



SCRUB TYPHUS MIMICKING ACUTE PYELONEPHRITIS IN PREGNANCY, A CASE REPORT

Dr Vinita Singh*	Associate Professor, Obstetrics & Gynaecology Department, AIIMS Raipur. *Corresponding Author
Dr Aparajita Rastogi	Senior Resident, Obstetrics & Gynaecology Department, AIIMS Raipur
Dr Loukya Kodumuri	Junior Resident, Obstetrics & Gynaecology Department, AIIMS Raipur
Vijayalakshmi Shanbhag	Senior Resident, Obstetrics & Gynaecology Department, AIIMS Raipur
Chandrashekhar Shrivastava	Associate Professor, Obstetrics & Gynaecology Department, AIIMS Raipur
Nutan Sinha	Junior Resident, Obstetrics & Gynaecology Department, AIIMS Raipur

ABSTRACT Scrub typhus is an infectious disease caused by *Orientia tsutsugamushi*, carried by mites. It is endemic in Southeast Asia, including India, Pakistan, and Sri Lanka. It has a broad spectrum of clinical manifestations ranging from sub-clinical disease to organ failure to fatal disease. We are reporting the case of a 22yr old primigravida at 33 weeks of gestation with acute febrile illness, burning micturition, breathlessness, raised bilirubin and hepatomegaly which lead to a diagnostic dilemma between pyelonephritis and scrub typhus. After her evaluation, acute pyelonephritis with the features of sepsis with scrub typhus infection was found. The characteristic eschar of scrub typhus was absent in our patient. IgM antibody for scrub typhus came positive in our case. Azithromycin, a macrolide, is the drug of choice for treatment in pregnant women owing to its safety profile and our patient too responded well to 5 days treatment of 500 mg of Azithromycin.

KEYWORDS : Scrub typhus, Pyelonephritis, Acute febrile illness, Azithromycin, Doxycycline, Tropical fever.

INTRODUCTION.

Scrub typhus is an infectious disease caused by *Orientia tsutsugamushi*, carried by mites. It is endemic in Southeast Asia, including India, Pakistan, Sri Lanka. Clinically the patient may present with fever, headache, myalgia, skin rash & may complicate interstitial pneumonia, pulmonary edema, congestive heart failure, circulatory collapse & central nervous system dysfunction. There is the risk of spontaneous birth or stillbirth if the infection occurs in pregnancy. Scrub Typhus could be diagnosed either by clinical history or history of a visit to an endemic area and physical findings. Serologic testing or biopsy of an eschar further confirms the diagnosis.

In pregnancy, certain structural & physiological changes occur in the urinary tract, including dilatation of the ureter and renal pelvis & pressure on the bladder and ureters from the enlarging uterus, which causes urinary stasis, hence increasing the risk of acute pyelonephritis. specially in the second or third trimester. The symptoms of acute pyelonephritis are fever (>38°C or 100.4°F), flank pain, nausea, and vomiting. Symptoms of cystitis (e.g., dysuria) may not always be present, but Pyuria will be typically present. Women with severe pyelonephritis may develop complications like septic shock, acute respiratory distress syndrome (ARDS)

Here, we are presenting a case report of a pregnant lady who came for the first visit at 33 weeks of gestation in an emergency with acute febrile illness, pneumonia, with burning micturition and laboratory findings also showed raised bilirubin. After her evaluation, acute pyelonephritis with the features of sepsis with scrub typhus infection was found.

CASE DESCRIPTION:

A 22year unbooked primigravida at 33 weeks of gestation came in emergency hours on Nov 5, 2021 with fever associated with chills, body pains, and burning micturition for three days, and new-onset dyspnea. She was admitted to a private hospital for one day & referred to the higher center for dialysis in view of deranged renal function. She did not have cough, jaundice, skin rash, diarrhea, or bleeding manifestations. There was no history of diabetes mellitus or hypertension. She had regular antenatal checkups in a private hospital. She had one episode of discharge per vaginum in her second trimester which responded to medicines.

