International Journal Dental and Medical Sciences Research
Volume 3, Issue 4, July-Aug 2021 pp 302-305 www.ijdmsrjournal.com ISSN: 2582-6018

Clinical Profile of Scrub Typhus: A Cross Sectional Study in a Tertiary Care Centre of Tripura

Dr.Pritam Debnath[1], Dr.Rajesh Kishore Debbarma [2], Dr.Durlabh Debbarma[3]
[1]*Post Graduate Trainee,Department of Medicine,AGMC & GBP Hospital,Agartala,*
[2] *Professor, Department of Medicine, AGMC & GBP Hospital,Agartala,*
[3]*Post Graduate Trainee,Department of Medicine,AGMC & GBP Hospital,Agartala,*

Submitted: 20-07-2021 Revised: 29-07-2021 Accepted: 31-07-2021

ABSTRACT:
Acute febrile illness (AFI) is the most common presenting complaint in the emergency and outpatient clinics in developing countries. Outbreaks usually occur in rainy and post-rainy season. Disease responsible for such outbreaks in India are malaria, dengue, typhoid, scrub typhus and other viral infections. Scrub typhus is the commonest rickettsial infection in India caused by Orientiatsutsugamushi and transmitted by trombiculid mites. A necrotic eschar at the inoculating site of the mite is pathognomic of Scrub typhus.The disease is endemic in 'tsutsugamushi triangle' region and common in adults involved in agriculture,forest occupation, soldiers in temporary camps. The clinical course ranges from subclinical disease to multiorgan failure and death. Early diagnosis and treatment reduce morbidity and mortality from this infectious disease. This study was carried out to document the clinical presentation and outcomes of adult patients with scrub typhus presenting to our tertiary care hospital in Tripura. **Objectives**: To assess the clinical profile and outcomes of scrub typhus. **Materials and Methods:** The present cross-sectional study was conducted at AGMC& GBP Hospital, Agartala from the period of January 2018 to December 2018.Patient with acute febrile illness fulfilling the inclusion and exclusion criteria were enrolled. Detailed history, clinical examination, relevant investigations were done and data were analysed. **Results & Conclusions**: Out of 40 patients, 26 are males and 14 are females. The ages of the patient ranges from28 to 50 years. Most cases presented during the month of September (40%) followed by August (20%) and October (17%).Of the entire group 47.5% were farmers. The mean duration of fever before hospital presentation was 6.7
±1.3 days .The most common laboratory finding was deranged liver function (27.5%), thrombocytopenia (25%),AKI (5%), ARDS(5%) and DIC (5%) were the commonest complications. Coinfection with IgM ab against Dengue seen in two patients. Conflict of Interest: Early diagnosis and treatment decrease the fatal outcomes of this disease, hence an increasing awareness is necessary.

Keywords: Eschar, Orientia tsutsugamushi, Scrub typhus, AKI,DIC, ARDS.

I. INTRODUCTION:

Scrub typhus is a vector borne, zoonotic infection caused by Orientia tsutsugamushi .It is a reemerging infection,found in the' tsutsugamushi triangle' of South and Southeast Asia,the Asian Pacific rim andNorthern Australia[1,2].It is one of the commonly occurring rickettsial disease in India ,and it has been reported from Maharashtra ,Tamil Nadu, Karnataka, Kerala,J ammu & Kashmir, Uttaranchal, Himachal Pradesh, Rajasthan, Assam, West Bengal[3].Although the disease is endemic in our country, it grossly remains underdiagnosed owing to the non-specific clinical presentation ,lack of access to the specific diagnostic facility, and low index of suspicion by the clinician[4].Illness varies from mild to fatal. After an incubation period of 6-21 days, onset is characterized by fever, headache, myalgia, cough, gastrointestinal symptoms. Some patients recover spontaneously after a few days[5].Scrub typhus is transmitted through bite of chiggers (larval stage of trombiculid mite).Infected larval mites inoculate organisms into the skin.Infected chiggers are particularly likely to be found in areas of heavy scrub vegetation during the wet season,when mites lay eggs[6].A painless papule occurs at the bite site which later ulcerates and changes into a black crust or 'Eschar'[7].The common sites for eschar formation are the groin,axilla,waist and other exposed parts of the body.The pattern of eschar distribution is different in males and females. These are due to differences in the skin fold,clothing and pressure points created by undergarments. The front of the chest and area within 30 cm from the umbilicus are common sites for both sexes. There is difficulty in detecting small eschars in dark skinned individuals and also due to

the atypical appearance in damp and moist areas of the skin. Hence, the prevalence of eschar at the bite has been reported between 7 to 80% [8-10].It is a common observation that when the diseases of acute febrile illness such as malaria, typhoid ,leptospirosis and fever due to localizedcauses were excluded ,a good percentage of cases among the patients with acute febrile illness were ultimately diagnosed to have scrub typhus. Complications associated with scrub typhus is not uncommon and sometimes proved to be fatal.

