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, Ricketsia, 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 50 were males and 80 were females. Patients above age of 16 years were included in the study and maximum patients were 50 were males and 80 were females. Patients above age of 16 years were included in the study and maximum patients were

In Nagel 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 the 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 sample 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. [8] study of radiological manifestations in scrub typhus patients. Patients >16 years were included in the study but they didn’t further subdivided the age groups.

| 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%) |

| 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               |

In our study total 130 patients were having vomiting, 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.

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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. [8], 50% of patients were having normal radiological manifestation. Difference in % existed as in there sample size was much bigger as compare to our study.

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 vomiting, 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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