

A Study on Scrub Typhus in a Tertiary Care Hospital

Althaf Ali^a, Rethesh Kollerazhikathu Haridasan^a, Sarosh Kumar KK^b
Suni KA^c, M Umarul Farook^a

a. Department of Community Medicine, Medical College, Trivandrum

b. Department of Internal Medicine, Medical College, Trivandrum

c. Department of Pediatrics, Government Medical College, Thiruvananthapuram*

ABSTRACT

Published on 26th March 2009

Scrub typhus is an acute, febrile illness caused by *Rickettsia tsutsugamushi*. Humans are accidental hosts in this zoonotic disease. The epidemiological pattern of the reported cases of Scrub Typhus in the Medical College Hospital, Thiruvananthapuram during Jan 2004 to October 2005 was studied. A total of 114 patients with symptoms suggestive of scrub typhus were admitted in Medical College Hospital, Thiruvananthapuram during that period. Case series study was done by reviewing the medical records of patients with scrub typhus who had been treated there. Of all the IP cases reported, about 60% cases were from rural parts and about 55% of them were seen during the period August to January. It cannot be said for sure whether Scrub Typhus is a new comer to our state or was a previously undiagnosed entity. However, during the appropriate season, the triad of Fever, Lymph Node Enlargement and Eschar should alert the physician to consider a rickettsial cause.

Keywords: Eschar, *Rickettsiae*, Trombiculid mite, Chigger

*See End Note for complete author details

INTRODUCTION

Scrub typhus (tropical typhus) is an acute, febrile illness caused by *Rickettsia tsutsugamushi*. Humans are accidental hosts in this zoonotic disease. Although the presence of spotted fevers and scrub typhus, vector borne illnesses with high mortality, was documented from Tamil Nadu in southern India a few years ago¹ there are little community based data available from this or any other state in India. It is endemic in regions of eastern Asia and the southwestern Pacific¹ (Korea to Australia) and from Japan to India and Pakistan. As many as one million people may be infected yearly in the disease-endemic area.² In India indigenous pockets exist in Andaman and Nicobar Islands, Tamil Nadu,³ Maharashtra, Punjab, Himachal Pradesh and Bihar.⁴ The disease occurs in scrubby terrain, forests and semi desert conditions. It is more common during August to January.³ The symptoms and signs of scrub typhus include fever, headache, inoculation eschar, and rash, which occur approximately 10 days after being bitten by a chigger.² The clinical manifestations of the disease vary in severity from mild and self-limited to fatal, and the case-fatality rate can be as high as 30% if untreated.⁵ Agent: The causative agent of scrub typhus is *Rickettsia tsutsugamushi*. There are 6 distinct serological strains (Karp, Gilliam, Kato, Shimokoshi, Kawasaki, Kuroki). Reservoir: The true reservoir of

infection is the trombiculid mite (*Leptotrombidium deliense* and *L. akamushi*). The infection is maintained in nature transovarially from one generation of mite to the next. The nymphal and adult stages of the mite are free living in the soil; they do not feed on vertebrate hosts. It is the larva (chigger) that feed on vertebrate hosts and pick up the rickettsiae. The larval stage serves both as a reservoir, through ovarian transmission, and as a vector for infecting humans and rodents.

STUDY METHODS

Setting: Medical Records Library, Medical College Hospital, Thiruvananthapuram.

Inclusion Criteria: 1) Age >12 years. 2) Patients with Fever, Lymph Node Enlargement and Eschar.

Exclusion Criteria: 1) Age <12 years 2) patients with fever with underlying another etiology (infections, malignancy) were excluded.

Case series: The medical records of patients with scrub typhus who had been treated at the Medical College Hospital, Thiruvananthapuram (Kerala State, S. India) during the period from Jan 2004 to October 2005 were reviewed. Patient data were taken from medical records using a standardized case record form. Information was obtained about demographic and clinical character-

Corresponding Author:

Dr. Rethesh Kollerazhikathu Haridasan, Senior Lecturer, Department of Community Medicine, Government Medical College, Trivandrum, Phone: +91 97780 75567, Email: drretheshkh@gmail.com

istics of the patients at admission and their therapeutic outcomes. Information about the patients' outcomes was gathered through telephone inquiries or direct contact.

Confirmation of scrub typhus: The specific gold standard test, microimmunofluorescence test,⁷ is not available in India. Availability of tests based on EUSA principles is also limited. Therefore, at present, Weil Felix test which utilizes antigens prepared from *Proteus* spp remains the only laboratory test available to investigate these infections occurring in communities in India. Evaluations done in laboratory showed that this test had a specificity of over 98% and a sensitivity of about 43%.⁸ Here, scrub typhus was determined according to the WHO criteria for scrub typhus diagnosis.⁵ Tsutsugamushi disease was confirmed if specific IgM was detected at a dilution 1:10 or if a four-fold increase in IgG titers was demonstrated with paired serum specimens in an indirect immunofluorescence antibody (IFA) test. Data was analyzed using epi-info.

