

# Syphilitic Myelitis as a Rare Manifestation of Syphilis: A Case Report

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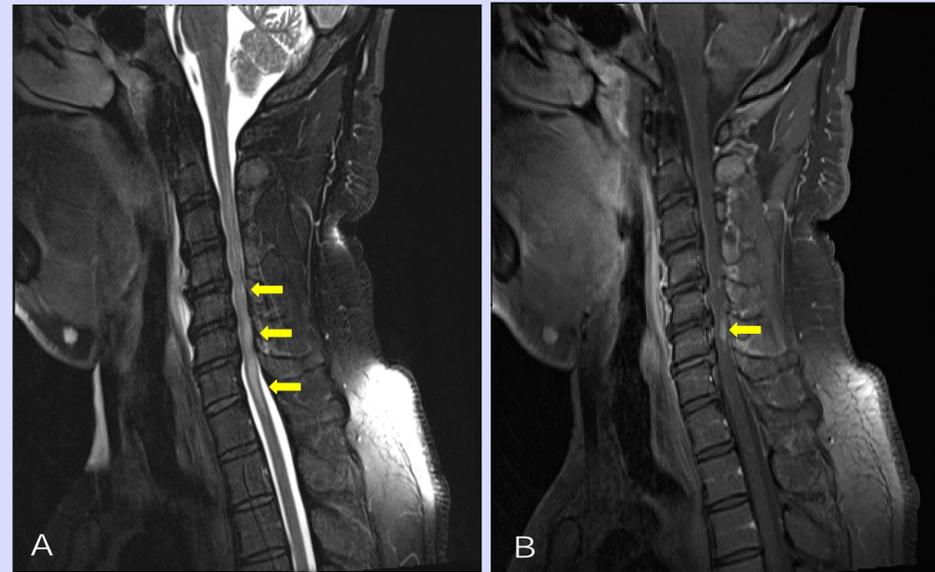


## ABSTRACT

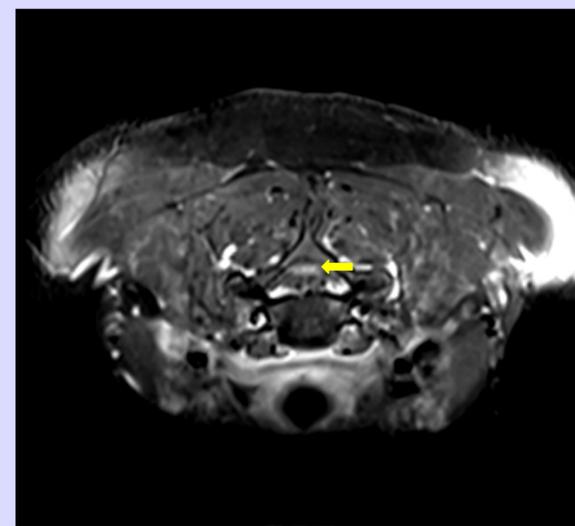
With the introduction of penicillin, the progression of syphilis to neurosyphilis has been relatively rare. We describe a case of a 41-year-old HIV-positive African-American male with history of cocaine abuse and treated syphilis, who presented with left-sided weakness, numbness, and tingling of his left upper and lower limbs. On neurologic examination, the patient presented with left upper and lower limb weakness with decreased sensation to light touch and pinprick below the C5 level. Left-sided areflexia and decreased left lower limb proprioception were also noted. Head computed tomography showed no acute intracranial pathology; however, the MRI of the spine demonstrated spinal cord edema at C3 through T1 levels with focal spinal cord enhancement at C6. Blood and CSF tests revealed a reactive RPR/TPHA and a CSF VDRL of 1:1. The patient was diagnosed with syphilitic myelitis, a relatively uncommon cause of atraumatic spinal cord injury and a rare manifestation of syphilis. With 2 million units of intravenous penicillin G for fourteen days along with rehabilitation, the patient progressed functionally to an independent level and was discharged home. Response to treatment was subsequently monitored by measuring RPR titers. Since syphilitic myelitis represents approximately 3% of all neurosyphilitic cases, diagnosing it is problematic as it mimics other causes of paresis, weakness, and paresthesia, such as stroke, acute demyelinating diseases, CNS infections, acute transverse myelitis, and spinal cord infarction. However, if syphilitic myelitis is suspected from known risk factors, then appropriate imaging and laboratory tests should be performed (treponemal tests, CSF, and MRI). Although rarely reported, this case report highlights that syphilis may lead to atraumatic spinal cord injury, and therefore this potentially treatable disease should not be overlooked.

