



A case of scrub typhus presenting as ARDS

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ABSTRACT

Acute respiratory distress syndrome (ARDS) is a rapidly progressive disease, mainly occurring in critically ill patients. The systemic spread of infections mainly causes ARDS due to the seepage of fluid in the interstitial spaces of the lung parenchyma. Scrub typhus is a rickettsial infection caused by *Orientia tsutsugamuchi*. The bite of trombiculid mite transmits it. Scrub typhus is frequently underdiagnosed due to its non-specific clinical presentation and relatively low level of suspicion in treating physicians. The clinical presentation of scrub typhus is varied from fever, myalgia, rashes, headache, lymphadenopathy to pneumonia, acute respiratory distress syndrome, sepsis, central nervous system involvement. The disease is usually indistinguishable from other febrile illness like enteric fever, weils disease, malaria and certain viral hemorrhagic fevers. Identification of an eschar points to the diagnosis without which the diagnosis is based on a high index of clinical suspicion. We report an interesting case of scrub typhus presenting as acute respiratory distress syndrome.



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INTRODUCTION

Scrub typhus is a common re-emerging Rickettsial infection, especially in an Asian country like India (Chogle, 2010). It is caused by *Orientia tsutsugamuchi* due to the bite of trombiculid mite (Tamura *et al.*, 1995). The clinical presentation varies from fever, myalgia, rashes, headache and other prodromal symptoms to pneumonia, acute respiratory distress syndrome, sepsis, central ner-

vous system involvement (Mahajan, 2005). The disease is usually indistinguishable from typhoid, leptospirosis and dengue. Identification of an eschar points to the diagnosis without which the diagnosis is based on a high index of clinical suspicion. In this study, we report a patient with chronic obstructive lung disease who developed ARDS and multi-organ failure due to scrub typhus.

CASE REPORT

A 57-year-old male patient presented with complaints of high-grade intermittent fever of one-week duration, associated with chills and rigors, nausea, loss of appetite, and generalized fatigue. He also had loose stools with 3 episodes. He was a known case of chronic obstructive lung disease on inhaled bronchodilators. He is a chronic smoker and alcoholic with no other comorbidities.

On examination, his blood pressure was 120/70 mm Hg. Pulse rate was 106/min. He was febrile with a temperature of 101°F. Clinical examination revealed an eschar on the left side of the chest wall

in the midaxillary line Figure 1. Systemic examination revealed bilateral wheeze and extensive crepitations. He was then shifted to the intensive care unit. He was started with injection Piperacillin tazobactam and Doxycycline along with other supportive management.

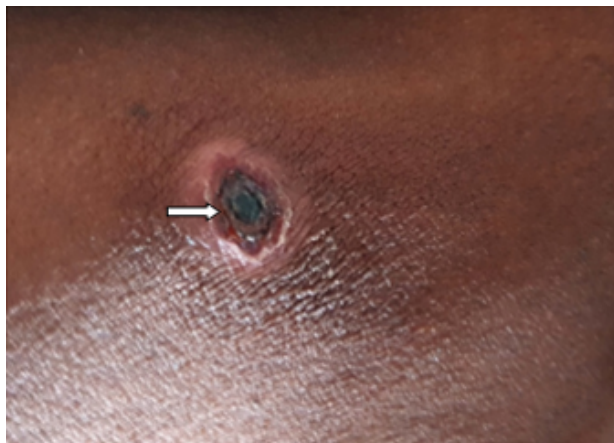


Figure 1: Showing eschar in the left side of the chest suggestive of scrub typhus

Investigations showed hemoglobin 12.6 g/dl, total leucocyte count 17300 cells/cu mm, platelet count 76000 cells/cu mm, urea 64, serum creatinine 2.2, SGOT 126, SGPT- 127, total protein -5.7 alb-2.5; sodium 108, potassium- 3.4. Arterial blood gas analysis revealed metabolic acidosis with PF index was less than 200 suggestive of ARDS. Smear for malarial parasite & microfilariae, Dengue NS1 antigen & IgM and Leptospira IgM were negative. USG-abdomen was normal. Chest X-ray revealed features suggestive of ARDS Figure 2. He progressed to a state of multi-organ dysfunction. Serologic test for *Orientia tsutsugamushi* were positive with a titer of 1:5,120. He significantly improved and was discharged following the complete resolution of disease both clinically and radiographically.

RESULTS AND DISCUSSION

Scrub typhus is a mite - borne infectious disease caused by *O.Tsutsugamushi*, intracellular microorganism (Tamura *et al.*, 1995). Humans are getting infected accidentally when they habitat the mite-infested regions. The infection can occur in diverse habitats such as seashore, rice fields, and even semi-deserts. Most cases in disease-endemic areas occur through agricultural exposure (Subbalaxmi *et al.*, 2014). Working in fields and the hilly regions, and harvesting in autumn are the other risk factors to acquire this infection (Walker *et al.*, 1975).

