Research Article
Volume 5:4, 2020
DOI: 10.37421/jidm.2020.5.151

Journal of
Infectious Diseases and Medicine

ISSN: 2329-8731 Open Access

Scrub Typhus in Cirrhotics: A Single Centre Experience at aTertiary Care Centre in Delhi

Singhal A[1]*, Khillan V[2]

[1]*Department of Microbiology, AIIMS, Jodhpur, India*

[2]*Institute of Liver and Biliary Sciences, New Delhi, India*

Abstract

Aims and Objective: To study the occurrence of scrub typhus in patients with cirrhosis at a tertiary care centre at Delhi.

Material and Methods: This was a retrospective study of 4 patients who were admitted to institute of liver and biliary sciences from September 2017 to October 2018 with chief complaints indicating systemic involvement and were subsequently diagnosed as scrub typhus while they were in the hospital.In all cases diagnosis was based on detection of antibody against Orientia tsutsugamushi using IgM ELISA.

Results: Eschar, the pathognomic feature of scrub typhus was present in only one case. Abdomen, nape of neck, groin and axilla were the observed sites of eschar. Lymphadenopathy was present in all patients. Thrombocytopenia was observed in two patients at the time of admission. Alanine transaminase, aspartate transaminase and alkaline phosphatase was elevated in all the cases. Bilirubin was also found to be raised in three cases. Laboratory evidence of hepatic dysfunction was present in all cases. In all cases diagnosis of scrub typhus was made by IgM ELISA. All patients were put on Doxycycline along with treatment of other comorbid conditions. All the patients were cured and no mortality occurred.

Conclusion: A patient presenting with fever of long duration with elevated liver enzymes, a diagnosis of scrub typhus should be considered. An early diagnosis & timely antibiotic therapy prevents further complications and significantly reduces mortality. An empirical therapy with doxycycline without laboratory tests, if there is high index of suspicion is a matter of further study and debate.

Keywords: Strongyloidiasis • Abdominal pain • Parasitic • Immunodeficiency syndrome • Pulmonary

Introduction

Scrub typhus, also known as tsutsugamushi disease, is an acute febrile illness caused by infection with Orientiatsutsugamushi and characterized by focal or disseminated vasculitis and perivasculitis, which may involve the lungs, heart, liver, spleen, and central nervous system [1-3]. Scrub typhus is a public health problem in Asia, where about 1 million new cases are identified annually and 1 billion people may be at risk for this disease [4]. The disease is widespread, extending from Japan to Australia and from India to the Pacific. It is prevalent in many parts of India and has been reported in the east, south and the Himalayas [5]. The ricketssia is transmitted from rodents to humans by the bite of a larval stage (chigger) trombiculid mite [6]. It is known that the hepatic dysfunction in patients with scrub typhus is quite common (70-90%) [7-10]. However, to date, there have been no clearly identified determinants on the clinical severity of scrub typhus in liver cirrhosis patients. This study was carried out by retrospectively reviewing medical records of 4 patients accumulated over 1 year at our hospital.

Material and Methods

This was a retrospective study of 4 patients who were admitted to institute of liver and biliary sciences from September 2017 to October 2018 with chief complaints indicating systemic involvement and were subsequently diagnosed as scrub typhus while they were in the hospital. After complete physical examination, routine laboratory investigations like complete blood count, liver function tests, and renal function tests were done in all patients. Urine analysis, peripheral smear for malarial parasite, blood culture and urine culture were done in all the patients. In all cases diagnosis wasbased on detection of antibody against Orientiatsutsugamushi using IgM ELISA.

Results

Among the four patients three were females and one wasmale. All four patients were from urban areas. Three out of four patients were adults and one patient was a child. Their mean age was 36 years. The duration of illness before hospitalization ranged from 7-15 days with an average of 10.5 days. All the patients had history of treatment before admission. Average length of stay in the hospital was 9 days with the range of 4-13 days. Fever was the chief presenting symptom in all the cases. All patients had cough, jaundice and abdominal pain at the time of admission. One patient had breathlessness while admission and subsequently developed cardiogenic shock which was managed. Eschar, the pathognomic feature of scrub typhus was present in only one case. Abdomen, nape of neck, groin and axilla were the observed sites of eschar. Lymphadenopathy was present in all patients and an axillary lymph node biopsy taken from a patient turned out to be tubercular positive. Hepatosplenomegaly could not be appreciated clinically but one patient had splenomegaly on ultrasound and was diagnosed as a case of portal hypertension. None of the cases in the series required intensive care unit (ICU) care. Laboratory investigations revealed anaemia in two of the four cases. Total white cell counts were within normal range in all the cases. The platelet counts were on the lower limit of normal range in two patients and the other two patients had thrombocytopenia at the time of admission. Alanine transaminase and aspartate transaminase were elevated (>40 U/L) in all the cases. Alkaline phosphatase was also elevated (>140 U/L) in all the cases. Bilirubin was also found to be raised in three cases. Blood cultures and urine cultures were negative in all cases. Creatinine was not elevated any of the cases. However, urea was marginally elevated in three patients. Two patients had associated diabetes. Laboratory evidence of hepatic dysfunction was

***Address for Correspondence:** Singhal A, Department of microbiology, AIIMS, Jodhpur, India, Tel: +917976812691; E-mail: dranshu89@gmail.com*

Received 28 October 2020; **Accepted** 10 November 2020; **Published** 17 November 2020

present in all cases. In all cases diagnosis of scrub typhus was made by IgM ELISA. All patients were put on Doxycycline along with treatment of other comorbid conditions. All the patients were cured and no mortality occurred.

