Acute Febrile Infant with Stridor: Rare Presentation of Pediatric Scrub Typhus

Sir,

Scrub typhus (ST) is a re-emerging zoonosis worldwide, which is often underdiagnosed in children due to its wide variable clinical spectrum.^[1] This is mainly due to the nonspecific widespread endothelitis involving every organ system including heart, lung, brain, liver, spleen, kidney, pancreas, skin, musculoskeletal, etc., which is the basic pathology in ST.^[1,2] Respiratory system manifestations in ST are relatively common which includes parenchymal and pleural involvement, but there are no reports of airway disease till date.^[3] We report a rare presentation of ST with stridor in an infant.

A 1 year 4-month-old boy presented with fever, cough, and difficulty in breathing for 6 days. The mother also noticed peculiar character of cough which was low pitched similar to adult cough, hoarseness of voice, and noisy breathing. The child had no significant past medical history and was adequately immunized. On examination, he was irritable with pediatric glasgow coma scale (pGCS) score of 11, pale and had respiratory distress with suprasternal and subcostal retractions. He was febrile (103°F), tachycardic, tachypneic with SpO₂ of 90% on room air. He had generalized lymphadenopathy but without any obvious skin lesions or eschar. He had barking cough with soft inspiratory stridor (CROUP score of 7). Respiratory system examination revealed minimal bilateral wheeze. Systemic examination was normal except for mild splenomegaly. Chest roentgenogram showed mild bilateral hyperinflation and subglottic tracheal narrowing (Positive steeple sign) [Figure 1].

Child responded well to supplemental oxygen and nebulized epinephrine, but corticosteroids were withheld in view of spiking fever. Due to persisting fever, the child was investigated for common causes of acute febrile illness. His blood investigations showed hemoglobin of 10 g%, leukocytosis with neutrophilic predominance (Total leukocyte count (TLC) 15,100/mm³, N-57/E-2/M-3/L-39, and absolute neutrophil count – 8607 cells/mm³), and thrombocytopenia (platelets-102,000/mm³) with normal hematocrit and peripheral smear. Liver function test, blood culture, viral panel and serology for dengue, and enteric fever were normal. IgM serology for ST came positive (OD – 0.8) and repeat test after a week showed two-fold increase (OD – 1.62). The child was started on doxycycline (4 mg/kg/day in two divided doses) and responded well after 72 h. Fever, respiratory distress and stridor reduced within 72 h, and the child was discharged by Day 7 of starting antibiotic therapy. A diagnosis of ST with laryngotracheobronchitis (LTB) was

Figure 1: Chest radiograph showing upper tracheal narrowing (steeple sign) – white arrow (original)

considered due to strong evidence of rising titers, prompt response to antibiotic therapy, and inability to establish any coinfection with common viral agents.

Pathogenesis of ST involves generalized vasculitis affecting any organ system, vascular compromise, and end-organ injury due to endothelial invasion along with secondary, sustained immune-mediated inflammation.^[4] Upper airway involvement as in our case has not been documented in any rickettsial infections including ST.^[1,2] LTB (Croup) is a clinical diagnosis and though predominantly viral, can occur due to bacterial causes such as *Corynebacterium diphtheriae*, *Staphylococcus aureus*, *Pneumococcus*, and *Haemophilus influenzae*.^[5] Croup is often a clinical diagnosis and investigations to confirm the etiology are not indicated routinely.^[4]

ST should be considered in children from endemic areas presenting with upper airway manifestations such as stridor, particularly in the presence of fever.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Dinesh Kumar Narayanasamy, Thirunavukkarasu Arun Babu¹

Department of Pediatrics, JIPMER, Karaikal, Puducherry,

¹Department of Pediatrics, All India Institute of Medical Sciences, Mangalagiri, Andhra Pradesh, India

Address for correspondence: Dr. Thirunavukkarasu Arun Babu,
Department of Pediatrics, All India Institute of Medical Sciences, Mangalagiri,
Andhra Pradesh, India.
E-mail: babuarun@yahoo.com

REFERENCES

1. Narayanasamy DK, Arunagirinathan AK, Kumar RK, Raghavendran VD. Clinico-laboratory profile of scrub typhus – An emerging rickettsiosis in India. *Indian J Pediatr* 2016;83:1392-7.
2. Megan E, Reller J, Dumler S. Scrub typhus (*Orientia tsutsugamushi*). In: Kliegman RM, editor. *Nelson Textbook of Paediatrics*. Philadelphia: Elsevier; 2016. p. 1504.
3. Abhilash K, Mannam PR, Rajendran K, John RA, Ramasami P. Chest radiographic manifestations of scrub typhus. *J Postgrad Med* 2016;62:235-8.
4. Keller CA, Hauptmann M, Kolbaum J, Gharaibeh M, Neumann M, Glatzel M, *et al.* Dissemination of *Orientia tsutsugamushi* and

- inflammatory responses in a murine model of scrub typhus. *PLoS Negl Trop Dis* 2014;8:e3064.
5. Cherry JD. Clinical practice. Croup. *N Engl J Med* 2008;358:384-91.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code:	Website: www.ijrc.in
	DOI: 10.4103/ijrc.ijrc_97_20

How to cite this article: Narayanasamy DK, Babu TA. Acute febrile infant with stridor: Rare presentation of pediatric scrub typhus. *Indian J Respir Care* 2021;10:268-9.

Received: 10-09-2020

Revised: 27-02-2021

Accepted: 01-03-2021

Published: 14-06-2021

© 2021 Indian Journal of Respiratory Care | Published by Wolters Kluwer - Medknow