

Unveiling the Unconventional: Exploring Atypical Manifestations of Scrub Typhus

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ABSTRACT

Scrub typhus is a rickettsial illness caused by *Orientia tsutsugamushi*. It is a common cause of undifferentiated febrile illness, especially in the Indian subcontinent, usually with multiorgan involvement, though central nervous involvement is rare. Here, we demonstrate a case of a young female who presented with fever, headache, vomiting, and seizures. Her examination was remarkable for generalized blanchable macular rash, opsochonus–myoclonus along with neck rigidity and mild epigastric tenderness. Contrast-enhanced magnetic resonance imaging brain was suggestive of leptomeningitis. She also had mild pancreatitis, transaminitis, thrombocytopenia, and transaminitis. Given the ongoing tropical fever burden in Northern India, further workup was done and enzyme-linked immunosorbent assay anti-scrub typhus immunoglobulin M came as positive. Doxycycline along with supportive treatment was started, and all signs and symptoms improved gradually.

Key words: Myoclonus, Opsochonus, Pancreatitis, Rickettsial, Scrub typhus

Scrub typhus is a mite-borne infection caused by *Orientia tsutsugamushi*. *O. tsutsugamushi* is maintained by transovarial transmission in trombiculid mites. The disease is transmitted by the bite of the larval form of the trombiculid mite. Illness ranges in severity from self-limiting to life-threatening disease. The onset is marked by fever, headache, myalgia, cough, and gastrointestinal symptoms after an incubation period of 6–21 days. A typical eschar where the mite has fed, along with localized lymphadenopathy, and a maculopapular rash are all part of the standard case description [1]. Life-threatening complications include pneumonia, myocarditis, acute kidney injury, disseminated intravascular coagulation, and septic shock [2]. Neurological manifestations are increasingly being described from different parts of the world but mostly are seizures and aseptic meningitis. Opsochonus is among the rarer neurological manifestations [3]. Similarly, acute pancreatitis is also a rare presentation of scrub typhus and can prove fatal if not detected early.

This case report highlights the significance of early detection of uncommon complications of scrub typhus and their timely management for better outcomes.

CASE REPORT

An 18-year-old female presented with complaints of high-grade intermittent fever associated with a headache for 10 days, along

with multiple episodes of vomiting and two episodes of generalized tonic-clonic seizure. The patient has had no significant history.

On examination, the patient was drowsy but arousable with a toxic appearance and nuchal rigidity. Ophthalmological examination showed bilateral pupils of equal size and reactive to light but there were conjugate jerky chaotic multi-directional eye movements consistent with opsochonus. Myoclonic jerks were also present in all four limbs with normal tone and power. Palatal myoclonus was absent. Mild epigastric tenderness was elicitable per abdominal examination.

Complete blood count showed leukocytosis with mild anemia and normal platelets (Table 1). Her kidney function tests were within normal range but the liver function tests showed mild transaminitis with markedly raised alkaline phosphatase (420 U/L). C-reactive protein and erythrocyte sedimentation rates were raised (34.10 and 47, respectively). Procalcitonin on the 2nd day of admission was 0.72 ng/mL. Serum lipase and amylase were sent because of the frequent vomiting episodes and stomach pain; the results showed that the levels were 321 U/L and 267 U/L, respectively, 3 times the usual upper limit and consistent with pancreatitis. Ultrasound of the abdomen also showed mild ascites with few internal echoes and splenomegaly. Magnetic resonance imaging brain with contrast showed leptomeningitis bilateral cerebral hemispheres (Fig. 1). Hence, cerebrospinal fluid (CSF) analysis was also done. CSF cytology revealed a white blood cell count of 10/mm³ and biochemistry revealed glucose and protein levels of 120 mmol/L and 150 mg/dL, respectively. All the above-mentioned findings raised the suspicion for tropical

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Table 1: Laboratory values of the patient