## CASE DESCRIPTION

A 41-year-old African-American HIV-positive male with history of cocaine abuse and treated syphilis presented to the hospital after being found unconscious for an unknown amount time. Upon awakening, the patient complained of weakness in his left arm and leg with associated numbness and tingling. Upon further investigation, the patient admitted to consuming a large quantity of alcohol as well as cocaine use. He reported a subsequent loss of balance and fall onto his coffee table. The patient did not remember any events thereafter and otherwise denied bowel or bladder incontinence, recent infection or recent travels. He also denied any prior history of weakness, balance or coordination problems. *Physical Examination:* Manual muscle testing revealed 4/5 at the left upper and lower limbs with decreased sensation to light touch and pinprick below the C5 level. Left-sided areflexia and right-sided hyporeflexia with decreased left lower limb proprioception were also noted. *Imaging:* Head computed tomography showed no acute intracranial pathology; however, the MRI of the spine demonstrated spinal cord edema at C3 through T1 levels with focal spinal cord enhancement at C6. *Laboratory Studies:* Blood and CSF tests revealed a reactive RPR/TPHA and a CSF VDRL of 1:1 with elevated CSF WBC and CSF IgG. CD4 count was 449. *Diagnosis:* The patient was diagnosed with syphilitic myelitis. *Rehabilitation and Treatment:* The patient was given 2 million units of intravenous penicillin G for fourteen days. He made remarkable improvement in ambulation and strength after rehabilitation in physical and occupation therapy and was discharged home at an independent level.



**Figure 1.** (A) Sagittal T2-weighted image of the cervical spinal cord shows long-segment diffuse high signal intensity at C3-T1 with spinal cord edema. (B) Sagittal T1-weighted image with contrast shows a focal spinal cord enhancement at C6.



**Figure 2.** Axial T1-weighted image with contrast revealing a focal spinal cord enhancement at C6.

## DISCUSSION

Syphilitic myelitis is a rare manifestation of neurosyphilis, representing less than 3% of neurosyphilitic cases. Generally, early neurosyphilis involves the meninges and intracranial blood vessels (i.e. syphilitic meningitis), whereas late neurosyphilis involves the brain and spinal cord (i.e. tabes dorsalis). However, syphilitic myelitis can also be present in patients with syphilis.

Syphilitic myelitis is more common in males than females, and typically presents in the age group between 20-40. Symptoms of syphilitic myelitis generally occur approximately within six years of *T. pallidum* infection, especially in patients inadequately treated for syphilis, or immunocompromised patients, such as HIV. The pathogenesis involves *T. pallidum* invading the spinal cord, leading to parenchymatous infection, inflammation, and ischemia with subsequent cord infarction.

The diagnosis of neurosyphilis and syphilitic myelitis is based on a CSF WBC count of greater than or equal to 20 $\mu$ L and/or a reactive CSF VDRL results and/or a positive CSF intrathecal *T. pallidum* antibody index. MRI of the spinal cord demonstrates long-segment diffuse high-intensity abnormality on T2-weighted images. Focal enhancements are also noted on spinal cord segments, representing ischemic changes caused by *T. pallidum*. However, these findings are non-specific since other causes of spinal infarction will have similar results such as cocaine use, viral myelitis, tumors, arteritis, and Guillain-Barré syndrome. The high-intensity abnormality seen on MRI will disappear with successful treatment of syphilitic myelitis.

If untreated, prognosis for these patients is poor. The recommended guideline treatment for neurosyphilis is 2-4 million units of aqueous penicillin G IV per day for 10-14 days. Moreover, corticosteroids, such as prednisone, may be considered to prevent cord edema, ischemia, or Jarisch-Herxheimer reaction.

Patients treated are recommended to follow-up with RPR titers in order to evaluate for treatment efficacy, by noting decreasing dilutions of RPR. Also, HIV-positive patients with neurosyphilis may require serial lumbar puncture every 6 months after antibiotic treatment to monitor the response to therapy.

## CONCLUSION

Syphilitic myelitis is most often times overlooked, where it can mimic other causes of paresis, weakness, and paresthesia, such as stroke, acute demyelinating diseases, CNS infections, acute transverse myelitis, and spinal cord infarction. With known risk factors along with appropriate imaging and laboratory studies, this disease is easily identifiable and treatable.

## REFERENCES

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