RESULTS

A total of 114 patients with symptoms suggestive of scrub typhus were admitted to the Medical College Hospital, Thiruvananthapuram during that period. 20 of them were confirmed by IFA as having scrub typhus. Fever (oral temperature >38°C) was present in 77.8% at admission, although all patients had febrile sensations before admission. No patients had further complications such as comatose mental status, respiratory failure, renal failure, or shock. Scrub typhus was first reported in Thiruvananthapuram in the year 2002 and the clinical diagnosis was done at the Infectious Diseases department of Medical College Hospital, Thiruvananthapuram. The number of cases reported increased drastically within a year. 55, 54 and 5 cases were admitted and managed in the Medical College Hospital during the year 2003, 2004 and in 2005 (data available up to Oct 15) respectively. The number of cases increased from August and continued

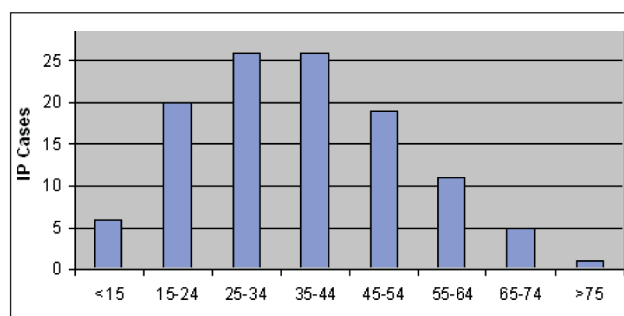


Figure 1. Cases: age distribution

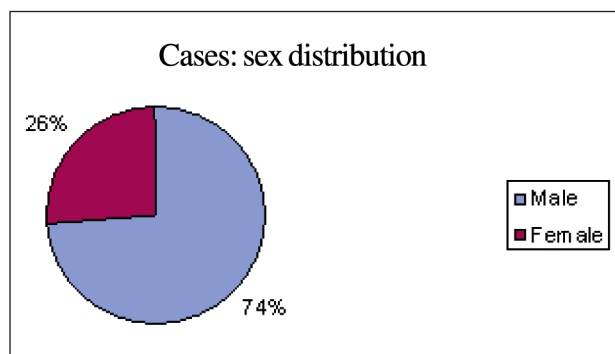


Figure 2. Cases: sex distribution

to be high in the earlier part of next year. Very few cases were recorded during Feb, March and April in both years. Eschar formation, fever, headache, chills and lymph node enlargement were the predominant clinical manifestations noted. Head ache and myalgia were the most common (90%) manifestations along with fever and Eschar.

Of all the IP cases reported during the period, about 60% cases were from Nedumangad Taluk and about 55% of them were during the period August to January. Geographical distribution of cases of scrub typhus reported in Medical College Hospital, Thiruvananthapuram during the period is shown (map).

Even though cases were reported from both sexes of all the age groups, males of 25-45 year age group are more (45.6%) affected. More cases are from rural (60%) areas.

People of low socio economic group are more affected. Mean age of the patients was 37.14 years. No deaths were reported.

CONCLUSION

The epidemiological pattern and the geographical distribution of the reported cases of Scrub Typhus in a tertiary care hospital of Thiruvananthapuram during the last few years' shows predominantly males in the age group 25-45. People of low socioeconomic group from rural parts of the district are affected more. It cannot be said for sure whether Scrub Typhus is a new comer to the state or was a previously undiagnosed entity. However, during the appropriate season, the triad of Fever, Lymph Node Enlargement and Eschar should alert the physician to consider a rickettsial cause. Intensive awareness programs for the medical officers of the concerned areas regarding the early diagnosis and management of cases of scrub typhus may have to be organized.

END NOTE

Author Information

1. Dr. Althaf Ali, Assistant Professor, Department of Community Medicine, Government Medical College, Trivandrum
2. Dr. Rethesh Kollerazhikathu Haridasan Senior Lecturer, Department of Community Medicine, Government Medical College, Trivandrum
3. Dr. Sarosh Kumar KK, Department of Internal Medicine, Medical College, Trivandrum
4. Dr. Suni KA, Department of Pediatrics, Government Medical College, Trivandrum
5. Dr. M Umarul Farook, Department of Community Medicine, Medical College, Trivandrum

Conflict of Interest: None declared

Cite this article as: Althaf Ali, Rethesh Kollerazhikathu Haridasan, Sarosh Kumar KK, Suni KA, M Umarul Farook. A Study on Scrub Typhus in a Tertiary Care Hospital. Kerala Medical Journal. 2009 Mar 26;2(1):7-9

REFERENCES

1. Mathai E, Lloyd G, Cherian T, Abraham OC, Cherian AM. Serological evidence for the continued presence of human rickettsioses in southern India. *Ann Trop Med Parasitol*. 2001 Jun;95(4):395–8.
2. Roul D, 2005. Scrub typhus. Mandell GL, Bennett JE, Dolin R, eds. Principles and Practice of Infectious Diseases Sixth edition. Volume 2. Philadelphia; Churchill Livingstone, 2309-2310.
3. Kamarasu K, Malathi M, Rajagopal V, Subramani K, Jagadeeshramasamy D, Mathai E. Serological evidence for wide distribution of spotted fevers & typhus fever in Tamil Nadu. *Indian J Med Res*. 2007 Aug;126(2):128–30.
4. Regional Vector Ecology Profile, South Central Asia. Defense Pest Management Information Analysis Centre, AFPMB, <http://www.afpmb.org> Sep 2001
5. World Health Organization. WHO Recommended Surveillance Standards Second edition. Available from <http://www.who.int/emc>
6. Parola P, Paddock CD, Raoult D. Tick-Borne Rickettsioses around the World: Emerging Diseases Challenging Old Concepts. *Clin Microbiol Rev*. 2005 Oct;18(4):719–56.
7. Watt G, Parola P. Scrub typhus and tropical rickettsioses. *Curr Opin Infect Dis*. 2003 Oct;16(5):429–36.
8. Prakash J a. J, Abraham OC, Mathai E. Evaluation of tests for serological diagnosis of scrub typhus. *Trop Doct*. 2006 Oct;36(4):212–3