Oh the Nerve: A Paralyzing Trickster in the Immune Deficient Patient

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Introduction :

Neurosyphilis is an infection of the central nervous system by the bacterial spirochete *Treponema pallidum* (*T. pallidum*). Neurosyphilis of the spinal cord mainly include tabes dorsalis and syphilitic myelitis (SM). SM is an extremely rare manifestation of neurosyphilis in either immunocompetent or immunosuppressed individuals. Only a few cases of SM have been documented. Here we report a case of SM with an unusual presentation in an immunocompromised patient.

Learning Objective

To recognize syphilitic myelitis (SM), an unusual complication of neurosyphilis.

Case Description:

A 37-year-old male presented with bilateral lower extremity weakness for 2-weeks, causing him to be bed bound, with onset of sharp bilateral lower back pain, mid-thigh numbness, and urinary incontinence. He had been HIV positive for 10-years with a female sexual partner.

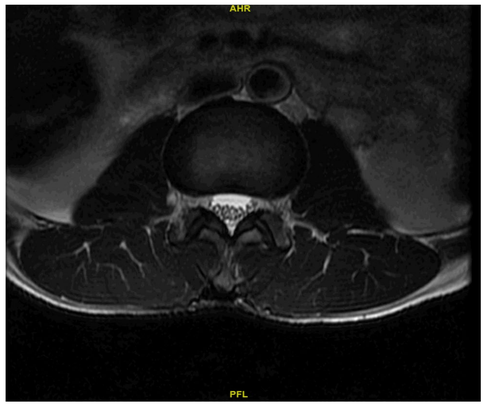
Neurological Exam:

- Significant for bilateral lower extremity weakness (0/5 on both sides) with normal muscle tone and without muscular atrophy.
- Clonus and hyperreflexia were noted in both lower limbs.
- Sensory and vibration were intact to touch and equal in all extremities.

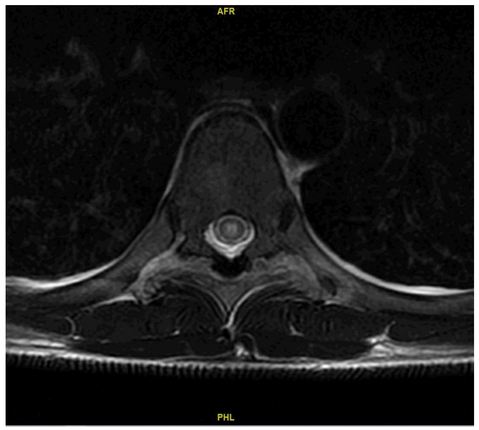
Admission Labs:

- Leukopenia - WBC of 2.6 [4.8 - 10.8 K/uL]
- Absolute CD4 count of 43 [490 - 1,740 cells/uL]
- Elevated CRP of 1.30 [0.70 - 1.00 mg/dL]
- ESR of 91 [0 - 15 mm/hr]
- Serum glucose of 96 [74 - 106 mg/dL]

Magnetic Resonance Imaging with Contrast of the Spine



MRI of the **lumbar** spine (axial view) revealed a marrow infiltrative or replacement process with enhancement of the nerve roots of the cauda equina.



MRI of the **thoracic** spine (axial view) showed a long segment of signal abnormality involving the thoracic cord from T2 to T8 levels, favoring myelitis.

Empiric therapy with steroids and antibiotics (moxifloxacin, sulfamethoxazole-trimethoprim and vancomycin due to penicillin allergy) was started.

CSF analysis showed: WBC of 222 mm^3 with 99% lymphocytes, glucose of 29 mg/dL, and elevated protein of 390 mg/dL. CSF VDRL was reactive (titer of 1:128), FTA IgG/IgM were reactive.

The patient was started on penicillin G IV 24 million units per day for 14-days. Paraplegia remained as sequelae and the patient was transferred to a rehabilitation facility on Benzathine penicillin G intramuscular for 3 weeks.

Discussion:

Syphilitic myelitis (SM) is an extremely rare manifestation of neurosyphilis in either immunocompetent or immunosuppressed individuals. Thus, there is a paucity of published data related to the condition's treatment, follow-up, and prognosis. The condition is often misdiagnosed and is poorly understood. Elmouden and colleagues reported 12 cases of medullary involvement of neurosyphilis. To our knowledge, their reporting provides the best data available regarding the incidence or prevalence of SM.

Diagnosing SM is difficult because it mimics other conditions that present with longitudinally extensive myelopathy, and some of the reported manifestations such as sensory disturbance, paraparesis, and urinary retention. Concomitant HIV infection is documented in 25% of SM cases. SM has clinical polymorphism, and a concomitant immunosuppressive state may alter its characteristics. Serology and CSF might be positive for VDRL/treponema pallidum particle agglutination, both were reported positive in our patient. MRI can show abnormal hyperintensities. Neurologic states and MRI findings may demonstrate improvement after a 16-day penicillin course and high-dose prednisolone.

Syphilis is known to be "The Great Imitator" because it features nonspecific symptoms and may be confused with other conditions. Our patient presented with an infiltrative spinal cord lesion, for which the differential diagnosis is broad. Neurosyphilis must be considered in cases of CSF pleocytosis associated with HIV-positive status.

References:

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