

# Title: Co-Infection of Dengue and Scrub Typhus with Concurrent lower Urinary Tract Infection: A Complex Clinical Presentation

Dr. Firdaus Ahmed

Submitted: 15-11-2023

Accepted: 25-11-2023

## ABSTRACT:

This case report details a complex clinical presentation of a 51-year-old patient suffering from co-infection with Dengue, Scrub Typhus, and a concurrent lower Urinary Tract Infection. The patient, whose symptoms included fever, myalgia, and burning micturition presented a diagnostic challenge due to the overlapping clinical features of these diseases. He came to the hospital on Day 10 of fever with complaints of burning micturition and fever not subsiding even after taking medication. Dengue NS1 test which was done on Day 4 of fever was positive. His hemogram revealed thrombocytopenia. Patient was started with necessary sensitive antibiotics after urine culture sensitivity report came. Gradually his burning sensation, and TLC counts and platelet counts became normal, but his fever was not subsiding even until Day 16 in spite of his TLC and platelet count being normal. After a repeated meticulous clinical examination, a small eschar was noted on his right back thigh.

Doxycycline was started immediately, to which his fever subsided on Day 18. Subsequently scrub typhus came positive.

The case highlights the importance of considering multiple infectious etiologies in regions endemic to these diseases and underscores the significance of a comprehensive diagnostic approach to guide appropriate treatment strategies.

**Keywords:** Co-Infection, Dengue, Scrub Typhus, lower urinary Tract Infection, Clinical Presentation

## I. INTRODUCTION:

In regions endemic to tropical diseases, health care providers often encounter a spectrum of infectious illnesses, presenting both diagnostic and clinical challenges. This case report sheds light on a particularly intricate and intriguing clinical sce-

nario: a patient with a co-infection of Dengue and Scrub Typhus, accompanied by a concurrent lower urinary tract infection.

Scrub typhus has been reported to have a community seroprevalence of 34.2% in India, and is responsible for 25.3% of cases of a febrile illness (AUI), with a high incidence of multiple organ dysfunction (17.4%) and a case fatality (6.3%).

Dengue seroprevalence in the general population and a case fatality rate among laboratory-confirmed patients has been reported to be 56.0% and 2.6%, respectively, and the prevalence of

laboratory-confirmed dengue infection among clinically suspected patients is 38.3%

Dengue fever and Scrub Typhus, caused by different pathogens, share a set of overlapping symptoms, making their diagnosis a complex endeavor. Concurrently, the patient presented with lower urinary tract symptoms, further complicating the clinical picture and necessitating a comprehensive diagnostic approach.

Dengue and scrub typhus are both vector-borne diseases, but dengue is caused by a virus from the group flaviviridae and scrub typhus is caused by bacteria Orientia tsutsugamushi.

## II. CASE REPORT:

A 51-year-old male presented to the hospital with complaints of intermittent high-grade fever with burning micturition for the past 10 days. Fever was insidious in onset and high-grade intermittent in nature. His dengue NS1 test which was done outside on Day 4 of fever was positive. There's no history of abdominal pain, vomiting, or other significant history.

On examination, patient was alert, conscious and cooperative. His temperature was 102.4 F, PR - 124/min, BP - 110/70 mmHg, RR - 22/min, SpO<sub>2</sub> - 97% on room air. There was no maculopapular rash. No other remarkable systemic examination.

Haematological and biochemistry revealed normochrom

icanemia, leukocytosis, thrombocytopenia.

