually transmitted disease[1] typically presenting with fever, skin lesions, lymphadenopathy, and variable neurological symptoms.[2] Spinal cord affliction in syphilis includes tabes dorsalis (prototypical presentation), meningomyelitis, and meningovascular disease.[3] Less than 15 cases of meningomyelitis associated with neurosyphilis have been described in the literature.[1] We report a case of syphilitic meningomyelitis with longitudinally extensive transverse myelitis (LETM).

A 27-year-old gentleman developed progressive weakness and sensory loss of both lower limbs, urinary, and bowel retention over 6–7 days, with onset 6 weeks back. He complained of a band-like sensation around his nipples. He had no history of vision loss, hiccups, vomiting, fever, rashes, joint pains, photosensitivity, orogenital ulcerations, and dog bite. He had no history of neurological deficits in the past.

On examination, his lower limbs were flaccid with Medical Research Council (MRC) grade 0/5 power. He had decreased sensation below D5 with hyper-reflexia in both upper and lower limbs and non-elicitable plantar, abdominal and cremasteric reflexes.

A presumptive diagnosis of cervico-dorsal myelitis was made. His routine investigations were normal. Magnetic resonance imaging (MRI) brain and spine, with contrast, revealed a longitudinally extensive T2/FLAIR hyperintensity extending from the cervico-medullary junction till the conus, involving more than two-thirds of the cross-sectional area with cord expansion [Figure 1a]. Post-contrast enhancement was seen in the lower cervical (C6–C7) and dorsal (D3–D9) regions [Figure 1b]. MRI brain was normal. Serum aquaporin-4 and myelin oligodendrocyte glycoprotein antibodies were negative. Cerebrospinal fluid (CSF)

examination revealed 160 cells (all lymphocytes), protein: 223 mg/dl, and sugar: 40mg/dl (corresponding blood sugar 120 mg/dl). CSF was negative for cryptococcal antigen, India Ink, Gram stain, culture, oligoclonal bands, and malignant cytology but was positive for venereal disease research laboratory (VDRL). Serum VDRL and treponema pallidum hemagglutination (TPHA) were positive. Serum angiotensin-converting enzyme, antinuclear antibody, ANCA, and viral markers for human immunodeficiency virus (HIV), hepatitis B and C were negative.

A diagnosis of neurosyphilis was made, and the patient was started on parenteral Ceftriaxone (2gm twice a day for 2 weeks) and pulse methylprednisolone (1 gram) for 5 days, followed by gradual taper of oral prednisolone. On repeated inquiry, he provided the history of multiple, unprotected sexual exposures in the past 5 years. The patient's power improved to MRC grade 3/5 at 3 months following treatment, repeat MRI showed significant resolution [Figure 1c and d] and CSF examination revealed normalization of VDRL and pleocytosis.

A diagnosis of neurosyphilis can be made by a positive CSF VDRL test as it is specific for neurosyphilis, in the presence of a reactive serum treponemal test (as evidence of past or active syphilis).[4,5] CSF VDRL positivity is highly specific albeit 30–70% sensitive for neurosyphilis and is considered the gold standard.[4] CSF treponemal tests have higher sensitivity but lower specificity for neurosyphilis and do not distinguish between active disease and previous infection (once positive, they remain positive).[4] Most symptomatic neurosyphilis (in the absence of HIV infection) reveals lymphocytic pleocytosis (mild to moderate) with increased protein on CSF testing.[4] Our patient had similar CSF findings and was positive for VDRL and TPHA in both CSF and serum. Neurosyphilis can rarely present as LETM due to meningomyelitis. Thirteen cases of syphilitic meningomyelitis (one with concomitant HIV infection) have been reported in literature till date, eleven of whom had LETM. Most patients were male with a mean age of 42.6 years and a symptom duration between 3 days and 6 months.[1] Our patient probably had latent syphilis prior to myelitis, which converted to active meningomyelitis due to an unknown trigger.[1] The gadolinium enhancement was probably indicative of treponemal invasion into the spinal cord from the surface inwards and its associated inflammation.[6] Treatment with steroids might have led to resolution of this inflammation causing some symptomatic improvement. However, incomplete recovery might be indicative of concomitant spinal cord ischemic insult caused by meningovascular syphilitic affliction.[6]

One must consider neurosyphilis as a differential diagnosis of LETM, especially with an inflammatory CSF picture, meningeal spinal cord enhancement, and negative serology for neuromyelitis optica spectrum and myelin oligodendrocyte glycoprotein-associated disorders. Patients might deny the history of exposure or symptoms of early syphilis, and clinical suspicion is imperative for early diagnosis and treatment which might improve outcomes.

Learning points

1. Neurosyphilis can present as LETM
2. Neurosyphilis should be considered as a differential diagnosis in all inflammatory disorders of the central nervous system as it is a great mimicker.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other

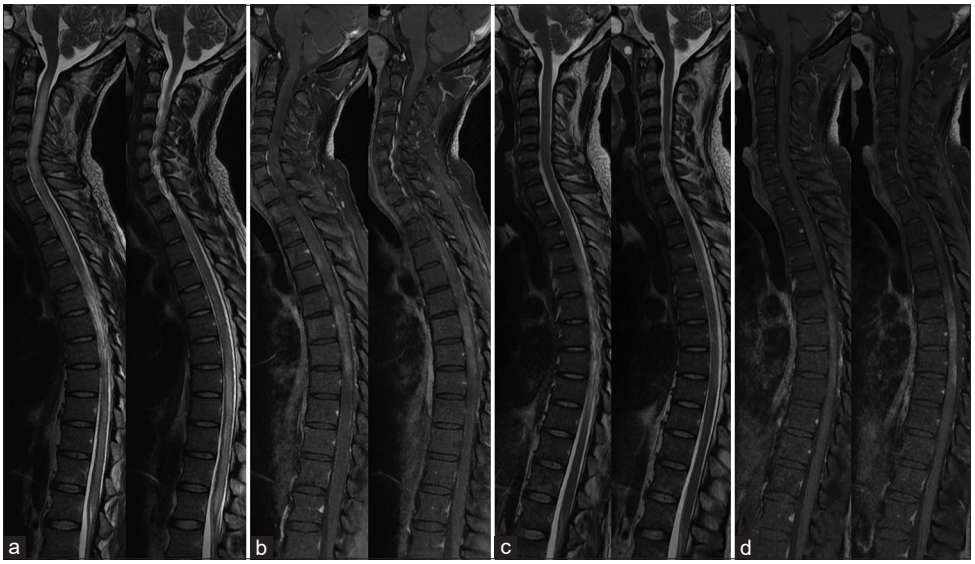

Figure 1: Sagittal T2-WI (a) shows longitudinally extensive intramedullary T2-hyperintensity extending from the cervico-medullary junction till the conus with cord expansion. Following contrast administration, sagittal (b) T1-WI shows patchy enhancement in the lower cervical and dorsal regions. In a follow-up MRI done after 3 months, sagittal T2-WI (c) shows a significant reduction in the extent of cord signal change. Post-gadolinium T1-WI (d) shows patchy subtle enhancement extending from D5 to D9 region, a considerable decrease compared to the previous MRI

clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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