Discussion

The main stay for the diagnosis of scrub typhus is the serological tests, although elevated liver enzymes might indicate towards this pathology. The pathognomic feature, i.e. eschar might not be present in all cases and hence its absence does not rule out scrub typhus. Serological test which has been widely used in India for diagnosis of scrub typhus is the Weil Felix test, however it lacks sensitivity. Another test the indirect immunofluorescence assay (IFA) is highly sensitive and considered 'gold standard' but its use is limited by the cost and availability [11]. Polymerase chain reaction can detect acute infection with Orientia tsutsugamushi.1 We used IgM ELISA for diagnosis of scrub typhus. With good sensitivity and specificity, ease to perform, fast results and also suitable for testing large number of specimens, IgM ELISA may be considered as good replacement for Weil-Felix test and IFA test in diagnosis of scrub typhus.

If accurate and precise diagnosis is made with the help of serological tests, speedy recovery of the patients is possible. The disease treatment is affordable with anti-rickettsialdrugs. The delay in diagnosis or administration of inappropriate antimicrobial therapy without any conclusive diagnosis can lead to severe complications such as Acute Respiratory Distress Syndrome (ARDS), septic shock and multisystem organ failure often causing death in patients with scrub typhus. The mortality rate varies from 1% to 40% if left untreated, depending on the endemic area, patients' condition and strain virulence of Orientiatsutsugamushi [12].

This study has some limitations. First, this is a single-centre study of a small number of patients. Second, the retrospective data collection is another limitation of its own.

Conclusion

All clinicians should be well aware of the disease i.e. scrub typhus as it is endemic in many parts of India. A patient presenting with fever of long duration with elevated liver enzymes, a diagnosis of scrub typhus should be considered. The pathognomic feature of scrub typhus i.e. eschar, might not be present in all cases. An early diagnosis & timely antibiotic therapy prevents further complications and significantly reduces mortality. An empirical therapy with doxycycline without laboratory tests, if there is high index of suspicion is a matter of further study and debate.

References

1. Saah, AJ. Orientiatsutsugamushi. In: Mandell GL, Bennett JE, and Dolin R, eds. "Principles and practice of infectious disease". 5th ed. Philadelphia, Pa: Churchill Livingstone, 2000; 2056–2057.
2. Settle, EB, Pinkerton, H, and Corbett, AJ. "A pathologic study of tsutsugamushi disease (scrub typhus) with notes on clinicopathologic correlation". *J Lab Clin Med* 1945;30:639–661.
3. Levine, HD. "Pathologic study of thirty-one cases of scrub typhus fever with especial reference to the cardiovascular system". *Am Heart J* 1946;31:314–328.
4. Watt, G, and Parola, P. "Scrub typhus and tropical rickettsioses". *CurrOpin Infect Dis* 2003;16:429–436.
5. Sharma, KP, Ramakrishnan, R, and Hutin, YJF,et al. "Scrub typhus in Darjeeling, India: opportunities for simple, practical prevention measures". *Trans R Soc Trop Med Hyg* 2009;103:1153-1158.
6. Chang-Ting, Huang, Hsin, Chi, and Hung-Chang, Lee, et al. "Scrub typhus in children in a teaching hospital in eastern Taiwan, 2000-2005". *South East Asian J Trop Med Public Health* 2009;40:789-794.
7. Hu, ML, Liu, JW, and Wu, KL, et al. "Short report: Abnormal liver function in scrub typhus". *Am J Trop Med Hyg* 2005;73:667–668.
8. Kanno,A, Yamada, M, and Murakami, K, et al. "Liver involvement in Tsutsugamushi disease". *Tohoku J Exp Med* 1996;179:213–217.
9. Vivekanandan, M, Mani, A, and Priya, YS, et al. "Outbreak of scrub typhus in Pondicherry". *J Assoc Physicians India* 2010;58:24–28.
10. Yang, CH, Hsu, GJ, and Peng, MY, et al. "Hepatic dysfunction in scrub typhus". *J Formos Med Assoc* 1995;94:101–105.
11. Sudhakar and Rajendran. "Scrub Typhus in adults–A case series from a tertiary care hospital". *Int J Med Public health* 2011;1.
12. Min, CK, Yang, JS, and Kim, S, et al. "Genome-based construction of the metabolic pathways of Orientia tsutsugamushi and comparative analysis within the Rickettsiales order". *Comp Funct Genomics* 2008:623145.

How to cite this article: Singhal A and Khillan V. Scrub Typhus in Cirrhotics: A Single Centre Experience at a Tertiary Care Centre in Delhi. J Infect Dis Med 5 (2020) doi: 10.37421/jidm.2020.5.151