Case Report

Scrub typhus presenting as acute undifferentiated febrile illness in a 12-year-old child from northeast india: A case report

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ABSTRACT

Scrub typhus is an important cause of acute undifferentiated febrile illness in children residing in endemic regions of India. Its diagnosis is often challenging because of non-specific clinical manifestations and the absence of classical signs such as eschar. We report the case of a 12-year-old boy from Northeast India who presented with persistent high-grade fever, generalized weakness, and reduced oral intake. Clinical examination revealed mild bilateral pedal edema without rash, eschar, hepatosplenomegaly, or neurological abnormalities. Initial empirical treatment with intravenous ceftriaxone failed to produce significant clinical improvement. Further evaluation demonstrated elevated inflammatory markers and positive Scrub Typhus Immunoglobulin M serology, confirming the diagnosis. The child was treated with intravenous doxycycline 65 mg twice daily, followed by oral doxycycline, resulting in rapid defervescence and marked clinical recovery within 48 h. This case highlights the importance of maintaining a high index of suspicion for scrub typhus in children presenting with prolonged fever in endemic areas, even in the absence of classical clinical findings. Early diagnosis and timely initiation of doxycycline therapy are essential for preventing severe complications and ensuring favorable outcomes.

Key words: Doxycycline therapy, Endemic region, Scrub typhus

Scrub typhus is a zoonotic rickettsial disease caused by *Orientia tsutsugamushi* and transmitted by infected larval trombiculid mites [1]. It is increasingly recognized as a major cause of acute undifferentiated febrile illness in children across endemic regions of India [2,3]. Clinical manifestations are often non-specific, leading to diagnostic delay and increased risk of complications [4]. Pediatric patients may present with fever, myalgia, edema, gastrointestinal symptoms, rash, or organ dysfunction [4]. Although eschar is considered characteristic, it is absent in many pediatric cases [5]. Early recognition and timely doxycycline therapy are associated with favorable outcomes and reduced mortality [2,6].

The present case is reported because the child presented solely as an acute undifferentiated febrile illness with non-specific symptoms, making the diagnosis challenging. The case emphasizes the need for early consideration of scrub typhus in the differential diagnosis of prolonged fever in endemic regions of Northeast India. It demonstrates the favorable response to timely doxycycline therapy.

Access this article online	
Received - 28 May 2026 Initial Review - 19 June 2026 Accepted - 16 July 2026	Quick Response code
DOI: 10.32677/ijcr.v12i8.8307	

CASE REPORT

A 12-year-old boy weighing 29 kg presented with an 8-day history of persistent high-grade fever associated with generalized weakness and reduced oral intake. There was no history of rash, respiratory distress, bleeding manifestations, seizures, altered sensorium, or urinary complaints. No pallor, icterus, lymphadenopathy, hepatosplenomegaly, or eschar was identified.

On admission, the child was conscious and hemodynamically stable. Mild bilateral pedal puffiness was noted. Cardiovascular and respiratory examinations were unremarkable, and neurological examination revealed a Glasgow Coma Scale score of 15/15 without focal deficits. Initial differential diagnoses included enteric fever, malaria, dengue, viral febrile illness, leptospirosis, and rickettsial infection [2,4,7]. Persistence of fever despite empirical therapy prompted further evaluation for tropical infections.

Investigations of the patient are shown in Table 1. The patient was initially managed with intravenous ceftriaxone 100 mg/kg/day in two divided doses along with supportive care, including intravenous fluids, paracetamol 15 mg/kg as needed for fever, pantoprazole 10 mg/kg OD, and ondansetron 0.15 mg/kg/dose as

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Table 1: Diagnostic investigations of the patient

Investigation	Result
Complete blood count	Inflammatory process suggested
C-reactive protein	Elevated
Malaria test	Negative
Scrub Typhus Immunoglobulin M	Positive
2D Echocardiography	Normal

required. Baseline investigations revealed elevated inflammatory markers. Malaria testing was negative. Further evaluation for tropical febrile illness showed positive Scrub Typhus immunoglobulin M serology, confirming the diagnosis [2]. Intravenous doxycycline 65 mg every 12 h was initiated.

The child demonstrated significant clinical improvement within 48 h, with a reduction in fever and improvement in appetite and activity [5,8]. Two-dimensional echocardiography did not reveal cardiac involvement. No adverse effects related to doxycycline therapy were observed. The patient was discharged in stable condition on oral doxycycline and supportive medications with advice for follow-up.

DISCUSSION

Scrub typhus is increasingly recognized as a major cause of pediatric acute febrile illness in endemic regions of India [2,3]. Diagnosis remains challenging because the disease frequently presents with non-specific symptoms and the absence of eschar [4].

The pathogenesis of scrub typhus involves widespread endothelial infection leading to vasculitis and perivasculitis. This explains the multisystem involvement observed in severe disease. Delayed diagnosis may result in myocarditis, hepatitis, meningoencephalitis, acute respiratory distress syndrome, acute kidney injury, shock, and multiorgan dysfunction syndrome. Recognition before the onset of complications significantly improves outcomes.

Delayed diagnosis may lead to severe complications, including myocarditis, encephalitis, shock, acute respiratory distress syndrome, and multiorgan dysfunction syndrome [6,9]. In this case, the absence of organ-specific manifestations and poor response to empirical ceftriaxone therapy necessitated further evaluation for tropical infections. Positive serology and rapid clinical response to doxycycline established the diagnosis [5].

Doxycycline remains the treatment of choice for pediatric scrub typhus and is associated with rapid clinical improvement [2,5,10]. Early clinical suspicion and prompt initiation of therapy are critical in preventing morbidity and mortality. This case emphasizes the need for heightened awareness of scrub typhus among pediatricians practicing in endemic areas, particularly in children presenting with prolonged fever without an obvious source of infection. Northeast India represents an endemic zone for scrub typhus. Increased awareness among pediatricians and primary care physicians can facilitate early diagnosis, reduce unnecessary investigations, and prevent morbidity.

Reporting such cases contributes to improving recognition of the disease and reinforces the need to include scrub typhus in the differential diagnosis of prolonged fever in children. Similar pediatric studies have demonstrated fever, gastrointestinal symptoms, edema, and elevated inflammatory markers as common presenting features, whereas eschar is inconsistently observed.

The clinical course of the present patient and the rapid response to doxycycline are consistent with previously reported pediatric case series. From a public health perspective, continued surveillance, improved diagnostic facilities, and clinician education are essential. Increased awareness can facilitate early diagnosis and treatment, thereby reducing morbidity and mortality associated with this potentially serious but treatable infection.

CONCLUSION

Scrub typhus should be considered in all children presenting with prolonged undifferentiated fever in endemic areas, even in the absence of eschar or other classical findings. Early diagnosis and prompt initiation of doxycycline therapy can lead to rapid clinical recovery and prevent life-threatening complications.

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Funding: Nil; Conflicts of interest: Nil.

How to cite this article: Kalita D, Gohain D. Scrub Typhus Presenting as Acute Undifferentiated Febrile Illness in a 12-Year-Old Child from Northeast India: A Case Report. Indian J Case Reports. 2026;12(8):522-523.