SCRUB TYPHUS PRESENTING AS ATYPICAL PNEUMONIA

Sajan Christopher MD, Department of Medicine and K. Sreekanthan MD, Department of Infectious Diseases, Government Medical College, Thiruvananthapuram - 695011, India

Abstract
Scrub typhus is being increasingly reported in India. It is highly endemic in suburban regions of Thiruvananthapuram. It should be considered in the differential diagnosis of patients with acute febrile illness, including those with altered sensorium, pneumonitis, atypical pneumonia, acute respiratory distress syndrome (ARDS), thrombocytopenia, and abnormalities in liver function tests. We report a case of scrub typhus presenting as atypical pneumonia highlighting the wide variation in clinical presentations. A thorough knowledge of the clinical features of scrub typhus including its complications and its varied presentations is important for providing early appropriate life saving empiric treatment for patients.

Introduction
Scrub typhus is an acute febrile illness caused by Rickettsia tsutsugamushi. Human beings usually get infected when they accidentally encroach upon the mite infested areas, known as mite islands mainly in rural and sub-urban areas. Mortality due to the disease is 7-30%. Scrub typhus is grossly under diagnosed in India due to its non-specific clinical presentations, limited awareness and low index of suspicion among clinicians. The natural reservoir of rickettsial infections is the adult mite from which the organism passes to the larva by trans-
ovarian transmission. The larval mites usually feed on the wild rats of the sub-genus Rattus.

Clinicians should be aware of this condition during the outbreaks of many fevers such as Dengue fever, Chikungunya fever, Leptospirosis and other viral fevers. The infection manifests clinically as high grade fever not subsiding with antipyretics. The typical rash and eschar may not always be present. Most often there will be generalized or localized, tender lymphadenopathy. Severity varies from sub-clinical illness to severe illness with multi-organ system involvement, which can be serious enough to be fatal, unless diagnosed early and treated.

Case report
A 45 year old male, a manual labourer presented with complaints of high grade continuous fever of 10 days duration, associated with head ache and myalgia. He had cough with mucoid sputum for the past 5 days. He did not have dyspnoea. He was a native of Aruvikkara in Thiruvananthapuram district, a highly endemic zone for scrub typhus. He was on in-patient treatment for 6 days in a local hospital where he received injections of Cefotaxim and Azithromycin with no relief from symptoms. Because of persistent fever and cough as well as radiological evidence of right basal pneumonitis, he was referred to Government Medical College, Thiruvananthapuram as a case of right lower lobe pneumonia.

On examination at the medical college, patient was found to be febrile. His pulse rate was 100/min, and blood pressure was 120/70mmHg. There was significant muscle tenderness. He did not have any skin rashes or signs of jaundice. There were no palpable lymph nodes. Respiratory
system examination revealed a respiratory rate of 36/min with bilateral basal crepitations, more in the right lung. Other systems were within normal limits.

Blood counts revealed a total leucocyte count of 12,400/μl with 50% neutrophils, 45% lymphocytes, and 5% eosinophils. Erythrocyte sedimentation rate was 32mm/Hr. Non-homogenous opacities were seen in the x-ray of the chest, in the lower zone on both sides, more on right side.

**Course of the patient in the hospital**

The patient was provisionally diagnosed to have leptospirosis and was given injections of crystalline penicillin. During a detailed general examination an ulcer (eschar) of < 3mm size was observed in the left inguinal region. There were also enlarged mildly tender lymph nodes in the inguinal region on both sides. The diagnosis was revised to scrub typhus infection and penicillin therapy was discontinued. He was prescribed to take Doxycycline.

Results of renal function tests were normal. Serum bilirubin level was 1.7mg%, SGOT level was 166U/L, SGPT level was 126U/L, Serum alkaline phosphatase level was 80U/L, serum sodium level was 138mEq/L and serum potassium level was 3.4mEq/L. C- reactive protein level in the serum was 2.8mg/L. Electrocardiogram was normal. Leptospira antibody test done in the second week was negative. Weil Felix test was done on the 14th day after the start of symptoms. Results revealed Proteus OX K:1/80, Proteus OX 2:1/20 and Proteus OX19:1/20.

Patient was afebrile by 2 days after starting treatment with doxycycline; other symptoms also subsided. He was discharged on the 6th day after
admission. Lung opacities were absent in the x-ray chest of the patient at the time of discharge.

Discussion
The clinical and laboratory features of scrub typhus are notoriously non-specific. The painless chigger bite can occur on any part of the body but it is often located in areas that are hard to examine such as the genital region or axilla. An eschar forms at the bite site in about half of primary infections which begin as small papules, enlarge, undergo central necrosis and acquire a blackened crust to form lesions resembling a cigarette burn. The fever starts abruptly and is of high grade. Severe headache, apathy, pain in skin and other muscles are associated symptoms. Characteristically, generalized lymphadenopathy and hepatosplenomegaly are seen in the patients. The characteristic rash and eschar may not be always present. Non-specific lung infiltrates with predilection to the lower zone have been described in scrub typhus. Our patient presented with high fever and features of atypical pneumonia, which was confirmed in the chest x-ray. Previously described complications in patients include interstitial pneumonitis, atypical pneumonia, hepatitis, myocarditis, meningoencephalitis, disseminated intravascular coagulation and multi organ failure.

Laboratory diagnosis of scrub typhus is based on serological and molecular diagnostic tests. Weil felix test has a low sensitivity and specificity but may be helpful in suggestive clinical settings. It is desirable to demonstrate a rise in titer of antibodies for the diagnosis of scrub typhus. A four fold rise in agglutinin titers in paired sera is diagnostic. Better serological tests are indirect fluorescent antibody
test and enzyme linked immunosorbent assay (ELISA) using specific 56 kDa recombinant antigen.\textsuperscript{11}

Antibiotics conventionally used for treating scrub typhus are doxycycline and chloramphenicol.\textsuperscript{12} Therapeutic trial with antibiotic therapy is also warranted if specific tests are unavailable and the index of suspicion is high.\textsuperscript{8} Macrolides may prove useful in children and pregnant women.\textsuperscript{13, 14}

References


![Figure 1. Photograph showing eschar in the left inguinal region](image)

Figure 1. Photograph showing eschar in the left inguinal region
Figure 2. X-Ray chest taken before admission
Figure 3. X-Ray chest on follow up