

Acute Quadriparesis Due to Radiculoneuropathy with Meningitis - An Unusual Presentation of Scrub Typhus

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Introduction

Scrub typhus can present with various types of neurological manifestations. The most common neurological manifestations are meningitis, meningoencephalitis, seizures, delirium, cerebellitis, myelitis, opsoclonus, isolated VI nerve palsy, VII nerve palsy, and brachial plexopathy. Incidence of neurological involvement is reported in 12.5% of cases. The most commonly reported neurological manifestation is meningoencephalitis. Radicular and peripheral involvement is very rare in scrub typhus. We present a 41-year-old male with meningoencephalitis and radiculoneuropathy as acute presenting features of scrub typhus infection.

Case Report

41-year-old male, a mason by occupation, presented with fever for one week and altered mentation for three days with vomiting. No history of any co-morbidities. The patient was not on any medications or had no adverse social habits. The patient is residing in a forest area.

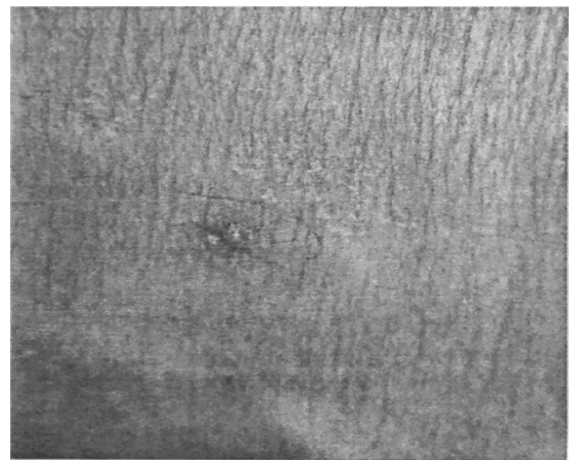
On examination, the patient was febrile, not icteric, and hydration status was normal. GCS was 12/15 with E3V4M5. Neck stiffness and meningeal signs were present. The patient had an eschar in the lower back. He also had blanching erythema. Basic investigations revealed thrombocytopenia of 78,000 and anemia. Mild transaminitis was evidenced with normal renal function.

With history and initial investigation, meningitis was suspected. USG abdomen was done, and mild ascites and gall bladder wall edema were demonstrated. Serological profiles for scrub typhus, dengue, and leptospirosis were sent. The

patient was started on Doxycycline. CSF analysis showed regular sugar (56mg/dl), elevated proteins (142 mg/dl), and globulin were positive. CSF smear was a cellular. Scrub IgM ELISA was positive. CSF ADA was 3U/L.

In the meantime, the patient progressively worsened mentation and hyponatremia, which were corrected per protocol. The patient had minimal weakness in all four limbs with predominant involvement of the right upper limb (predominantly proximal) with retained reflexes. Sensory, cranial nerve, and cerebellar examination was normal. The initial fundus examination was normal.

Local causes for right upper limb weakness were ruled out. MRI brain showed age-related cerebral cortical atrophic changes. There was no meningeal enhancement. In MRI cervical spine, there was no neural foraminal narrowing or nerve root compression, but it disclosed thickening of the inferior trunk of the right brachial plexus.



The patient improved gradually with two weeks course of Doxycycline and Azithromycin. Other manifestations, such as pancreatitis,

myocarditis, skeletal muscle involvement, deafness, and ocular involvement, were ruled out by appropriate investigations.

	CV (m/s)	F Wave Latency (mS)
Median Rt	50.53	25
Ulnar Rt	63.03	32.8
Peroneal Lt	42.74	61.88
Tibial Lt	32	57.88

A nerve conduction study revealed prolonged distal latency, F wave latency, and reduced CMAP and SNAP in bilateral tibial, peroneal, ulnar, and median nerves, suggestive of dominant demyelinating motor neuropathy.

Discussion

Scrub typhus has a broad spectrum of neurological manifestations, including meningitis, meningoencephalitis, cerebral infarction, CVT, cerebellitis, cranial neuropathy, peripheral neuropathy, polyradiculopathy, myelitis, opsoclonus myoclonus, etc. Our patient had meningeal and peripheral nervous system involvement in the form of polyradiculopathy, as proven by a nerve conduction study. Tuberculous meningitis, and viral meningoencephalitis are essential differential diagnoses to be ruled out in case of CNS involvement. Mechanism of nervous system involvement seems immune-mediated, as Orientatsutsugamushi elicits widely ranged cellular and humoral immune responses leaving a high probability of antibody response against an auto or cross antigen. In the Indian population,

eschars are found more commonly in the inguinal region, trunk, and lower extremities. The common typhus illnesses are leptospirosis, dengue, typhoid, malaria, borreliosis, etc.

Conclusion

Considering the vast array of neurological and non-neurological manifestations of Scrub typhus, it is important to be vigilant to pick up the subtle signs for making the diagnosis as it is highly responsive to appropriate treatment, which is readily available and cost-effective. The mortality rate was very high in the pre-antibiotic era, reaching 42 percent. This case is reported for its rarity, as both peripheral and central nervous systems are involved.

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