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Dual Viral Assault: Unraveling the Complexities of Dengue and Hepatitis E Co-Infection in a Tropical Setting- "A Case Report"

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Abstract

Background: Dengue fever and hepatitis E are distinct viral infections endemic to tropical and subtropical regions. Both conditions share overlapping clinical features, such as fever, jaundice, and liver dysfunction. However, co-infection with these viruses is rare and poses significant diagnostic and management challenges. This case report highlights the clinical complexity, diagnostic workup, and management of a patient with dengue and hepatitis E co-infection.

Case Presentation: A 35-year-old male from North Indian presented with fever and extreme weakness for three days. On examination, he had mild hepatomegaly and icterus. Laboratory investigations revealed thrombocytopenia, hyperbilirubinemia, and markedly elevated transaminases. Serology confirmed dengue (NS1 antigen positive) and hepatitis E (IgM positive). The patient was managed conservatively with supportive care, including intravenous fluids and hepatoprotective medications. His condition gradually improved, and he was discharged in stable condition after clinical and biochemical recovery.

Conclusions: This case underscores the importance of considering co-infections in febrile illnesses with liver dysfunction in endemic regions. Early diagnosis and comprehensive supportive care are vital in preventing complications and ensuring recovery.

Keywords: Hepatitis E, Dengue, Case Report and Virus

Introduction

Dengue fever is a vector-borne viral disease caused by four distinct serotypes (DEN-1 to DEN-4), primarily transmitted by *Aedes* mosquitoes [1]. It is the most prevalent arthropod-borne viral illness globally. Liver involvement is a recognized complication of dengue, ranging from mild transaminitis to severe hepatic dysfunction [2].

Hepatitis E, caused by the Hepatitis E virus (HEV), is a waterborne infection endemic to South and Central Asia and parts of Africa. Although usually self-limiting, it can lead to acute liver failure, especially in vulnerable populations such as pregnant women [3].

Both dengue and hepatitis E are endemic in tropical regions and can share overlapping clinical features, including fever, jaundice, and liver enzyme elevation. Co-infection, though uncommon, poses significant diagnostic and management challenges due to compounded effects on the liver.

This report discusses a case of dengue and hepatitis E co-infection, emphasizing the importance of a thorough diagnostic workup and multidisciplinary management in similar cases.

Case Report

A 35-year-old male, resident of North India presented with a three-day history of fever and extreme weakness. He denied any history of travel or exposure to contaminated water but resided in a dengue-endemic region.

On physical examination, he was afebrile, with mild hepatomegaly and icterus. The patient was hemodynamically stable, with no signs of petechiae or bleeding. Complete Blood Count (CBC) was done which showed Haemoglobin 10.7 g/dL, Platelets 60,000/mm³, WBC 7,430/mm³ and Liver Function Tests (LFTs): Total bilirubin 2.04 mg/dL (direct 1.89 mg/dL), ALT 1237 IU/L, AST 2875 IU/L and Coagulation Profile: Prothrombin Time 14.2 seconds, INR 1.30. Dengue NS1 antigen came out to be positive, Ultrasound Abdomen was done which showed Hepatomegaly with grade I fatty infiltration, oedematous gallbladder wall, and splenomegaly.

The patient was managed conservatively for dengue with intravenous fluids, antiemetics, and symptomatic care. Despite initial improvement, persistently elevated liver enzymes and the onset of jaundice necessitated further investigation. Hepatitis E was diagnosed through serological testing. Hepatitis A, B, and C negative.

Treatment included continued supportive care with hepatoprotective medications. Over the next two days, the patient's liver enzymes showed a downward trend, and platelet counts improved. He was discharged in stable condition after achieving clinical and biochemical recovery.

Discussion

Simultaneous co-infection with dengue and hepatitis E is a rare occurrence but may be increasingly recognized in areas endemic to both viruses. Dengue predominantly affects the vascular system, leading to thrombocytopenia and bleeding tendencies, while hepatitis E directly impacts the liver [4,5].

In this case, overlapping symptoms such as fever, jaundice, and liver enzyme derangements initially obscured the diagnosis. Serological testing confirmed the presence of both dengue and hepatitis E. Dengue-related liver dysfunction is usually mild to moderate but can be severe in certain cases. Similarly, hepatitis E typically resolves spontaneously but can lead to acute liver failure in vulnerable populations. Co-infection exacerbates these effects, emphasizing the need for close monitoring and individualized care.

Management of co-infection is largely supportive, focusing on maintaining hemodynamic stability, managing complications, and closely monitoring liver function. Our patient responded well to this approach, highlighting the importance of early diagnosis and prompt treatment in similar cases.

Conclusion

This case of dengue and hepatitis E co-infection underscores the importance of considering multiple infectious etiologies in patients presenting with febrile illness and liver dysfunction, particularly in endemic regions. Early recognition and comprehensive management are essential to preventing severe complications and improving outcomes. Clinicians should maintain a high index of suspicion for co-infections and adopt a multidisciplinary approach to care.

Declarations

- Ethics Approval and Consent to Participate: No ethical approval was required to report this case while consent was taken from the patient before writing the case report.
- Consent for Publication: Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal.
- Availability of Data and Materials: The data is available with the corresponding author which can be provided on request.
- Competing Interests: The authors have no conflict of interest to declare.

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Authors' Contributions

All authors contributed equally.

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