Hb: 13.1  
 TLC: 14450  
 Platelet: 70k  
 Dengue IgM antibody: Reactive Urine R/E - pus cells +  
 Urine C/S - E. Coli (>100000): Sensitive to piperacillin-Tazobactam

Test Name	Result
<b>AEROBIC CULTURE &amp; SENSITIVITY</b>	
METHOD	Conventional
ORGANISM ISOLATED	E. coli colony count >10 <sup>5</sup> cfu/ml.
CEFTRIAXONE	Sensitive
CEFOTAXIME	Sensitive
CEFEPIME	Sensitive
AZTREONAM	Sensitive
AMOXYCILLIN-CLAV.	Resistant
PIPERACILLIN/TAZO	Sensitive
CEFOPERAZONE-SULB.	Sensitive
NORFLOXACIN	Sensitive
CIPROFLOXACIN	Sensitive
LEVOFLOXACIN	Intermediate
IMIPENEM	Sensitive
MEROPENEM	Sensitive
GENTAMICIN	Sensitive
AMIKACIN	Sensitive
TOBRAMICIN	Sensitive
NETILMICIN	Sensitive
NITROFURANTOIN	Intermediate
FOSFOMYCIN	Intermediate
TETRACYCLINE	Sensitive
DOXYCYCLINE	Intermediate
COLISTIN	Intermediate
POLYMICIN B	Sensitive

He was undergoing regular blood workup to monitor his total leukocyte count and platelet count. After starting Inj PIPZO, his TLC slowly came down and platelet count started increasing.

But this fever was not subsiding, and he was complaining of sev

ere body ache even on Day 16 of fever. After repeated meticulous clinical examination and through history taking we found that he had a history of travel to a forest area near the borders of Bangladesh in the last 1 month and also he noted a small eschar on his right back thigh.



WestartedAntibioticDoxycyclineimmediately.EventuallyhisfeversubsidedonDay18. Subsequently His scrub typhus IgM ( ELISA ) came positive.

Afteraddingdoxycycline,thepatient'sconditionimprovedwithin24hrsandtherewasnospikeoffeverafterDay18.Hewaswellandmostofthelabparameterswerenormalwhenhecame laterforafollowupafter1week.

### III. DISCUSSION:

InWestBengal,India,achallengingcasehasmergedinvolvinga51year-oldmalepatient presentingwithaco-infectionofscrubtyphus,dengue,andalowerurinarytractinfection(UTI). Scrubtyphus,causedbythebacteriumOrientia tsutsugamushi and transmitted by chiggers (larval stage mites), is sporadically found in forested and hilly areas of the region. Dengue, on the other hand, is more prevalent, with its transmission facilitated by Aedes mosquitoes in West Bengal's tropical climate. UTIs, often attributed to Escherichia coli (E. coli), are also a common concern. The patient's symptoms included high-grade fever, severe headache, myalgia, urinary discomfort, burning micturition and the presence of a nodule. Diagnostic tests such as ELISA (IgM dengue antibody and IgM scrub typhus antibody), urine culture and sensitivity were used to confirm scrub typhus, dengue, and a urine culture for the UTI. The treatment approach involved antibiotic doxycycline, for scrub typhus, supportive care for dengue to manage fluid and electrolyte balance, and specific antibiotic Piperacillin for the UTI based on culture results. This complex case underscores the necessity of a multidisciplinary approach, importance of history taking, early diagnosis, and thorough follow-up in a region where these infections coexist,

highlighting the importance of dealing with coinfection in clinical practice.

### IV. CONCLUSION:

History taking is very important in a case scenario even if you already have a confirmed diagnosis. Scrub typhus can present with lower urinary tract infection, but it won't respond to the normally used antibiotic according to the culture and sensitivity. After adding Doxycycline 100mg BD, the fever subsided within 2 days. So this shows the importance of performing all tests according to local endemicity.

### ACKNOWLEDGEMENTS:

We would like to thank the patient and his family members. We would also like to thank Beni hospital staff for their cordial support.

### CONFLICT OF INTEREST STATEMENT:

No conflicts of interest.

### FUNDING:

None.

### ETHICAL APPROVAL :

Not required.

### CONSENT:

Written informed consent was obtained from the patient for publication of this case report.

Case report presented by  
Dr. Firdaus Ahmed Dr. Soumesh Roy  
Dr. Souradip Banerjee

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