Case Report

ARDS Complicating Scrub Typhus in Sub-Himalayan Region


Abstract

Scrub typhus is a febrile illness widely endemic in Asia caused by Rickettsiae tsutsugamushi in which humans are accidental hosts. If there is delay in the initiation of the appropriate antimicrobial therapy patient may present with serious complications. We report three cases that presented in emergency with acute respiratory distress syndrome and history of fever for more than one-week duration. On investigation all the three patients were positive for Weil Felix reaction and showed dramatic response to doxycycline.

INTRODUCTION

Morbidity and mortality caused by rickettsial diseases had a major influence on public health for more than 2000 years. Scrub typhus broke out in an epidemic form in Assam and West Bengal during World War II.1 Outbreak of scrub typhus in southern India has been reported in 2003.2 However, if the diagnosis is delayed or patient is not treated with appropriate antibiotic, the scrub typhus can present with serious complications such as renal failure, myocarditis, septic shock, meningencephalitis, rarely acute respiratory distress syndrome and may lead to death also.3 We report three cases of scrub typhus who presented to us with ARDS showing dramatic response to doxycycline.

CASE REPORT

A 38-year-old male, farmer by occupation was referred to our institution with history of progressive shortness of breath for last one day. On reviewing history he had fever for 12 days for which he was treated with beta lactams but with no response to the treatment.

On examination the patient was conscious. His blood pressure was 110/70 mm Hg, pulse rate 100/min and respiratory rate 36/min. JVP was not raised. A faint rash was seen over the trunk. On careful inspection, the axilla showed two punched out ulcer-like lesions with blackened scab the eschars (Fig. 1) with lymphadenopathy. On systemic examination CVS was normal, Liver was slightly enlarged, non-tender and firm. On examination of the chest bilateral basal crepitations were present on auscultation.

The laboratory investigations revealed TLC of 8,300/cu mm, ESR of 80 mm in 1st hr. Alkaline phosphatase was > 1000 units, total proteins were 4.8 gm% and albumin was 2.3 gm%, AST and ALT were 139 and 149 U. Serum Urea was 95 mg% and creatinine 1.6 mg%. Creatinine Phosphokinase levels were raised two times the upper limit. Fever workup for malaria, leptospirosis, Infectious mononucleosis, typhoid, and paratyphoid were negative. His Weil Felix test was positive with an OXK titre of 1:80. Chest X-ray showed bilateral ground glass haziness in lower lung fields, the PO2/FiO2 was < 200. Echocardiography was normal. Patient was diagnosed as a case of scrub typhus with ARDS. He was treated in the intensive care with high concentration oxygen and was given doxycycline. He responded dramatically to the treatment.

Second patient a 23 years male presented with history of fever for 10 days along with progressive shortness of breath for last 2 days. Clinical and laboratory profile is shown in the Table 1. Third patient a 32 years female

Fig.1. Showing two eschars in axillary region in first patient with scrub typhus.
presented with history of fever for 12 days and progressive shortness of breath for last 3 days. Both the patients were positive for Weil Felix reaction and chest X-rays showed bilateral ground glass haziness in lower lung fields. Second patient had eschar in the left axilla. Both the patients responded to doxycycline and high concentration oxygen and were discharged after full recovery.

**DISCUSSION**

Increasing prevalence of scrub typhus has been reported from some Asian countries and may coincide with the widespread use of beta-lactam antibiotics or to improve diagnostic facilities and/or more urbanization into rural areas. Many cases acquired in Asia surfaced in Europe and America. Most patients with scrub typhus present with acute fever of unknown origin.4

Scrub typhus is caused by *Orientia tsutsugamushi*, which is transmitted to humans by the bite of larval stage of trombiculid mites or chiggers. Scrub typhus is confined to a definite geographic region in the world. The percentage of positive findings in sera from the general population varied from 2 % in India to 40% in Malaysia.1

The major clinical symptoms for scrub typhus are eschar, fever, and rash. Tsay and Charg3 documented fever as a characteristic symptom of scrub typhus patients in a study of 33 patients where all 33 had fever. Eschar was present in 60%, rash was present in 21%. Cases may have been misdiagnosed if the unique symptoms of scrub typhus eschar, fever, and rash were not present.

Laboratory diagnosis of scrub typhus consists of serological and molecular diagnostic tests. In a study by Brawn et al probability for an OXK titer of greater than or equal to 1:320 was 0.79 with specificity of 0.97 and sensitivity of 0.44, whereas probability for an IFA titer of greater than or equal to 1:400 was 0.78 with specificity of 0.96 and sensitivity of 0.48, which was comparable.5

ARDS is rarely reported but serious complication of scrub typhus. Choi et al6 reported that radiography demonstrated abnormalities in 54/72 (72%) patients of scrub typhus. The most frequent findings were parenchymal abnormalities with lower lung predilection including bilateral reticulonodular opacities ground glass opacities, consolidation, septal lines, and hilar lymph nodes enlargement. Pathologic findings of scrub typhus have been characterized by vasculitis of the microvasculature in the involved organ resulting from a direct invasion by *Orientia tsutsugamushi*. Immunologic mechanism, without direct invasion of the organism may participate in the pathogenesis of ARDS associated with scrub typhus.

With increasing popularity in outdoor recreation activities, mountaineering, urbanization into rural areas, the physicians even those who are not in the endemic areas may encounter the disease and should be aware of its symptoms and complications. Early appropriate antimicrobial therapy may prevent serious complications like ARDS in scrub typhus. It further emphasizes the need for seroepidemiological surveys and prospective studies to know the prevalence, to design the effective control measures.

**REFERENCES**


**Table 1 : Clinical profile of patients with ARDS complicating scrub typhus**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>Sex</th>
<th>Rash</th>
<th>Eschar</th>
<th>Lymph nodes</th>
<th>Associated complications</th>
<th>pO₂/FiO₂</th>
<th>Weil Felix OXK</th>
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<tr>
<td>1</td>
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<td>+</td>
<td>+</td>
<td>Multi organ dysfunction</td>
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<td>23</td>
<td>M</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>Hepatic dysfunction</td>
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<td>1:160</td>
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<td>32</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Hepatic dysfunction</td>
<td>170</td>
<td>1:160</td>
</tr>
</tbody>
</table>

**Announcement**

7th Annual Conference of North East Cardiological Society of India on 7th and 8th October at Hotel Pinewood, Shillong.

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