

Case Series

SCRUB TYPUS: STILL A DIAGNOSTIC ENIGMA

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Abstract

Scrub typhus is caused by *Orientia tsutsugamushi* and transmitted to humans by the bite of the larva of trombiculid mites. Classical features range from a non-specific febrile illness to AKI, ARDS, Myocarditis, Hepatitis and Meningitis. In this article we are presenting seven rare manifestations of the disease.

INTRODUCTION

Scrub typhus is caused by *Orientia tsutsugamushi* and transmitted to humans by the bite of the larva of trombiculid mites. The organism causes manifestations due to direct effect and immune mediated vasculitis which can lead to end-organ-injury. Because of the generalized vasculitis and immune reaction the disease can present in varied forms masquerading the real case delaying detection and treatment. It is very common and accounts for 25.3% of acute undifferentiated febrile illness in countries like India which come in the “tsutsugamushitriangle”.^[1] The disease can be life threatening if not treated early.^[2]

The incubation period of scrub typhus is usually 6-21 days.^[3] Classical features range from a non-specific febrile illness to AKI, ARDS, Myocarditis, Hepatitis and Meningitis.^[4,5] A crusty popular lesion which may turn black eventually with central ulceration, called eschar is a characteristic feature of Scrub Typhus. Diagnosis is confirmed by serological tests.^[6] Scrub Typus, even though a common cause of acute febrile illness in Tamil Nadu continues to amaze the clinician with its myriad of presentations. In this article we are presenting seven rare manifestations of the disease.

CASE REPORT 1

A twenty- four years old female presented with complaints of high- grade fever with chills and rigor for 5 days and chest pain for 3 days. At admission patient was hypotensive (BP-70/40 mm of Hg). ECG showed sinus tachycardia with low voltage

QRS and poor progression of R waves. ECHO showed global hypokinesia of the left ventricle with EF-20% [Figure 1a, b]. Cardiac biomarkers were elevated. Patient was diagnosed to have myocarditis. She was started on inotropic support. Scrub Typhus IgM came as positive. The patient was started on Doxycycline with which the patient showed improvement. Repeat ECHO after 2 weeks was done which showed complete recovery of LV function.

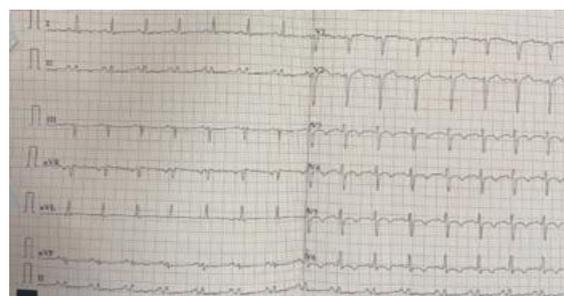


Figure 1a: ECG showing sinus tachycardia and poor R wave progression with T wave inversions in V3 TO V6



Figure 1b: Left ventricular dysfunction

CASE REPORT 2

A fifty- three years old male presented with complaints of high- grade fever for 5 days and altered sensorium for 2 days and one episode of GTCS. At admission patient was febrile and disoriented with a GCS of 12/15, other vitals were stable. Neurologic Examination revealed signs of meningeal irritation. An eschar was found in the right arm [Figure 2]. Investigations revealed bicytopenia with anemia and thrombocytopenia and transaminitis. CSF Analysis was done which showed elevated protein, normal glucose and lymphocytic pleocytosis. Scrub Typhus IgM came as positive. Patient was started on doxycycline and other supportive management. Scrub Typhus IgM came as positive. Patient showed marked improvement in 48 hours.



Figure 2: Eschar on arm

CASE REPORT 3



Figure 3: CT Abdomen showing splenic abscess

A fifty- seven years old male patient came with complaints of high- grade fever for 4 days, left hypochondrial pain for 3 days and loose stools for 2 days. Patient was a known case of type 2 diabetes mellitus (DM) not on regular medication. On examination patient was febrile and hypotensive. General examination revealed an eschar in the right

axillary region. Sugars were found to be uncontrolled. Abdominal examination revealed left hypochondrial tenderness with guarding. CT Abdomen was taken which showed a splenic abscess [Figure 3] Scrub typhus IgM was positive. Patient was started on doxycycline. Splenic abscess was drained. Patient improved symptomatically.

CASE REPORT 4

A thirty- three years old female came with complaints of cough with expectoration for 1-month, high grade fever and breathlessness for 4 days. Patients had a history of extrapulmonary TB diagnosed 6 months back and patient stopped ATT on her own 1 month ago. On examination patient was febrile and tachypneic with right axillary lymphadenopathy. Patient had type 1 respiratory failure and auscultation revealed diffuse crackles over all lung fields. No eschar was found. Chest X ray was taken which showed features suggestive of ARDS [Figure 4]. Patient was started on supportive measures. Scrub typhus IgM was found to be positive. Patient was started on doxycycline with which she showed marked improvement. Sputum AFB was done and was found to be negative. Lymph node biopsy was taken and reactive changes were noted.



