

## Case Report:

### Scrub typhus during pregnancy

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#### ABSTRACT

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Scrub typhus is an uncommon cause of acute febrile illness during pregnancy. If not diagnosed early and treated appropriately it can lead to adverse maternal and foetal outcome. We report the case of a 27-year-old woman, gravida 2, para 1, live birth 1, with 29 weeks gestation who presented to the hospital with high grade fever, chills, severe headache and body pains of 9 days duration. The diagnosis of scrub typhus was confirmed by serum immunochromatography. She was successfully treated with azithromycin, and discharged. There were no foetal complications.

**Key words:** *Pregnancy, Scrub Typhus, Fever*

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#### INTRODUCTION

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Scrub typhus is a rickettsial infection caused by the obligate intracellular gram-negative parasite *Orientia tsutsugamushi* and transmitted to humans by the bite of larva (chiggers) of Trombiculid mites. The disease is endemic to a geographically distinct region, the “Tsutsugamushi triangle” which extends from northern Japan and far eastern Russia in the north to northern Australia in the south and to Pakistan and Afghanistan in the west. Of late, the disease is increasingly being seen in the southern and western parts of India.<sup>1,2</sup> After an incubation period of 6-21 days, onset is characterised by fever, headache, myalgia, cough and gastro-intestinal symptoms. A primary papular lesion which later crusts to form a flat black eschar may be present at the site of larval bite. It causes a disseminated vasculitis and perivascular inflammatory lesions resulting in significant vascular leakage and end-organ injury. It affects all age groups.

Scrub typhus is uncommon during pregnancy, and it is associated with pre-term delivery, increased foetal loss and small for gestational age infants.<sup>3</sup>

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#### CASE REPORT

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A 27-Year old woman, gravida 2, para 1, live birth 1, with 29 weeks gestation was referred with a history of high grade fever, chills, severe headache and body pains of 9 days duration. There was no history of cough, dyspnoea, jaundice, skin rash, joint pains, vomiting, diarrhoea, urinary symptoms or bleeding manifestations. She did not give history of diabetes mellitus, or hypertension. She was undergoing regular ante-natal checkups and was referred from a peripheral health centre as her symptoms did not subside with anti-malarial treatment with intravenous artesunate and antibiotic treatment with intravenous ceftriaxone for 5 days.

On general physical examination the patient was conscious and coherent. There was no

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icterus, skin rash, pedal edema or lymphadenopathy; pulse 90/minute, blood pressure 110/70 mmHg, temperature 100 °F, and respirations 20/min. Cardiovascular, respiratory, neurological and abdominal examination were normal.

Laboratory investigations were as follows: haemoglobin 12.6 g/dL, total leucocyte count 9750 cells/mm<sup>3</sup> with a differential count 71% polymorphs, 22% lymphocytes, 5% eosinophils and 2% monocytes; platelet count was 144,000/mm<sup>3</sup>; erythrocyte sedimentation rate was 40 mm/at the end of first hour. Serum alanine aminotransferase 29 U/L, alkaline phosphatase 240 U/L, and serum creatinine 0.9 mg/dL. Peripheral smear examination revealed normocytic, normochromic red cells. There were no abnormal cells or Haemoparasites. Urine examination was normal. Dengue serologic testing by rapid solid phase immunochromatographic test [Dengue Day 1 test kit for the detection of dengue NS1 antigen and differential detection of immunoglobulin G (IgG) and immunoglobulin M(IgM) antibodies in human serum, J.Mitra & Co. Pvt. Ltd. New Delhi] and quantitative buffy coat test for malarial parasite were negative. Serologic testing for human immunodeficiency virus (HIV) 1 and 2, hepatitis B surface antigen (HBsAg) were negative. Abdominal ultrasonography showed mild splenomegaly. Blood and urine cultures were sterile. As there was thrombocytopenia with fever, serology for scrub typhus by rapid immunochromatographic assay (SD Bioline Tsutsugamushi kit, Standard Diagnostics Inc., Korea) was done which turned positive.

Oral azithromycin 500mg once daily was started and by the second day of therapy she became afebrile. By fourth day all her symptoms subsided and she was discharged on fifth day of therapy. On follow-up she had an uneventful term delivery; no foetal complications were evident.

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## DISCUSSION

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The clinical features of scrub typhus are similar in pregnant and non-pregnant women and include fever with chills, myalgia and headache.<sup>4</sup> The diagnosis of scrub typhus may often be missed because of similarities with other tropical febrile illnesses. Characteristically, the eschar which forms at the site of tick bite is pathognomonic of scrub typhus but is found in less than 60% cases<sup>4</sup> and may often be missed in dark skinned individuals. Also the occurrence of eschar is rare in South-east Asian patients. Indigenous people of endemic areas commonly have a less severe illness without any rash or eschar.<sup>5</sup> In pregnant women infected with scrub typhus incidences of increased foetal loss, pre-term delivery and small for gestational age infants are reported.<sup>6</sup>

The drug of choice in non-pregnant individuals include oral tetracycline (500mg four times daily) or doxycycline (200mg OD) for seven days.<sup>5</sup> As per United States Food and Drug administration categories of drug safety during pregnancy, tetracyclines come under Category D (evidence of human foetal risks exists but benefits may outweigh risks in certain situations) and hence are contraindicated in pregnant women. Chloramphenicol, a category C drug (animal reproduction studies have shown an adverse effect on the foetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks) is also effective against scrub typhus in both pregnant and nonpregnant women.<sup>7</sup> It is prescribed with caution to late trimester pregnant women because of an increased risk to the foetus at the time of delivery. Azithromycin, a macrolide antibiotic which falls under category B (no evidence of adverse effects on the fetus in animal studies but there is a lack of controlled studies on human pregnancy) has been found to be more effective

in doxycycline-susceptible and doxycycline resistant strains causing scrub typhus. Rapid defervescence after antibiotic is so characteristic that it is used as a diagnostic test for *Orientia tsutsugamushi*.<sup>5</sup>

In an earlier report,<sup>7</sup> a single 500 mg dose of azithromycin was administered to eight pregnant women with scrub typhus. They responded well with good maternal and foetal outcome.<sup>7</sup> In another case series<sup>8</sup> three of the four pregnant women with scrub typhus treated with azithromycin had survived and one died. The death was attributed to the late presentation at the hospital with multiple organ involvement.<sup>8</sup>

The present case report illustrates the need to consider the diagnosis of scrub typhus in pregnant women with unexplained fever especially in view of the fact that the disease is becoming increasingly common in India. Early diagnosis and treatment with azithromycin results in a favourable outcome for both the mother and foetus.

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