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Neurology

KEY WORDS:

SCRUB TYPHUS- A RARE CAUSE OF FEBRILE ENCEPHALOPATHY

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INTRODUCTION

Scrub typhus is an febrile illness due to Orientia tsutsugamashi, belonging to Rickettsiaceae family. This is transmitted to humans by bite of the larval stage of trombiculid mites. This infection is endemic to a part of world known as the "tsutsugamushi triangle" which extends from Northern Japan and far Eastern Russia in the North to Northern Australia in the South and to Pakistan and Afghanistan in the West.[1].In the Asian countries the seroprevalence of scrub typhus is about 22.2%.[1] Scrub typhus has a multitude of presentations which can mimic conditions such as pneumonia, meningoencephalitis (ME), acute hepatitis, acute renal failure, diarrhea,viral infections and occasionally joint pains. The disease is characterized by fever, headache, myalgia, cough, injected conjunctiva, and gastrointestinal symptoms. An eschar at bite site is seen in 50% of primary infection and 30% with recurrent infection.[2] There is wide variability in the symptoms , depending on host susceptibility , the virulence of bacterial strain. In extremes of age, with higher bacterial load, untreated case-fatality rate can vary from 7% to 30%.[3]Detection of O. tsutsugamushi by pooled antigen ELISA has shown very good sensitivity (94%) and specificity (91%).[4] There is paucity of literature about the neurological manifestations of scrub typhus is limited.[5]

Here we present the case scenario of a man in a non endemic area of kerala who presented with prolonged fever,hepatitis and febrile encephalopathy.

CASE HISTORY

50 yrs old male working as a painter by profession from memunda was admitted in District Hospital, Vatakara with c/o fever-high grade, rigor and chills, body ache and head ache on 22/12/21. The patient had History of fever with body ache 6 days back and took 3 days course of Cefixime and Paracetamol from a local doctor after which the fever subsided within 3 days to reappear after 6 days and then he was admitted to and admitted at district hospital ,Vatakara. On intital examination he was conscious oriented,no neck stiffness was there and vitals were stable.He had no organomegaly.On investigation his haemoglobin was - 13.1g/dl, Total WBC count - 6660 Polymorphs - 80, L ymphocytes - 20 ,ESR - 65 mm/hr,Platelet count - 1.08 10^5/ul .Urine routine examination was normal. Liver function tests showed - S.Bilirubin (T) - 1.4mg/dl, direct bilirubin - 0.5 mg/dl,SGOT – 151, SGPT - 92 Alkaline phosphate – 92,serum total protein-6 g.dlAlbumin - 2.9 gm/dl,Globulin - 13.1gm/dl. Dengue card test- NS 1 Ag, Ig G, Ig M – Negative Leptospira antibody – Negative. At district Hospital ,Vadakara s He was started on intravenous Ceffriaxone sodium 1 gm IV BD and Paracetamol 650 8 hourly and hepatoprotective agents. Fever was still persisting . After 3 days of admission patient condition worsened and he developed severe sweating, tiredness and breathlessness.He also developed altered sensorium and became delirious.His SPO2 was 90 %, ECG was normal.His CT Chest was normal and 2D ECHO showed normal cardiac parameters.His breathing difficulty settled next day morning. Since there no improvement in his disorientation and fever he was shifted to Vatakara Cooperative Hospital on 27/12/21. At the time of admission here he was febrile, disoriented with normal SPO2, Pulse and Blood pressure. He also had muscle pain and muscle tenderness. On examination of nervous system,he was conscious but disoriented ,there was no neck stiffness,there was focal neurological deficits.A skin lesion was detected over left thigh with exfoliation which was confirmed as an eschar by the dermatologist .Patient was found to have icterus with Hepatosplenomegaly which was mildly tender.His repeat liver function tests on 27/12/21 –showed a total bilirubin - 1.4 mg/dl, Direct Bilirubin - 0.6mg/dl, SGOT - 136 SGPT - 79 Alkaline phosphate -51,Total Protein - 5.3gm/dl Alb. – 2.3gm/dl Glb. – 3gm/dl, TSH – Normal. Renal function test was normal.HBsAg and Anti HCV was normal, Pheripheral smear was normal.Malaria card test was negative ,Peripheral smear – Negative.Dengue and leptospira serology was repeated and was negative.MRI Brain without contrast was done which was notmal.CSF study was done which showed 3 mononuclear cells with normal protein and sugars. His IgM crub typhus was reactive. Weil felix test - Positive for OXK .He was started on Doxycycline after the positive reports.His fever subsided in one day and sensorium started to improve.He was discharged in a weeks time with improvement in his clinical and laboratory parameters.

DISCUSSION

The word 'Typhus' is derived from Greek word 'Typos' for 'fever with stupor' or smoke and refers to the cloudy mentation of individuals suffering with severe rickettsioses. There is variety of neurological manifestations which has been reported. A study of 25 patients who had CSF study in the absence of overt CNS signs, 48% revealed a mild mononuclear pleocytosis, and O. tsutsugamushi was identified by PCR in 24%.[6]

Diffuse or focal mononuclear cell exudates in leptomeninges and the presence of typhus nodules (cluster of microglial cells) are the pathological findings that are distributed throughout the brain substance.[7]. A large study showed the fact that CNS was involved at least mildly in almost all patients suffering however a persistent focal neurological deficit rarely occurred .[8]

Some of the studies showed that large majority of patients were women who were engaged in farming activities or visiting the forest or farm areas during spare time activities. This female predominance in the infection rates have been seen in prior studies to a range of 34–100%.[9,10]

Patient presenting with fever and headache along with eschar or maculo-papular rash should alert the physician regarding this diagnosis.[11,12] Common CNS presentations are nuchal rigidity, seizures, delirium, and meningitis.[11,12,13]

Weil Felix test is a cheap and easily available test for confirming the diagnosis of scrub typhus.This test detects the antibodies to various Proteus species which contain antigens with cross reacting epitopes to antigens from members of the genus Rickettsia. Positive test with Ox-K strain of Proteus mirabilis is suggestive of scrub typhus. An Indian

study has shown that the sensitivity of Weil Felix Ox-K was 30% at a titre of 1:80, and the specificity and positive predictive values were close to 100%(14).

Our patient had initially febrile illness with myalgia and hepatitis and diagnosis of scrub typhus was not considered in the initial treating hospital and then the patients condition deteriorated and in the higher centre the eschar was discovered leading to further specific tests for scrub typhus and thus the diagnosis.Thus it becomes very important to consider scrub thyphus as a differential diagnosis in any patient with fever,myalgia,hepatitis with our without encephalopathy even in non endemic areas.The clinical and laboratory parameters were line any typical scrub typhus case.

CONCLUSION

A high Index of suspicion should be kept to diagnose scrub typhus. Scrub typhus should be kept in the differential diagnosis of any prolonged fever with myalgia with our without encephalopathy not responding to empirical antibiotic treatment.

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