



Case Report *Pediatric Ophthalmology and Strabismus*

Scrub typhus presenting with unilateral lateral rectus palsy: A case report

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ABSTRACT

Scrub typhus caused by *Orientia tsutsugamushi* (formerly *Rickettsia tsutsugamushi*), a Gram-negative alpha proteobacterium, is a mite-borne disease. It is endemic in many parts of India. Clinical features include fever, headache, myalgia, cough, nausea, vomiting, morbilliform rash, eschar, and splenomegaly. Few instances of isolated cranial nerve palsy have been recorded in patients with scrub typhus. Here, we report a patient of scrub typhus with the right-sided lateral rectus palsy which was completely resolved with the antibiotic Doxycycline.

Keywords: Eschar, *Orientia tsutsugamushi*, Lateral rectus palsy

INTRODUCTION

Scrub typhus or bush typhus caused by an intracellular parasite *Orientia tsutsugamushi* of Family Rickettsiaceae is a zoonotic disease. It was first isolated in Japan in 1930.^[1] It is transmitted when a larval mite called chiggers (Trombiculid mite) bites vertebral hosts. One billion people are affected globally covering an area of Pakistan in the West, Australia in the South, Russia in the North, and Japan in the East.^[2] Acute febrile illness affecting multiple organ system due to widespread vasculitis is seen in scrub typhus. All age groups can be affected with no predilection for gender or race.^[3] Clinical features include fever, myalgia, headache, and gastrointestinal disturbances. It occurs after 6–21 days of incubation period. A papule is usually seen on the skin followed by crusting which forms a black ulcer called eschar. Eschar is pathognomonic of scrub typhus and is common in the axillary region, chest, groin, and neck. The central nervous system may be affected causing meningitis, cranial nerve palsies, encephalopathy, and seizures.^[4] It may be complicated by hepatitis, myocarditis, renal failure, and respiratory failure. We report a rare case of scrub typhus with the right-sided abducens nerve palsy in a 14-year-old boy which resolved with a course of antibiotic doxycycline.

CASE REPORT

A 14-year-old boy presented to our hospital with a chief complaint of fever, body ache, headache, and vomiting for 5 days. This was followed by an inability to look toward his right side which resulted in double vision [Figure 1]. On physical examination, the patient was drowsy with a Glasgow Coma Scale score of E₄ V₄ M₆. His blood pressure recorded was 120/80 mmHg, pulse

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Figure 1: (a) Right-sided lateral rectus palsy. (b) Normal movement of the right-sided medial rectus muscle.



Figure 2: Eschar in the right axillary region.

rate was found to be 110 beats per minute, respiratory rate of 20 per minute and was febrile with a temperature of 101°F. His systemic examination was normal except for mild altered mentation, raised heart rate, and respiratory rate. On careful examination of his skin, a black raised non-pruritic and painless patch was seen in the right axilla [Figure 2]. The patient was admitted and the following are his investigative findings. His hemoglobin was 12.1 g/dl, erythrocyte sedimentation rate found to be 40 mm at the end of first hour (AEFH), total count 5400/cu mm, platelet count 1.9 lakhs/cu mm, PF/PV (MP Rapid Test) was negative, and *Salmonella* Typhi immunoglobulin (Ig)G and IgM were non-reactive. His liver function test showed raised aspartate aminotransferase (107U/L), alanine aminotransferase (149U/L), gamma-glutamyl Transferase 169U/L, and delta bilirubin 0.3 mg/dL. His RBS was 90 mg/dL, Serum Urea 15.7 mg/dL and Serum Creatinine 0.6 mg/dL. His ultrasonography of abdomen revealed Grade I fatty liver and mild splenomegaly. Blood for HBsAg, anti-HCV, HIV 1, and HIV 2 antibodies were non-reactive. Enzyme-linked immunoassay (ELISA) for anti-dengue antibody (Immunoglobulin [Ig]G and IgM) was negative. His chest X-ray and cerebrospinal fluid analysis were normal. His magnetic resonance imaging brain report was also normal. Immunofluorescence assay came out positive

