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Scrub Typhus

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Scrub typhus is being increasingly reported in adults in India.It should be considered a strong possibility in all undifferentiated fevers. Two children with this infection are being reported highlighting the wide variation in clinical presentation. Specific tests should be preferred over Weil Felix test wherever possible especially in areas reporting a high incidence of the infection.

Key words: *India, Scrub typhus.*

Scrub typhus is a zoonosis, widely prevalent in many parts of Asia including India(1). Though there are reports of this infection occurring not uncommonly in South India(2,3), in clinical settings, the index of suspicion is still low. The typical rash and eschar may not be always present(3), leading to missed diagnosis. Scrub typhus is associated with about 10% mortality in our area in adults(3). There are no reports, to the best of our knowledge, on manifestations of scrub typhus in children in India. We report scrub typhus in 2 girls aged 10 and 12 years, respectively.

Case Reports

Two girls, both from areas around Vellore were admitted in November 2003 with prolonged fever. Their specific features are presented below.

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Case 1: This 10-year-old girl presented with history of fever and myalgia for 10 days and headache and vomiting for 3 days. On examination, she looked toxic and had a temperature of 102.4ºF. Other vital signs were stable and sensorium was normal. There were skin rashes, no conjunctival suffusion, petechiae, eschar or significant lymph-adenopathy. Systemic examination was normal except for a palpable liver of 2 cm. Investigations revealed hemoglobin of 10.8 g/dL, total leukocyte count of 4400/mm^3, with normal differential count, platelet count of 73,000/mm^3 and normal prothrombin time and activated partial thromboplastin time. Smear for malarial parasite and serology for Widal test were negative and ALT was 65 U/L. Blood culture was sterile. Chest *X*-ray and urine routine were normal. Mantoux test was negative. She was empirically started on intravenous cefotaxime. She continued to have fever and developed neck stiffness on day 4. CSF analysis done at this time was normal. Fever persisted and signs of respiratory tract infection were noticed on day 5. A repeat chest *X*-ray showed uniform haziness in the left lower zone. Considering the possibility of Mycoplasma pneumonia she was started on roxithromycin. However, fever persisted and cold agglutinin was negative. At this point other causes of prolonged fever were considered. Weil Felix test showed a titer of 40 for OXK antigen. Specific ELISA for Orientia tsutsugamushi was positive. A diagnosis of scrub typhus was made. Although the intensity of fever was coming down with roxithromycin, it was still persisting. The child was started on doxy-cycline and she became afebrile in 72 hours. Doxycycline was given for a total of 7 days.

Case 2: This 12-year-old girl presented with history of fever and cough for 15 days, loose stools for 5 days and one episode of generalised tonic clonic seizures followed by altered sensorium on the day of admission. On examination, she was febrile with a temperature of 102ºF and was comatose with a Glasgow coma score of 7/15. She had a fine maculopapular rash over the face. There was no conjunctival suffusion, eschar or significant lymphadenopathy. Her pulse rate, respiratory rate and blood pressure were normal. She had signs of meningeal irritation. The deep tendon reflexes were brisk and plantar responses were extensor bilaterally. Fundus was normal. Other systems were normal except for a palpable liver of 4 cm. Blood investigations revealed hemoglobin of 12 g/dL, total leukocyte count of 25,900/mm^3, normal differential count, platelet count of 48,000/mm^3, ALT of 81 U/L and activated partial thromboplastin time of 68 seconds. Widal test and smear for malarial parasite were negative. Chest radiograph was normal and Mantoux test was negative. CT scan of brain was normal. CSF analysis showed a total WBC count of 75 cells/mm^3 with 95% lymphocytes, protein 152 mg/dL and sugar of 48 mg/dL; culture was sterile. She was started on intravenous cefotaxime, phenytoin and mannitol. Weil Felix test showed a titer of 80 for OXK antigen. Specific ELISA for scrub typhus was positive. She was started on intravenous chloramphenicol after which there was a prompt defervescence with rapid normalisation of sensorium. She was discharged after one week and on follow up was doing well.

