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Paediatrics

KEY WORDS: Scrub typhus, mortality, clinical profile.

EPIDEMIOLOGY AND CLINICAL PROFILE OF SCRUB TYPHUS

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ABSTRACT

Background- Objective of this study was to study epidemiology and clinical profile of scrub thyphus.
Methods- Retrospective record based cross sectional study conducted on 35 children at Dept. of Pediatrics, Jhalawar Medical College and Hospital, Jhalawar
Results- All children (n = 35) presented with fever. Among them, (37.14) had history of fever for less than 5 days and remaining 62.86% for more than 5 days. High grade fever (>101°F) was recorded in children during admission. Other common symptoms were headache, myalgia, vomiting, nausea, abdominal pain, dry cough, shortness of breath, altered sensorium, maculopapular rashes and generalised tonic clonic seizures (GTCS) respectively. Important clinical signs noticed on examination included lymphadenopathy, hepatomegaly, edema, jaundice, splenomegaly
Conclusion-Scrub typhus should be considered as a differential in any community acquired undifferentiated febrile illness regardless of the presence of an eschar, and needs empirical therapy along with testing for scrub typhus. Myocarditis and acute kidney injury are important complications which when addressed early can prevent mortality

INTRODUCTION

Scrub typhus, caused by Orientia (formerly Rickettsia) tsutsugamushi, is an acute infectious disease of variable severity that is transmitted to humans by an arthropod vector of the Trombiculidae family.[1] Scrub typhus is common in the region known as the tsutsugamushi triangle which extends from northern Japan and fareastern Russia in the north, to northern Australia in the south, and to Pakistan in the west.[2]
Most travel acquired cases of scrub typhus occur during visit to rural areas in endemic countries for the activity such as camping, hiking and rafting but cases do occur from urban area.[3]

Incubation period varies from 7-21 days. Clinical manifestations are nonspecific, and they include acute febrile illness, fever, nausea, headache, shortness of breath, and myalgia. Eschar is a characteristic skin lesion usually observed in most of the scrub typhus patients and the bite of this mite shows a characteristic black eschar that is useful to the doctor for making the diagnosis. Severe complications include prominent encephalitis, interstitial pneumonia and ARDS, circulatory collapse with haemorrhagic features.[4,5] Objective of this study was to study epidemiology and clinical profile of scrub thyphus.

MATERIAL AND METHODS

Study design: Retrospective record based cross sectional study

Study place: Dept. of Pediatrics, Jhalawar Medical College and Hospital, Jhalawar

Study population:
All children aged between 1 month to 12 years with scrub thyphus

Sample size: all patients
Sampling Method: Simple random sampling

INCLUSION CRITERIA:
All children aged between 1 month to 12 years with scrub thyphus

EXCLUSION CRITERIA:
Patients with other diagnosis

Data Collection:
The details of the patients will be collecte who will be admitted in the paediatric ward whose Ig M will be positive with ELISA for scrub typhus. Data on demographics and clinical feature of the patients were collected and entered in the excel sheet and analysis done.

Data Analysis:
All data were analyzed on EPI-info statistical software. Qualitative data were expresse in the form of proportion. Quantitative data were expresse in mean ± SD. Qualitative data were compare by Chi square test.Unpaired t test will be use to infer the difference in means.

RESULTS

Table 1. Clinico-demographic profile of scrub typhus

		No of cases	Percentage
Age	0-5 Yrs	9	25.71
	6-10 Yrs	11	31.43
	>10 Yrs	15	42.86
Sex	Male	21	60.00
	Female	14	40.00
Fever	<5 days	13	37.14
	>5 days	22	62.86
Headache		22	62.86
Nausea/ vomiting		23	65.71
Pain abdomen		15	42.86
Hepatomegaly		15	42.86
Splenomegaly		6	17.14
Lymphadenopathy		15	42.86
Edema		9	25.71
Jaundice		9	25.71
Rash		4	11.42
Altered sensorium		3	8.57
Seizure		3	8..57
Cough		4	11.42

All children (n = 35) presented with fever. Among them, (37.14) had history of fever for less than 5 days and remaining 62.86% for more than 5 days. High grade fever (>101°F) was recorded in children during admission. Other common symptoms were headache, myalgia, vomiting, nausea, abdominal pain, dry cough, shortness of breath, altered sensorium, maculopapular rashes and generalised tonic clonic seizures (GTCS) respectively. Important clinical signs noticed on examination included lymphadenopathy, hepatomegaly, edema, jaundice, splenomegaly

Table 2. Outcome profile of scrub typhus

	No of cases	Percentage
Cardiac problem	21	60.00
Hypoalbuminemia	19	54.28

hyponatremia	16	45.71
AKI	17	48.57
MODS	4	11.43
Hepatitis	2	5.71
Thrombocytopenia	13	37.14

Most common complications were myocarditis (60.00%), hypoalbuminemia (54.28%), renal impairment (48.57%), hyponatremia (45.71%), hepatitis (5.71%) and severe thrombocytopenia (37.14%).

