

Case Report:

Mixed infection with *Plasmodium vivax* malaria and scrub typhus

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ABSTRACT

Concurrent occurrence of scrub typhus with vivax malaria has seldom been reported in the literature. If the coinfection is missed fatal complications may occur as both malaria even by *Plasmodium vivax* and scrub typhus are also associated with fatal complications.

Key words: Fever, Scrub typhus, *Plasmodium vivax*

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INTRODUCTION

Scrub typhus is uncommon in coastal Andhra Pradesh. However, a high index of suspicion is necessary because it is easily treatable and without timely treatment serious complications may develop which carry high mortality.^{1,2} Dengue fever and scrub typhus are common infections in Asia that often present as acute febrile illness of unclear aetiology. Occurrence of mixed infections in patients presenting with acute febrile illness is not uncommon in tropical countries. In a study¹ of 22 adults with leptospirosis, nine had serologic evidence of scrub typhus also. Of these five had signs or symptoms typical of scrub typhus and atypical of leptospirosis.¹ We are presenting this case to document the rare occurrence of mixed infection with vivax malaria and scrub typhus.

CASE REPORT

A 25-year-old male student staying in hostel in urban outskirts, presented with low grade fever not associated with chills since 15 days. There was no history of jaundice, bleeding manifestations, rash, myalgias, headache, joint pains, cough, dyspnoea, decreased urine output,

vomiting, diarrhea or other gastrointestinal disturbances. There was no recent travel history. There was no history of diabetes, hypertension.

General physical examination revealed that patient was conscious and coherent. There was no icterus, pedal oedema, lymphadenopathy or haemorrhagic manifestations. His vital parameters were stable. Abdominal examination revealed no organomegaly. Neurological examination was normal; there were no signs of meningeal irritation.

Base line laboratory investigations revealed: haemoglobin 9.5 g/dL, total leukocyte count 8200/mm³, platelet count 166,000/mm³, blood urea 38 mg/dL, serum creatinine 1.6 mg/dL. Liver function tests were normal. He was human immunodeficiency virus seronegative. Peripheral blood smear revealed both ring forms and gametocytes of *Plasmodium vivax*. He was started on treatment with oral chloroquine, primaquine and doxycycline. But patient continued to get fever daily in the afternoon. On the fourth day repeat clinical examination revealed an eschar (Figure 1) over the back of chest on the right side near the

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scapula. Treatment was continued with oral doxycycline (200 mg per day) for five more days and primaquine 15 mg per day for 15 days. Weil-Felix test was positive. On the 6th day fever subsided.

DISCUSSION

In every case of prolonged fever, scrub typhus should be suspected and thorough search for eschar should be done, as eschar is the most useful clinical diagnostic clue.³ *Plasmodium vivax* may persist in liver cells as dormant forms, hypnozoites, capable of developing in to merozoites months or years later. The minimum incubation period of *Plasmodium vivax* is 8-25 days.⁴ The incubation period of scrub typhus is about 9 days.⁴ So the patient who was already suffering with fever due to *Plasmodium vivax* might have been co-infected with scrub typhus. People from areas endemic for scrub typhus commonly have a less severe illness, often without any rash or eschar.⁵ Scrub typhus has increasingly been reported from various regions of India especially the hilly regions of the Himalayas, Assam, West Bengal and Tamil Nadu.¹ Recent reports from several parts of India, including South India, indicate that there is a resurgence of scrub typhus. Scrub typhus is grossly under-diagnosed in India due to its non-specific clinical presentation, limited awareness and low-index of suspicion among clinicians, and lack of diagnostic facilities.⁶ As patients respond to doxycycline or macrolides, empirical treatment with these antibiotics may be given in cases where there is a strong suspicion of scrub typhus as delay in treatment may lead to severe life threatening complications.² In this patient, the infection and fever was initially caused by *Plasmodium vivax*, and when the patient came for treatment co-infection with typhus could have been in an early stage. As he was promptly treated by antimalarials and doxycycline, the liver function tests did not cross the normal upper limits. In patients with scrub typhus, early



Figure 1: Clinical photograph showing eschar on back of chest

treatment shows better outcomes and faster resolution than delayed treatment. The treatment of scrubtyphus is often started mainly on clinical grounds. Oral tetracycline, (500 mg QID) or doxycyclin (200 mg OD) for seven days is the treatment of choice, chloramphenicol (500 mg, QID) is an alternative. Oral rifampicin, (900 mg per day for a week), has been found effective in patients who respond poorly to conventional therapy. Rapid defervescence after antibiotic treatment is so characteristic that it is often used as a diagnostic test for *R. tsutsugamushi*.¹ Fever responded slowly in our case probably because of mixed infection.

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