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Original Research Article

Epidemiology and clinical profile of scrub typhus outbreak in a tertiary care centre of central India

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ABSTRACT

Background: Scrub typhus is the most common rickettsial infection in the Indian subcontinent with the manifestation ranging from mild symptoms to serious disease with or complication or death. The objective of this study was to study epidemiology and clinical profile of scrub typhus outbreak in a tertiary care centre of central India.
Methods: Present study is a record based retrospective study enrolling 173 confirmed positive cases with ELISA test during the period from 1st August to 31st December 2018.
Results: Maximum number of the cases 94 (54.3%) had occurred in September 2019. Majority of the female 94(54.3%) were Ig M positive for scrub typhus. Maximum cases 134 (77.5%) were from rural area. Most common symptoms were fever 170 (98.3%), followed by fever with chills 65 (37.6%), breathlessness 49 (28.3%), cough 35 (20.2%), and 28 (16.2%) each with altered sensorium and headache. Mortality was recorded in 30 (173%) and amongst them 10 (34.5%) and 4 (13.8%) cases had ARDS and septicaemia as complication respectively.
Conclusions: This study shows that majority of the cases occurred in the month of September 2018 with female preponderance. Most of the residence were from rural areas with common presenting symptoms as fever or fever with chills followed by breathlessness, cough and altered sensorium and headache.

Keywords: Acute respiratory distress syndrome, Scrub typhus, Septicaemia

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 far-eastern 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 typhus outbreak in a tertiary care centre of central India.

METHODS

The present study is retrospective record based cross sectional study with duration of 5 months from 1st August 2019 - 31st December 2018. The details of the patients were collected who were admitted in the medicine/ paediatric ward whose Ig M was 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. Approval from institutional ethics committee was obtained.

RESULTS

Table 1: Demography and clinical profile of scrub typhus subjects (n=173).

Demography	No.	%
Age (in years)		
Below 10	9	5.2
10-19	19	10.9
20-59	110	63.6
60 and above	35	20.3
Gender		
MCH	8	4.6
FCH	4	2.3
Male	67	38.8
Female	94	54.3
Locality		
Urban	39	22.5
Rural	134	77.5
Clinical profile		
Fever	170	98.3
Fever with chills	65	37.6
Breathlessness	49	28.3
Cough	35	20.2
Altered sensorium	28	16.2
Vomiting and nausea	13	7.5
Swelling over feet	9	5.2
Headache	28	16.2
Gastro intestinal symptoms	19	11.0
Urinary symptoms	9	5.2
Skin lesion (ESHAR)	4	2.3
Other	48	27.7

In the present study, majority of the subjects 110 (63.6%) were in the age group between 20-59 years. About 9(5.2%), 19 (10.9%) and 35 (20.3%) were below 10years, between 10-19 years and above 60 years. About 94 (54.3%), 67 (38.8%), 8 (4.6%) and 4 (2.3%) were female, male, male and female children respectively. Majority 134 (77.5%) cases were from rural and 39 (22.5%) from urban. The study subjects presented with fever 170 (98.3%), fever with chills 65 (37.6%), breathlessness 49 (28.3%), cough 35 (20.2%), altered sensorium 28 (16.2%), vomiting and nausea 13 (7.5%), swelling over feet 9 (5.2%), headache 28 (16.2%), gastrointestinal symptoms 19 (11%), urinary symptoms 9 (5.2%), skin lesion (ESHAR) 4 (2.3%) and other 48 (27.7%) (Table 1).

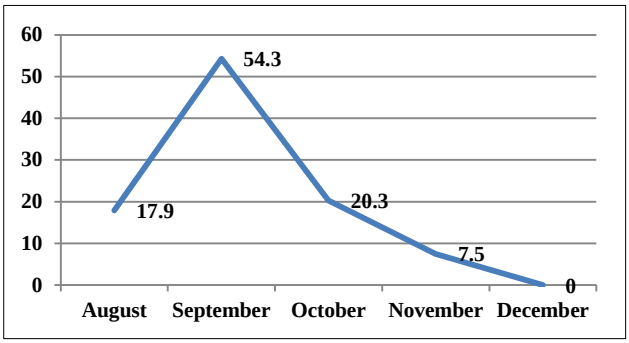

Figure 1: Month wise distribution of study subjects (%).

