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Clinical Spectrum and Outcome of Scrub Typhus Patients in a Tertiary Care Teaching Hospital of Western Maharashtra

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Abstract **Original Research Article**

Introduction: Acute febrile illness (AFI) is the most common presenting complaint in the emergency and outpatient clinics in developing countries. Scrub typhus is currently one of the most covert re-emerging infections and it is one of the commonly occurring rickettsial diseases in India. ***Objectives:*** To determine the clinical profile and outcome of scrub typhus patients admitted at a tertiary care centre of western Maharashtra for treatment. ***Material and Method:*** Present descriptive cross sectional study conducted over period of three years from October 2019 to October 2022. Study commenced after obtaining Institutional Ethical Permission (IEC). Clinically suspected patients undergone Weil-Fliex test followed by IgM ELISA for confirmation of diagnosis. Total 148 patients were included as inclusion and exclusion criteria. ***Results:*** Out of 148 patients 58.10% (86) and 41.89% (62) were male and female respectively. The commonest age group of patients was 21 to 30 years. Fever was the most common (81.75%) symptom and eschar (skin lesion) was seen in 16.21% (24) patients. ***Conclusion:*** Scrub typhus is an important cause of undifferentiated acute febrile illness should be considered in the differential diagnosis of pyrexia of unknown. Adequate knowledge about demographic and clinical profile scrub typhus helps in early diagnosis.

Keywords Scrub typhus, Fever, Eschar, Multiple organ dysfunction syndrome, Rural.

INTRODUCTION

Scrub typhus is an important cause of undifferentiated acute febrile illness [1]. It is a mite borne infectious disease caused by Orientia tsutsugamushi, obligate intracellular bacteria, transmitted by chigger mites [2]. Scrub typhus is currently one of the most covert re-emerging infections and it is one of the commonly occurring rickettsial disease in India, and it has been reported from Maharashtra, Tamil Nadu, Karnataka, Kerala, Jammu and Kashmir, Uttaranchal, Himachal Pradesh, Rajasthan, Assam, Puducherry and West Bengal [3, 5].

Scrub typhus is an acute febrile illness varying from mild and self-limiting to fatal. Severe cases are characterized by encephalitis and interstitial pneumonia due to vascular injury with a Case fatality rate of 7% [6]. In India, the disease is included in the list of Infectious diseases under surveillance (IDSP), still there is underestimation of its prevalence and hazard [7]. Diagnosis requires a high index of suspicion as signs and symptoms are non-specific like fever, rash, cough, headache, myalgia, lymphadenopathy, vomiting and abdominal pain [8] and failing to treat this on time leads to complication [2]. Due to delayed presentation to hospital, delayed diagnosis, associated comorbidities, drug resistance, mortality rate associated with disease escalates [9] with this background present study was conducted with an objectives to determine the clinical profile and outcome of scrub typhus patients admitted at a tertiary care centre of western Maharashtra for treatment.

MATERIAL AND METHODS

Present descriptive cross sectional study conducted over period of three years from October 2019 to October 2022. Study commenced after obtaining Institutional Ethical Permission (IEC). Clinically suspected patients undergone Weil-Fliex test followed by IgM ELISA for confirmation of diagnosis. Those patients who willing to participate were included after informed consent and not willing, discharged against

medical advice were excluded from the study. Total 148 patients were included as per laid down inclusion and exclusion criteria's. Predesign, pretested questionnaire were used for the collection of data. Questionnaire included the questions about the housing, occupation, area of residence etc. Clinical history about the presence of symptoms like fever, breathlessness, vomiting etc. was also taken. It was followed by the clinical examination and a careful search for the presence of eschar. The information about the occurrence of complications among the patients was collected. Data tools were checked for their completeness and data entry and coding was done in Microsoft Excel. The raw data was compiled, classified and presented in a tabulated and graphical manner to bring out important details. Chi square test was used for categorical data to determine the association between variables. Level of significance ≤ 5% considered significant.

RESULTS

In present study 148 scrub typhus patients admitted at medicine department of tertiary care teaching hospital were studied. Out of 148 patients 58.10% (86) and 41.89% (62) were male and female respectively. The commonest age group of patients was 21 to 30 years but the age and gender association found to be non-significant (Table 01).

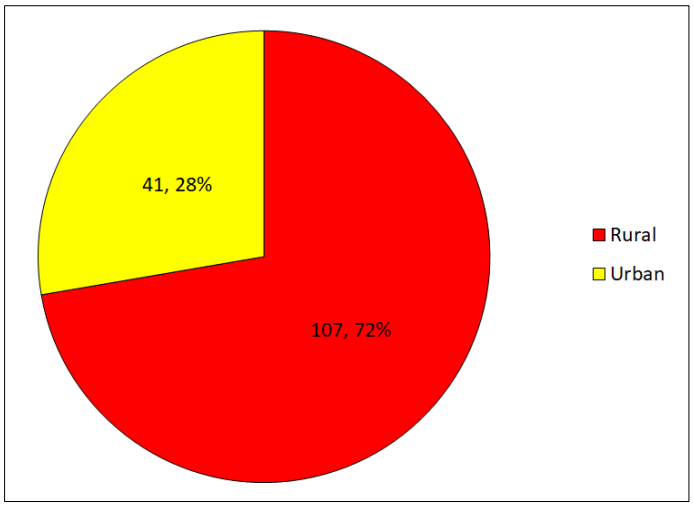
Table no 01: Age and Gender distribution of Patients (n-148)