Fever is the most common feature of scrub typhus, and in the endemic areas, it is one of the aetiologies



Figure 2: Chest X-ray showing bilateral infiltrates suggestive of ARDS

for 'fever of unknown origin' (Kothari *et al.*, 2006). It can manifest from subclinical state to fatal disease. After ruling out complicated malaria, leptospirosis and dengue fever, many of these cases remained undiagnosed. The typical signs of scrub typhus are eschar, and the other features are lymphadenopathy and maculopapular rash. Fever, headache, anorexia, nausea, headache, diffuse myalgias, abdominal pain, and relative bradycardia may also be present. Scrub typhus is often underdiagnosed due to its varied clinical presentation. Clinicians often miss the diagnosis because of limited awareness and low index of suspicion.

Serology is the mainstay of diagnosing scrub typhus and immuno-florescence antibody test or indirect immuno-peroxidase assay is the gold standard. A diagnosis can be made in the presence of a four-fold, or more significant rise in antibody titer to *O.tsutsugamushi* antigen by indirect immunofluorescence or Weil-Felix slide agglutination (Mathai *et al.*, 2001) (Kamarasu *et al.*, 2007).

Oral Doxycycline 200 mg/day is the treatment given for scrub typhus. Other antibiotics useful for the treatment of this infection are chloramphenicol, azithromycin and rifampicin. Rapid resolution of fever following doxycycline is characteristic. Azithromycin has been proved more effective than doxycycline in doxycycline - susceptible and doxycycline - resistant strains causing scrub typhus (Phimda *et al.*, 2007).

Morbidity and mortality are higher in elderly patients, along with comorbidities. Reported severe complications of scrub typhus include pneumonia, myocarditis, meningoencephalitis, acute renal failure, hepatitis, gastrointestinal bleeding, and sep-

tic shock. Endothelial cells are commonly affected by producing perivasculitis in scrub typhus leading to multiorgan dysfunction (Park et al., 2000). Scrub typhus in elderly patients is known for its tendency for severe complications. In our patient who was diagnosed with scrub typhus along with complications, which included ARDS, thrombocytopenia, dyselectrolytemia and multiorgan dysfunction improved dramatically with doxycycline.

CONCLUSION

The clinicians need to be aware of the varied presentation from acute febrile illness to multiorgan dysfunction of scrub typhus. In areas endemic for tsutsugamushi, a careful history and physical examination are required to reveal the existence of eschars or skin eruptions. Prompt treatment with doxycycline can shorten the period of illness and reduce mortality. Early diagnosis is essential because there is usually an excellent response to treatment, and timely antimicrobial therapy may help prevent fatal complications.

REFERENCES

Chogle, A. R. 2010. Diagnosis and treatment of scrub typhus - The Indian scenario. *J Assoc Physicians India*, 58:11-12.

Kamarasu, K., Malathi, M., Rajagopal, V., Subramani, K., Jagadeeshramasamy, D., Mathai, E. 2007. Serological evidence for wide distribution of spotted fevers & typhus fever in Tamil Nadu. *Indian Journal of Medical Research*, 126(2):128.

Kothari, V. M., Karnad, D. R., Bichile, L. S. 2006. Tropical infections in the ICU. *J Assoc Physicians India*, 54:291-298.

Mahajan, S. K. 2005. Scrub typhus. *J Assoc Physicians India*, 53:954-958.

Mathai, E., Lloyd, G., Cherian, T., Abraham, O. C., Cherian, A. M. 2001. Serological evidence for the continued presence of human rickettsioses in southern India. *Annals of Tropical Medicine & Parasitology*, 95(4):395-398.

Park, J. S., Jee, Y. K., Lee, K. Y., Kim, K. Y., Myong, N. H., Seo, P. W. 2000. Acute respiratory distress syndrome associated with scrub typhus: diffuse alveolar damage without pulmonary vasculitis. *Journal of Korean Medical Science*, 15(3):343.

Phimda, K., Hoontrakul, S., Suttinont, C., Chareonwat, S., Losuwanaluk, K., Chueasuwanchai, S. 2007. Doxycycline versus azithromycin for treatment of leptospirosis and scrub typhus. *Antimicrob Agents Chemother*, 51. 3259 - 3263.

Subbalaxmi, M., Krishna, M. M., Prasad, A. K., Teja, V. D., Swaroopa, K., Chandra, N. 2014. Outbreak of scrub typhus in Andhra Pradesh - Experience at a tertiary care hospital. *J Assoc Physicians India*, 60(490 - 496).

Tamura, A., Ohashi, N., Urakami, H., Miyamura, S. 1995. Classification of Rickettsia tsutsugamushi in a New Genus, Orientia gen. nov., as Orientia tsutsugamushi comb. Nov. *International Journal of Systematic Bacteriology*, 45(3):589-591.

Walker, J. S., Chan, C. T., Manikumar, C., Elisberg, B. L. 1975. Attempts to infect and demonstrate transovarial transmission of R. tsutsugamushi in three species of Leptotrombidium mites. *Ann N Y Acad Sci*, 266:80-90.