Discussion

Scrub typhus is prevalent in many parts of India(1). It is caused by *Orientia tsutsugamushi* (earlier known as *Rickettsia tsutsugamushi*) transmitted by the bite of larval trombiculid mite. There are reports of outbreaks of scrub typhus in southern India during the cooler months of the year(3). Both our cases occurred during winter.

The clinical features can be quite non-specific especially in an endemic area. The common symptoms described include fever, severe headache, myalgia, dry cough and gastrointestinal disturbances(3). However, combination of systems involved can vary. The characteristic rash and eschar may not be always present. Common signs described from children in Thailand include eschar at the site of bite, maculopapular rash, lymphadenopathy and hepatosplenomegaly(4). There is not enough data on children in India. Although eschar was absent in both children, second child had a transient rash.

Non-specific lung infiltrates with predilection to the lower zone is described in scrub typhus(5). However this feature in our first case, misdirected us towards a diagnosis of primary atypical pneumonia. Complications described include interstitial pneumonitis, atypical pneumonia, hepatitis, myocarditis, meningoencephalitis, disseminated intravascular coagulation and multiorgan failure. In our second child, features were suggestive of a meningoencephalitic process.

The wide clinical spectrum of this infection is reflected by these two cases. The first child with prolonged fever was relatively well whereas the second child with slightly more prolonged course of the illness, required intensive care.

Diagnosis of scrub typhus is mainly by serological methods(6). Weil Felix test has a low sensitivity and specificity but may be helpful in suggestive clinical settings. Better serological tests are indirect fluorescent antibody test(7) and ELISA using specific 56 kda recombinant antigen. In both our children the specific ELISA was positive. Specific tests are preferred wherever possible. Conventional antibiotics used for treating scrub typhus are doxycycline and chloramphenicol. Response to these drugs was excellent in the two children. A therapeutic trial of anti- biotics is also warranted if specific tests are unavailable and the index of suspicion is high. Macrolides may prove useful in children and pregnant women(8,9). In the first child, though the intensity of fever was coming down with roxithromycin, as there was no sufficient data on its effectiveness in scrub typhus, the child was started on doxycycline.

Diagnosis of scrub typhus and other rickettsial infections is important, as these are treatable with inexpensive antibiotics and if untreated can be fatal. Unless there is a high index of suspicion, it is likely to be missed as the clinical presentation may mimic other common infections in the tropics.

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Acute Plastic Bronchitis

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Plastic bronchitis is a rare disorder characterized by the formation of bronchial cast. The etiology is obscure, though usually associated with conditions like asthma, aspergillosis, pneumonia, cystic fibrosis and cardiac problems.

Keywords: *Foreign body, Plastic bronchitis.*

Plastic bronchitis is a rare disorder characterised by the formation of branching mucoid bronchial casts(1). It is usually associated with underlying pulmonary diseases like bronchial asthma, allergic bronchopulmonary aspergillosis, cystic fibrosis, bronchiectasis and at times other system diseases like congenital heart defects and sickle cell disease(2). Plastic bronchitis presenting as acute respiratory distress with wheezing, breathlessness, and cough, mimicking foreign body aspiration had been reported(3,4). Any child with acute respiratory distress refractory to conventional medical therapy with unusual radiographic picture needs intraluminal evaluation with bronchoscopy for proper management(5).

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Case Report

A one-year-old female child, second born to third degree consanguineous parents was admitted with complaints of cough, fever for two days and progressively increasing breathlessness. There was no history of foreign body aspiration or similar episode previously. Clinically the child was irritable, tachypneic with respiratory rate of 70/min and heart rate of 142/minute. Auscultation demonstrated normal vesicular breath sounds on both sides with rhonchi. Other systems were essentially normal. Chest skiagram