Common complications associated with scrub typhus are AKI(Acute kidney injury), Hepatitis, ARDS(Acute respiratory distress syndrome), Meningoencephalitis, Myocarditis and Septic shock. Though effective treatment in the form of doxycycline and azithromycin is available still a large number of patients develop complication withhigh mortality mostly because of delay in the diagnosis and late initiation of specific treatment. The public health importance of this disease is underestimated because of difficulties with clinical diagnosis and lack of laboratory methods in many areas[11]-[13].The definitive test for diagnosis of scrub typhus are the immunofluorescent assay and indirect immunoperoxidase test based on cell culture derived O. tsutsugamushi antigens applied to paired admission and convalescent samples .The above test, however has not yet been standardized across laboratories and not available in tropical areas[14].Anti O. tsutsugamushi immunoglobulin M (IgM) and (IgG) based rapid diagnostic tests have been developed .No vaccine has yet been developed for prevention. However scrub typhus can be preventedor controlled by wearing protective clothing and also by application of DEFI(N,N-diethyl-meta-toluamide) which is an insect repellent during travels to endemic region[15] .The disease has become a significant occupational hazard in rural workers, adults involved in agriculture, forest occupation, soldiers in temporary camps[16].Out of 29 states in india, scrub typhus has been reported from 23 states. Especially it occurs during the monsoon and postmonsoon seasons[17-18].An early diagnosis and specific treatment can reduce morbidity and mortality from this infectious disease. This study was carried out to document the clinical presentation and outcomes of adult patients with scrub typhus presenting to our tertiary care hospital in Tripura.

II. AIM & OBJECTIVES:

To analyze the epidemiological pattern, clinical presentation and biochemical parameters of scrub typhus cases admitted in Medicine department of AGMC & GBP Hospital.

To find out the epidemiological pattern of scrub typhus in Tripura. To find out the clinical presentation in these patients. To find out the commonest biochemical abnormalities among these patients.

III. INCLUSION AND EXCLUSION CRITERIA:

Patients admitted in Medicine ward of AGMC & GBP Hospital. Age more than 18 years. All serologically confirmed cases of scrub typhus.
Age less than 18 years. Immunocompromised patients (HIV positive, on immunosuppression). Patients who may not give consent.

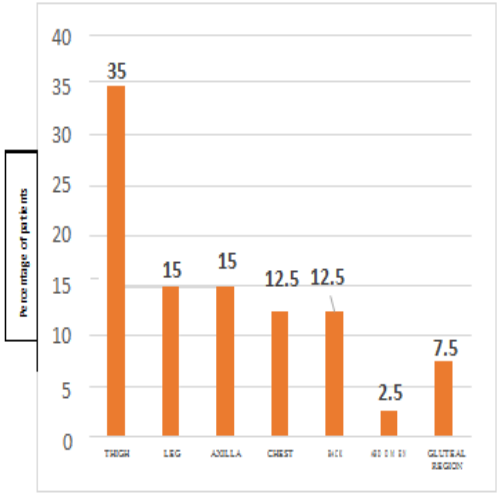
IV. MATERIAL & METHODS: METHODOLOGY:

Patients admitted in Medicine ward fulfilling the Inclusion and Exclusion criteria was selected. Study group was informed regarding the aim of study Informed consent was taken This is an observationalstudy conducted on all diagnosed case of scrub typhus admitted in medicine ward during the study period. The data was analysed with appropriate statistical test. Epidermological distribution of the disease in relation to male :female, time and place was analysed. Common clinical presentation of the patients were analysed in detail. Common bio- chemical abnormalities analyzed. Morbidity and morality related to scrub typhus was analyzed. For statistical analysis data were entered into a Microsoft excel spread sheet. Data has been analysed on percentage and graphical representation by bar- diagram and pie chart. Distribution of variable parameter done by Mean and Standard Deviation.

