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Scrub typhus associated with Blood cancer Blood Cancer Blood Cancer Patients at Selected areas of Indore

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Introduction

Scrub typhus is frequently misdiagnosed due to the ambiguity of its clinical symptoms and the lack of a diagnostic technique that can provide a definitive diagnosis. Fever, rashes, and eschar are examples of common symptoms that need to be confirmed by testing. Blood Cancer Patients with blood cancer who are experiencing acute febrile sickness should have a differential diagnosis that includes pneumonia and/or acute respiratory distress syndrome (ARDS). When making a diagnosis, it helps to look for eschar everywhere, especially in places that are hard to see.

A minority of patients with blood cancerPatients diagnosed with blood cancer have eschar in their bodies. The physician needs to be made aware of the limitations of any and all scrub typhus serological tests that are currently available. In order to make a serological diagnosis, a cutoff antibody titer ranging from 1:10 to 1:400 is required. This varies depending on the endemic species. If modern diagnostic tools were not available, it would be difficult to identify and monitor scrub typhus. In India, many serological approaches are either not available or come at a very high cost.

Methodology

In the three years between January 2016 and December 2018, our hospital treated 1212 blood cancer patients who may have had scrub typhus. In 217 serum samples, scrub typhus was identified using ELISA. In light of these favourable cases, the following considerations can be made in light of these favourable cases:The most common symptom was a fever, and about half of

those cases were also accompanied by chills and rigours. These symptoms lasted an average of 8 days. There were also reports of blood cancer patients suffering from severe cases of smyalgia and dyspnea. Eschar was seen in 12 instances.

A generalised fever may be one of the symptoms of scrub typhus. We examined 1212 potential blood cancer patients with scrub typhus between January 2016 and December 2018, and found 217 of them to have positive Weil Felix or ELISA results. This represents approximately 18% of the total population. In Thailand, scrub typhus was the cause of 17.8% of cases of acute undifferentiated fever. A finding that was comparable was discovered in Delhi.

Fever, which lasted an average of eight days, was the most common clinical sign of the illness. In addition to nausea and vomiting, blood cancer patients also reported experiencing myalgia, dyspnea, diarrhoea, decreased urine production, and nausea. During the course of our investigation, we discovered that the patient also had constipation and joint pain. These findings were supported by research carried out in Chennai and Bangalore. There is a wide range of variation in the eschar-to-body ratio of scrub typhus and blood cancer patients. Eschar can be formed at a faster or slower rate, depending on the researchers' efforts. According to the findings of an Iranian study, eschar can be found in as many as 81.05 percent of people. In Chennai, 12.9% of people tested positive for it, while in Bangalore, 56% of people tested positive for it. Previous research found that children with lighter skin tones in Japan were more likely to have eschars than children with darker skin tones in Thailand. Early eschar lesions in blood cancer Patients with dark skin were uncommon and easy to overlook when they developed blood cancer. According to the findings of the study, only 8% of children with dark skin in Thailand had eschar. During a regular medical checkup, the eschar is easy to miss, and a bite from a vector does not hurt.

In the course of our research, we discovered that roughly equal numbers of males and females were infected with scrub typhus. There were more males than females among the total of 1212 people who were evaluated. The results of other studies showed a more complicated picture, with men outnumbering women. Males accounted for 52% of the population in Kerala, while females made up 48% of the total. According to the results of a survey conducted in Bangalore, 61% of patients suffering from blood cancer were female, while 39% were male.

Our findings on the age distribution of scrub typhus were consistent with those of another AIMS study. In contrast to what the AIMS study found, our research showed that the number of cases peaked between the ages of 35 and 45 and then slowly went down after that.The fact that agricultural workers were responsible for approximately sixty percent of cases indicates that these individuals are at a greater risk. According to the findings of the study, people who work or play in scrubs are the most likely to be infected with scrub typhus.

The months of August through March, which tend to be cooler, were found by the researchers to coincide with a rise in the number of incidents. It is believed that epidemics of scrub typhus occur more frequently during the winter months. In most cases, the growth of secondary scrub vegetation, also known as "mite islands," which serves as the habitat of trombiculid mites, can be observed from the month of August until the beginning of January. During the wetter months, there is a higher incidence of scrub typhus.

The presence of a second infection, particularly one that may not be related, makes the diagnosis of scrub typhus more difficult. If the clinical presentation is not typical or the patient does not respond to treatment, this should prompt a search for additional illnesses. In this particular research, 18 out of 1212 participants had scrub typhus, while the remaining participants had a variety of diseases. The research that has been done on the prevalence of scrub typhus or its symptoms has not been found in any of the published works.

