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## Clinical radiological manifestation in scrub typhus in tertiary care hospital of southern Rajasthan

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### Abstract

**Introduction:** Acute febrile illness (a rapid onset of fever and symptoms such as headache, chills, muscle and joint pain) is common in topics and sub – topics, caused by very diverse pathogens. Pulmonary involvement has been well reported and basic pathological process in pulmonary involvement of scrub typhus is interstitial pneumonia with or without vasculitis.

**Methodology:** Prospective observational, analytic study performed in period of Jan-2019 to Dec-2019 to determine rates, clinic-epidemiology, pattern of respiratory system involvement, incidence, frequency and pattern of respiratory system involvement in cases of illness involvement in scrub typhus admitted in medical ward and ICU.

**Result:** In our study of total 130 patients were included, out of which 50 were males and 80 were females. Patients above age of 16 years were included patient with Scrub typhus were admitted 46 (35.3%) in ICU and 84 (64.6%) in Ward and amongst them non smokers is more common 95 (73.07%), and Non alcoholics is common in Scrub typhus 86 (66.15%), Comorbidities In Scrub typhus DM being most common comorbidity followed by HTN (4.61%) and combination of both DM and HTN (4.61%) respectively. ABG findings In Scrub typhus 101 (77.6%) showed normal findings and 29 (22.3%) abnormal findings. In Scrub typhus most common pulmonary manifestations being productive cough 42 (32.3%) and least common being hemoptysis 1 (0.76%).

**Conclusion:** In all the cases of scrub typhus during early stage of the disease pulmonary manifestations must be ruled out and basic radiological investigations (CXR) should be done to find out any complications of pulmonary system involvement such as ARDS, Pneumonia etc. Early detection of pulmonary manifestations can not only reduce the stay of the hospital but also improves outcome of the disease and reduces mortality and morbidity rate.

**Keywords:** Acute febrile, radiological, scrub, tertiary, southern

### Introduction

Acute febrile illness (a rapid onset of fever and symptoms such as headache, chills, muscle and joint pain) is common in topics and sub – topics, caused by very diverse pathogens. Differential diagnosis of these etiologies based on clinical criteria alone is not possible as clinical signs and symptoms of most of these infections are very similar and correct diagnosis is only possible by using pathogen specific diagnostic tests [1].

Common causes include Dengue, Malaria, Influenza A, Salmonella typhi, Rickettsia, Scrub typhus, Chikungunya, and other viral infections [2].

Pulmonary involvement has been well reported and basic pathological process in pulmonary involvement of scrub typhus is interstitial pneumonia with or without vasculitis. An important and serious manifestation of the scrub typhus is acute respiratory distress syndrome (ARDS).

### Material and Methods

Prospective observational, analytic study performed in period of Jan-2019 to Dec-2019 to determine rates, clinic-epidemiology, pattern of respiratory system involvement, incidence, frequency and pattern of respiratory system involvement in cases of illness involvement in scrub typhus admitted in medical ward and ICU. All patients above 16yrs who were not having any history of previous lung disease but diagnosed as scrub typhus were included in study and the patients who were having immune compromised status, cardio vascular diseases and chronic pulmonary disease were excluded from our study.

Detailed clinical profile included bio data, chief complains, history of present illness, past and personal history evaluated. General and systemic examination will be done thoroughly and findings will be noted. Depending on these findings clinical diagnosis will be made and further evaluation will be done.

**Result**

In our study of total 130 patients were included, out of which 50 were males and 80 were females. Patients above age of 16 years were included patient with Scrub typhus were admitted 46 (35.3%) in ICU and 84 (64.6%) in Ward and amongst them non smokers is more common 95 (73.07%), and Non alcoholics is common in Scrub typhus 86 (66.15%), Comorbidities In Scrub typhus DM being most common comorbidity followed by HTN (4.61%) and combination of both DM and HTN (4.61%) respectively. ABG findings In Scrub typhus 101 (77.6%) showed normal findings and 29 (22.3%) abnormal findings. In Scrub typhus most common pulmonary manifestations being productive cough 42 (32.3%) and least common being hemoptysis 1 (0.76%).

**Discussion**

In our study of total 130 patients were included, out of which 50 were males and 80 were females. Patients above age of 16 years were included in the study and maximum patients were in age group between 30 to 39 years (21.07%), followed by 18 to 29 years (15%) and 3<sup>rd</sup> common group between 40 to 49 years (8.90%).

