Doi: 10.32677/IJCH.2016.v03.i03.022

Case Report

Scrub typhus in India: Whether increased reporting or expanding geographies?

Chandra Mohan Kumar, Preeti Sharma, A K Patwari

From Department of Paediatrics, Hamdard Institute of Medical Sciences and Research, Jamia Hamdard, New Delhi, India

Correspondence to: Chandra Mohan Kumar, Department of Paediatrics, Hamdard Institute of Medical Sciences and Research, Jamia Hamdard, New Delhi, India. E-mail: cmkumar1@rediffmail.com

Received – 13 April 2016 Initial Review – 20 May 2016 Published Online – 19 July 2016

ABSTRACT

Scrub typhus is a potentially fatal disease with serious complications in untreated cases or where there is delay in starting treatment. It has been considered to be limited to certain geographic areas with vegetations and cattle grazing fields like Jammu. Scrub typhus cases/outbreaks have been reported in the recent past from South India, Mumbai, Goa, Himachal Pradesh, and Haryana. Recently, we had a case of scrub typhus in a child residing in Delhi with no history of travel outside. A 10-year-old girl admitted with high-grade fever, abdominal pain, myalgia, and erythematous rash with hepatomegaly but without lymphadenopathy and developed splenomegaly in the 2nd week of illness. She was confirmed to be a case of scrub typhus after immunoglobulin M enzyme-linked immunosorbent assay for the disease. Scrub typhus is a matter of great public health importance that all medical practitioners should be sensitized about this disease and its varying presentations and complications.

Key words: *Children, Fever, Hepatosplenomegaly, Typhus*

India is home to many tropical diseases, the most common being malaria, enteric fever, and dengue fever. There are other potentially fatal diseases like scrub typhus, which till recently was considered to be limited to certain geographic areas with vegetations and cattle grazing fields like Jammu. Scrub typhus cases/outbreaks have been reported in the recent past from South India, Mumbai, Goa, Himachal Pradesh, and Haryana [1-7]. We report a case of scrub typhus in a child residing in Delhi. With this case, we would like to emphasise that scrub typhus is no longer limited to certain hilly or coastal regions of India. Medical practitioners need to be aware of this for timely diagnosis and management of this disease.

CASE REPORT

A 10-year-old girl was admitted to our hospital in the month of November with complaints of fever, abdominal pain, vomiting, and facial rash. Fever was of 7 days duration, not associated with chills and rigors with spikes of 102-104°F. She also had complaints of generalized abdominal pain since the last 2 days, associated with non-bilious vomiting. She developed an erythematous facial rash 1 day before admission. She had received antipyretics and cefixime during the last 7 days. She had no history of a cough, jaundice, altered sensorium, bleeding from any site or burning micturition. She had not travelled outside Delhi during previous 1 year.

On examination, she was ill looking with a temperature of 104°F, pulse rate of 118/min, and blood pressure of 120/76 mm Hg. She had erythematous macular rash present on her face. There was no pallor, icterus or lymphadenopathy. On abdominal examination, muscle guarding was present. The liver was palpable 3 cm below the right costal margin with a span of 14 cm. The spleen was not palpable. The remaining systemic examination was unremarkable. Keeping a provisional diagnosis of enteric fever, the child was started on injection ceftriaxone, intravenous fluids, and injection ranitidine.

Routine investigations for blood and urine including blood for widal, malaria parasite, dengue serology, blood culture, liver (LFT) and kidney function tests (KFT), and chest X-ray were ordered. The hemoglobin was 10.4 g/dl; leukocyte count was 14,400/mm^3 with 77% neutrophils. Thrombocytopenia was present with a platelet count of 86,000/mm^3. The remaining test results were within normal limits.

About 48 h after admission, despite treatment, high-grade fever persisted, and the rash became maculopapular and spread all over the body. The abdominal pain increased in intensity and she developed severe myalgia. On abdominal examination, besides hepatomegaly, the spleen was also (2 cm) palpable. Platelet count was increased to 1 lacs/mm^3. Blood was sent for malarial antigen which was negative. Serum amylase was normal, and ultrasound of abdomen was suggestive of hepatosplenomegaly with minimal free fluid. As there was worsening of symptoms and splenomegaly, chloroquine was started suspecting malaria. The patient developed vomiting on chloroquine, so the anti-malarial drug was changed to injection artesunate.

Over the next 2 days, the rash developed black discoloration and there was no improvement in the other symptoms. We decided

to work up the patient for other uncommon diseases like scrub typhus and leptospirosis, even though there was no history of travel outside Delhi and no eschar was present. Weil Felix (WF) test was reactive for OX-K (titer 1:80). Test for immunoglobulin M (IgM) antibodies against leptospira was negative. After sending samples for IgM antibodies against scrub typhus, the patient was started on oral doxycycline.

The patient was afebrile after 24 h of starting doxycycline. The platelet count also improved to 1.3 lacs/mm^3. The rash resolved after 2 days, and the patient was discharged on oral doxycycline. IgM enzyme-linked immunosorbent assay (ELISA) for scrub typhus was positive. On follow-up after completion of 7 days of doxycycline, the patient was asymptomatic and there was no hepatosplenomegaly.

DISCUSSION

Scrub typhus is an acute, febrile, infectious disease caused by the organism orientia tsutsugamushi, an obligate intracellular parasite spread by bite of infected trombiculid mite larvae. The disease is endemic in the so-called tsutsugamushi triangle comprising Japan, China, Malaysia, Philippines, India, Pakistan, and Afghanistan.