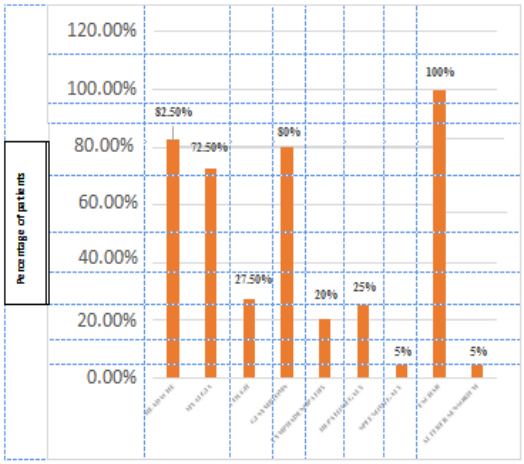
Sampling Method:
Type of study: Observational study
Study design: Cross-sectional
Study setting: Study was conducted in the Medicine ward of AGMC & GBP Hospital.
Study duration: 1 year(1st Jan-31st Dec,2018)
Sample size: All diagnosed cases of scrub typhus admitted in AGMC & GBP Hospital within thestudy period.
Sampling method: Census sampling

International Journal Dental and Medical Sciences Research
Volume 3, Issue 4, July-Aug 2021 pp 302-305 www.ijdmsrjournal.com ISSN: 2582-6018

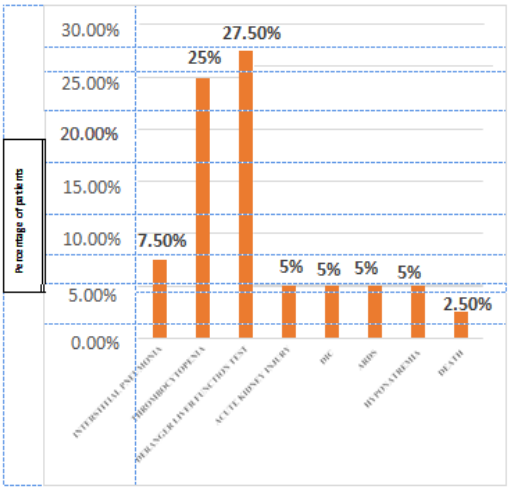
V. RESULTS AND OBSERVATIONS



Bar Graph 1: Eschar Chart



Bar Graph 2: CLINICAL FEATURES ASSOCIATEDWITH SCRUB TYPHUS



Bar Graph 3: Complication of Scrub Typhus

Figure 1: Observation of Patients

VI. DISCUSSION:

Observations have been made in all serologically positive scrub typhus cases admitted in Medicine ward of AGMC & GBP Hospital during the study period from 1st January 2018 to 31st December 2018.Epidermological distribution of the disease, clinical manifestation ,complication and outcome ofthe disease was analysed. A total of 40 serologically positive scrub typhus cases were admitted during my one year study period .Among cases 26 and 14 weremale and female respectively. The mean age of patients was 28.01 years to 50.59 years. Fever was present in all cases. The mean fever of patients was

5.59 days to 7.85 days. Among the cases maximum are farmer by occupation followed by daily labour. Similar results seen in the study conducted by Navneet S et al, Bibhuti S et al. Maximum of patients are from Amarpur followed by Khowai

.Although 70% of patients not having any recent travel history but 25% having history of travel to maximum reported case area like Amarpur and Khowai. Maximum cases reported during September (40%), August (20%), October (17.5%) month. Similar results seen in the study conducted by Megha L et al. Common clinical manifestations seen are Headache(82.5%), Myalgia (72.5%), Cough (27.5%), GI symptoms (80%) ,Lymphedenopathy (8%), Eschar mainly seen in thigh(35%),axilla(15%), back (12.5%) respectively. Other clinical manifestations are Hepatomegaly (25%), Splenomegaly(5%) .Common complications reported are Interstitial pneumonia (7.5%), Altered sensorium (5%), Thrombocytopenia(25%), Deranged liver function (27.5%), AKI(5%), DIC(5%), ARDS(5%). Mortality develops only in 2.5% cases, due to delayed hospitalization.

