Subacute transverse myelitis caused by Borrelia infection

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Subacute transverse myelitis is a neurologic syndrome caused by inflammation of the spinal cord. It can be caused by various infections, including *Borrelia burgdorferi*, the bacteria causing Lyme disease. Immune system disorders, vascular and other inflammatory disorders can also trigger the condition which damages or destroys myelin, an insulating substance that surrounds nerves, including those in the brain and spinal cord. [1]

It's estimated that "transverse myelitis with infectious or parainfectious etiology accounts for 12%" of all cases, writes Opielka. *Borrelia burgdorferi* is one of the infectious agents known to trigger the disease. But in 40% of the cases, the cause is unknown.

Typical symptoms associated with transverse myelitis include bilateral or unilateral limb weakness, sensory disturbances, and disruption of the autonomic system. Approximately 1 in 3 patients with transverse myelitis report having a febrile illness around the onset of neurologic symptoms.

Diagnostically challenging case

The authors describe the case of a 23-year-old woman, [2] who was admitted to the hospital due to hand tremors and paresthesia (burning or prickling sensation) which extended to her forearms. She did not, however, exhibit upper arm weakness.

The woman also had severe pain in the mid-cervical region and for 3 months prior, had suffered from nausea and vertigo.

She experienced transient periods of double vision when looking at distant objects. And reportedly had a fever which lasted for 2 days several months prior to her hospital admission. She did not recall a tick bite.

"The clinical presentation of our patient was diagnostically challenging," the authors write.

"The only indicator of a possible tick bite was an episode of raised temperature, followed by symptoms of neck stiffness and pain reported by the patient." Furthermore, a long period of time elapsed between the onset of symptoms and hospitalization.

Tests indicate elevated intracranial pressure

Tests revealed the patient had bilateral papilloedema (optic disc swelling caused by increased intracranial pressure) and bilateral diffuse thickening of the retinal fiber nerve layer in all quadrants.

"Blurred optic margins and several flame-like peripapillary hemorrhages were observed in both eyes," as well, writes Opielka.

Based on nerve conduction study findings, “radiculopathy of nerve roots of both peroneal nerves and the right median nerve was diagnosed. Furthermore, sensory neuropathy of both sural nerves and the right median nerve was also detected,” the authors write.

Routine blood tests were normal, but Western blot tests for Lyme disease were positive.

MRI results indicated the patient had “longitudinally extensive (> 3 segments) enlargement of the spinal cord mostly visible from C3 to C6/C7 level.”

Images also showed a hyperintense, spindle-like lesion in the central part of the spinal cord.

“An MRI of the optic nerve disclosed bilateral protrusion of the optic nerve heads, slight vertical tortuosity of both optic nerves, and bilateral hyperintense perioptic nerve sheath,” the authors explain.

“Together these signs could indicate elevated intracranial pressure,” writes Opielka.

Lyme infection triggers subacute transverse myelitis

Meanwhile, cerebral spinal fluid (CSF) tests detected antibodies against *Borrelia burgdorferi* (*Bb*). “The titers of anti-Bb IgM and IgG antibodies were significantly increased,” the authors write.

The woman was diagnosed with subacute transverse myelitis due to *Borrelia burgdorferi* infection. She received a 28-day course of intravenous (IV) ceftriaxone and her symptoms completely resolved.

“Our patient presented typical manifestations of [subacute transverse myelitis] SaTM with segmental swelling and enlargement of the spinal cord,” the authors write.

Additionally, she displayed another rare and frequently overlooked aspect of Lyme neuroborreliosis – optic nerve involvement.

Conclusion

“It is essential to consider [subacute transverse myelitis] SaTM when diagnosing [Lyme neuroborreliosis] LNB, especially in the endemic regions,” the authors conclude.

“Moreover, symptoms associated with optic nerve should also be considered when diagnosing patients with [Lyme neuroborreliosis] LNB.”

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References:

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