



Empyema Thoracis: An Unusual Presentation of a Child with Scrub Typhus

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Abstract

Scrub typhus is a febrile zoonosis caused by an obligate intracellular proteobacterium, Orientia tsutsugamushi. It is most common zoonosis of public health importance in rural areas of South East Asia, Northern Australia and Pacific island. The clinical spectrum of disease varies from acute febrile illness to multi organ involvement with systemic complications. Scrub typhus is still under-diagnosed as the clinical manifestation is often atypical leading to low index of suspicion among Clinicians. Delay in diagnosis and treatment often lead to increased morbidity and mortality. Any fever without focus (FWF) with a black ulcer (eschar) or edema, rash or AES like presentation one has to rule out the possibility of scrub typhus.

We report a case of 20 month old boy, presented as Scrub typhus found to have right sided empyema thoracis as an unusual presentation. Patient recovered with intercostal drainage and antibiotics ceftriaxone, vancomycin & doxycycline treatment.

Keywords: Zoonosis, Eschar, scrub typhus, Empyema, intercostal drainage.

Introduction

Scrub typhus is caused by *Orientia tsutsugamushi*, which is an obligate intracellular Gram negative coccobacilli, transmitted to human by bite of a larval stage trombiculid mite known as chigger. It is a febrile illness characterized by a single painless eschar with an erythematous rim at the site of chigger bite (7-68%) regional or generalized lymphadenopathy, hepatomegaly, splenomegaly, oedema, maculopapular rash & gastrointestinal symptoms like abdominal pain, vomiting, diarrhea. Severe complications includes meningo-encephalitis, pneumonitis, acute renal failure, myocarditis, septic shock like syndrome and DIC. Because of difficulty in diagnosis, nonspecific clinical presentation and reduced

susceptibility to antibiotics various complications are inevitable. The case fatality rate found was 11% among 883 patients <20 years of age in 18 published studies.

Case Detail

A 20 month old boy from rural area of Ganjam district was admitted to our hospital with history of fever for 10 days and loose stool for 3days duration. On examination he was febrile, toxic, tachypneic with a respiratory rate of 62/ min, Pulse rate =126/min, blood pressure of 70/50 mm Hg. Child was pale, having periorbital puffiness with B/L pedal edema without any skin rash or lymphadenopathy. An healed eschar was found over scrotal skin.

His respiratory system examination revealed Respiratory distress, with mild disparity in bilateral breath sound, i.e. diminished vesicular particularly over right lung without any bronchial breath or added sound. CVS status being stable with normal SPO₂. On abdominal examination, sizeable Hepatosplenomegaly was present without any evidence of collections.

Laboratory investigations like CBC revealed neutrophilic leucocytosis and microcytic hypochromic anemia. MPICT and MP slide were negative for malaria with negative Sickling test (endemic belt). RFT, LFT and serum electrolytes were normal. IgM ELISA for scrub typhus was positive. CXR PA view showed lamellar effusion of right sided lung field. On pleural tap frank pus came out. No organism found on gram stain or culture.

Patient was immediately put on intercostal chest tube under water seal drainage with antibiotics coverage of ceftriaxone, vancomycin, & IV doxycycline as well. Patient improved remarkably and got discharged successfully after 12 days.



Fig.1 X-Ray shows rt sided Lamellar Effusion



Fig.2 shows after intercostal tube removal general wellbeing of child

Discussion

Scrub typhus is one of the most common emerging disease .Globally it affects around one million people annually.^[1] The mortality rate ranges from 30-45% if not diagnosed promptly and treated in endemic countries.^[2] Scrub typhus presentation varies from mild and self limiting fever to severe fatal conditions. In Indian studies , eschar has been documented variably, ranging from as high as 46% by Vivekanandan et al. from south India to as less as 9.5% by Mahajan et al.in north India.^[3] IgM ELISA is the most commonly used test for confirming scrub typhus. Immunofluorescence antibody assay (IFA) is the gold standard for diagnosis. This test is costly and also not commonly available. The antibiotics recommended are doxycycline, chloramphenicol, rifampicin and azithromycin. The complications of scrub typhus usually develop after the 1st week of untreated illness.

Pulmonary involvement is a well documented complication of scrub typhus reported with interstitial pneumonia at one end to fatal ARDS at other end.^[4] The incidence of chest radiographic abnormalities varies from 59-72%.^[5]

In endemic areas, coinfections have been described and these includes infection with other pathogens. Ahmad et al, who described malaria, dengue, and scrub typhus in five cases, 21 were dengue cross-reactive, malaria smear were positive in 14, and 9 individuals had IgM antibodies to scrub typhus and dengue.^[6] Our patient had empyema thoracis of right lung which is most likely a coinfection with scrub typhus. Patient responded to treatment with doxycycline and antibiotics for empyema within 72hr. Here basing on Eschar and sizeable Hepatosplenomegaly we have started IV doxycycline, ceftriaxone and vancomycin with immediate pus drain from right pleural cavity. Definitive treatment must be initiated without waiting for laboratory confirmation based on clinical evidence to prevent morbidity and mortality associated with it.

Conclusion

Scrub typhus should always be considered in the differential diagnosis of any febrile illness without localizing signs especially from rural areas. In endemic region one should carefully look for eschar on physical examination as typical eschar (cigarette burn ulcer) is pathognomonic sign of scrub typhus. Like malaria, scrub typhus also suppress immunity thus leading to variety of bacterial coinfection. In order to conclude high index of suspicion and eschar search will definitely clinch towards diagnosis of scrub typhus. Early diagnosis is very important because there is an excellent response to definitive treatment with less costly antibiotic like doxycycline or azithromycin. Finally timely antimicrobial therapy will help to prevent complications, morbidity and mortality.

We know sepsis, malaria, dengue, enteric fever are common coinfections with scrub but unusual coinfection like empyema thoracis prompted us to report this case.

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