



RESEARCH ARTICLE

RENAL ABSCESS: A RARE COMPLICATION OF SCRUB TYPHUS ASSOCIATED WITH MULTIORGAN FAILURE

Dr. Hemant Mahur¹, Dr. Bhanu Prakash^{2,*}, Dr. Neha Jain² and Dr. Dheeraj Mittal³

¹Senior Professor and Unit Head, Department of General Medicine RNT Medical College, Udaipur, Rajasthan

²Junior Resident, Department of General Medicine RNT Medical College, Udaipur, Rajasthan

³Assistant Professor Department of General Medicine RNT Medical College, Udaipur, Rajasthan

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*Corresponding author:

Dr Bhanu prakash

ABSTRACT

Background: Scrub typhus is endemic in the various parts of the world and especially in the Indian subcontinent. renal abscess are largely unknown in scrub typhus. These can be a source of persistent abdominal pain. **Clinical Description:** A 38-year-old male presented with a 4-day history of fever, loose stools, respiratory distress, and abdominal pain. On examination, he was febrile, had tachypnea, tachycardia, and facial puffiness. Acute febrile illness with differentials of tropical infections (dengue, scrub typhus, enteric fever, and malaria). **Management:** Dengue, enteric fever, and malaria were ruled out on investigations. Scrub IgM enzyme-linked immunosorbent assay was positive. Ultrasound of the abdomen showed renal anechoic lesions suggestive of abscess. Contrast-enhanced computed tomography (CT) confirmed the findings. Blood and urine culture was sterile. The final diagnosis was scrub typhus with renal abscess. His symptoms resolved with doxycycline therapy. **Conclusion:** Involvement of the renal abscess is a rare complication in scrub typhus and can lead to persisting abdominal symptoms. Renal abscess is not a well-known complication in patients of scrub typhus; hence, it may lead to under diagnosis of the condition. An abdominal ultrasound or if required, CT scan of the abdomen might be needed in cases with persistent abdominal symptoms to rule out this rare complication.

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INTRODUCTION

Scrub typhus is caused by a bite of trombiculid mite, and the causative agent is orientia tsutsugamushi. The disease is endemic in the Indian subcontinent and is prevalent in the months of June through November. If left untreated, the mortality rate of scrub typhus is about 30%.^[1] The typical manifestation is multiorgan dysfunction secondary to endothelial damage. Involvement of the abdomen, liver, central nervous system, and respiratory system is well-known. The common abdominal imaging findings include hepatomegaly, splenomegaly, gall bladder wall thickening, and lymphadenopathy.^[2] Renal abscess have been reported infrequently. These usually manifest as diffuse abdominal pain and are likely secondary to either direct invasion of the organisms or immune mediated vasculitis seen in scrub typhus and may get complicated by abscess formation. To the best of our knowledge, this is the first case report of scrub typhus with renal abscess, which is one of the rare complications of scrub typhus. We report a case of scrub typhus in a 38 yr male patient who presented with multi-organ involvement with diffuse abdominal pain.

He was evaluated for the abdominal pain, and on abdominal ultrasonography (USG), Right renal abscess was found. To rule out other cause of renal abscess we done Abdominal computed tomography showed right renal abscess with out any scar mark calcification and obstruction.

Clinical Description: A 38 year old male was admitted in male medical ward, RNT Medical Collage Udaipur Rajasthan. With chief complaint of high grade fever for 4 days, loose stools for 3 days and shortness of breath for 2 days. he also had abdominal pain, which was dull aching and diffuse for 3 days with no aggravating or relieving factors. There was no history of cough, rash, vomiting. He had no significant past history, non alcoholic and occasional smoker. On admission he was alert, conscious and oriented to time place person. Vitals revealed fever (102 F), tachypnea, tachycardia (Pulse rate was 98 bpm, regular), BP 90/60 mm of hg in right upper limb in supine position, Spo2 94% on Right Arm, tachypnea 24/ min with GCS E4V5M6. He had icterus, facial puffiness, pedal edema. There is no lymphadenopathy, rashes, petechiae, joint involvement. no eschar was found. Respiratory system examination showed crepts on bilateral infra axillary and infra scapular regions.

