

A Case Report of Scrub Typhus with Multi Organ Dysfunction

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ABSTRACT

Published on 28th September 2015

Scrub typhus is an acute febrile illness recently re-emerging from sub urban and urban areas of Thiruvananthapuram. Usually it presents as short febrile illness of self limiting nature. But it may involve any organ resulting in complications like pneumonitis, atypical pneumonia, ARDS, altered liver function tests, acute kidney injury (AKI), myocarditis, thrombocytopenia, meningoencephalitis, or multi organ dysfunction. This can lead to significant morbidity and mortality. We report a case of scrub typhus presenting as multi organ dysfunction. Knowledge about the varied clinical presentations and complications of scrub typhus will help in early recognition and treatment so that complications can be avoided.

Keywords: Febrile illness, multi organ dysfunction, scrub typhus.

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INTRODUCTION

Scrub Typhus is caused by the organism *Orientia tsutsugamushi* an obligatory intracellular Gram negative coccobacillus. It is transmitted by the bite of infected larvae of trombiculid mite (Chiggers). Primary vector for the disease is *Leptotrombidium deliense*. Human beings get infected when they come in contact with mite infested areas. Incubation period is 6-21 days. The main pathogenesis is either focal or disseminated vasculitis or perivasculitis. Scrub typhus if undiagnosed or diagnosed late may lead to complications with multi system involvement. It is important to differentiate it from dengue fever, leptospirosis, malaria, enteric fever, so that appropriate treatment can be given.

CASE REPORT

A 58 year old housewife from Thirumala, suburban area of Thiruvanthapuram presented to us with complaints of continuous, high grade fever of 3 days duration. Cough with mucoid sputum and breathlessness was also present. She is diabetic for the past 5 years, on oral hypoglycemics. On admission she was febrile, dyspnoeic, HR 100/min, BP 120/80 mmHg. RR - 24/min, SPO₂-94%. There was no rash, eschar or lymphadenopathy. Chest examination revealed bilateral rhonchi and crepitations in the right infrascapular area. Abdomen examination revealed liver palpable non tender. Other systems within normal limits.

Laboratory investigation showed Haemoglobin-10.6g%, total count-7300/cmm (N-89, L-11), ESR-39mm/hr, platelet count-1.5lakh/cmm, RBS-248mg%, B.urea-57, S.creatinine-1.4mg%, S.Bilirubin-0.3g%, SGOT/PT-71/51, PT-INR-1. Malaria parasite was negative.

She was started on Inj. Ceftriaxone, along with other symptomatic and supportive measures. On third day she developed tachycardia, hypotension and altered sensorium. Her total count increased to 12700 with neutrophilia, platelet count dropped to 99000, Blood Urea was 197 and S.creatinine 4.6mg%, S.Sodium 127meq/dl, S.Potassium 4.6meq/dl. She was shifted to MICU. In the MICU she developed atrial fibrillation with fast ventricular rate which was reverted with I/V Amiodarone.

Her Trop-T was 86, Cardiac LDH-1285, Cardiac CPK-1195. S.uric acid 13mg%, S.Bil 0.5%, SGOT/PT 86/63, S.Pr.6.5, S.alb.3.1, ALP 57, S.Ca 7.3, S.Phosphorus 4.5. Lepto and Dengue IgM was negative, Scrub typhus IgM was positive. Since she was having vomiting, instead of Doxycycline, Inj. Azithromycin was started. Her renal function deteriorated, on

Table 1. Daily renal function charted

	21/10	25/10	27/10 P.D	29/10	4/11	6/11
B. urea	57	197	300	138	100	65
S. creat	1.4	4.6	4.11	2.5	1.5	1.0

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seventh day her B.Urea increased to 300mg%, S.cr to 4.6 mg%. Platelet count dropped to 69000/cmm, ABG showed metabolic acidosis. GFR was 13.6, BP 116/70 mmHg and HR-112/min irregular. At this juncture she was started on Peritoneal Dialysis. Seven cycles of Peritoneal Dialysis was given. Her condition improved, urine output increased.

Gradually her blood urea level dropped to 82 mg% and S.creatinine to 1.1mg%, Platelet count increased to 95000/cumm. As vomiting subsided Doxycycline was also started. Subsequently she was shifted to the ward after 18 days in MICU. She improved and discharged after 3 weeks of hospital stay. Reviewed after 3 weeks showed B.Urea-12mg%,S .Creatinine 0.6 mg%, liver function, platelet count, cardiac status became normal. She is on regular follow up and is doing well.

DISCUSSION

In Kerala Dengue fever, Leptospirosis, Malaria, H1N1, Enteric fever and various other viral fevers are prevalent now. But recently we see a resurgence of Rickettsial fevers especially Scrub typhus in Thiruvananthapuram. The signs and symptoms of scrub typhus may be nonspecific and clinical features may mimic other fevers. Though of self limiting nature with spontaneous recovery, delay in diagnosis and appropriate treatment may lead to complications including multi organ dysfunction. In this patient there was thrombocytopenia, elevated liver enzymes, myocarditis, pneumonitis, acute kidney injury. Eschar which is the most useful diagnostic clue of scrub typhus was absent in this patient. Many Indian studies revealed eschar in less number of patients.

We used IgM ELISA for diagnosis which is the main diagnostic modality in India. IgM was repeated and it showed a increase in titre. Indirect immunofluorescence is the gold standard in diagnosis. Weil-Felix agglutination test is specific but not sensitive. Acute kidney injury is seen in 13-27% of patients in two different Indian studies. In this patient peritoneal dialysis helped in normalising renal function. Peritoneal Dialysis is a mode for renal replacement therapy which is useful in centres where modern technology or expert medical staffs is not available. It is performed through a temporary intraperitoneal catheter through which dialysate solution is instilled into and removed from peritoneal cavity at regular intervals. Clearance of solutes by diffusion and convection is facilitated by peritoneal membrane. High concentration of dextrose

in dialysate solution results in an osmotic gradient producing ultra filtration of water. It is tolerated well in hemodynamically unstable patients. In patients with multi-organ dysfunction in ICUs peritoneal dialysis helps in stabilizing them.

In this patient Inj. Azithromycin was given instead of Doxycycline initially as she was having vomiting. After her condition stabilized Doxycycline also was started. Chloramphenicol and Rifampicin also is useful.

CONCLUSION

Scrub typhus has to be differentiated from other causes of short febrile illnesses because clinical and laboratory features may be similar. Eschar may not be seen in all cases of scrub typhus. When patient presents with fever with multi system involvement scrub typhus should always be considered as a differential diagnosis. Peritoneal dialysis is a good mode of renal replacement therapy in AKI. Inj. Azithromycin is useful where oral Doxycycline is not tolerated. High index of suspicion and prompt treatment will help in avoiding unnecessary investigations and reducing morbidity and mortality.

END NOTE

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Conflict of Interest: None declared

Editorial comments

Rickettsial fevers like Scrub typhus have to be thought of in the differential diagnosis of febrile illness these days. Many aetiological factors once thought eradicated have re-emerged due to several public health reasons like migrant labour from other states, poor hygiene in public places and improper waste disposal. This article describes the presentation of a case in a general hospital with several morbidities. The case needs the attention of the general practitioners and specialists alike.

Cite this article as:

Kumari PBM, Reddy SD. A Case Report of Scrub Typhus with Multi Organ Dysfunction. Kerala Medical Journal. 2015 Sep 17;8(3):27-9.

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