



Case Report

Scrub Typhus Presenting as Acute Respiratory Distress Syndrome in Child

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ABSTRACT

Scrub typhus is among the frequent causes of fever of unknown origin. Though the exact incidence in children is unknown, outbreaks have not been uncommon. We report 8 year old female presenting with fever, respiratory distress and a skin rash (eschar). Antibody titre was 1:640 for OX-K. Child improved after treatment with doxycycline and supportive care.

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Introduction

India is endemic for scrub typhus with reports of epidemics north, east and south India. However, it is either misdiagnosed or not diagnosed at all due to various reasons. Common presentation is acute febrile illness, rash, hepatosplenomegaly, lymphadenopathy, thrombocytopenia and capillary leak¹. Incidence of Acute respiratory distress syndrome (ARDS) observed is 4%, 8% and 60% in different studies and is very rare without other manifestations¹⁻³. Keeping scrub typhus in mind in any respiratory distress case is important as effective treatment is available. Hence, we present scrub typhus that manifested as acute respiratory distress and was treated successfully.

Case Report

8 yr old female child presented with complaints of fever for 8 days, swollen both lower limbs for 2 days, difficulty in breathing for one day. She informed of some bite at night to groin prior to onset of these symptoms. Examination revealed temperature was 38.2°C, pulse rate-110/min, respiratory rate-45/min, blood pressure-110/70mmHg, capillary filling time < 2sec, oxygen saturation-93% in room air, mild anaemia and pedal edema of both lower limbs. Eschar was present on right inguinal region measuring about 1cmx0.5cm (figure 1A). There was no maculopapular rash, peteche, purpura and jaundice Patient was having severe respiratory distress with bilateral inspiratory crepitations and few expiratory rhonchi in all over lung fields. Complete blood count revealed haemoglobin of 9 gm/dl, total white blood cell count-12400/mm³ with 54% polymorphs and thrombocytopenia (platelet count-62,000/mm³). There was a bilateral infiltrates with multilobar opacities in chest radiography. Hepatic functions tests, serum

creatinin, and electrolytes were within normal limits. PH of 7.2, PaO₂/FiO₂<100 and PCO₂ -45mmHg in arterial blood gas analysis was observed. Clinical symptoms, chest x-ray findings, arterial blood gases analysis were consistent with ARDS (Figure 1B). IgM antibodies for dengue fever and there was no growth in blood culture after 72 hours of incubation Patient was started on amoxicillin-clauvulonic acid (I.V) and amikacin (I.V) pending serological reports for scrub typhus and mechanical ventilation. In the view of rapid deterioration in clinical state, eschar, thrombocytopenia, doxycycline 200mg twice a day was initiated. Patient dramatically improved with treatment. Child was extubated after three days. Weil-felix test was positive with titre for OX-K - 1:640, O X2- 1; 40, OX19 -1; 40. Doxycycline was continued for 10 days. Review chest x-ray showed resolution of infiltration and multilobar opacities. Blood counts and platelet counts returned to normal with treatment.

Discussion

Orientia tsutsugamushi, a gram negative obligate intracellular bacterium, is responsible for Scrub typhus. Trombiculid mite is it's natural host. The infected larval stages of mites called chiggers infect humans while feeding.

Scrub typhus is among frequent causes of fever without focus and pyrexia of unknown origin in the Indian subcontinent⁴. It is estimated that 1 million new cases appear annually and 1 billion people are at risk of infection⁵. Most scrub typhus cases have been reported in adult population. The incidence of scrub typhus of children in India is not available, though there have been reports of outbreaks in South India^{2,6,7}.

