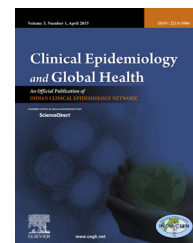


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Original Article

Pediatric scrub typhus in Southern Kerala: An emerging public health problem



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ABSTRACT

Background: Scrub typhus is a potentially fatal rickettsial infection endemic in Asia. But there are only very few reports of pediatric scrub typhus from Southern Kerala, which is situated in South India.

Objective: To study the clinicoepidemiological profile of pediatric patients with scrub typhus in Southern Kerala.

Methods: Clinical profile of 108 consecutive, 1- to 12-year-old children diagnosed with scrub typhus admitted in a tertiary care teaching hospital in South India from August 2011 to May 2015 was studied.

Results: The median age of affected children was 6.83 years with a male to female ratio 1.42:1. Definite clustering of cases was noted from Nedumangaud Taluk, a hilly area in Trivandrum district (24%). A seasonal pattern was observed with a peak during the months of August–January (84.26%). Most common symptoms apart from fever were cough, abdominal pain, and vomiting. Most common signs were splenomegaly in 68.52% of cases and lymph node enlargement in 59.26% of cases. Eschar was present in 44.44% of cases, with the commonest site being inguinal region. Complications were seen in 9.25% of cases. Myocarditis was the most common complication and one case had associated coronary artery dilatation also. Case fatality rate was only 0.93%. Doxycycline and azithromycin were the antibiotics used. Fever subsided within 24 h of starting treatment in 73.15% of cases and within 48 h in 84.26% of cases.

Conclusion: Scrub typhus is a common cause of fever in South India. Awareness among medical professional should be a high priority as late detection is the cause of failure of treatment, complications, and even mortality.

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1. Introduction

Scrub typhus is a reemerging disease caused by the rickettsial organism *Orientia tsutsugamushi*. It is widely prevalent in various parts of South East Asia. In India too, many isolated outbreaks as well as endemicity have been reported among children.^{1–4} The increasing number of cases from different parts of the country illustrates the magnitude of the burden and urgency to be included in the infectious disease priority list for control, including surveillance.

Portraying the complete clinical picture as well as highlighting the context-specific laboratory features in the subregions of India is important to understand the disease epidemiology. This will also help to explore pattern recognition. This descriptive study is the largest case series study from Southern Kerala among children.

2. Materials and methods

One hundred and eight consecutive 1- to 12-year-old children with scrub typhus attending a tertiary care teaching hospital in Kerala, South India during the period August 2011 to May 2015 were included in the study. This hospital is a referral center with full-fledged pediatric department, including intensive care facilities.

All the cases were diagnosed clinically by the senior pediatricians of the teaching hospital and confirmed by either Scrub Typhus IgM Elisa (in Bios International) or Weil–Felix test (titer >1:160 is used as the cut off). These patients were treated by the senior pediatricians of the institution, which include all the five investigators. Common differential diagnosis like dengue fever, leptospirosis, infectious mononucleosis, and malaria were identified by clinical as well as appropriate laboratory investigations. Coinfected cases of scrub typhus with dengue fever, infectious mononucleosis, and malaria were included in the study. Children who were serologically negative for scrub typhus and infants were excluded from the study population.

Relevant history, clinical features, investigations, treatment, and outcome were recorded in a detailed pro forma by interview, clinical examination, and multiple clinical contacts by the primary investigator. Statistical analysis of the data was performed with Microsoft excel and STATA version X.

Permission was obtained from the ethical committee before conducting the study. Informed consent was obtained from the parents.

3. Results

Among the total inpatients of 42,590 in the hospital, 108 were diagnosed as scrub typhus. During the study period, 106 cases were confirmed as enteric fever, 2046 cases as dengue fever, 25 cases as leptospirosis, and 397 cases as viral hepatitis.

Among the 108 cases analyzed, the median age of affected children was 6.83 years (range 1.5–12 years). 64 cases were of males (59.26%) and 44 were of females (40.74%), with a male to female ratio of 1.42:1. Definite clustering of cases was noted from Nedumangaud Taluk, a hilly area in Trivandrum district

(26 cases – 24.07%). A seasonal pattern was observed. Cases were reported from June to March with a peak during months of August–January (91 cases – 84.26%).

Only one case was referred from the peripheral hospital with the primary diagnosis of scrub typhus. History of mite exposure was reported in only three cases. Diagnosis of scrub typhus was suspected clinically at admission in 24 (22.22%) cases. The differential diagnoses considered were enteric fever in 33 cases followed by infectious mononucleosis and dengue fever in 12 cases each. The average period between time of hospital admission and establishment of diagnosis was 3.2 days. Case fatality was seen in only one patient (0.93%) in whom diagnosis was confirmed after death.

4. Symptom profile

Fever was the presenting symptom in all the patients. Duration of fever ranged from 5 to 28 days. Average duration of fever was 13.35 days. An average of 9.42 days elapsed between onset of fever and hospitalization in the tertiary care hospital (SD 4.17; range 3–21 days) (Fig. 1).

The other presenting features were cough (39.82%), vomiting (38.89%), abdominal pain (34.25%), myalgia (23.15%), headache (24.07%), rash (23.15%), loose stool (10.18%), bleeding manifestation (5.56%), altered sensorium (7.41%), seizures (3.70%), and arthralgia (3.70%).

5. Signs

Most common signs were splenomegaly in 68.52% of cases and lymph node enlargement in 59.26% of cases. Hepatomegaly and eschar were present in 47.22 and 44.44% of cases, respectively. Different combinations of findings of eschar, lymphadenopathy, hepatomegaly, and splenomegaly were observed (Table 1).

Other clinical signs were pallor in five patients, jaundice in one, edema in four, and tachypnea in nine patients.

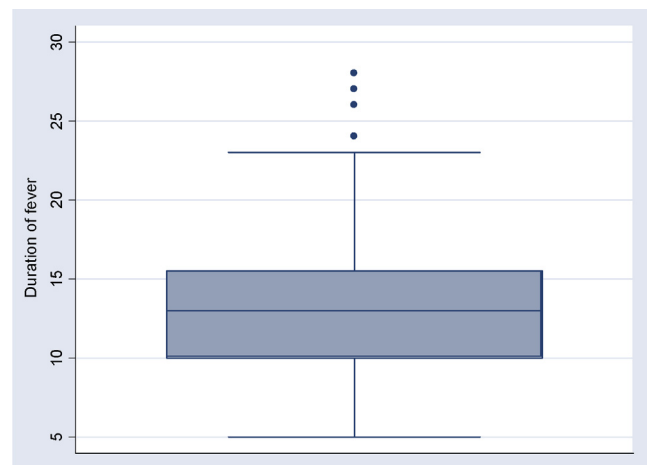


Fig. 1 – Period between onset of fever and hospitalization. Mean 9.4 days and SD 4.17 (range 3–21 days).

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