

Variable presentations of Scrub typhus:A Case Series

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Abstract

Scrub typhus presents with fever and multisystem involvement. We present here a case series of 3 different case reports with various manifestations. Patient 1 presented with eschar without neurological manifestations while case 2 presented with meningitis and papilledema without eschar. Case 3 also presented with meningitis without eschar. All patients responded to intravenous doxycycline and supportive therapy. Transaminitis, renal dysfunction, thrombocytopenia and pneumonia were present in the patients with CNS involvement. The importance lies in the fact that further studies are required to assess that whether absence of eschar leads to complications and neurological manifestations or not. Also differentiation must be made with tubercular meningitis to avoid unnecessary prolonged treatment and avoiding complications.

Keywords: Scrub typhus, eschar, meningitis.

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Introduction

Scrub typhus is a zoonotic disease caused by *Orientia tsutsugamushi*. It is an obligate intracellular gram negative bacteria which was first described in 1899 in Japan. The term was derived from two Japanese words, 'tsutsuga' which means 'something small and dangerous' and 'mushi' meaning 'creature'. Scrub typhus is caused by the bite of larval 'chiggers' of the trombiculid mite which are both the reservoirs and vectors. The larvae feed on rats which are reservoirs and humans are infected accidentally when they come in contact with scrub vegetation which are left after deforestation. The chigger bites cause the eschar which are pathognomonic. It presents as fever to multiorgan dysfunction[1]. The incubation period is 6-20 days. The eschar is painless and not noticed mostly. Headache may occur with chills, lymphadenopathy, fever, apathy, anorexia. Eschar occurs in about 50% of cases with primary infection and 30% of cases with recurrent infection. Pneumonitis, meningoenzephalitis, pulmonary and cardiac involvement may occur with acute renal failure, DIC and shock being the most severe manifestations[2]. We present here a case series of various manifestations of scrub typhus consisting of 3 different presentations of the disease.

Case 1

A 27 years old non diabetic, non hypertensive female, housewife by occupation presented with vomiting and pain abdomen for 8 days with fever for 4 days. Pain was in the epigastric region without any radiation or any aggravating or relieving factors. Vomiting was associated with nausea. Fever was high grade with chills and myalgia with polyarthralgia without any rashes or bladder bowel involvement.

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There was no history of morning stiffness or photosensitivity or oral rashes. On examination there was mild pallor with a characteristic eschar on the right shoulder region which the patient noted one day after the onset of fever. There was no hepatosplenomegaly or icterus. On investigation hemoglobin was 10 gm/dl with normal WBC and platelet count. Peripheral blood smear showed normocytic normochromic anemia. Urea, creatinine, sodium, potassium were normal with mild transaminitis on LFT. CRP was 6.0 mg/L. MP slide and dual antigen, NSI dengue antigen, IgG and IgM Dengue antibody, Typhi Dot M, *Leptospira* IgM antibody were negative and urine report was normal. Amylase and lipase were normal. USG whole abdomen was unremarkable with normal chest X ray. IgM Scrub typhus antibody was positive by immunochromatographic method which alongwith the characteristic eschar clinched the diagnosis. The eschar was 15 mm with necrosis of skin with erythematous border. The patient was initially treated with intravenous fluids, paracetamol, injection ondansetron and injection drotaverine with PPI injection. Injection Doxycycline was started 100 mg iv bd APST after the scrub typhus reports came and patient started to improve within 2 days of starting doxycycline and was discharged on day 10 of admission.



Fig.1:Scrub typhus eschar of case 1

Case 2

A 28 year old non diabetic non hypertensive female, housewife by occupation presented with fever and vomiting for the last 7 days with facial puffiness without any history of pain abdomen, loose motions, yellowish discoloration of eyes and urine. There was no urinary complaints and fever was associated with chill and rigor. There was no history of loss of consciousness. Mild headache with polyarthralgia was present without any rashes or oral ulcer. On examination there was mild pallor with bilateral pitting pedal edema without any

