

Is Scrub Typhus a Cause of Febrile Illness Among Paediatric Population of Delhi?

SONALI BHATTAR¹, BHANU MEHRA², ISHWAR SINGH³, PREENA BHALLA⁴

Sir,

Scrub typhus is a febrile illness caused by *Orientia tsutsugamushi* and transmitted through the bite of larval forms of trombiculid mites [1]. The signs and symptoms of the disease are relatively nonspecific and in areas like Delhi where outbreaks have not been reported so far, low index of suspicion makes the diagnosis of this infection difficult. Furthermore, there is a paucity of information regarding the role of scrub typhus as a cause of fever in paediatric population.

In the present study, 100 paediatric patients, 1-12 years of age and presenting with febrile illness to the paediatric outpatient department or ward of a tertiary care health centre from February 2013 to March 2014 were included. Common causes of fever (malaria, dengue, enteric fever) were ruled out by history, clinical examination and appropriate laboratory investigations. In 30 patients who remained febrile and no definitive etiological diagnosis could be made, blood samples (5 ml) were collected and the serum separated and preserved at -70°C till further analysis. These samples were tested for antibodies to *O. tsutsugamushi* employing the immunochromatographic test (ICT), SD Bioline *Tsutsugamushi* Assay (Standard Diagnostics, Yongin, Korea) that employs the 56-kDa major surface protein antigens from representative *O. tsutsugamushi* including Gilliam, Karp, and Kato strains and detects IgG, IgM, and IgA antibodies to *O. tsutsugamushi*. The test was performed as per manufacturer's instructions and any positive samples further tested by an IgM ELISA (InBios International Inc. USA) to diagnose current infection.

Among these 30 cases, ICT was positive in three (10%) samples. Further analysis of the reactive samples by IgM ELISA revealed all three samples to be IgM positive. Outbreaks of scrub typhus have been reported from various parts of India in the recent past [2,3]. Thus, there is a strong possibility of presence of this disease

in this region also. All three serologically confirmed cases in the present study were residents of Delhi with no history of recent travel to a scrub typhus endemic region, a strong evidence in favour of existence of the disease in the city. The 10% prevalence of scrub typhus reported in our study is in contrast to another report from Delhi where the prevalence of scrub typhus was reported to be quite low [4]. A study conducted in paediatric population of Sri Lanka, a region endemic for scrub typhus, has reported a prevalence of 33.33% [5].

Scrub typhus is grossly under-diagnosed due to its non-specific clinical presentation, low index of suspicion among clinicians and lack of diagnostic facilities. Since antimicrobials effective for scrub typhus are usually not included in empirical therapy for febrile illnesses, early diagnosis is imperative to reduce the mortality and complications associated with the disease. Our study highlights the existence of scrub typhus in Delhi, a region non-endemic for this infection and the need to consider it as a possible cause of paediatric febrile illnesses. To the best of our knowledge this is the first study undertaken to estimate seroprevalence of scrub typhus in paediatric population of Delhi.

REFERENCES

- [1] Stephen Dumler J. Rickettsial infections. In: Behrman RE, Kliegman RM, Jenson HB, eds. *Nelson Textbook of Paediatrics*. 17th ed. 2004. Chapter 211.
- [2] Mahajan SK, Rolain JM, Sankhyani N, Kaushal RK, Raoult D. Paediatric scrub typhus in Indian Himalayas. *Indian J Pediatr*. 2008;75(8):947-49.
- [3] Singh SP, Singh R, Ahmad N. A study of complications of scrub typhus in a tertiary health care institute of Uttarakhand, India. *Int J Res Med Sci*. 2014;2(1):246-49.
- [4] Mittal V, Gupta N, Bhattacharya D, Kumar K, Ichhpurani RL, Singh S, et al. Serological evidence of rickettsial infections in Delhi. *Indian J Med Res*. 2012;135(4):538-41.
- [5] De Silva N, Wijesundara S, Liyanapathirana V, Thevanesam V, Stenos J. Scrub typhus among paediatric patients in Dambadeniya: a base hospital in Sri Lanka. *Am J Trop Med Hyg*. 2012;87(2):342-44.

PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of Microbiology, Maulana Azad Medical College, Bahadur Shah Zafar Marg, New Delhi, India.
2. Senior Resident, Department of Microbiology, Maulana Azad Medical College, Bahadur Shah Zafar Marg, New Delhi, India.
3. Junior Resident, Department of Microbiology, Maulana Azad Medical College, Bahadur Shah Zafar Marg, New Delhi, India.
4. Director Professor, Department of Microbiology, Maulana Azad Medical College, Bahadur Shah Zafar Marg, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Preena Bhalla,
Director Professor, Department of Microbiology, Maulana Azad Medical College,
Bahadur Shah Zafar Marg, New Delhi-110002, India.
E-mail : preenabhalla@gmail.com

FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Jan 18, 2015**
Date of Peer Review: **Feb 13, 2015**
Date of Acceptance: **Feb 13, 2015**
Date of Publishing: **Mar 01, 2015**