In KPP Abhilash *et al.* [6] study of radiological manifestations in scrub typhus patients. Patients >16 years were included in the study buy they didn't further subdivided the age groups.

In Naget ali study [7] of respiratory manifestations in scrub typhus, divided in 2 sub groups, m/c age group <50 years (65%) and >50 years (35%). Difference existed as in there study age group was divided only in 2 broad groups.

In our study total 130 patients diagnosed with scrub typhus admitted in hospital and fever being the most common symptom(98%) of patients, and SOB (50%) being the most common pulmonary manifestation. As similar to our study KPP Abhilash, *et al.* [6] total 398 patients, fever (100%) was most common symptom and SOB (54%) was most common pulmonary manifestation.

In Nrushen, S, *et al.* [8] included 60 patients of scrub typhus and fever being the most common symptom (100%) and most common pulmonary manifestation was SOB (15%). Difference in % existed as in their study small number of patients were included although male predominance.

In Rajendra Prasad Thakar, *et al.* [9] total of 66% patients were included in study and fever being the most common symptoms and SOB being the most common pulmonary manifestations.

In our study of scrub typhus of total 130 patients most common radiological finding was reticulo-nodular shadows (42.3%) followed by hilar enlargement (17.69%).

In KPP Abhilash, *et al.* [6] most common radiological manifestation was pleural effusion (14.6%). Difference existed as in there study sample was much bigger as compare to our study. In our study 32.32% of patients were having normal radiological findings.

In KPP Abhilash *et al.* [6], 50% of patients were having normal radiological manifestation. Difference in % existed as in there sample size was much bigger as compare to our study.

**Table 1:** Showing Epidemiological status

Gender	Scrub typhus (%)	Admitted at	Scrub typhus (%)	Smoking status	Scrub typhus (%)	Alcohol intake	Scrub typhus (%)	Diet	Scrub typhus (%)
Male	50 (38.46%)	ICU	46 (35.3%)	Smoker	35 (26.9%)	Present	44 (33.8%)	Mix-diet	78 (60%)
Female	80 (61.53%)	WARD	84 (64.6%)	Non-smoker	95 (73.07%)	Absent	86 (66.15%)	Veg	52 (40%)
Total	130 (100%)	TOTAL	130 (100%)	Total	130 (100%)	Total	130 (100%)	Total	130 (100%)

**Table 2:** Showing Investigations outcome

2-D-ECHO	Scrub Typhus (%)	Cxr Findings	Scrub Typhus (%)	ABG	Scrub Typhus (%)
Normal	118 (90.7%)	Normal	39 (30%)	Normal	101 (77.6%)
Abnormal	12 (8.45%)	Abnormal	91 (70%)	Abnormal	29 (22.3%)
Total	130 (100%)	Total	130 (100%)	Total	130 (100%)

**Table 3:** Comorbidity status

Comorbidities	Scrub Typhus (%)
Dm 2	16 (12.3%)
Htn	6 (4.61%)
Dm 2/ htn	6 (4.61%)
Hypothy	4 (3.07%)
Hypothy/ dm	0
Absent	98 (75.3%)
Total	130 (100%)

**Table 4:** Showing Symptoms

Pulmonary Manifestations	Scrub Typhus (%)
Dry cough	34 (26.1%)
Prod. Cough	42 (32.3%)
Dyspnea	65 (50%)
Chest pain	22 (16.9%)
Haemoptysis	1 (0.76%)

**Table 5:** Showing other complains

Other Systemic Manifestations	Scrub Typhus No.
Fever	127
Joint pain	125
Nausea/ vomiting	122
Abdominal pain	79
Diarrhoea	38
Seizure	12

**Conclusion**

In Scrub typhus most common pulmonary manifestations being (50%) followed by productive cough (32.3%) and least common being hemoptysis (0.76%). In our study we found that most common systemic manifestation is fever Scrub typhus (98%), followed by nausea and vomitting, Scrub typhus (94%), Least common systemic manifestation being seizure in Scrub typhus (9.23%). In scrub typhus pulmonary

manifestations are found very frequently and are associated with high mortality and morbidity. In all the cases of scrub typhus during early stage of the disease pulmonary manifestations must be ruled out and basic radiological investigations (CXR) should be done to find out any complications of pulmonary system involvement such as ARDS, Pneumonia etc. Early detection of pulmonary manifestations can not only reduce the stay of the hospital but also improves outcome of the disease and reduces mortality and morbidity rate.

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