



ACUTE PANCREATITIS AS A COMPLICATION OF SCRUB TYPHUS: A RARE CASE REPORT

General Medicine

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ABSTRACT

Scrub typhus, a rickettsial infection, is widespread across much of India and can lead to multi-organ failure and death. Scrub typhus is transmitted through the bite of chigger larvae, specifically *Leptotrombidium deliense*, and is caused by the bacterium *Orientia tsutsugamushi*. Common clinical features include fever, headache, lymphadenopathy, and the characteristic black eschar. Acute pancreatitis, though extremely rare, is a serious and potentially fatal complication of the disease. Here, we discuss a case report of a 25-year-old adult male who developed acute renal failure, pancreatitis, and severe sepsis due to scrub typhus. This case underscores the importance of recognizing and addressing rare complications of common tropical infections to ensure the best possible outcomes.

KEYWORDS

Scrub typhus, *Orientia tsutsugamushi*, Acute febrile illness, Acute pancreatitis

INTRODUCTION

Scrub typhus, also referred to as bush typhus or tsutsugamushi disease, is a zoonotic infection transmitted to humans via the bite of trombiculid mites. These mites go through four life stages: egg, larva, nymph, and adult. The disease is only spread during the larval stage, as infected larvae (chiggers) can transmit it to humans and other animals. The responsible pathogen is *Orientia tsutsugamushi*, a Gram-negative intracellular organism that can infect individuals of all ages, including children. Humans serve as accidental hosts in this zoonotic infection, with an estimated one billion people at risk and approximately one million cases reported annually.[1] Scrub typhus is becoming a significant public health concern, particularly in the Asia-Pacific region and the "tsutsugamushi triangle," a 13-million square kilometer area stretching from Pakistan and India to the Pacific islands. Mortality rates for the disease vary from less than 1% to as high as 50%, depending on the timeliness of antibiotic treatment, the patient's health status, and the specific strain of *O. tsutsugamushi* involved.[1] The disease is frequently observed in rural areas of India, particularly among farmers, geologists, and military personnel. The incidence of scrub typhus is affected by rainfall, as the number of chiggers attached to rodents tends to increase during the wetter months of the year. This likely contributes to the higher concentration of cases seen during the rainy season, symptoms of scrub typhus infection typically include fever accompanied by chills, headache, dyspnea and lymphadenopathy. An eschar often forms at the site of the bite. The disease can present in a variety of ways, with potential complications such as pneumonia, acute renal failure, disseminated intravascular coagulation, and septic shock. Although rare, acute pancreatitis has occasionally been documented as a complication of scrub typhus.[2] Abdominal involvement is widely recognized in scrub typhus, with symptoms such as nausea, vomiting, and abdominal pain frequently reported. Approximately 22% of patients experience abdominal pain, which in some cases necessitates surgical exploration.[3] However, in recent years, there has been an increase in the incidence of scrub typhus in Rajasthan. Here, we present a rare case involving a young patient with scrub typhus, thrombocytopenia, and acute pancreatitis.

CASE STUDY

A 25-year-old male from a rural area who is neither diabetic nor hypertensive was admitted to the I.C.U. at Ananta Hospital of Medical Sciences and Research Centre in Rajsamand, Rajasthan. He presented with intermittent high-grade fever with chills for the past 7 days along with abdominal pain, vomiting, and shortness of breath for the last 5 days, and a decreased appetite during the same period. There was no notable past medical history of seizures, head injuries, or substance abuse. On admission, His vital signs were abnormal his pulse rate was 140/min, blood pressure was 70/46 mmHg, respiratory rate was 36

breaths/min, oxygen saturation (SpO₂) was 91% on room air. Temperature was 103.4°F (axillary). On general physical examination, the patient showed no signs of anemia, cyanosis, jaundice, clubbing, or peripheral edema. There was no hepatomegaly and no rash. The patient was conscious and completely oriented to time, place, and person. The neurological assessment revealed intact cranial nerves, normal deep tendon reflexes, and a negative Babinski's sign. No signs of meningeal irritation, including neck stiffness or a positive Kernig's sign. Auscultation of the lungs revealed normal vesicular breath sounds with bilateral rhonchi present. Given the patient's acute febrile illness, a provisional diagnosis of malaria, dengue fever, or scrub typhus was considered.

Routine blood investigations show acute kidney injury, thrombocytopenia, and elevated liver enzymes. Arterial blood gas (ABG) analysis indicated type 1 respiratory failure. The patient underwent investigations for acute febrile illness. Results for dengue IgG, IgM, and NSI antigen were negative, malaria parasites were negative, and scrub typhus IgM test returned positive. An initial abdominal ultrasonography conducted after admission revealed hepatomegaly (16.6cm) with grade II fatty changes, and splenomegaly (14.4cm), with no pancreatic abnormalities detected. Then patient continued to experience persistent abdominal pain, prompting a repeat ultrasound on the fourth day. This abdominal ultrasonography revealed hepatomegaly (16.4cm) with grade II fatty changes, splenomegaly (14.3cm), and a bulky visualized head of the pancreas. (Serum amylase and lipase tests were recommended for further correlation).