Organisms multiply at the site of entry site which later develops in to aneschar. Infection of endothelial cells

results in perivascular inflammation and endothelial dysfunction⁸. Most patients present with fever for 9-11 days. Regional or generalised lymphadenopathy is seen in 23-93% of patients. In one series, eschar and rash were present in 6-46% and 36% respectively^{1,3}. Eschar is frequently seen in axilla, breast and groin². Respiratory failure/ARDS has been reported at 4-60%^{1,3}. Hypotension, ARDS, renal failure, meningitis, multi organ dysfunction syndrome and disseminated intravascular coagulation account for most deaths^{1,2}. Scrub typhus has to be differentiated from malaria, leptospirosis, enteric fever². Weil Felix test is positive in 78%⁵. Titre of 1:320 or more and/or four fold rise in paired sera is reliable although 1:80 titre is suggestive of infection⁶. Documentation of IgM antibody against *O. tsutsugamushi* is diagnostic¹. Our patient was diagnosed based on history of bite, presence eschar and high titre of 1:640 for OXK antigen. Overall reported mortality rate is 11.94%¹. Children do have good recovery with early diagnosis and treatment with antibiotic and supportive care⁹. Antibiotic of choice for scrub typhus is Doxycycline (4mg/kg/day in two divided doses max.200mg BID). It is given for 10 days³. Empirical doxycycline is considered in endemic area and in case of recent travel to endemic area^{1,2}.

Conclusion

Children with respiratory distress and decreased platelet count should be investigated for scrub typhus particularly when unresponsive to standard antibiotics. History of bite with mites should be elicited and whole body is searched for Escher. Specific treatment with doxycycline should not be delayed waiting for confirmation of diagnosis to avoid mortality.

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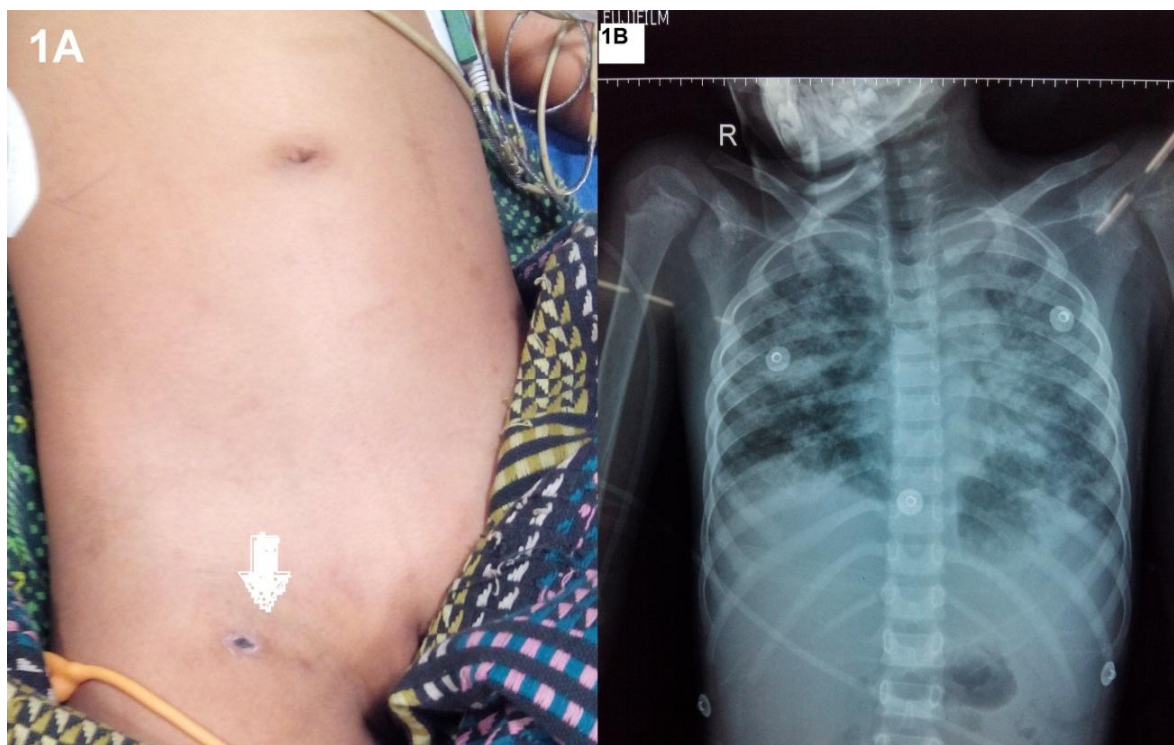


Figure 1. (A) Showing eschar in inguinal region (arrow mark),(B) Showing bilateral non homogenous opacities