

An Unusual Presentation of Scrub Typhus

GIRIDHAR REDDY BANDA¹, SRIKRISHNA RAGHAVENDRA BODDU², PRIYANKA BALLAL³, JAYAPRAKASH BELLE⁴

ABSTRACT

Presentation of scrub typhus associated with brachial neuritis is extremely rare with only a few cases reported so far. Here, we report a case of a 45-year-old female who presented with fever and right shoulder pain. Laboratory parameters showed leucocytosis with ELISA and PCR for scrub typhus positive. Electromyography (EMG) and Nerve Conduction Velocity (NCV) study was suggestive of brachial neuritis. She was given doxycycline therapy for 10 days following which her shoulder pain resolved.

Keywords: Brachial neuritis, Electromyography, Nerve conduction velocity, Doxycycline

CASE REPORT

A 45-year-old previously healthy female hailing from west Karnataka, India presented with moderate intermittent fever, associated with chills and rigors since one week and severe throbbing right shoulder pain since two days. She complained of difficulty in raising her right arm above her shoulder. She denied trauma to the shoulder or arm. Review of systems was negative except that mentioned above.

On general examination, she was febrile to 101°F. Other vital signs were within normal limits. A head to toe examination revealed an eschar on the abdomen [Table/Fig-1a,b] and a blanching rash over the trunk. When asked about the eschar in retrospect, she said she had not noticed it before. Examination of the right shoulder revealed decreased range of motion, in particular, abduction and external rotation. The right arm was held in adduction and internal rotation, supported by the unaffected arm. Neurological exam was unremarkable. Abdominal exam was significant for mild hepatomegaly.

Investigations demonstrated an elevated leukocyte count of 14000/cumm with a differential count of 78% neutrophils and 13% lymphocytes. Liver function test showed raised bilirubin and elevation of Aspartate Transaminase (AST) (230 IU/L), Alanine Transaminase (ALT) (145 IU/L) and Alanine Phosphatase (ALP) (169IU/l). ELISA and PCR for scrub typhus were positive. Other routine fever work-up including malaria, dengue and leptospirosis

was negative. X-ray and ultrasonography of the right shoulder were normal. Since the cause of her shoulder pain was still undiagnosed and getting worse, we proceeded with an MRI of the cervical spine, nerve conduction velocity (NCV) study and electromyography (EMG). MRI of the cervical spine was not suggestive of nerve root compression. NCV revealed decreased compound muscle action potentials (CMAPs), decreased conduction velocities and motor nerve latencies in the right lower brachial plexus. EMG showed partial denervation (fibrillations, positive sharp waves and motor unit potential changes) of supraspinatus, infraspinatus, deltoid, teres minor and trapezius on the right side. Right brachial neuritis was thus diagnosed based on these results.

Treatment was initiated with doxycycline 100mg twice daily for ten days. She also received physiotherapy for her right shoulder during the duration of her hospital stay. Fever and right shoulder pain subsided within one week and liver function test also improved (AST 34 IU/L, ALT 45 IU/L and ALP 90 IU/L). Overall, the patient showed a good clinical and laboratory response. Patient was called for a follow-up after 1 month, where she reported to be symptom free and had resumed her normal activities.

DISCUSSION

Scrub typhus is a zoonosis caused by an obligate intracellular gram-negative bacterium of the family Rickettsiaceae called *Orientia tsutsugamushi*. The disease is transmitted to man by the bite of the infected larval form (chigger) of the trombiculid mite [1]. Infections occur when humans get accidentally bitten in areas of extensive scrub growth, particularly during the rainy season. Small rodents serve as reservoirs for the chiggers and the infection is maintained in nature by trans-ovarian transmission in trombiculid mites.

Scrub typhus is endemic to a geographical region 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 in the west [2]. It is widespread in all parts of India, including the Himalayan foothills [2,3]. The disease usually presents after an incubation period ranging between 4 and 20 days and is typically associated with fever, chills, headache, lymphadenopathy and a maculopapular rash. Although an eschar seen at the site of the chigger bite is pathognomonic for scrub typhus, it is rarely seen in South-East Asian patients. Clinical manifestations can range from being self-limiting to fatal. Complications usually develop after the first week of illness and include jaundice, renal failure, pneumonitis, myocarditis, acute respiratory distress syndrome, septic shock and disseminated intravascular coagulation.



[Table/Fig-1a,b]: Showing eschar on the abdomen.

Scrub typhus has been reported to present with several neurological manifestations, the most common being meningitis and meningoencephalitis [4,5]. However, there have been isolated case reports of other manifestations including seizures, delirium, cerebral haemorrhage, hearing loss, isolated cranial nerve palsies, transient parkinsonism and Guillain-Barre syndrome [6-10]. Results from cerebrospinal fluid analysis are either normal or may mimic viral or tubercular meningitis [6]. Clinicians must have a high suspicion index for scrub typhus in endemic areas, especially when fever and CNS involvement is associated with renal failure or jaundice. Neuropathy associated with scrub typhus is extremely rare and the few reported manifestations include peripheral mononeuropathy, polyneuropathy and Guillain-Barre syndrome [11,12]. To our knowledge, there have been only three reported cases of isolated brachial neuritis in association with scrub typhus, out of which one had bilateral brachial nerve involvement [13-15]. The earliest of these was published by Ting et al., way back in 1992 and the fact that only two more cases have been reported since then suggests that the association of brachial neuritis with scrub typhus is often being missed [13].

CONCLUSION

Diagnosing scrub typhus early in its course can be challenging because many conditions can present with a high fever; however, the presentation of the rash, a history of exposure to endemic areas, and the presence of an eschar can be diagnostic. In our case, diagnosis was not delayed as our patient had an eschar with positive serology and PCR. But the presentation with right shoulder pain can be confusing in a patient who has no history of trauma. Recovery appears to be rapid and complete with timely initiation of appropriate treatment. It is imperative to sensitize physicians regarding the varied neurological presentations of scrub typhus in order to prevent unnecessary delays in diagnosis and treatment.

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PARTICULARS OF CONTRIBUTORS:

1. Postgraduate Student, Department of Medicine, Kasturba Medical College, Manipal, Karnataka, India.
2. Postgraduate Student, Department of Medicine, Kasturba Medical College, Manipal, Karnataka, India.
3. Intern, Department of Medicine, Kasturba Medical College, Manipal, Karnataka, India.
4. Associate Professor, Department of Medicine, Kasturba Medical College, Manipal, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Priyanka Ballal,
 'Pooja' Vadiraj Road, Udupi-576101, Karnataka, India.
 E-mail: priyankaballal@gmail.com

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