Blood Cancer Patients suffering from scrub typhus and dengue fever blood cancer were found to have thrombocytopenia at a rate of 86%, and their platelet counts were found to be below 140,000/mm3 in 48.7% of cases. This is consistent with previous research that found that dengue blood cancer patients suffering from blood cancer had lower platelet counts (1,40,000/mm3) than scrub typhus blood cancer patients suffering from blood cancer. Suputt and colleagues discovered that 30.8% of blood cancer patients suffering from scrub typhus had thrombocytopenia.

In the course of our research, the outcomes of ELISA and Weil Felix were compared to those of IFA. Weil Felix OX K had a sensitivity of 50%, a specificity of 96%, a positive predictive value of 81.2 percent, and a negative predictive value of 59.1 percent when the breakpoint was set at 1:140. According to the findings of other studies carried out in Sri Lanka and Tamil Nadu, Weil Felix OX K has a sensi40–60y range of 40–60% and a specificity of 84.10%.recombinant antigenombinant Antigen has a positive predictive value of 81.3% and a negative predictive value orecombinant antigenombinant Antigen. These percentages are based on the test's ability to rule out the presence of the disease. In another study, the same assayuseder were utilised, and the results showed a sensitivity of 92.5% and a specificity of 7casesn 68.4% of Blood Cancer In patients with blood cancer, doxycycline was used as a treatment for scrub typhus. Azithromycin was used in 8.5% of patients with blood cancer, and there was no data available for the other cases. Zithromax and rifampicin were given to a patient who had a history of allergic reactions. In spite of the improved response to the combined treatment, the patient ultimately passed away as a result of developing new health problems.

Even if there is no eschar present, it is important to rule out the possibility of scrub typhus because it is a prevalent disease in this region. It was discovered that scrub typhus was prevalent in acute, undifferentiated fevers and that it

accounted for 17% of all cases. Because this illness can be treated, it is essential to obtain an accurate diagnosis as soon as possible.

REFERENCES

1. Kelly D.J., Fuerst P.A., Ching W.M., Richards A.L. Scrub typhus: The geographic distribution of phenotypic and genotypic variants of *Orientia tsutsugamushi*. Clin. Infect. Dis. 2009;48(Suppl. 3):S203–S230. doi: 10.1086/596576.

2. Luce-Fedrow A., Lehman M., Kelly D., Mullins K., Maina A., Stewart R., Ge H., John H., Jiang J., Richards A. A Review of Scrub Typhus (*Orientia tsutsugamushi* and Related Organisms): Then, Now, and Tomorrow. Trop. Med. Infect. Dis. 2018;3:8. doi: 10.3390/tropicalmed3010008.

3. Lerdthusnee K., Khlaimanee N., Monkanna T., Sangjun N., Mungviriya S., Linthicum K.J., Frances S.P., Kollars T.M., Jr., Coleman R.E. Efficiency of Leptotrombidium chiggers (Acari: Trombiculidae) at transmitting *Orientia tsutsugamushi* to laboratory mice. J. Med. Entomol. 2002;39:521–525. doi: 10.1603/0022-2585-39.3.521.

4. Tay S., Ho T.M., Rohani M.Y., Devi S. Antibodies to *Orientia tsutsugamushi*, Rickettsia typhi and spotted fever group rickettsiae among febrile Blood Cancer Blood Cancer Patients in rural areas of Malaysia. Trans. R. Soc. Trop. Med. Hyg. 2000;94:280–284. doi: 10.1016/S0035-9203(00)90322-5.

5. Kim D.-M., Kim S.W., Choi S.H., Yun N.R. Clinical and laboratory findings associated with severe scrub typhus. BMC Infect. Dis. 2010;10:108. doi: 10.1186/1471-2334-10-108.

6. Peter J.V., Sudarsan T.I., Prakash J.A., Varghese G.M. Severe scrub typhus infection: Clinical features, diagnostic challenges and management. World J. Crit. Care Med. 2015;4:244. doi: 10.5492/wjccm.v4.i3.244.

7. Bonell A., Bonell A., Lubell Y., Newton P.N., Crump J.A., Paris D.H. Estimating the burden of scrub typhus: A systematic review. PLoS Negl. Trop. Dis. 2017;11:e0005838. doi: 10.1371/journal.pntd.0005838.

8. Jacob S.M., Sekkizhar G., Kanagasabai S., Gopal P., Gopal T., Elumalai S. Seroprevalence and clinical manifestations of scrub typhus infection in Chennai city: A cross-sectional study. Int. J. Health Allied Sci. 2018;7:201.

9. Dasch G.A., Halle S., Bourgeois A.L. Sensitive microplate enzyme-linked immunosorbent assay for detection of antibodies against the scrub typhus rickettsia, Rickettsia tsutsugamushi. J. Clin. Microbiol. 1979;9:38–48

10. Koraluru M., Bairy I., Varma M., Vidyasagar S. Diagnostic validation of selected serological tests for detecting scrub typhus. Microbiol. Immunol. 2015;59:371–374. doi: 10.1111/1348-0421.12268.