Concurrent Infection with Scrub Typhus, Dengue and Malaria in an Immunocompetent Young Male

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Sir,

Tropical infections due to malaria, dengue, leptospira, scrub typhus and many other vector borne diseases are commonly seen in South Asia including Indian subcontinent. These infections have almost similar clinical manifestations and same season of presentation. Co-infection with dengue and malaria has been reported in the literature, but three concurrent infections with scrub typhus, dengue and malaria in a patient is a rare occurrence. These infections usually present with acute febrile illness with thrombocytopenia and hepatorenal dysfunction. We are reporting a case of immunocompetent young male having concurrent infection with scrub typhus, dengue and malaria.

A 22 years male patient presented with history of high grade fever with rigor for five days, associated with headache and malaise. There was no history of cough, shortness of breath, chest pain, abdominal pain, skin rashes, burning micturition and bleeding from any site. There was no history suggestive of tuberculosis, diabetes mellitus and any other condition leading to immunocompromised state in the past. On examination, he had icterus but pallor, cyanosis, pedal edema, lymphadenopathy, rash and eschar mark were not present. His pulse rate was 82/min, blood pressure; 110/70 mm/Hg, respiratory rate; 16/min and Temperature; 102°F. Respiratory and cardiovascular system examination was within normal limit. He had mild hepatosplenomegaly on abdominal examination. On investigation, Hb; 12.3 gm%, haematocrit; 52%, total leucocyte count; 4800/ cumm with P74%, L22%, M1%, E3%, platelet count; 58000/ cumm. Peripheral blood smear revealed both ring forms and gametocytes of Plasmodium falciparum. Rapid malaria antigen (Qdx, Piramal Healthcare) was positive for P. falciparum malaria. Urine complete and microscopy was within normal limit. Serum total bilirubin; 3.8 mg% and direct bilirubin; 1.1 mg%, AST; 120 IU/L, ALT; 80 IU/L, alkaline phosphatase; 72 IU/L, urea; 118 mg/ dl, creatinine; 1.9 mg/dl, blood sugar; 65 mg/dl. His widal, HIV test, HBsAg and HCV were negative. Chest x-ray was within normal limit. Ultrasound of abdomen revealed hepatosplenomegaly and mild bilateral pleural effusion. Injection Artesunate 120 mg, injection Clindamycin 600 mg as per protocol and other supportive symptomatic treatment was started. Even after 48 hrs of adequate antimarial treatment, high grade fever was persistent. Alternative diagnosis of dengue fever in view of thrombocytopenia and bilateral pleural effusion was thought and subsequently dengue ELISA IgM qualitative assay was positive (7th day of illness). Repeat peripheral smear for malaria parasite now was negative but his high grade fever was persistent (total duration 7 days). Considering the recent outbreak of scrub typhus in our region and persistent fever with altered LFT in this patient, blood for scrub typhus ELISA was sent which was positive for IgM. Patient was then started on Cap Doxycycline 100 mg BD with continuation of other treatment. Fever subsided within 48 hours of institution of doxycycline. Platelet count (1.9 lac), liver and renal function tests also gradually returned to normal limits after 4 days of doxycycline therapy. A final diagnosis of concurrent infection with malaria, dengue and scrub typhus with multiple organ involvement was made.

Fever is a non-specific manifestation of many infections. In a country like India, the most common tropical infections causing acute febrile illness are malaria, leptospira, scrub typhus, dengue, typhoid and many others. In every case of prolonged fever, scrub typhus should be suspected irrespective of presence or absence of eschar mark.1 Occurrence of coinfections in patients presenting with acute febrile illness is not uncommon in tropical countries. In a study of 22 adults with leptospirosis, nine had serologic evidence of scrub typhus also.2 Sharma A et al reported a rare coinfection of scrub typhus and malaria in an immunocompetent person.3 But three vector born-diseases simultaneously is rare. Best of our knowledge, till now there is only single case report of rare concurrent infection with scrub typhus, dengue and malaria in a young female.4 The reason for simultaneous infection can be the same breeding period of the vectors.

Apart from concurrent infections, false positive Dot Enzyme immunoassay, IgM ELISA for scrub typhus and IgM ELISA for dengue has been observed in patient with Plasmodium falciparum, previous dengue infection and other febrile illness.5,6 Hence patient with acute febrile illness not responding to appropriate therapy within 48 hours may be investigated for concurrent infection with other tropical infective diseases to decrease morbidity and possibly mortality as well. Simultaneously laboratory tests should be interpreted and treated in clinical context keeping in mind the false positivity and negativity of recommended tests.

References