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A Case Report: Febrile Dengue and Scrub Typhus Co Infection in a Young Male Patient

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ABSTRACT
Dengue fever and scrub typhus frequently cause acute febrile illness with uncertain origins in Maharashtra, India. While coinfections involving various vector-borne diseases have been documented, there is a noticeable scarcity of literature on the simultaneous occurrence of dengue and scrub typhus. Suspecting co-infections is not very common when encountering patients with febrile illnesses, thrombocytopenia, and abnormal laboratory parameters. When faced with a coinfection of dengue and scrub typhus, it is crucial to closely monitor vital signs, do daily full blood counts to check platelets and white cell counts, consider platelet transfusion, and administer timely doxycycline treatment. Due to the prevalence of dengue fever in India during monsoon and post monsoon, physicians ignore the importance of Weil Felix testing in febrile patients, which can sometimes delay the treatment with doxycycline[1].

I. INTRODUCTION

Dengue seroprevalence in the general population stands at 56.9%, with a case fatality rate of 2.6% among laboratory-confirmed patients. The prevalence of laboratory-confirmed dengue infection in clinically suspected patients is reported to be 38.3%[2]. In North India, Ahmed et al. found a 16% prevalence of various co-infections in hospitalized patients with Acute Undifferentiated Febrile Illness (AUFI) [3].

Despite being rarely reported, co-infections present a significant challenge in diagnosis and management. This report discusses the case of an 36 year old man with a co-infection of scrub typhus and dengue. Notably, he experienced an uneventful recovery through ambulatory management. The case underscores the importance of considering co-infections in endemic areas, especially post-monsoon, through early diagnosis and prompt treatment.

II. CASE REPORT

A 36 year old male came to the out patient department with complaints of fever with chills weakness, body ache, since 2 days and episodes of nausea and vomiting on the day of admission. He also had abdominal pain and a headache. He was hospitalised for intravenous fluid therapy and started on prophylactic cefotaxime. He had hypotension and thrombocytopenia with slight bleeding gums and a raised CRP of 22 which indicated the need for Dengue NS 1 testing. This test was positive, so the patient was shifted to the intensive treatment unit and intravenous fluid therapy was started with daily full blood count reports. We started him on multi-vitamins, antibiotics, anti- virals and anti-emetics
We ordered a Weil Felix test that came positive for OX- K antigen meaning that the patient was co infected with scrub typhus.

Clinical examination did not reveal the presence of an eschar on the body, however the patient gave history of traveling in the hilly and forested areas on Western Ghats recently which could likely have caused a mite bite. We noticed a slight gum bleeding, however there was no purpura rash, and the abdominal and cardiovascular systems were normal on examination.

An LFT showed deranged SGOT and SGPT values, so we decided to order an ultrasound. There was mild gallbladder thickening and hepatomegaly noted, which indicated hepatic involvement of dengue infection. The raised LFTs prompted us to take action to prevent hemorrhagic fever or shock syndrome preemptively, while the patient was clinically stable [4].

At this point of treatment the patient was continuously developing high grade fever with chills. His full blood counts showed an alarming platelet value on 13,000, with a few pin points of bleeding in his gums persistent. We considered platelet transfusion for him.

The fever and thrombocytopenia worsened and he did not clinically improve till oral doxycycline was started. On starting this antibiotic, he showed signs of symptomatic improvement. His full blood count now started showing a rising trend for platelets, and his PT INR values were also within normal range.

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We continued the same line of treatment for him for 3 days until his platelets rose to 50,000.
He was then shifted to the ward, with strict monitoring of vitals 4 hourly and daily full blood counts. In the ward, he further improved clinically, his appetite increased as well. He was discharged after a 24 hour fever free period, with a platelet count of 93,000, on day 5.

Blood variables on the day of admission

Blood Parameters	Value	Reference range
Hemoglobin	15	12.5-17.5 g/dl
White Blood Cells	3200	4000-11000/cu mm
Platelets	0.13	1.5 - 4.5 lakh
PCV	34%	37-54%
CRP	22	
Urea	22.02	15-45 mg/dl
Serum creatinine	1.3	0.6-1.4 mg/dl
SGOT	312	Upto <= 40 IU/L
SGPT	188	Upto <= 40 IU/L
Total Bilirubin	0.9	0.2-1.2 mg/dl
Total Protein	6.8	6-7.8 g/dl
Albumin	4.11	3.2-4.6 g/dl
Globulin	2.69	2-3.5 g/dl
Serum Dengue NS1	Weakly positive	
Weil Felix OX K (proteus)	Positive	Negative

III. DISCUSSION

Dengue and scrub typhus are prevalent infections in tropical regions, sharing many clinical features. Dengue, a mosquito-borne arbovirus infection, has been endemic in India for decades. The disease, with an incubation period of 4-10 days, progresses through febrile, critical, and recovery phases, exhibiting a wide spectrum with an unpredictable clinical course.

Coinfections, such as malaria, salmonella, chikungunya, leptospira, and acute viral hepatitis, have been reported with dengue and can adversely impact outcomes if undiagnosed [5].

Scrub typhus, a potentially life-threatening mite-borne infection, is endemic in India's sub-Himalayan regions and southern states, predominantly affecting the uneducated population in rural areas. Humans acquire the infection by accidentally entering zones with infected mites. The chiggers, during feeding, introduce the organism into the human, causing damage to small blood vessels, fluid leakage, platelet aggregation, inflammation, microcirculation disturbance, and widespread micro-infarction.

Clinical manifestations of scrub typhus are nonspecific, with fever and headache being common. An eschar at the chigger feeding site often precedes fever onset, typically observed over the abdomen, lower extremities, axilla, and anterior chest. Late presentation and delayed diagnosis contribute to adverse outcomes.

IV. CONCLUSION

During epidemics, the scarcity of healthcare workers, combined with a surge in patients, can overwhelm healthcare setups, leading to hurried and suboptimal clinical evaluations.

Hence, for all refractory dengue infection cases, there should be high clinical suspicion of co infections specially with Orientia tsutsugamushi (Scrub typhus) among others.It has been observed that prophylactic doxycycline in dengue positive patients improves their prognosis greatly.

CONSENT
A written informed consent was obtained for the publication of this case report.

CONFLICT OF INTEREST
There is no conflict of interest.

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