Figure 4: Chest Xray showing ARDS

CASE REPORT 5



Figure 5: Thrombosis of right transverse sinus

A twenty- three years old female came with complaints of high- grade fever with chills, myalgia and headache and numbness over left side of body for 3 days. On examination she was febrile, meningeal signs were found to be negative. An eschar was found over the groin. Scrub Typhus IgM was positive. Neurologic examination revealed Right Plantar extensor with motor deficits over the left UL and LL. MRI brain with MRV showed features of sagittal sinus thrombosis [Figure 5]. She was started on anticoagulation and on doxycycline with which the patient improved.

CASE REPORT 6

A fifty- five years old female came with history of painful mass over the nape of neck for 2 weeks, and also fever with chills for 2 weeks. Patient was a known case of Type 2 DM for 20 years and was on irregular medication. Patient gave history of incision and drainage (I&D) of the mass which were done at outside hospital. Patient was initially admitted under surgery in view of suspected carbuncle. I & D was done in view of suspected carbuncle. Even after drainage she continued to have fever spikes hence medicine consultation was obtained. On examination patient was febrile. Local examination revealed a non- tender, ulcerated lesion with eschar-like features over the nape of neck. Lab parameters showed lymphocytosis with thrombocytopenia and transaminitis. Scrub Typhus IgM was done, which came as positive. Doxycycline was started and the patient improved markedly.



Fig- 6: Infected eschar masquerading as carbuncle

CASE REPORT 7

A forty- five years old female came with fever with chills and rigor, generalised rashes, bleeding gums and redness of eyes. Patient was found to have splenomegaly with worsened renal parameters and bicytopenia. Patient developed respiratory distress. Patient was suspected to have hemophagocytic histiocytosis.

DISCUSSION

Scrub Typhus is a mite borne Rickettsial Zoonosis. It is an acute febrile illness.^[7] The disease

manifestations are due to a systemic vasculitis caused by both direct effects of the organism as well as an exaggerated immune response. Wide spectrum of clinical manifestations are present. Scrub typhus associated ARDS has high mortality and morbidity.^[8] Early diagnosis and treatment with doxycycline can prevent the occurrence of ARDS. Serology is the mainstay of diagnosing scrub typhus. In this paper we discussed 7 cases diagnosed as Scrub Typhus.^[9]

When humans are bitten by the infectious mites, rickettsia begins to grow at the location of the bite.^[10] Initially it forms a papule, which becomes a vesicle and then an ulcer, and which is finally covered by black eschar surrounded by red erythema. This forms after 9–12 days, and patients show clinical symptoms such as fever, maculopapular rash, headache, gastrointestinal symptoms, and lymphadenopathy.^[11] A total of 72% of patients with eschar were male, which may be a result of occupational exposure or outdoor activities in rural areas. Although the presence of an eschar is highly suggestive of scrub typhus, it was reported in variable proportions.^[12] Hence, its presence confirms the disease, but its absence does not exclude the possibility. In our case eschar was seen.

RajaGopal et al,^[13] reported a case of Scrub typhus in a 31-years-old male soldier who revealed an erythematous maculopapular rash with petechiae and ecchymoses over the back, abdomen, lower chest, and upper and lower limbs. Choi et al,^[14] in their report a 67-year-old woman was diagnosed as having scrub typhus with pneumonitis. On admission, she was started on a combination therapy with levofloxacin and doxycycline. However, the patient developed severe acute respiratory distress syndrome (ARDS) on the 2nd day, and as a result, she underwent extracorporeal membrane oxygenation (ECMO). She was weaned from ECMO on the 10th day, as her respiratory status gradually improved. In our case series we managed patients with Doxycycline and the patient improvement is observed.

We found that all our cases were in middle age group. Jatsho et al,^[15] reported a case of scrub typhus in a 5-years-old, previously healthy girl who presented with a one-week history of high-grade intermittent fever, headache and right ear pain with a recent onset of reduced hearing. Unilateral right ear hearing loss was noted using Weber's test. Evidence of progressive, mild anemia, and raised inflammatory markers was noted. Diagnosis of scrub typhus was confirmed by positive detection of *Orientia tsutsugamushi* IgM antibodies on rapid diagnostic test and the presence of chigger mite in the right external auditory canal on repeat examination.

CONCLUSION

Scrub typhus is a very important differential in fever with thrombocytopenia but even in the absence of the classical clinical features it has to be considered as an etiology and prompt treatment with doxycycline has to be started.

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