

Scrub Typhus: An Uncommon Cause for Pediatric Acute Cerebellitis in India – A Case Report

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ABSTRACT

Scrub typhus is a clinical condition, which is endemic to our country. It is an acute to sub-acute form of febrile illness, causing range of milder symptoms from fever, body pain to more severe complications such as acute kidney failure, scrub meningitis and sometimes even death. Recently, since last few years, the cases of scrub typhus are on a rise and the total number of documented cases are quite less than the actual prevalence. Many cases go unreported, or gets diagnosed only in the 2nd week of illness because of its undifferentiated symptoms from other common diseases. This clinical condition can literally affect any organ, and has become one of the commonest causes of pyrexia of unknown origin (PUO). But once the diagnosis is done, the specific treatment is available and in majority of cases, the cure is complete specially if started early, therefore, it is important to have an awareness among doctors regarding the nature, symptoms, and treatment of scrub typhus.

In this article, we present a case report of a 8 years old boy with atypical presentation of fever followed by ataxia.

Keywords: Ataxia, Case report, *Orientia tsutsugamushi*, Pyrexia of unknown origin, Scrub typhus.

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INTRODUCTION

Scrub typhus is caused by the rickettsial organism *Orientia tsutsugamushi*. The organism is endemic in South Asia and South-east Asia countries. In India, it is found in the rural areas, especially in the hilly and forest regions. Its larval form which is also the pathogenic form—the “chiggers” are transmitted to humans via the vector Trombiculide mite.¹ Humans are accidental host. Transovarian transmission is the main mode for the natural propagation.¹

Scrub typhus can present with fever, eschar rash (7–69%) and multi- system involvement affecting liver, brain, heart, kidney etc, with lymphadenopathy. It has varied neurological manifestations seen in 20% of cases affecting both central and peripheral nervous system. It can result in acute aseptic meningitis, acute meningo-encephalitis, Gullaine barre syndrome (GBS), acute cerebellitis, acute demyelinating encephalomyelitis (ADEM), longitudinally extensive transverse myelitis (LETM) and opsoclonus myoclonus ataxia syndrome (OMAS). The mechanisms include direct invasion of the organism, a vasculitis-like process, or an immune-mediated injury.^{2–5} Diagnosis of scrub typhus is confirmed by the detection of *O. tsutsugamushi* IgM antibody in serum. Acute encephalitis syndrome and aseptic meningitis have been reported but acute infective cerebellitis is uncommon and only few cases have been described previously.^{1–3}

CASE DESCRIPTION

Here, we describe a 8 years old boy, hailing from a remote area of Western India, was referred by the pediatrician with 4 days history of fever, 3 days history of vomiting with morning headache followed by difficulty in walking and maintaining balance. There was no history of seizures, focal neurological deficit, loss of consciousness, recent travel, immunization, any animal or insect bite. On examination, he had normal sensorium, he was febrile with positive cerebellar signs, such as ataxia, nystagmus and past pointing. The power was

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4/5 with decreased tone, with intact deep tendon reflexes. There was no eschar. The rest of the systemic examination was normal.

Laboratory investigations revealed hemoglobin of 10.4, total leucocyte count of 7580 cells/mm³, C-reactive protein – 80 mg/L, SGPT-23 mg/dL, Dengue NS1 and IgM was negative, malaria card test – negative, serum sodium-132 mg/dL, serum potassium 4.05 mg/dL, ionized calcium – 1.19 mg/dL.

Cerebral spinal fluid (CSF) analysis revealed a total of 60 cells/mm³ with lymphocytic predominance – 70%, neutrophil – 30% with protein of 71.3 mg/dL, glucose – 64.2 mg/dL. MRI brain plain and contrast was done in the referring institute (on day 3 of illness) which was normal.

Being in an endemic region, his tropical panel was sent which revealed negative for leptospirosis and brucellosis. His scrub typhus IgM w came positive. So he was started on IV methylprednisolone 30 mg/kg/day single dose for 3 days and IV doxycycline 5 mg/kg/day for 5 days.⁵ His fever disappeared on day 2 of admission and his gait

Table 1: Scrub typhus antibody IgM by ELISA

Test	Result	Biological ref. interval
Sample O.D	1.821	
Cut off absorbance	0.500	
Scrub typhus IgM antibody	Positive	Negative: OD of patient <cut off Positive: OD of patient >cut off

ataxia and nystagmus started to improve as well. He was discharged after 5 days with improved cerebellar signs (Table 1).

SUMMARY

Scrub typhus is not an uncommon cause for an acute infectious encephalitis, especially in endemic regions. Awareness among health care providers regarding the different presentations of this disease is very crucial in order to reduce morbidity and mortality. Co-infection with dengue and/or chikungunya viruses may occur in endemic regions. The history of an acute febrile illness preceding the neurological illness is the clue. Presence of an eschar rash is pathognomonic for the disease – which is usually found in conspicuous sites like nape of the neck, behind the ears, axilla and around the groin region. So, careful search for the eschar is essential; however, the absence of the eschar, cannot exclude the diagnosis of scrub typhus.

Acute infective cerebellitis due to scrub typhus is uncommon, and has been reported in the literature in only few cases so far. It is

worth noting that neuro imaging can sometimes be normal as well, as in our case, though all the previously reported cases had T2 and FLAIR hyper intensities in the cerebellar cortex. The neurological symptoms respond dramatically to doxycycline. Other options include azithromycin of 10 mg/kg/day for 5 days. Studies show efficacy of doxycycline and azithromycin are comparable.⁵ Second line agents include rifampicin and chloramphenicol.⁶

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