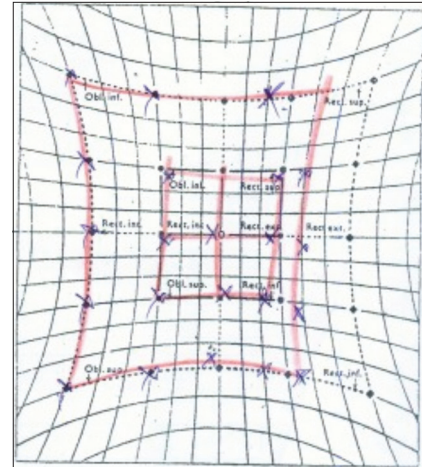


Figure 3: (a) Hess chart showing right lateral rectus palsy.

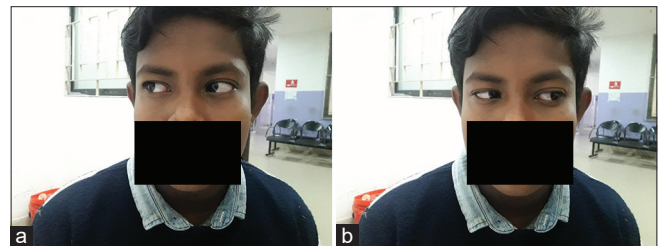


Figure 4: (a) Reversal of the right-sided lateral rectus palsy after 10 days course of tab doxycycline 100 mg BD. (b) Normal movement of the right-sided medial rectus muscle.

for scrub typhus (IgM). As the patient was uncooperative, a skin biopsy could not be taken. The patient was started on Tablet Doxycycline 100 mg twice daily for 10 days, Tablet Paracetamol 500 mg sos for fever, and multivitamins. The patient's ocular examination was done where the anterior segment was found to be normal, pupillary reaction was normal, and no relative afferent pupillary defect (RAPD) was seen. The posterior segment was also examined and the fundal findings were found to be normal. A color vision test was done and found to be normal. The patient complained of diplopia [Figure 3] and there was restriction in the movement of the lateral rectus muscle of the right eye (Grade-2). He was closely followed up and after 2 weeks the lateral rectus palsy was reversed [Figure 4].

DISCUSSION

Scrub typhus characterized by focal or disseminated vasculitis is a tropical illness. The pathognomonic lesion of scrub typhus is the formation of eschar. This lesion is painless and appears in covered parts of the body and hence often missed on diagnosis. Generalized vasculitis can cause complications such as pancreatitis, acute respiratory distress

syndrome, meningoencephalitis, and acute renal failure which can be fatal. Isolated cranial nerve palsies are very uncommon. There are reported cases of facial nerve palsy^[5] and vestibulocochlear cranial nerve palsy with sensorineural hearing loss,^[6] but these are rarely seen in scrub typhus.

Lee *et al.*^[7] reported a case of isolated abducens nerve palsy with scrub typhus. The etiology of cranial nerve palsies is not clear, although microinfarction caused by vasculitis of vasa vasorum of the nerve is speculated in some studies.^[6] Serological tests are the mainstay of diagnosing scrub typhus. Sensitivity of the Weil Felix test is low; hence, it is not helpful in timely diagnosis.^[8] Indirect immunofluorescent antibody (IFA) test is the gold standard for the diagnosis of scrub typhus. However, IgM ELISA is routinely done to detect recent infection as IFA is not easily available in most laboratories.^[9] In an endemic region, scrub typhus should be contemplated in patients with acute febrile illness with rash. Serious complications can be prevented with timely management. Antibiotics namely doxycycline, azithromycin, rifampicin, and tetracycline have been used successfully to treat scrub typhus. In our case, a 10-day course of Tablet Doxycycline 100 mg twice daily completely reversed the lateral rectus palsy in the right eye without any permanent sequelae.

CONCLUSION

Scrub typhus is often underdiagnosed as a cause of tropical fever since diseases such as malaria, dengue, leptospirosis, and typhoid fever have a similar presentation. However, eschar is not seen in all cases, but fever with rash and focal neurological signs should arouse the suspicion of scrub typhus. Prompt treatment can prevent complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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