Laboratory parameters	Reference range	Day 1	Day 5	Day 8
TLC	4.0–10.0 (10 ³ /uL)	21.3	12.5	11.5
Hb	12.0–17.0 (g/dL)	9.8	11.4	10.3
Platelets	150–450 (10 ³ /uL)	260	484	642
Urea	10.0–50.0 (mg/dL)	44	20	134
Creatinine	0.5–1.1 (mg/dL)	0.70	0.55	0.51
Na	136.0–148.0 (mmoL/L)	138	135	134
K	3.5–5.0 (mmoL/L)	4.57	4.38	4.21
Cl	96.0–106.0 (mmoL/L)	103	99	99
Bilirubin (total)	0.0–1.2 (mg/dL)	0.58	0.39	0.66
Bilirubin (direct)	0.0–0.3 (mg/dL)	0.34	0.27	0.21
SGOT	0.0–40.0 (U/L)	84	82	122
SGPT	0.0–41.0 (U/L)	64	87	127
ALP	40.0–129.0 (U/L)	420	271	236
Total proteins	6.6–8.7 (g/dL)	7.2	8.3	8.0
Albumin	3.5–5.2 (g/dL)	2.87	3.65	3.35
CRP (quantitative)	0.0–6.0 (mg/L)	34.10		0.06

TLC: Total leucocyte count, Hb: Hemoglobin, Na: Sodium, K: Potassium
Cl: Chloride, SGOT: Serum glutamic-oxaloacetic transaminase, SGPT: Serum glutamate pyruvate transaminase, ALP: Aspartate aminotransferase, CRP (quantitative): c-reactive protein

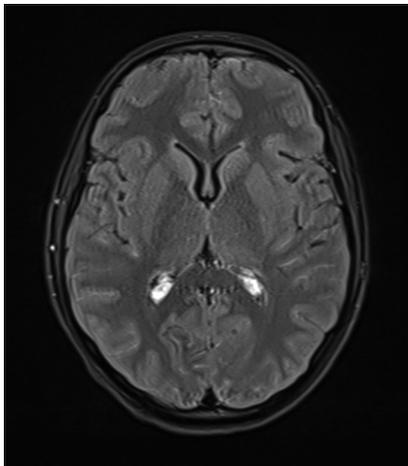


Figure 1: Contrast-enhanced magnetic resonance imaging brain showing leptomenigeal enhancement in bilateral cerebral hemispheres

fever in the presence of a heightened burden of tropical fever cases in the region. Dengue immunoglobulin M (IgM), leptospira IgM, and chikungunya IgM serologies done by enzyme-linked immunosorbent assay came negative but the scrub typhus IgM came positive (25.48 optical density).

The patient was managed with doxycycline 100 mg 12 hourly, ceftriaxone 2 g 12 hourly, levetiracetam 500 mg 12 hourly, paracetamol 500 as per need, and other supportive treatment. Pancreatitis was managed conservatively. Gradually, the patient improved and was discharged in stable condition after 11 days of hospital stay.

DISCUSSION

Scrub typhus is a zoonotic illness substantially prevalent in a huge region of Asia, including India, Japan, Indonesia, and other

countries [2]. Scrub typhus contributes significantly to the tropical fever cases in the Northern region of India. Scrub typhus presents with a wide range of clinical symptoms [4], and in the early stages, it can be challenging to rule out other possible causes. Leptospirosis, dengue fever, and enteric fever diagnoses, among others, should all be taken into account. Patients in Southeast Asia, like the one in our instance, may frequently lack the eschar at the bite site [2], which is thought to be suggestive of the illness.

The mechanism possible is antigen-mediated vasculopathy due to endothelial cell invasion by the organism that can affect a broad range of organ systems, leading to potentially life-threatening disease [5]. Scrub typhus can masquerade as acute abdomen [6]. It can cause peritonitis, acalculous cholecystitis, pancreatitis, etc. Seven patients with scrub typhus-related acute pancreatitis were documented in a north Indian study [7].

A study done by Sardana *et al.* [8] mentions neurological complications of scrub typhus. One of its complications is also opsoclonus myoclonus syndrome (OMS). The etiology of para-infectious OMS is typically summarized as scrub typhus [3], however, it frequently presents as a paraneoplastic illness. This case was also managed on lines of para-infectious OMS. Her further workup to rule out malignant or autoimmune etiology was not done as the symptoms resolved after the treatment.

CONCLUSION

In the regions with endemicity of tropical fevers, varied symptoms of scrub typhus should never be missed. Early diagnosis and timely treatment can prevent deadly complications and reduce the mortality burden from rickettsial diseases.

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