hepato-splenomegaly. The patient was conscious, oriented without neck rigidity, Kernig's or Brudzinski's sign. B/L 6th cranial nerve palsy was present without nystagmus. Other cranial nerves were normal. Investigations revealed mild normocytic normochromic anemia and mild thrombocytopenia (Platelet count-1.40 lakhs/mm³) with urea of 42 mg/dl and creatinine of 1.3 mg/dl. LFT revealed AST and ALT values of 72 U/L and 73 U/L with mild hypoalbuminemia. There was mild hyponatremia. USG whole abdomen was normal with mild bilateral basal infiltrations on chest x ray. SpO₂ was 95% with 2l/min O₂. IVF NS was given with injection Ceftriaxone 2 gm iv bd APST with paracetamol, injection ondansetron and injection doxycycline was started 100 mg iv bd APST. Examination for malaria, dengue, typhoid, leptospira were negative and urine reports were normal. Injection dexamethasone 8 mg iv tds was started from the beginning with the provisional diagnosis of meningitis as eye examination revealed b/l papilledema with a false localizing sign of b/l 6th nerve palsy due to raised intracranial pressure. Lumbar puncture was not done due to papilledema. Serum ANF, ANCA were unremarkable and so were ANA profile and ANCA profile. Scrub typhus IgM antibody was positive by immunochromatographic method and patient started to improve within 48 hours of starting doxycycline. MRI brain with angiography and venography was normal and patient started to improve after doxycycline therapy with reduction of fever, vomiting, resolution of papilledema and b/l lateral rectus palsy also started to improve. Urea, creatinine and LFT reports became normal with resolution of hyponatremia. The patient did not give consent for LP. The patient was discharged 14 days after admission and is on follow up in Neuromedicine and ophthalmology department.

Case 3

A 40 year old non diabetic, nonhypertensive fruitseller presented with fever for last 8 days with breathlessness for the last 5 days with disorientation for the last 2 days. Fever was associated with headache and vomiting without any bladder bowel symptoms. Fever was high grade with chill and rigor with myalgia and arthralgia. On examination there was no pallor, icterus, edema, hepatosplenomegaly. There was mild neck stiffness with b/l mid dilated sluggishly reacting pupils. B/L plantar response was extensor without any cranial nerve palsy. Disorientation was present and a provisional diagnosis of meningoencephalitis was made. CT brain and ophthalmoscopy were unremarkable. Blood reports revealed normal hemoglobin with mild leukopenia (TLC-3800/mm³) and mild thrombocytopenia (Platelet count-1.2 lakhs/mm³). Urea (50 mg/dl) and creatinine (1.3 mg/dl) were mildly raised with mild hyponatremia. There was transaminitis (SGOT -200 U/L and SGOT 130 U/L). USG whole abdomen was normal with bibasal lower lobe infiltrations on chest x ray. SpO₂ was 94% with normal echocardiography. Tests for malaria, dengue, typhoid were unremarkable with no definite abnormality on urine report. Amylase and lipase were normal. LP was done and treatment was started with injection Ceftriaxone 2 gm iv bd APST with injection PPI, ondansetron, IV fluids moist O₂ inhalation, injection paracetamol. Injection vancomycin was added with injection hydrocortisone 100 mg iv tds as meningoencephalitis was the provisional diagnosis. The patient was put on Ryle's tube and catheterization. Scrub typhus IgM antibody was positive and injection doxycycline 100 mg iv bd APST was started. CSF revealed 13 cells/mm³ with mild elevation of protein (75 mg/dl). There was no coagulum with straw coloured CSF and CBNAAT and HSV DNA PCR were unremarkable in CSF. CSF ADA was normal. Patient started to improve from day 2 of adding doxycycline with resolution of fever, hypoxia and became oriented. Steroid was tapered, Ryle's tube and catheter were removed and patient was discharged after 14 days of admission.

Discussion

Scrub typhus affects the CNS which justifies the word 'typhus' which comes from 'typhos' meaning 'stupor'³. CNS is affected in 2-5% of scrub typhus patients^[4,5] Headaches are uncommon in scrub meningitis⁶. Song and others⁷ reported that interstitial pneumonitis is

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closely associated with morbidity and severity as was evident in our case series. Pneumonitis was associated with meningitis which was evident in case 2 and 3. Incidence of eschar was 46% by Vivekanandan et al and 75.6% by Inamdar et al^[8,9] Sirisanthana et al from Thailand and Kim et al from Korea reported eschar incidences of 68% and 85.5% respectively^[10,11] Variation occurs due to different population groups, different strains and due to difference in skin colour. Kim et al noted that patients with eschar may notice and come earlier to doctor^[10]. Viswanathan et al in 2012 in South India showed that scrub was associated with meningitis in 25% of cases and eschar was present in 20% cases^[12]. Case 1 presented with eschar without neurological manifestations and case 2 and 3 presented without eschar and neurological manifestations. The importance of the case series are

1. Presence of eschar was not associated with neurological manifestations, so larger studies are required to accept or refute this finding.
2. Presence of eschar if noticed may lead to earlier visit to doctor
3. Scrub typhus is easily treatable with doxycycline and should be differentiated from TB meningitis to avoid unnecessary delay in diagnosis and treatment.

Conclusion

The 3 cases presented here showed that patient with eschar had an uncomplicated course without neurological manifestations and patient without eschar had complications with neurological and other manifestations. All the patients responded promptly to doxycycline. Further studies are needed to correlate eschar with severity of scrub typhus. Moreover scrub typhus may present as meningitis or meningoencephalitis where prompt investigation and treatment can cure the patient avoiding serious complications.

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