Additionally, there was increased echogenicity of the bilateral renal cortices, prompting a recommendation for renal function tests (RFT). Serum amylase and serum lipase sent on day 4 were recorded at 514 u/l and 906 u/l respectively. Therefore, based on clinical features, laboratory parameters, and radiological investigations, the patient was diagnosed with acute pancreatitis.

Based on diagnosis of scrub typhus with acute kidney injury, type I respiratory failure, and pancreatitis, the patient was treated with intravenous doxycycline 100mg twice a day, intravenous ceftriaxone 1gram twice a day, along with intravenous fluids and symptomatic management, and among other supportive care. The patient required oxygen support for an initial 3 days after which he was gradually weaned off, and lung function returned to normal. The patient's renal function improved markedly within three days and returned to normal by the fifth day of admission. The patient's platelet count progressively normalized by the fifth day of hospitalization. The patient's general condition improved, and the patient's serum lipase and serum amylase levels returned to normal following which the patient was discharged

on day 8th. At a one-week follow-up, all symptoms had resolved. Laboratory investigations during the hospital stay are summarized in Table 1.

Table 1: Investigations from day 1 to day 8 of admission								
Investigation	Normal value	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 8
Hemoglobin (g/dL)	11.5-14.5	14.1	12.0	11.1	11.4	11.7	11.5	11.9
Hematocrit (%)	35-45	30.4	30.6	31.7	32.7	34.1	33.6	32.7
Platelets (/mL)	150,000-400,000	70,000	81,000	63,000	90,000	175,000	223,000	356,000
TLC (mL)	4000-11,000	11,000	11,000	6300	6000	5200	6600	7500
Total bilirubin (mg/dL)	0.2-1.3	0.95	—	—	—	0.55	0.48	—
Direct bilirubin (mg/dL)	0-0.3	0.51	—	—	—	0.23	0.21	—
AST (U/L)	5-35	108	—	—	—	82	71	—
ALT (U/L)	13-41	80	—	—	—	63	61	—
ALP (U/L)	40-130	71	—	—	—	60	54	—
Urea (mg/dL)	15-40	80.4	82.7	50.6	40.5	33.3	28.2	—
Creatinine (mg/dL)	0.7-1.4	3.1	2.1	0.9	0.8	0.7	0.7	—
Amylase (U/L)	40-140	—	—	—	514	—	—	254
Lipase (U/L)	0-160	—	—	—	906	—	—	186



DISCUSSION

In India, scrub typhus was first observed among troops during World War II in Assam and West Bengal, as well as during the Indo-Pak war of 1965. The disease has been documented in various regions, including northern India (the sub-Himalayan belt from Jammu to Nagaland and Himachal Pradesh), eastern India (Assam, West Bengal), and southern India (Tamil Nadu, Kerala). In Rajasthan, there has been a significant rise in cases over the last 5 to 7 years. While traditionally a disease of rural areas, more urban cases have been reported in recent years. Scrub typhus primarily occurs during the rainy season (July to October), though sporadic cases are seen year-round. The clinical presentation can range from a mild, self-limiting illness to a severe, potentially fatal condition. The incubation period generally ranges from 6 to 21 days. [1] Symptoms of scrub typhus can include fever, headache, muscle aches, maculopapular rash, generalized lymphadenopathy, and pneumonia. Gastrointestinal symptoms may involve acute abdominal pain, gastric ulcers, hepatitis, jaundice, and hepatosplenomegaly. Additionally, the presence of an eschar at the site of the chigger bite is a key diagnostic feature, though its occurrence ranges between 46% and 85%. [5] Clinical suspicion, along with serological testing is essential for diagnosing scrub typhus. The Weil-Felix test is known for its high specificity but lower sensitivity, while ELISA is used to identify specific antibodies. Complications associated with scrub typhus may include pneumonitis, acute respiratory distress syndrome, acute renal failure, myocarditis, and septic shock. [2] Although less commonly recognized, pancreatitis is a rare complication of scrub typhus. Pancreatitis related to scrub typhus has been associated with a notably high mortality rate, estimated to be around 43%. Similar to other complications of scrub typhus, the underlying mechanism of pancreatitis is believed to involve an inflammatory process, likely driven by vasculitis. [6] Early treatment leads to better outcomes and quicker recovery compared to delayed intervention. Treatment for scrub typhus is usually initiated based on clinical suspicion. The first-

line treatment is doxycycline, 3mg per kg per day for seven days. An alternative option is chloramphenicol at a dosage of 500 mg administered four times daily. For patients not responding to conventional treatment, rifampicin at 600 mg daily for a week has shown effectiveness. Azithromycin has been found to be effective in doxycycline-resistant strains of scrub typhus. While oral antibiotics are suitable for mild cases, injectable treatments are advised for those who are critically ill. [7]

CONCLUSIONS

Acute pancreatitis is an uncommon complication in patients with scrub typhus, but when it does occur, it is associated with a higher mortality rate requiring the treating physician to maintain a high index of suspicion. Since this complication is not widely recognized, it may be overlooked by clinicians, resulting in underdiagnosis. Close monitoring for key clinical indicators, such as elevated serum lipase, serum amylase, and C-reactive protein, is essential. If pancreatitis is suspected, prompt imaging, should be performed to confirm the diagnosis and initiate timely, targeted treatment.

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