DISCUSSION

The data of clinico-laboratory profile as well as the outcome of scrub typhus in children in India. Males were more likely to be affected compared to females. [6-7] The incidence of scrub typhus increased as the age increased in the present study which could be due to frequent exposures of chiggers in older children especially males while playing out-door.

The clinical manifestations in scrub typhus are nonspecific and have wide variations in presentation. Majority of children in the present study were symptomatic (with fever, headache and myalgia). Recent studies conducted by Kumar et al and Palanivel et al also demonstrated fever to be present in all cases[8,9].

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Pathak S et al[10] was found that most common complications were myocarditis (n = 55, 72.4%), hypoalbuminemia (n = 54, 71.1%), renal impairment (n = 50, 65.8%), hyponatremia (n = 37, 48.7%), hepatitis (n = 26, 34.2%) and severe thrombocytopenia (22.4%). Among 76 cases, 42 were managed in high dependency unit (HDU), 20 in general ward and 14 cases required pediatric intensive care unit (PICU) admission. Majority of children with myocarditis (S_3-gallop) received dobutamine (+/- low dose of diuretics) and those with shock received fluid boluses along with inotropes. Inotropes were given to 14 cases. Children with catecholamine resistant shock, worsening respiratory distress and Glasgow Coma Scale (GCS) less than 7 required ventilatory support. Out of 8 children received who ventilatory support, three of them expired due to multi-organ dysfunction syndrome. None of the children with AKI needed dialysis. Platelet transfusion was considered in all children with platelet count less than <20,000/mm^3. Children with meningoencephalitis who showed increased CSF cell count (predominantly lymphocytic, few neutrophilic), raised protein and low sugar were treated as per protocol.

CONCLUSION

Scrub typhus should be considered as a differential in any community acquired undifferentiated febrile illness regardless of the presence of an eschar, and needs empirical therapy along with testing for scrub typhus. Myocarditis and acute kidney injury are important complications which when addressed early can prevent mortality.

REFERENCES

1. Mahajan SK. Scrub typhus. J Assoc Phys India. 2005;53:954-8
2. Kelly DJ, Fuerst PA, Ching WM, Richards AL. Scrub typhus: the geographic distribution of phenotypic and genotypic variants of Orientia tsutsugamushi. Clin Infect Dis. 2009;48(3):203-30.
3. Park K. Park's textbook of preventive and social medicine: 24rd edition, Bhanot publications; Epidemiology of communication diseases; 2015: 274-275.
4. Tsay RW, Chang FY. Serious complications in scrub typhus. Microbiol Immunol Infect. 1998;31:240-4.
5. Chayakul P, Panich V, Silpapojakul K. Scrub typhus pneumonitis: an entity which is frequently missed. Q J Med. 1988;256:595-602
6. Phuong HL, de Vries PJ, Nga TT, Giao PT, Hung LQ, Binh TQ, Nam NV, Nagelkerke N, Kager PA. Dengue as a cause of acute undifferentiated fever in Vietnam. BMC infectious diseases. 2006 Dec;6(1):123
7. Kumar M, Krishnamurthy S, Delhikumar CG, Narayanan P, Biswal N, Srinivasan S. Scrub typhus in children at a tertiary hospital in southern India: clinical profile and complications. J Infect Public Health. 2012 Mar;5(1):82–8. pmid:22341847
8. Kumar Bhat N, Dhar M, Mittal G, Shirazi N, Rawat A, Prakash Kalra B, et al. Scrub typhus in children at a tertiary hospital in north India: clinical profile and complications. Iran J Pediatr. 2014 Aug;24(4):387–92. pmid:25755859
9. Kumar R, Thakur S, Bhawani R, Kanga A, Ranjan A. Clinical Profile and Complications of Scrub Typhus: Hospital-Based Study in Sub-Himalayan Region. J Assoc Physicians India. 2016 Dec;64(12):30–4. pmid:28405985
10. Pathak S, Chaudhary N, Dhakal P, Shakya D, Dhungel P, Neupane G, et al. (2019) Clinical profile, complications and outcome of scrub typhus in children: A hospital based observational study in central Nepal. PLoS ONE 14(8):e0220905.https://doi.org/10.1371/journal.pone.0220905