Sr. No	Age groups	Gender		Frequency (%)
		Male	Female	
1.	< 18 Years	06	07	13 (08.78%)
2.	21 Yr. to 30 Yr.	25	31	56 (37.83%)
3.	31 Yr. to 40 Yr.	26	12	38 (25.67%)
4.	41 Yr. to 50 Yr.	23	09	32 (21.62%)
5.	≥ 51 Yrs.	06	03	09 (06.08%)
	Total	**86 (58.10%)**	**62 (41.89%)**	**148 (100%)**
Chi-square (χ2) 09.35 df:04 P:0.052 Non-Significant				

Table 02: Distribution of demographic characteristics of patients (n-148)

Sr. No.	Variables	Frequency (100%)
1.	**Residence**	
	Urban	41 (20.70%)
	Rural	107 (72.29%)
2.	**Occupation**	
	Farmers	115 (77.70%)
	Housewife	06 (04.05%)
	Students	16 (10.81%)
	Laborers	11 (07.43%)
3.	**Housing**	
	Kutcha	97 (65.54%)
	Pakka	51 (64.45%)
4.	**Sanitary Toilets**	
	Yes	128 (86.48%)
	No	20 (13.51%)
5.	**Rat Nuisance**	
	Yes	68 (45.94%)
	No	80 (54.05%)

Table 02 shows demographic variable of the participants admitted with scrub typhus. In present study 72.29% belonged to rural area and 65.54% had kutcha house. Sanitary latrine was present in 86.48% household, 45.94% reported presence of mice nuisance in and around house.



Graph: 01 Distribution of residence of patients

Table 03: Distribution of clinical features of patients (n-148) (multiple response)

Sr. No.	Sign/Symptoms	Frequency (%)
1.	Fever/Chills/Rigor	121 (81.75%)
2.	Eschar (Skin lesion)	27 (16.21%)
3.	Vomiting & Nausea	49 (33.10%)
4.	Breathlessness	31 (20.94%)
5.	Abdominal pain	29 (19.59%)
6.	Diarrhoea	22 (14.86%)
7.	Altered sensorium	11 (07.43%)
8.	Cough	71 (47.97%)
9.	Generalized body swelling	07 (04.72%)
10.	Hepatomegaly	05 (03.37%)
11.	Splenomegaly	13 (08.78%)
12.	Hepatosplenomegaly	06 (04.50%)
13.	Lymphadenopathy	27 (18.24%)

Table 2 shows the clinical profile of study participants. Fever was the most common (81.75%) symptom, followed by cough (47.97%), nausea-vomiting (33.10%) etc. Eschar (skin lesion) was seen in 16.21% (24) patients. On careful examination in 54.16% (13) patients eschar was found on anterior chest, 25% (06) had on abdomen while in 03 (12.5%) and 02 (08.33%) patients lesion was seen groin and thigh region respectively.

Table 04: Distribution of complication (n-148)

Sr. No.	Complication	Frequency (%)
1.	Respiratory	13 (08.78%)
2.	Gastrointestinal	09 (06.08%)
3.	Multiple organ dysfunction syndrome	21 (14.18%)
4.	Renal	14 (09.45%)
5.	Cardiac	08 (05.40%)
6.	Neurological	11 (07.43%)
7.	No Complication	110 (74.32%)

Table 4 shows the various complications in study participants diagnosed with scrub typhus. Complications involving one or more organs were found in 25.67% of patients. The commonest complications were multiple organ dysfunction syndromes (14.18%), renal (09.45%) and respiratory (08.78%). Out 148 patients 85.81% (127) patient's recovered while 14.18% (21) died.

DISCUSSION

Out of 148 patients 58.10% (86) and 41.89% (62) were male and female respectively. The commonest age group of patients was 21 to 30 years but the age. Choudhary S *et al.*, [10] reported that out of 62, 30 (48.4%) were males and 32 (51.6%) were females. Sariga I *et al.*, [11] in his study reported higher percentage of female patients (54%) than the males (46%) as compared to our study. In present study

72.29% belonged to rural area and 65.54% had kutcha house. Sanitary latrine was present in 86.48% household, 45.94% reported presence of mice nuisance in and around house. In Choudhary S *et al.*, [10] study majority (69.4%) belonged to rural area and 83.9% had pukka house while 82.3% had sanitary toilet in their houses and 62.9% reported nuisance mice in their households.

In our study symptoms like fever, cough and nausea-vomiting were more prevalent amond scrub typhus patients. Eschar (skin lesion) was seen in 16.21% (24) patients. In Sariga I *et al.*, [11] study fever was the most common symptom (92.9%) followed by Chills (50.3%) and headache (42.6%). Dhar SK *et al.*, [12] also reported fever as the most common mode of presentation (100%). Narlawar UW *et al.*, [13] reported fever 170 (98.3%), fever with chills 65 (37.6%), and breathlessness 49 (28.3%) as most prevalent symptoms. In present study commonest complications were multiple organ dysfunction syndromes (14.18%), renal (09.45%) and respiratory (08.78%). Out 148 patients 85.81% (127) patient's recovered while 14.18% (21) died. Choudhary S *et al.*, [10] reported multiple organ dysfunction syndrome (MODS) and gastroinstestinal as prevalent complication among scrub typhus patients. %). In Narlawar UW *et al.*, [13] study maximum (34.5%) of cases had ARDS as complication followed by septicaemia (13.8%). He also reported 17.3% mortality of scrub typhus patients.

CONCLUSION

Scrub typhus is an important cause of undifferentiated acute febrile illness should be considered in the differential diagnosis of pyrexia of unknown. Adequate knowledge about demographic and clinical profile scrub typhus helps in early diagnosis.

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