



## SCRUB TYPHUS: A GREAT MASQUERADER

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### ABSTRACT

**Introduction:** Scrub typhus, a rickettsial disease, with high morbidity and mortality is prevalent throughout India.

**Aims & objectives:** The aim is to study the different clinical manifestations and complications associated with scrub typhus.

**Material & methods:** This was a prospective study carried out in the department of general medicine, Calcutta National Medical College & Hospital, Kolkata, during second half of the year 2018 (July 2018-December 2018) and patients were followed up for 3 months.

**Result:** Total 86 patients were diagnosed with scrub typhus during the study period. 53.5% of patients were female. Age range of the patients was as low as 20 years and as high as 73 years with most patients were in the fourth decade (29%). Apart from fever, respiratory distress and cough were the most common presentation (33.7%). Among other presenting complaints altered sensorium, lymphadenopathy and decreased urine output were the common ones.

**Conclusions:** Scrub typhus is prevalent throughout the India. It can present like innocuous fever or severe sepsis with multi organ dysfunction. It should be diagnosed at proper time to administer proper management to save the patient's life, because scrub typhus has high mortality.

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## INTRODUCTION

It is a zoonotic rickettsial illness caused by *Orientia tsutsugamushi*. It is endemic in the "Tsutsugamushi triangle" extending from northern Japan and far eastern Russia to northern Australia in the south and Pakistan in the west<sup>1</sup>. From this geographical distribution, it is clear that almost whole of India becomes the endemic zone for scrub typhus<sup>2,3,4</sup> but still it is under diagnosed and as a result it causes great morbidity and mortality. In the endemic zone more than 1 billion people are at risk and more than 1 million cases every year<sup>5</sup> with mortality as high as 30%<sup>6,7</sup> is reported. Scrub typhus causes disseminated vasculitis<sup>8</sup> and can involve any organ system of our body. Hallmark of scrub typhus is eschar but it is not present in all the cases. Scrub typhus can present like undifferentiated fever, lymphadenopathy, pneumonia even meningitis. We carried out the study in a tertiary care level hospital in Kolkata in eastern part of India to look for the various presentations of scrub typhus and its outcome.

### Aims and Objectives

The aim is to study the different clinical manifestation and complications associated with scrub typhus.

## MATERIAL AND METHODS

This was a prospective study carried out in the department of general medicine, Calcutta National Medical College, Kolkata,

during second half of the year 2018 (July 2018-December 2018) and patients were followed up for 3 months. All patients admitted with acute febrile illness in our hospital were evaluated. Detailed history and clinical examination were done with a meticulous search for the presence of eschar. Laboratory investigations included complete blood count, ESR, peripheral blood smear, blood culture, fasting blood sugar, liver and renal function tests, urine routine, microscopic examination and culture sensitivity, malaria parasite and dual antigen, Dengue NS1 antigen by ELISA, Dengue IgM, Typhi dot, IgM leptospira, IgM scrub typhus, USG (ultrasonography) whole abdomen and chest X-ray. Other tests such as high resolution computed tomography (HRCT) thorax, cerebrospinal fluid analysis, magnetic resonance imaging (MRI) brain were performed where indicated. Patients whose scrub typhus IgM serology was positive were included in the study group. Patients were treated with oral or intra venous doxycycline 100 mg BD for 2 weeks, depending upon the severity and mental status of the patients. One patient was pregnant at the time of diagnosis and she received azithromycin 500 mg for 3 days.

## RESULTS

Total 86 patients were diagnosed with scrub typhus during the study period. Out of 86 patients 46 (53.5%) were female and 40 (46.5%) were male. Among the patients one woman was pregnant. Age range of the patients was as low as 20 years and

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as high as 73 years with most patient is in fourth decade (29%) (Table 1). Most of the patients presented between 3 to 7 days of onset of symptoms (73.2%) (Table 2). Fever was present in 100% cases. Respiratory distress and cough were the most common presentation (33.7%). Among other presenting complaints altered sensorium, lymphadenopathy and decreased urine output were the common one (Table 3). 44.1% patients had anemia, 31.3% patients developed thrombocytopenia, and 66.2% patients had transaminitis (Table 4).

**DISCUSSION**

Scrub typhus is a well-known tick borne disease with high mortality rate if, not diagnosed at proper time or managed properly. Almost all of India comes under the endemic zone for scrub typhus, still it is often under diagnosed. In our study, we found 86 cases of scrub typhus in our institution during the study period of 6 months from July to December which is similar to other studies<sup>9,10,11,12</sup>. 53.5% patients were female with 29% patients were in fourth decade. This finding is similar to other Indian studies<sup>13, 14</sup>. Presentation of scrub typhus vary from undifferentiated fever to severe fatal illness with multi-organ dysfunction<sup>15</sup>. In our study also we found the same manifestations. Eschar is one of the important clinical findings, seen at the site of tick larva attachment, but it is not universal finding and its presence varies study to study<sup>16</sup>. In our study, eschar was present only in 10% cases. Scrub typhus can involve every major organ system in our body. In our study, majority of the patients had involvement of gastro intestinal system especially the liver. Other commonly involved systems were the respiratory system, central nervous system, lymph nodes among others. Case fatality rate may be as high as 30%<sup>17</sup>. In our study 3 out of 86 (3.48%) patients died.

**CONCLUSIONS**

Scrub typhus is prevalent throughout the India. It can present like innocuous fever or severe sepsis with multi organ dysfunction. Most important part in the diagnosis is high vigilance. With increasing availability of investigation procedures, it should be diagnosed at proper time to administer proper management to save the patient’s life, because of high mortality associated with scrub typhus.

**Table 1** Age distribution of the patients

Age distribution-yrs	Number	Percentage
20-29	12	14
30-39	25	29
40-49	19	22
50-59	16	18.7
60-69	11	12.8
≥70	3	3.5
Total	86	100

**Table 2** Day of presentation

Day since onset of symptoms	Number	Percentage
≤3 days	9	10.4
4-7 days	63	73.2
>7 days	14	16.4
Total	86	100

**Table 3** Presenting complaints

Presenting complaint	Number	Percentage
Fever	86	100
Lymphadenopathy	15	17.4
Respiratory distress/cough	29	33.7
Vomiting	16	18.6
Jaundice	9	10.4

Altered sensorium	22	25.5
Convulsion	6	6.9
Facial puffiness	7	8.1
Decreased urine output	12	13.9

**Table 4** Laboratory investigations

	Number	Percentage
Haemoglobin<10 g/dl	38	44.1
Total leucocyte count >11 000/cmm	39	45.3
Platelet count <100 000/cmm	27	31.3
Increased bilirubin (normal 0.3–0.8 mg/dl)	15	17.4
Transaminitis	57	66.2
Elevated creatinine	17	19.7
Hyponatremia	25	29

**Table 5** Major organ/system involvement

System/Organ involvement	Number	Percentage
Respiratory	41	47.67
Liver	57	59.3
Central nervous system	28	32.55
Kidney	17	19.76
Cardiovascular system	3	3.48



**Pic 1** Eschar on neck



**Pic 2** Eschar on abdomen



**Pic 3** Unilateral pneumonia



**Pic 4** Bilateral pneumonia

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