

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

Atchuta Chytanya Paka¹, Kamal Rajesh Jampana²

¹Assistant Professor, Department of General Medicine, NRI Academy of Sciences, Mangalagiri Road, Chinakakani, Guntur, Andhra Pradesh-522503, ²Associate Professor, Department of General Medicine, Nimra Institute of Medical Sciences, Nimra Nagar, Ibrahimpatnam, Jupudi, Vijayawada, Andhra Pradesh-521456.

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 *heptombidium* 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%), diarrhoea 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.

Corresponding Author: Dr. Kamal Rajesh Jampana, Associate Professor, Department of General Medicine, Nimra Institute of Medical Sciences, Nimra Nagar, Ibrahimpatnam, Jupudi, Vijayawada, Andhra Pradesh-521456.

Received: October 2019

Accepted: October 2019

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 *heptombidium* 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 etc.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 | | No. of Cases |
|------------------------------|-------------------|-------------------|--------------|
| | Male | Female | |
| 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 |

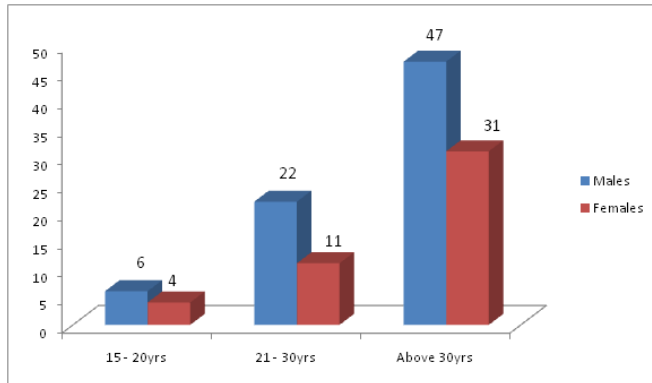


Chart 1: Age and Sex Distribution of Scrub Typhus

Table 2: Clinical Features of Scrub Typhus at Presentation.

| Clinical Feature | No. of Patients | Percentage |
|---------------------|-----------------|------------|
| Fever | 120 | 100% |
| Headache | 64 | 53.3% |
| Myalgias | 63 | 52.5% |
| Vomitings | 47 | 39.16% |
| Cough | 28 | 23.3% |
| Abdominal pain | 17 | 14.16% |
| Shortness of breath | 16 | 13.3% |
| Eschar | 9 | 7.5% |
| Diarrhoea | 2 | 1.7% |
| Skin rash | 1 | 0.8% |

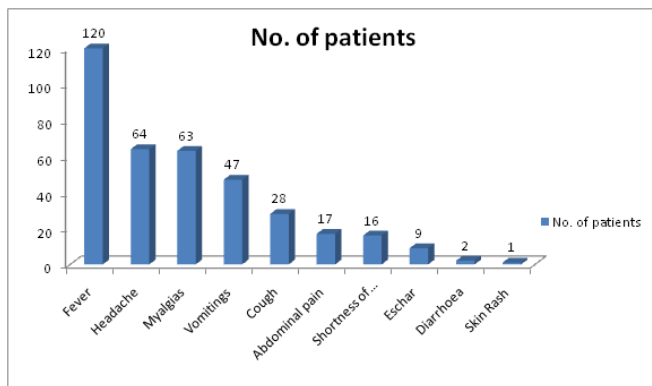


Chart 2: Clinical Features of Scrub Typhus at Presentation.

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% |

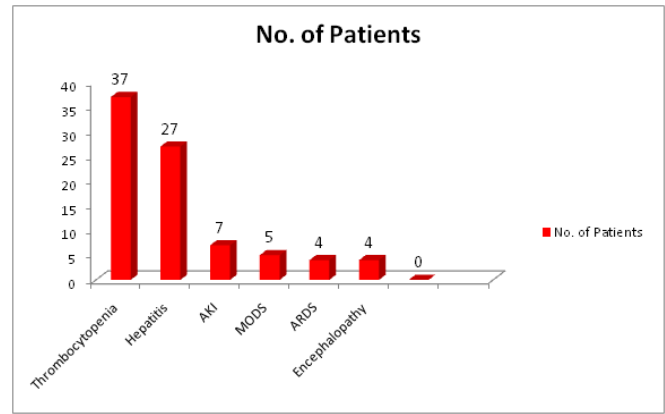


Chart 3: Complications of Scrub Typhus.

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 7-12days 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 63patients(52.5%). Headache was present in 64 patients(53.3%), diarrhoea was complained in 2 patients(1.7%), vomiting in 47patients(39.2%), shortness of breath was present in 16 patients(13.3%), abdominal pain was present in 17patients(14.2%) and skin rash was seen in 1 patient(0.8%)(Table 2). In 9 patients (7.5%) an Eschar was detected after careful examination in various sites like left axilla, hypochondriac region, left groin, left arm, gluteal region, left abdomen and neck. Prominent hematological abnormalities included thrombocytopenia present in 37patients(30.8%) and elevated levels of bilirubin, transaminases were also seen in 27 patients(22.5%). A CNS manifestation with features of meningoencephalitis was present in 4 patients (3.3%). All the patients were started on either oral or intravenous doxycycline along with supportive care.

Scrub typhus is a noticeable mite borne disease with its incidence being highest in Korea. There have so far been a few reports on severe complications and the mortality rate of Scrub typhus⁵. Disease occurrence is more in rainy season and occurs in persons who engage in occupational or recreational behaviour that brings them in contact with mite infested habitats such as brush and grass.

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 studies⁶. 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 patients¹⁷in 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.

References

1. <https://www.cdc.gov/typhus/scrub/index.html>
2. <https://www.iamat.org> risks> scrub typhus>
3. <https://www.ijpediatrics.com>. Radhakumar, PurusothamanSrinivasan. A study of clinical and laboratory profile of scrub typhus in children in a tertiary hospital in south India.
4. www.ijph.in Aroma Oberoi, Shereen Rachel Varghese. Scrub typhus- an emerging entity: A study from a tertiary care hospital in North India.
5. Varghese GM, TrocobridgeP, JanardhananJ, Thomas K, Peter JV, Mathews P, Abraham OC, JavithaML. Scrub typhus among hospitalized patients with febrile illness in South India
6. ChogleAR. Diagnosis and treatment of Scrub typhus The Indian scenario. *j assoc physicians India* 2010;58:11:12
7. Vivekanandan M. Mani A, Priya YS, Singh AP, Jyakumar S, Purty S. Outbreak of Scrub typhus in Pondicherry. *Jassoc physicians India* 2010;58:24-8

Copyright: © the author(s), 2019. It is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits authors to retain ownership of the copyright for their content, and allow anyone to download, reuse, reprint, modify, distribute and/or copy the content as long as the original authors and source are cited.

How to cite this article: Paka AC, Jampana KR. A Study of Clinical and Laboratory profile of Scrub Typhus in a Tertiary Care Teaching Hospital. *Acad. J Med.* 2019;2(2):21-23.

DOI: [dx.doi.org/10.21276/ajm.2019.2.2.7](https://doi.org/10.21276/ajm.2019.2.2.7)

Source of Support: Nil, **Conflict of Interest:** None declared.