



A Case Of Triple Infection Of Covid, Scrub Typhus And Dengue Presenting As Viral Myocarditis

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Abstract

Introduction: In times of COVID-19 pandemic, tropical fever might add on to complications such as on lungs, heart, kidney, and increase morbidity and mortality of Indian population.(1,2,3,4) With these three infections as causes of high morbidity rates, the potentially fatal outcomes of their coinfection are even greater, and many cases are emerging, severe to moderate, showing how common it seems to have become in certain areas especially in Rajasthan (5,6,7,8,9). A female aged 77 years old, presented with palpitations and uneasiness for last 1 hour in casualty. She had history of fever with sore throat and dry cough for 5 days. She was evaluated clinically, with blood investigations and imagings to reach to diagnosis of viral myocarditis owing to triple infection of Covid, dengue and scrub typhus. She was managed accordingly with supportive treatment and discharged on oral medications. Overall, this case report shows the existence of coinfections in the Rajasthan, which includes a high index of suspicion, repeated clinical examination, and the knowledge of local Endemicity and management measures.

Keywords: coinfection, covid, dengue, scrub, myocarditis

Introduction

In the current era of COVID-19, tropical infections with infectious agents like dengue and scrub typhus can present as serious coinfections .(1,2,3,4). Although the clinical manifestations of these infectious agents can overlap, with cross reactivity found quite commonly, there can occur a deadly triple coinfection the potentially fatal outcomes of their coinfection are even greater, and many cases are emerging, severe to moderate, showing how common it seems to have become in certain areas especially in Rajasthan (5,6,7,,9).

CASE: A 77 years female with hypertension and diabetes presented in ER with complaint of palpitations and uneasiness from last 1 hour. Patient had history of sore throat and dry cough for 5 days

that was associated with fever. Patient had shortness of breath that was mRC grade 2-3. Patient had chest pain also. On examination patient had bilateral bronchial breathing and imaging consistent with bronchopneumonia with CORADS-3 with positive for Covid-19 PCR test. Patient had rash all over her body and Scrub typhus IgM was positive with high significant titre. However, due to antigenic similarities between DENV and SARS-CoV-2, cross-reactivity between these two viruses can give false-positive results in rapid serology tests for both diseases (3, 8) Platelet counts were low. Patient was found to be Dengue NS1 Ag, IgM, positive and IgG negative on subsequent evaluation of fever. Therefore, to rule out the possibility of cross-reactivity, DENV-1-4 RT-PCR was conducted, and

similarly for scrub typhus blood PCR for DNA which also came positive. Hence, the Patient was confirmed as a co-infected patient. (10) ECG was suggestive of Ventricular tachycardia. 2D-Echocardiography indicated global LV hypokinesia, reduced Ejection Fraction of 30%, moderate TR with moderate MR. Patient was managed conservatively with injectable doxycycline, remdesivir, steroids, amiodarone and other supportive measures. She subsequently improved and was discharged in stable condition from hospital after 15 days. On follow up her echo revealed 35% ejection fraction with previous findings with no signs of worsening and patient was clinically better.

DISCUSSION: Because of the difficulty in differentiating the three due to similar clinical symptoms and laboratory characteristics, as well as the risk of coinfection manifesting severe disease symptoms and greater fatalities than single infections, the COVID-19 pandemic in dengue and scrub typhus endemic regions is a major cause for concern. Contrarily, the majority of hospitals mandated COVID-19 screening as part of their protocol for patients admitted with dengue fever (1). It was once thought that patients with only an acute fever and vague systemic symptoms had COVID-19. It was difficult to distinguish COVID-19 from other tropical infections because there were no distinctive symptoms. In order to rule out any potential unrecognized coinfection, social and environmental histories of individuals suspected of having SARS-CoV-2 infection should also be examined. Similar research has been reported in the Philippines,

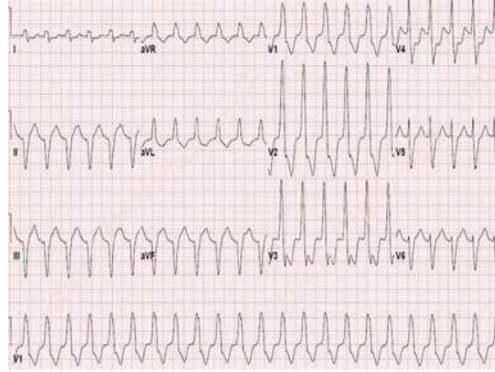
demonstrating the paucity of studies on SARS-CoV-2 and arbovirus coinfections, especially in nations with high dengue prevalence. The authorities must take note of the increasing frequency of coinfection cases and facilitate the appropriate funding allocation in order to prevent a potential co-epidemic, even though most dengue and scrub typhus endemic regions (the tropics and sub-tropics) frequently lack the funds and/or resources to ensure a differential diagnosis of these infections through RT-PCR. More case studies must be presented in order to highlight the significance of early detection of these coinfections and the need for appropriate action. The authors hope to raise awareness of the fact that in dengue and scrub typhus endemic areas, patients with COVID-19 RT-PCR negative tests should undergo mandatory dengue and scrub typhus testing, whereas patients with dengue and scrub typhus positive tests should perform a COVID-19 RT-PCR to confirm cases of coinfection.

CONCLUSION: Coinfections with scrub typhus and dengue are rare with COVID-19. Cardiovascular manifestations can prove deadly if left untreated. Overall, this case report illustrates the existence of coinfections in the Rajasthan, highlighting the key to diagnosing such triple coinfections highlighting the key to diagnosing such coinfections, which includes a high index of suspicion, repeated clinical examination, and the knowledge of local Endemicity. In countries such as India, where resources are limited, need of thorough clinical examination might help in early diagnosis and management.

Patient's 2D-Echo was suggestive of Left Ventricular hypokinesia



The ECG suggestive of Ventricular Tachycardia



Purpuric patches on the back of the torso of the patient



The CT scan s/o CORADS-3



Author Contributions: TKV conceived the study. GS, AM, and NB designed the study. MG and MP supervised the study. TKV, GS, AM, and NB wrote the draft manuscript. TKV, GS, AM, NB, MG and MP did the revisions. All authors approved the final version of the manuscript.

Conflict of Interests: research was conducted in the absence of any commercial or financial relationships

that could be construed as a potential conflict of interest.

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