On abdominal examination he had moderate hepatomegaly 5 cm below right costal margin in mid clavicular line and no splenomegaly. The rest of systemic examination was normal. Considering the clinical phenotype of an acute febrile illness with hepatomegaly, the differential diagnosis of common tropical infections (enteric fever, scrub typhus, dengue, malaria) were kept, and investigation planned accordingly. As acute febrile illness started ceftriaxone 2gm per day and supportive treatment. Patient was investigated thoroughly complete hemogram revealed Hb 14.3 gm/dl, wbc 10900/ul, and PLT 29000/ul (thrombocytopenia) liver function test showed increase bilirubin levels (total bili. 6.3, direct bili. 6.08) and increased serum aminotransferase level (SGOT 256 U/L, SGPT 122 U/L, ALP 375 U/L). Renal function test were also deranged suggestive of uremia (urea 293mg/dl and s.cr 5.5 mg/dl). Lipid profile revealed raised triglyceride (TG 701 mg/dl, VLDL 140 mg/dl, and low HDL 4.5 mg/dl). Serum electrolytes were within normal range. Serological test for Orientia tsutsugamushi turned out positive on the second day (IgM titer 1:2038). Chest radiography showed bilateral pulmonary infiltration suggestive of ARDS. His ECG was Sinus Tachycardia. His ABG was suggestive of metabolic acidosis with pH- 7.30, bicarbonate 16.8, PaCO₂ 26.3, PO₂ 71.2 and oxygen saturation. Ultrasonography was suggestive of moderate hepatomegaly with altered echotexture, mild splenomegaly and abnormal well defined hypoechoic area with no internal vascularity seen in middle calyx of right kidney likely suggestive of renal abscess measuring approx (23 × 21 mm).

FIG a and b show ct abdominal right renal abscess: Based on the confirmation of scrub typhus with ARF, ARDS, and renal abscess, and doxycycline and ceftriaxone were daily administered intravenously in the amount of 200 mg/day and 2gm / day respectively. After 7 days renal function tests normalised and CECT abdomen was done suggestive of renal abscess (8 × 8mm) at lower pole of right kidney with adjacent area of fat stranding and moderate hepatomegaly. After 10 days of injection doxycycline and ceftriaxone and supportive treatment patient improved symptomatically and renal and liver function tests normalised. Patient was discharged after 11 days.

DISCUSSION

Scrub typhus is one of the most common tropical infections in children and adults and one million new cases occur each year. It is estimated that 1 billion are at risk of contracting the infection.^[3] The incubation period of scrub typhus is 10–12 days (range: 6–21 days). The symptoms most commonly include fever and rash with or without the characteristic eschar. Scrub typhus manifests with multiorgan involvement in some cases with myriad of symptoms. The complications of scrub typhus can be seen in almost all major organ systems and the associated findings, not limited to those mentioned, include: cardiovascular, respiratory, neurologic, gastrointestinal, renal injury, and complications such as hemophagocytic lymphohistiocytosis.^[4] Renal abscess are rare complications, and the exact incidence or prevalence is unknown. Renal abscess are usually seen with infective endocarditis, acquired immunodeficiency syndrome, diabetes mellitus, immune deficiencies, and others.

The formation of renal abscess in these conditions can be explained by septic embolization, renal infarcts (secondary to vasculitis) as the starting point for abscess, and contagious spread from surrounding organs. It is difficult to comment on the exact prognosis of renal abscess in scrub typhus as many cases probably go undetected. Abscess formation may lead to persistence of symptoms August 27, 2023, IP: 240.183.5.199] Sharma, et al.: Splenic abscess in scrub typhus symptoms. Antibiotics may be required for longer duration in the presence of abscess and the abscess may require drainage in some cases for symptom and source control. Ultrasound and computerized tomography scans are both sensitive modalities for the diagnosis of renal abscess, although both have a slightly lower specificity. A case of pancreatic abscess with multiple organ dysfunction reported 2007 Yi SY, Tae JH. Pancreatic abscess following scrub typhus associated with multiorgan failure. *World J Gastroenterol* 2007; 13(25): 3523-3525.]^[6]. Although scrub typhus with multiorgan failure is a life-threatening disease, a favorable outcome can be expected if treated with appropriate antibiotics. Use of tetracycline for populations at risk of scrub typhus has dramatically reduced the associated mortality rate and probably explains the decrease in severe complications.^[5] Renal abscess with multiorgan failure is rare, but might be very important manifestation of the scrub typhus. Appropriate antibiotic treatment and interventional approach can help the patient and result in a good outcome.

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