A Case report of Scrub typhus with splenic infarct as a complication

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Abstract: Scrub typhus is an important cause of acute febrile illness in south and east Asia. The causative agent of scrub typhus, or tsutsugamushi fever is orientia tsutsugamushi which is distinct from other spotted fever and typhus group. Rickettsiae orientia tsutsugamushi is vasculotropic, it infects endothelial cells and causes vasculitis, the predominant clinicopathologic feature of the disease. The disease is transmitted via the bite of the larval stage (chigger) of a trombiculid mite which serves as vector and reservoir. Complications like pneumonitis, interstitial pneumonia, ARDS, CNS involvement, Aseptic meningitis, meningo encephalitis, Myocarditis, Acute Renal failure, Septic shock like Syndrome, Gastrointestinal hemorrhage, Gall bladder wall thickening, DIC have been reported. In our case a 4yr old female child developmentally normal presented as acute febrile illness with seizures and altered Sensorium and on further investigations splenic infarct was diagnosed which is a rare complication of Scrub typhus.

Keyword: Scrub typhus, Eschar, Vasculotropic, Splenic infarct

Introduction: Scrub typhus infects one million people each year and it is estimated that more than 1 billion people are at risk. It occurs mainly in the tropics and subtropical regions. Most infections in children are acquired in rural areas. Infections are most common during rainy months usually june through November. Reported cases in boys are higher than in girls.

CASE HISTORY: 4 year old female child 2nd born of 3rd degree consangineous parents with a normal birth history and a normal developmental history presented with low grade fever of 8 days duration, seizures on the 8th day of fever. No history suggestive of focal infections like urinary tract infection, Acute suppurative otitis media, no family h/o seizures, no H/o tuberculous contact, no H/o dog bite or any recent vaccinations in the past. On examination the child had altered sensorium, and was pain responsive, No neurocutaneous markers were present. Neurological examination- Dolls eye movement was present, pupils were equally reacting to light and the fundus examination was normal. Passive tone was normal in all 4 limbs. The power was decreased in left upper and lower limb(3/5). Power was normal in the right upper and lower limb. The superficial as well as deep tention reflexes were normally present. Plantar reflex revealed a right flexor and a left extensor response. On examination of the abdomen a non-tender splenomegaly of 3 cm was noted.

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The cardio respiratory system and musculoskeletal examination was normal. A differential diagnosis of acute central nervous system infection/ cerebral malaria/ Tuberculosis/ Herpes simplex encephalitis/ Enteric encephalitis was entertained and investigated further. Child was started on antibiotics(ceftriaxone) Antiedema (mannitol, Dexamethasone) inj.Acylovir and Anti epileptics (phenyoin). Investigations revealed leukocytosis(20,900) Thrombocytopenia (19,000) raised liver enzymes, Total bilirubin less than 1, SGOT-375 ,SGPT-204, Renal function test- urea-61 creatinine-1.2 serum electrolytes-normal Blood glucose-normal, serum calcium-normal, serum proteins normal, urine microscopy -normal, urine culture-no growth, CRP-Negative, chest X-ray showed bronchopneumonia, CT-Brain-plain was normal. CT-Brain contrast revealed generalized cerebral edema. Etiological investigations for enteric fever, dengue, leptospirosis and smear for malaria turned out to be negative. HIV was non reactive. The lumbar puncture was deferred initially due to thrombocytopenia, Tuberculous screening was negative and blood culture did not reveal any pathogen. Subsequent clinical examination revealed an Eschar over right inguinal region and the diagnosis of scrub typhus was entertained and the child was started on cap. Doxycycline. On days 2 ,3 and 4 the child continued to have persistent fever with leucocytosis and thrombocytopenia. Total count-18,500; Day-2 platelet-71,000 on day 3 platelet count-1 lakh Lumbar puncture was done on day-3 which was normal. Blood and cerebrospinal fluid examination for viral studies turned out to be negative. Imaging studies were done. USG Abdomen- mild splenomegaly with multiple infarct with turbid free fluid in the right and left iliac fossa was noted and CECT-abdomen was done which revealed MULTIPLE SPLENIC INFARCTS

CT- abdomen showing multiple splenic infarcts
USG guided peritoneal fluid aspiration was done and analysis revealed inflammatory pathology with few gram negative bacilli. A repeat CT-Brain was normal. Serology for typhus IgM- ELISA was positive. Sensorium gradually improved from Day-4 onwards through Day-5 and day-6. Hemiparesis improved and child attained normal power. Splenomegaly regressed, platelet count, liver enzymes became normal. Doxycycline was given for 5 days. Child was discharged with Antiepileptic drugs and on follow up USG-abdomen was done which was normal. Discussion: Scrub typhus common in south east asia; Etiology: orientia tsutsugamushi- gram negative, obligate intracellular pathogen. Transmitted via bite of larval stage (chigger) of trombiculid mite. Pathology-infection of vascular endothelium-disseminated vasculitis – significant vascular leakage – vomiting, diarrhea, single painless eschar at the bite site, maculopapular rash. Diagnosis- Leukocytosis, thrombocytopenia, increased transaminases and Hypoalbuminemia will be present. Indirect fluorescent antibody (IFA)- gold standard- 92% sensitive (if fever-more than 11 days) Indirect immune peroxidase assay is also useful. PCR- highly sensitive, Ig M-ELISA-90% sensitive and 90% specific. Weil felix – low sensitivity but high specificity even at low titres. Weil felix –minimum titre to consider positive- more than 1:80 ; 4 fold rise in antibody titre in paired sera. For single serum sample titre should be 1:320. Differential diagnosis- enteric fever, Dengue hemorrhagic fever, other rickettsiosis, anthrax, leptospira, infectious mononucleosis, Pyrexia of known origin. Treatment: Recommended regimen is Doxycycline 4mg/ kg/day, po or iv 12th hry for 5 days. Alternate regimens -Tetracycline 25mg/kg/day peroral divided every 6th hourly or Chloramphenicol 50-100mg/kg/day is given in divided doses 6th hourly for minimum 5 days or until afebrile for more than 3 days to avoid relapse. Most children respond rapidly to Doxycycline or chloramphenicol within 1 to 2 days. Azithromycin is also effective. Rifampicin is used if Doxycycline resistance is present. Complications: Lungs: pneumonia, interstitial pneumonia, Gall bladder wall thickening, Disseminated intravascular coagulation are other known complications. SPLENIC INFARCT: Rare complication which is caused by vasculitis, inflammation of endothelial cells leading to formation of non-occlusive thrombi, rarely complete obliteration of vessel by thrombus leading to infarction or hemorrhagic necrosis. Prognosis: The case fatality rate in untreated patients may be as high as 30% if left untreated,although deaths in children are uncommon. Prevention : Prevention is based on avoidance of chiggers that transmit O.tsutsugamushi,Protective clothing is the next most useful mode of prevention.Infection provides immunity to reinfection by homologous but not heterologous strains;however, because natural strains are highly heterogenous,infected does not always provide complete protection against reinfection.

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