On general physical examination, she was conscious and oriented. Her

blood pressure was 104/52 mm of mercury, and her pulse was 140 beats per minute. Her temperature was 100.2°F. Her saturation was 80% on room air and hence kept on non-rebreather mask following which she maintained saturation of 98-100%. There was facial puffiness and moderate pedal edema. On respiratory system examination tachypnoea, bilateral basal crepitations with equal air entry were found. On per abdominal examination, uterus was 32-34 weeks size, longitudinal lie, and cephalic presentation, relaxed. Fetal heart rate was 142 beats per minute and was regular.

On Pulmonary medicine and nephrology review for failing saturation and deranged renal function tests, a provisional diagnosis of acute pyelonephritis/ acute febrile illness /Community-acquired pneumonia/ was made. A panel of investigations done to rule out tropical fever syndromes in view of thrombocytopenia and anasarca. Antibiotics, Injectable piperacillin-tazobactam in renal dose, Tab Azithromycin along with antipyretics were given to the patient.

Dyspnea relived on the second day; she was shifted to face mask at 2-4 liters O₂/minute and was gradually weaned off, and maintained 99% saturation on room air.

Laboratory investigations were as follows:
COVID -19 Rapid antigen test and RTPCT were negative.

Complete blood count:

PARAMETER	6-11-2021	8-11-2021	10-11-2021	12-11-2021
Hemoglobin (g/dl)	9.9	11.4	14.6	8.6
Total leucocyte count (per microliter)	9230	5310	8190	11670
Platelet count (per microliter)	60,000	45,000	45,000	1,10,000

Renal function tests:

Parameter	6-11-2021	8-11-2021	10-11-2021	12-11-2021
Blood urea (mg/dl)	50	56	52	41
Creatinine (mg/dl)	2.18	2.45	1.77	1.21

Liver function tests were within normal limits. Peripheral blood smear- revealed no significant abnormality. Dengue NS1 Ag was negative. No malarial parasite found on peripheral blood smear

examination. Serological testing for HIV, HBsAg, HCV were negative. Blood and urine cultures showed no significant bacterial growth CRP (> 80 mg/L) and procalcitonin (108 ng/ml) were raised. Abdominal ultrasound was s/o hepatomegaly measuring 19.2cm. Patient had thrombocytopenia with fever, hence serology for leptospirosis and scrub typhus sent, which is endemic in this region of which scrub typhus IgM found positive.

Obstetric ultrasound done on Nov 9, 2021 showed a single live intrauterine gestation of 32 weeks 1 day in a longitudinal lie and cephalic presentation, with the estimated fetal weight of 2.143kg and normal Doppler with adequate liquor.

She went into spontaneous preterm labor and delivered a preterm, live baby boy of 2.395 kg at 6:09 pm on Nov 10 2021. The baby cried immediately after birth and was mother's side throughout her hospital stay. The Intrapartum and postpartum period were uneventful.

DISCUSSION

Our patient presented with acute febrile illness with burning micturition and deranged renal function tests. It caused a diagnostic dilemma of pyelonephritis in our case. However, if a pregnant lady comes with acute febrile illness, entire fever workup should be done, including viral, bacterial, and parasitic infections especially the infections which are endemic in that particular region. Patient initially started on Reno protective dose of piperacillin and tazobactam with a provisional diagnosis of pyelonephritis with sepsis.

Acute pyelonephritis is generally an infection of late pregnancy and the puerperium. Up to 90% of cases have reported to occur in the second and third trimesters.³

Management of acute pyelonephritis in pregnant women includes parenteral antibiotics. Parenteral, broad-spectrum beta-lactams are the antibiotics of choice for initial empiric therapy of pyelonephritis. Once the patient is afebrile for 48 hours, it can be switched to oral therapy depending upon the result of culture susceptibility to complete 10 to 14 days of treatment.⁴ suppressive antibiotics should be used for the remainder of the pregnancy to prevent a recurrence.

