

## Acute Febrile Encephalopathy- A Serious Complication of Scrub Typhus

Nasreen Ali <sup>1</sup>, Sunil Kumar Agarwalla <sup>2</sup>, Muhamed Shabeer <sup>1</sup>, Mathew Merin Shine <sup>1</sup>

<sup>1</sup> Junior Resident, <sup>2</sup> Associate Professor

Department of Pediatrics, M.K.C.G Medical College, Berhampur, Ganjam, Odisha-760004, India

### Abstract

The common causes of acute febrile encephalopathy are viral encephalitis, acute bacterial meningitis, cerebral malaria and sepsis related encephalopathy. But they may be also due to scrub typhus, in which acute fever is the most common presenting symptom but complications of scrub typhus like jaundice, renal failure, pneumonitis, ARDS, septic shock, myocarditis and encephalitis are seen after first week of illness. Here we report a case of 2 year old male child who was admitted to emergency department of paediatrics with complains of high grade fever for last 10 days and multiple episodes of seizure along with altered sensorium for 2 days.

**Key words:** Acute febrile, encephalopathy, Scrub typhus, seizure

### Introduction

Scrub typhus is an acute febrile illness caused by Orientia tsutsugamushi (rickettsia tsutsugamushi). 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 of this disease<sup>[1]</sup>. It is characterized by fever with a headache, lymphadenopathy, eschar, multi organ involvement and rapid response to doxycycline<sup>[2]</sup>. Typhus is derived from Greek word “typhos” which means stupor. CNS involvement is a known complication of scrub typhus which may range from mild meningitis to frank meningo encephalitis<sup>[3]</sup>. This may be due to direct invasion of CNS by the organism as shown by PCR of CSF or may be due to unique propensity of organism to infect endothelial cells there by causing microinfarct. The diagnosis requires high degree of clinical suspicion as an early diagnosis and specific treatment helps in complete recovery. The diagnosis is based on clinical features especially presence of “eschar”. Micro immunofluorescence is considered as gold standard test to detect scrub typhus. Other tests like latex agglutination, immunoperoxidase assay, enzyme linked immunosorbent assay (ELISA) and PCR are available, but are very costly. Weil-Felix test using proteus OXK strain is used for serodiagnostic test. Positive titre is 1:80 or 4 fold rise over previous level, but having poor sensitivity and specificity. With recent studies showing an overall sensitivity as low as 33% and specificity of 46%<sup>[4]</sup>. Hence it is not confirmatory.

### Case report

A 2 year old male child admitted in the emergency department of paediatrics with complains of high grade fever for last 10 days and multiple episodes of seizure in last 1 day. The child was under treatment at local PHC for viral fever. With onset of seizure, the child was referred to our institute. On examination, the child was stuporous, in active GTCS. There was some pallor and hepatosplenomegaly. A black painless ulcer up to 1cm in size with a black necrotic center resembling the mark of cigarette burn was found on the left shoulder (Figure1). CBC showed normal WBC count (Figure 2). CSF study was done, which came out to be normal. Hence a provisional diagnosis of

scrub typhus was made and the child was started on azithromycin and antiepileptics. Weil-Felix test was done but came out to be negative. The child showed improvement of sensorium within 2 days with no further seizure. The fever subsided by day 3 of starting azithromycin. The child was discharged after 10 days of therapy.



Figure1- Eschar on shoulder

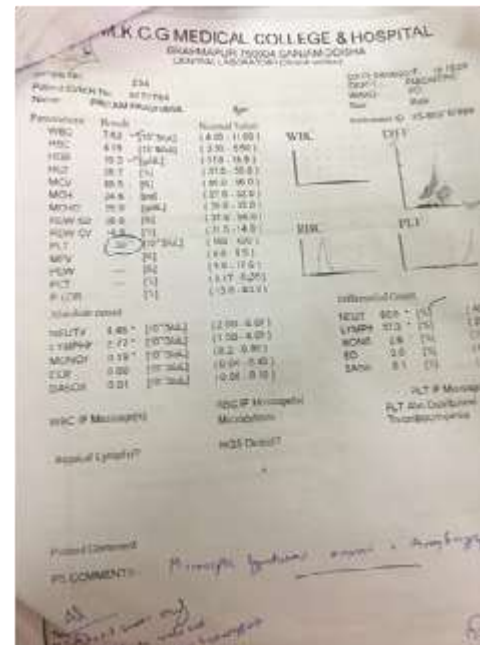


Figure2- CBC showing thrombocytopenia

### Discussion

According to the guidelines for diagnosis and management of Rickettsial disease in India: Definition of suspected/clinical case-acute undifferentiated febrile illness of 5 days or more with or without eschar



should be suspected as a case of rickettsial infection If eschar is present, fever less than 5 days should be considered as scrub typhus and started on doxycyclin or azithromycin in children less than 8 years. Differential diagnosis of dengue, malaria, pneumonia, leptospirosis and typhoid should be kept in mind. In complications of scrub typhus like encephalopathy and meningitis the drug of choice is IV doxycycline but it is not available in most of the time and oral azithromycin has better response than oral doxycyclin.

### Conclusion

Scrub typhus causes serious illness and death in healthy children, inspite of availability of low cost and effective antimicrobial therapy. The greatest challenge is early diagnosis. That is the reason search for “eschar” is an important clinical tool towards scrub typhus diagnosis. Early signs and symptoms of scrub typhus mimic viral illness making diagnosis difficult and Weil-Felix is cheapest but not a reliable test and non-reactive report does not rule out scrub typhus. Untreated cases have case mortality of 30-45% with multiorgan dysfunction, if not treated promptly.

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