VII. CONCLUSION:

To conclude, within a period from 1st

January 2018 to 31st December 2018,a total number of 40 cases were enrolled and studied. After obtaining a complete history and physical examination they were subjected to routine blood investigation .All the values were analysed and following results wereobtained. Among 40 cases 26 and 14 were male and female respectively. Maximum cases reported from rural areas like Amarpur and Khowai. Maximum are farmer by occupation followed by daily labour. Cases are reported during august, September and November month mainly. Common clinical manifestations were fever, headache, myalgia, gastro-intestinal symtoms, eschar, maculopapular rash, cough and lymphedenopathy, hepatosplenomegaly. Fever and eschar present in all cases in my study. Complications associated with scrub typhus were ARDS, AKI, DIC, Thrombocytopenia, Interstitial pneumonia,Deranged liver function test and altered sensorium. One patient died out of all cases, it's due to delayed hospitalization and multi organ failures. So evaluation of all fever patients for scrub typhus is very essential, because early diagnosis and treatment reduces both morbidity and mortality.

VIII. LIMITATION:

- The study was performed at a tertiary care centre; therefore ,it does not reflect the actual burden of the disease in the community, which may be higher.
- Patients age below 18 years not included inthis study, so here also actual burden of disease may be higher.

REFERENCE:

[1]. Chogle AR. Diagnosis and treatment of scrub typhus-the Indian scenario.J Assoc physiciansIndia 2010;58:11-2.
[2]. Nakayama K,Kurokawa K, F ukuhara M, Urakami H,Yamamoto S,Yamazaki K,et al .Genome comparision and phylogenetic analysis of orientia tsutsugamushi strains.DNARes 2010;17:281-91.
[3]. Mahajan SK.Scrub typhus .J Assoc PhysiciansI ndia 2005;53:954-8.
[4]. Narvencar KP,Rodrigues S,Nevrekar RP,Dias L,Dias A,Vaz M,et al.Scrub typhus in patientsreporting with acute febrile illness at a tertiary health care Institution in Goa.Indian J Med Res2012;136:1020-4.
[5]. Harrison principles of Internal Medicine 20th Edition volume 1 ,page no 1309.
[6]. Singh P.Scrub typhus ,a case report:Military and regional significance .Med J Armed ForcesIndia 2004;60:89-90.
[7]. Pham XD ,Otsuka Y,Suzuki H,et al.Detection of Orientia tsutsugamushi (Rickettsiales:Rickettsiaceae) in un engorgrd chiggers (Acari:Trombiculidae) from Oita Prefecture ,Japan,by nested polymerase chain reaction.JMed E ntomol.2001;38:308-11.
[8]. Kim DM ,Won KJ,Park CY ,et al .Distribution of eschars on the body of scrub typhus patients:A prospective study .Am J Trop Med Hyg.2007;76:806-9.
[9]. Silpapojakul K, Chupuppakarn S, Yuthasompob S,et al .scrub and murine typhus in children with obscure fever in the tropics .Pediatr infect Dis J.1991;10:200-3.
[10]. Sirisanthana V,Puthanakit T,Sirisanthana T. Epidermologic,clinical and laboratory features of scrub typhus in thirty Thai children.Pediatr Infect Dis J.2003;22:341-5.
[11]. Blake FG,Maxcy KF,,SaduskJF, Kohls GM,Bell EJ.Tsutsugamushi disease (Scrub Typhus ,Mite-borne Typhus) in New Guinea.Am J Public Health Nations Health 1945;35:1121-30.
[12]. Tamura A,Ohashi N,Urakami H,Miyamura S.Classification of Rickettsia tsutsugamushi in a new genus,Orientia gen.nov.as Orientia tsutsugamushi comb.nov.Int J Syst Bacteriol 1995;45:589-91.
[13]. Chattopadhyay S,Richards AL.Scrub typhus vaccines :Past history and recent developments .Hum vaccine 2007;3:73-80.
[14]. Kamarasu K,Malathi M, Rajagopal V,et al .serological evidence for wide distribution of spotted fevers and typhus fever in Tamil Nadu.Indian J Med Res.2007;126:128-30.
[15]. Phimda K,Hoontrakul S, Suttinont C,et al.DOxycycline versus azithromycin for treatment of leptospirosis and scrub typhus .Antimicrob Agents Chemother.2007;51:3259-63.
[16]. McDonald JC,Maclean JD,MacDade JE,1988.Imported rickettsial disease :clinical and epidermological features .Am J Med 85:799-805.
[17]. Vivekanandan M,Mani A,Priya YS, singh AP,JayakumarS, purty S,2010.Outbreak of scrub typhus in Pondicherry.J assoc physiciansIndia 58:24-28.
[18]. Khan SA,Dutta P, Khan AM, Topono R, Borah J, Chowdhury P,Mahanta J,2012.Re-emergence of scrub typhus in northeast India.Int J infect Dis 16:e889-e890