Scrub typhus is a febrile illness with varying presentations. The common signs and symptoms are fever, myalgia, maculopapular rash, abdominal pain, lymphadenopathy, hepatomegaly, splenomegaly, and a painless eschar. Our patient did not have lymphadenopathy and eschar. A painless necrotic eschar at site of mite bite is characteristic of scrub typhus but is rarely seen in Indian patients (1, 2, 4, 6). Leukocytosis and thrombocytopenia which were seen in our case are common in scrub typhus patients. The patients of scrub typhus improve dramatically after treatment is initiated. In our patient, the fever and thrombocytopenia resolved within a day of starting doxycycline.

Serology is the diagnostic test for scrub typhus with indirect immunofluorescence antibody (IFA) test being the gold standard. ELISA is a cheaper alternative and also has high sensitivity and specificity which is above 90% [1,8,9]. WF test is easily available and has high sensitivity but is not a specific test and can be false positive in many other conditions. It has a good concordance with ELISA compared to polymerase chain reaction (PCR) which has higher specificity but somewhat lower sensitivity. Hence, PCR used independently or in conjugation with WF test can be employed as a specific diagnostic tool for diagnosis of scrub typhus [8]. This is an area of great concern as the specific diagnostic tests such as ELISA, PCR or IFA are not easily available and the few places where the test is being done give the report in 3-4 days. In our patient, we had started doxycycline based on clinical suspicion and a positive WF test [10]. The report of IgM ELISA for scrub typhus came after 3 days. If we would have waited for the report, the patient could have developed serious complications.

Scrub typhus is being described as a reemerging disease in tropics including India. There are reports of outbreaks from Himachal Pradesh, Tamil Nadu, and Pondicherry [2,6,11]. Few cases have been reported from Goa, Haryana, and Mumbai [3,4,7]. Prakash et al. have reported 4 cases of scrub typhus in adults from Delhi in 2013 [12]. Our patient was also a resident of Delhi with no history of travel outside Delhi for last 1 year. This rapid enlargement of geographies in India reporting scrub typhus cases is more likely to be due to increased awareness and heightened level of suspicion rather than change in agent, host or environment.

Most of the cases of scrub typhus are initially treated as enteric fever, malaria, or dengue fever as the physicians in non-endemic regions do not suspect scrub typhus as a cause of fever initially. There must be many more cases that are being missed for the few which are being reported from places like Delhi and Haryana. The case fatality rate in untreated patients or those where treatment is delayed may be as high as 35% [4]. Untreated cases are also at greater risk of complications such as acute kidney injury, pancreatitis, and multi-organ dysfunction [1,5]. Furthermore, as the diagnostic test is not easily available, there may be a further delay in starting treatment. Therefore, measures should also be taken to make the diagnostic tests readily available in all major government hospitals.

CONCLUSION

With the increasing number of cases being reported from all across India, scrub typhus has acquired a matter of great public health importance that all medical practitioners should be sensitized about this disease and its varying presentations and complications. This expansion of geographies in India is more likely to be due to increased awareness and heightened level of suspicion rather than change in agent, host or environment.

REFERENCES

1. Varghese GM, Abraham OC, Mathai D, Thomas K, Aaron R, Kavitha ML, et al. Scrub typhus among hospitalised patients with febrile illness in South India: Magnitude and clinical predictors. J Infect. 2006;52(1):56-60.
2. Vivekanandan M, Mani A, Priya YS, Singh AP, Jayakumar S, Purty S. Outbreak of scrub typhus in Pondicherry. J Assoc Physicians India. 2010;58:24-8.
3. Shah V, Vaidya V, Bang V, Shah I. Spotted fever in a child in Mumbai, India. J Vector Borne Dis. 2009;46(4):310-2.
4. Narvencar KP, Rodrigues S, Nevrekar RP, Dias L, Dias A, Vaz M, et al. Scrub typhus in patients reporting with acute febrile illness at a tertiary health care institution in Goa. Indian J Med Res. 2012;136(6):1020-4.
5. Rathi N, Rathi A. Rickettsial infections: Indian perspective. Indian Pediatr. 2010;47(2):157-64.
6. Sharma A, Mahajan S, Gupta ML, Kanga A, Sharma V. Investigation of an outbreak of scrub typhus in the Himalayan region of India. Jpn J Infect Dis. 2005;58(4):208-10.
7. Chaudhry D, Garg A, Singh I, Tandon C, Saini R. Rickettsial diseases in Haryana: Not an uncommon entity. J Assoc Physicians India. 2009;57:334-7.
8. Usha K, Kumar E, Kalawat U, Kumar BS, Chaudhury A, Gopal DV. Molecular detection of scrub typhus in Tirupati, Andhra Pradesh, India. J Vector Borne Dis. 2015;52(2):171-4.
9. Dasch GA, Halle S, Bourgeois AL. Sensitive microplate enzyme-linked immunosorbent assay for detection of antibodies against the scrub typhus rickettsia, *Rickettsia tsutsugamushi*. J Clin Microbiol. 1979;9(1):38-48.
10. Mahajan SK, Kashyap R, Kanga A, Sharma V, Prasher BS, Pal LS. Relevance

of Weil-Felix test in diagnosis of scrub typhus in India. J Assoc Physicians India. 2006;54:619-21.
11. Mahajan A, Jasrotia DS, Charak RS, Kumar T, Bhagat PL, Sharma N, et al. Scrub typhus: Jammu outbreak 2009. JK Sci. 2010;12(2):98-101.
12. Prakash A, Acharya AS, Jain N, Bhattacharya D, Chhabra M. Scrub typhus - An emerging public health problem in Delhi!. IJMS. 2014;5(10):1-7.

Funding: None; Conflict of Interest: None Stated.

How to cite this article: Kumar CM, Sharma P, Patwari AK. Scrub typhus in India: Whether increased reporting or expanding geographies? Indian J Child Health. 2016; 3(3):263-265.