

Case Report

Scrub Typhus Presenting as Subdural Haemorrhage in a Child: A Rare Case Report

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A B S T R A C T

Scrub typhus is an infectious bacterial zoonotic disease caused by *Orientia tsutsugamushi* and transmitted by a mite endemic to many parts of Asia. It typically presents as an acute febrile illness with rash, lymphadenopathy, and eschar but can involve multiple organs. Neurological manifestations are being increasingly recognised, ranging from meningitis to encephalitis, though intracranial haemorrhage remains extremely rare. We report a 5-month-old male child with scrub typhus complicated by subdural haemorrhage - a presentation seldom described in paediatric literature. This case highlights the importance of clinical suspicion and timely intervention in endemic areas.

Keywords: Scrub typhus, Subdural haemorrhage, *Orientia tsutsugamushi*, neurological complications, Paediatrics

Introduction

Scrub typhus is an acute febrile illness caused by *Orientia tsutsugamushi*, a gram-negative intracellular bacterium transmitted through the bite of infected chigger mites.¹ It is prevalent across the Asia-Pacific region, particularly in rural and forested areas.² The disease presents with varied clinical features, including fever, myalgia, rash, lymphadenopathy, hepatosplenomegaly, and eschar, a skin lesion after the site of the chigger's bite.³ Severe cases can lead to multiorgan dysfunction, involving the liver, kidneys, lungs, and central nervous system.

Neurological complications, though rare, have been increasingly recognised and include meningitis, meningoencephalitis, cerebellitis, acute disseminated encephalomyelitis and cranial nerve palsies.^{4,5} However, haemorrhagic complications, such as subdural or intracranial haemorrhage, are exceptionally rare, especially in children.

⁶Here, we present a rare case of scrub typhus with subdural haemorrhage in a 5-month-old child, emphasising the importance of recognising atypical neurological manifestations for early diagnosis and treatment.

Case Description

A 5-month-old male infant was admitted to the paediatric emergency department with a 3-day history of high-grade fever, generalised tonic-clonic seizures, and altered sensorium. There was no history of head trauma, recent vaccination, prior seizures or hospitalisation.

On examination, the child was febrile (temperature 39.6°C) and drowsy but haemodynamically stable with blood pressure 80/60 mm Hg, pulse rate 110 beats/min, and respiratory rate 24 breaths/min. Oxygen saturation was 98% in room air. On skin examination, eschar was present over the left hand (Figure 1). No petechiae or rashes were present.

Neurological assessment revealed altered consciousness but no focal deficits. Cranial nerves and deep tendon reflexes were normal. There were no signs of meningeal irritation, such as neck rigidity or a positive Kernig's sign. Respiratory, cardiovascular, and gastrointestinal systems were unremarkable.

Given the acute febrile encephalopathy, differential diagnoses considered were malaria, dengue, and scrub typhus.



Figure 1. Eschar present over left hand



Figure 2. T1- weighted image demonstrated subdural collections along the bilateral frontoparietotemporal convexities, appearing hyper intense, suggestive of subdural haemorrhage. The maximum thickness of the subdural collection measured approximately 10.5 mm on the right and 11.6 mm on the left

Investigations Haematological parameters

Haemoglobin was 9.4 g/dL, and the total leukocyte count was 13,500/mm³, with a differential leukocyte count of

45% lymphocytes and 52% neutrophils. The platelet count was 60,000/mm³.

Liver function tests

Serum glutamic-oxaloacetic transaminase (SGOT) was 358 IU/L, serum glutamic - pyruvic transaminase (SGPT) was 162 IU/L, alkaline phosphatase (ALP) was 261 IU/L, and total bilirubin was 0.6 mg/dL.

Renal function tests

Blood urea was 16 mg/dL, and serum creatinine was 0.4 mg/dL.

Coagulation profile

Prothrombin time (PT) was 54.2 seconds, activated partial thromboplastin time (APTT) was 31.8 seconds, and international normalised ratio (INR) was 5.4, indicating marked coagulopathy. D-dimer and fibrin degradation products were normal.

Chest X-ray

The chest X-ray was normal.

Cerebrospinal fluid examination

CSF examination showed normal cytology and biochemistry, with sterile culture.

Serological investigations

Dengue IgM, IgG, and NS₁ antigen were negative. Peripheral smear for malaria was negative, whereas scrub typhus IgM ELISA was positive.

Neuroimaging

Contrast Enhanced Magnetic Resonance Imaging (CEMRI) of the brain demonstrated subdural hemorrhage along the bilateral fronto-parieto-temporal convexities, with maximum thickness of approximately 10.5 mm on right and 11.6 mm on left. Thick irregular dural and leptomeningeal enhancement was noted on the left side, suggesting inflammatory vasculitic changes secondary to infection (Figure 2).

Management

The child was started on intravenous doxycycline at a dose of 2.2 mg/kg/dose twice daily as specific therapy for scrub typhus. Intravenous mannitol was administered for raised intracranial pressure, and intravenous phenytoin was given for seizure control. Empirical anti-malarial therapy was initiated initially and discontinued after malaria testing returned negative. Fresh frozen plasma and vitamin K were administered to correct the coagulopathy. Supportive management included fluids, antipyretics, and close neurological monitoring.

Clinical Course

By the fifth day of hospitalisation, the child showed marked improvement in sensorium, was afebrile, had ceased seizures. Repeat investigations revealed improving liver function and coagulation profile. The patient was discharged after 10 days in stable condition with advice for follow-up. A diagnosis of scrub typhus with subdural haemorrhage was confirmed.

Discussion

Scrub typhus should be considered an important differential diagnosis in cases of acute febrile illness with neurological symptoms in endemic areas. Classically, scrub typhus presents with fever, rash, lymphadenopathy, and eschar; however, atypical presentations involving the central nervous system are increasingly reported.^{1,2,4,7}

The pathogenesis of neurological complications in scrub typhus involves endothelial damage and vasculitis, leading to increased vascular permeability and inflammation of small blood vessels in the brain. The occurrence of subdural haemorrhage may result from microvasculitis, thrombocytopenia, and coagulopathy, as seen in this patient.^{3,5,6}

Only a handful of cases have been reported in the literature documenting intracranial haemorrhage associated with scrub typhus.^{3,6} In most, the underlying mechanism involved vasculitic injury of meningeal vessels and thrombocytopenia. Our case adds to the limited paediatric data and demonstrates that even in the absence of meningeal signs, scrub typhus can present with intracranial bleeding.

Prompt recognition of this entity and early initiation of doxycycline are crucial, as delayed treatment may result in serious complications or mortality.^{8,9} The excellent response in our patient following doxycycline and supportive care reinforces the importance of timely management.

Conclusion

Clinicians should maintain a high index of suspicion for scrub typhus in children presenting with acute febrile illness and neurological manifestations, especially in endemic regions. Even in the absence of classical eschar, the diagnosis should be considered when laboratory findings suggest vasculitic or haemorrhagic involvement. Early diagnosis and prompt therapy with doxycycline can be lifesaving and prevent severe complications such as subdural haemorrhage.

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