In our patient, we sent for a panel of investigations for all causes of acute febrile illness. There was thrombocytopenia, and the ultrasonography of the abdomen showed maternal hepatomegaly, our differentials for acute febrile illness in the patient shifted to causes like scrub typhus and Leptospirosis, which usually has hepatorenal involvement. The characteristic eschar of scrub typhus was absent in our patient. IgM antibody for scrub typhus came positive in our case.

Common presenting symptoms in scrub typhus are fever with chills, vomiting, myalgia, headache, and abdominal pain—the clinical manifestations of this disease range from sub-clinical disease to organ failure to fatal disease. Patients presenting late may develop complications and even death may occur.⁵ Eschar presenting at the site of mite bite, pathognomonic of scrub typhus, but in less than 60% cases, it's not found. People residing in the endemic areas usually have less severe diseases & not develop a skin rash. Vasculitis secondary to pathological immune reactions forms the possible etiology for the symptoms of headache, abdominal pain, hepatitis, and renal involvement. Lung involvement varies from interstitial pneumonitis to acute respiratory distress syndrome (ARDS), which is hypothesized to be due to inflammatory damage of the alveolar endothelium.⁶ Diagnosis of scrub typhus is made by antibody assay & presence of IgM antibody has the sensitivity of 96% and specificity of 99%.⁷

Azithromycin, a macrolide, is the drug of choice for treatment in pregnant women owing to its safety profile. In postpartum non-breastfeeding patients, doxycycline 100 mg twice daily may be given for 14 days.^{8,9} The dose of Azithromycin used to treat scrub typhus in pregnancy has varied from a single 500 mg dose to 1–2 g for three to five days. In a case series by Kim et al., there were eight pregnant women with scrub typhus. All treated with a single 500-mg dose of Azithromycin. All patients responded well to the treatment, and no relapses reported. Finally, pregnancy showed good maternal and fetal outcome.¹⁰

Our patient started on Azithromycin 500mg OD, and she responded well with no febrile episodes. She was given Azithromycin for five days and discharged in good health.

The key to appropriate diagnosis and proper management of any patient is the thorough workup of the patient. This case report

illustrates that the diagnosis of scrub typhus has to be kept in mind in case of acute febrile illness in pregnant patients. Early diagnosis and treatment are the key to decreasing morbidity in both mother and fetus.

REFERENCES

1. Rohilla M, Meena M, Jain V, Kalra J, Prasad G. Trop Doct. 2016;46(3):153. Epub 2015 Oct 29. : a case series: Scrub typhus in pregnancy
2. Cunningham FG, Lucas MJ, Baillieres Clin Obstet Gynaecol. 1994;8(2):353. Urinary tract infections complicating pregnancy
3. Gilstrap LC 3rd, Cunningham FG, Whalley PJ. Acute pyelonephritis in pregnancy: an retrospective study. Obstet Gynecol 1981;57:409–13.
4. American College of Obstetricians and Gynecologists. Antimicrobial therapy for Obstetric patients. ACOG educational bulletin 245. 1998; Washington, DC.
5. Mahajan SK. Scrub typhus. J. 2005; 53: 954-58 Assoc Physicians India. Poomalar GK, Rekha R. J Clin Diag Res 2014;8:OR01-03A case series of scrub typhus in obstetrics.
6. Blacksell SD, Jenjaroen K, Phetsouvanh R, Wuthiekanun V, Day NP, Newton PN, et al. Clin Vaccine Immunol 2010; 17: 263–266. Accuracy of AccessBio Immunoglobulin M and total antibody rapid immunochromatographic assays for diagnosing acute scrub typhus infection.
7. Choi E and Pai H. Clin Infect Dis 1998; 27: 1538–1539. Azithromycin therapy for scrub typhus during pregnancy.
8. Kim YS, Yun HJ, Shim SK, Koo SH, Kim SY and Kim S. Clin Infect Dis 2000; 39: 1329–1335. A comparative trial of a single dose of Azithromycin versus doxycycline for the treatment of mild scrub typhus.
9. Kim YS, Lee HJ, Chang M, Son SK, Rhee YE, Shim SK. Am J Trop Med Hyg. 2006; 75(5):955-59. Scrub typhus during pregnancy and its treatment: A case series and review of the literature.