Maximum cases 94 (54.3%) had occurred in the month of September followed by 35 (20.3%) in October, 31 (17.9%) in August, 13 (7.5%) in November and not a single case reported in December 2019 (Figure 1).

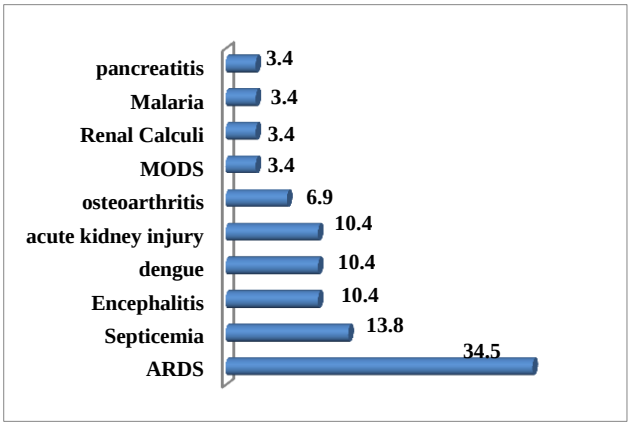

Figure 2: Complication in scrub typhus positive subjects (%).

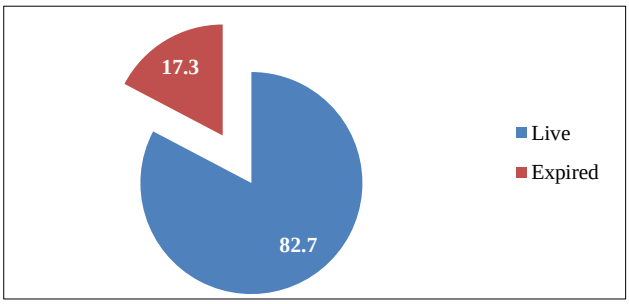

Figure 3: Outcome wise distribution of subjects (%).

Maximum 10 (34.5%) of cases had ARDS as complication followed by 4 (13.8%) with septicaemia (Figure 2).

In this study 30 (17.3%) scrub typhus cases had expired (Figure 3).

DISCUSSION

In our study most of the subjects were between 20-59 years, mean age being 40.54. Majority were females similar result were observed in the study by Takhar et al.[6]

In the present study majority of the subjects (78.6%) were from rural areas. This is in congruence with data published by the, Indian Council of Medical Research and also with study done by Saha et al.[7,8]

Scrub typhus outbreak had occurred from 1st August to 31st December 2018. The maximum burden of cases being in the month of September, which correlates with other studies as well.[9,10]

In this study, subjects presented with fever 98.3%, fever with chills 37.6%, breathlessness 28.3%, cough 20.2%, Altered sensorium 16.2%, headache 16.2%, vomiting and nausea 7.5%, swelling over feet 5.2%, gastrointestinal symptoms 11%, urinary symptoms 5.2%, skin lesion (ESHAR) 2.3% and other 27.7%. Eschar which is considered most useful diagnostic clues for scrub typhus was present in only 2.3 % cases of our study. However, in various studies its prevalence various from 10-70%.[8,11-13]

MODS and ARDS are the common complications associated with scrub typhus with high mortality.[13] In our study ARDS was present in 34.5%, septicaemia in 13.8%, encephalitis in 1% and MODS in 10.4% patients. Shock, Respiratory distress were the most common complications followed by ARDS, meningoencephalitis, myocardial dysfunction, DIVC with MODS etc. in the study done by Balaji et al.[12]

Case fatality rate varies from 0-25% in various studies conducted in India.[6,11,12] However, in the present study it was 17.3%.

CONCLUSION

This study shows that majority of the cases occurred in the month of September 2018 with female preponderance. Most of the residence were from rural areas with common presenting symptoms as fever or fever with chills followed by breathlessness, cough and altered sensorium and headache.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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