A Study of Clinical and Laboratory profile of Scrub Typhus in a Tertiary care Teaching Hospital

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Abstract

Background: Scrub typhus, also known as bush typhus, is a disease caused by bacteria called Orientatsutsugamushi. This rickettsial infection is transmitted to humans through the bite of infected heptomibium mite larvae. Subjects and Methods: All patients were subjected to investigations to establish cause of febrile illness. After complete physical examination, routine laboratory investigations like CBC, serology for enteric fever, malaria, Scrub typhus and USG abdomen, chest x-ray, urine analysis and renal function tests were done in all patients. In all cases diagnosis was based on detection of antibodies using a single step rapid immunochromatography method. Results: 120 patients, who were admitted with undifferentiated acute febrile illness during the study period diagnosed to be suffering from Scrub typhus with positive antibodies, the following results were noted. Fever was the most common symptom seen in all the 120 patients (100%). The duration of fever ranging from one to seven days was present in 94 patients (78.3%), fever for 7-12 days present in 5 patients (4.2%) and fever for more than 2 weeks was present in 5 patients (4.12%). Headache and vomitings were the commonly associated symptoms. Generalized muscle pain (myalgia) was present in 63 patients (52.5%). Headache was present in 64 patients (53.3%), diarrhea was complained by 2 patients (1.7%), vomiting in 47 patients (39.2%), shortness of breath was present in 16 patients (13.3%), abdominal pain was present in 17 patients (14.2%) and skin rash was seen in 1 patient (0.8%). Conclusion: Majority of the cases of Scrub typhus are seen in the cooler months of the year and in the rainy season. It has to be considered in the differential diagnosis of undifferentiated acute febrile illness.

Keywords: Clinical symptom & Scrub typhus.

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Introduction

Scrub typhus, also known as bush typhus, is a disease caused by bacteria called Orientatsutsugamushi.[¹] This rickettsial infection is transmitted to humans through the bite of infected heptomibium mite larvae (chiggers).[²] It predominantly occurs during the cooler months of the year as well as during the rainy season.[³] Scrub typhus is an important cause of acute febrile illness and needs to be differentiated from other causes of febrile illness such as malaria, enteric fever, dengue fever, leptospirosis.[⁴] After the initial infection, the rickettsial infection spreads systemically and the infected person develops various symptoms like fever, malaise, myalgia, rash, cough, lymphadenopathy and gastrointestinal disturbances. Various serological tests are available for diagnosis of Scrub typhus of which rapid immunochromatographic test is the most commonly used. The disease response to antibiotic is excellent. The aim of the present study is to present clinical manifestations, laboratory findings and treatment outcomes of adult Scrub typhus in a tertiary care setting.

Subjects and Methods

It is a prospective and retrospective study conducted from 2016-2018 at Nimra Institute of Medical Sciences, which is a tertiary care teaching hospital. All patients were subjected to investigations to establish cause of febrile illness. After complete physical examination, routine laboratory investigations like CBC, serology for enteric fever, malaria, Scrub typhus and USG abdomen, chest x-ray, urine analysis and renal function tests were done in all patients. In all cases diagnosis was based on detection of antibodies using a single step rapid immunochromatography method.

Results

Among 120 patients, who were admitted with undifferentiated acute febrile illness during the study period diagnosed to be suffering from Scrub typhus with positive antibodies, the following results were noted. The age of presentation in this study ranged from 18 years to 75 years. 75 patients (62.5%) were males and 45 (38.3%) were
Female.[Table 1].

### Table 1: Age and Sex Distribution of Scrub Typhus.

| Age Group (In Years) | Gender | Male | Female | No. of Cases |
|----------------------|--------|------|--------|-------------|
| 15-20yrs             |        | 6    | 4      | 10 (8.3%)  |
| 21-30yrs             |        | 22   | 11     | 32 (26.7%) |
| Above 30yrs          |        | 47   | 31     | 78 (65.0%) |
| Total no. of Patients|        | 75 (62.5%) | 45 (38.3%) | 120     |

**Chart 1: Age and Sex Distribution of Scrub Typhus**

### Table 2: Clinical Features of Scrub Typhus at Presentation.

| Clinical Feature | No. of Patients |
|------------------|-----------------|
| Fever            | 120             |
| Headache         | 64              |
| Myalgia          | 63              |
| Vomiting         | 47              |
| Cough            | 28              |
| Abdominal pain   | 17              |
| Shortness of breath | 16         |
| Eschar           | 9               |
| Diarrhoea        | 2               |
| Skin rash        | 1               |

**Chart 2: Clinical Features of Scrub Typhus at Presentation.**

### Table 3: Complications of Scrub Typhus.

| Complications      | No. of Patients | Percentage |
|--------------------|-----------------|------------|
| Thrombocytopenia   | 37              | 30.8%      |
| Hepatitis          | 27              | 22.5%      |
| AKI                | 7               | 5.8%       |
| MODS               | 5               | 4.2%       |
| ARDS               | 4               | 3.3%       |
| Encephalopathy     | 4               | 3.3%       |

**Chart 3: Complications of Scrub Typhus.**

**Discussion**

Fever was the most common symptom seen in all the 120 patients (100%). The duration of fever ranging from one to seven days present in 94 patients (78.3%), fever for 7-12 days present in 5 patients (4.2%) and fever for more than 2 weeks present in 5 patients (4.12%). Headache and vomiting were the commonly associated symptoms. Generalized muscle pain (myalgia) was present in 63 patients (52.5%). Headache was present in 64 patients (53.3%), diarrhea was complained in 47 patients (39.2%), vomiting in 16 patients (13.3%), abdominal pain was present in 17 patients (14.2%) and skin rash in 4 patients (0.8%) (Table 2).

In our study, Eschar was present in 9 patients (7.5%) and the most common site was left groin and neck region. Previous studies from India have reported meningoencephalitis in 9.5-23% of patients [7] in our study meningoencephalitis was present in 4 patients.

Scrub typhus can be a mild, moderate or severe febrile illness with non-specific clinical features. Fever was the most common symptom reported by all patients in our study. Eschar at the site of attachment of the larval mite (chigger) is considered highly suggestive of Scrub typhus but occurs in a variable proportion of patients in different studies [8]. In our study, eschar was present in 9 patients (7.5%) and the most common site was left groin and neck region. Previous studies from India have reported meningoencephalitis in 9.5-23% of patients [7] in our study meningoencephalitis was present in 4 patients.
Conclusion

In conclusion, the majority of the cases of Scrub typhus are seen in the cooler months of the year and in the rainy season. It has to be considered in the differential diagnosis of undifferentiated acute febrile illness. In view of the increasing burden on public health system, there should be a high index of suspicion in patients presenting with acute febrile illness. Early diagnosis and prompt intervention may help in reducing the morbidity and mortality associated with Scrub typhus infection.

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