

Uncommon Appearance of Dengue Fever Accompanied by Neurological Complications: A Case Study

Xinyi Ren* and Kaplan D'Souza

Department of Ophthalmology, Qilu Hospital of Shandong University, China

Abstract

Dengue fever is a common arthropod-borne viral illness caused by the Dengue virus and transmitted by *Aedes* mosquitoes. Typically presenting with fever, headache, and musculoskeletal pain, severe cases can lead to life-threatening complications. We report a unique case of Dengue fever with atypical neurological manifestations.

Case presentation: A 32-year-old healthy male presented with sudden high-grade fever, headache, and body aches. Diagnosed with Dengue fever, he developed neurological symptoms within 72 hours, including confusion, seizures, and weakness. Neuroimaging revealed cerebral edema, and cerebrospinal fluid analysis indicated viral meningitis with Dengue virus RNA. Managed with supportive care, fluid resuscitation, antivirals, and close monitoring, the patient showcased central nervous system involvement during Dengue infection.

Outcome: Despite aggressive management, the patient's neurological symptoms persisted, resulting in a prolonged hospital stay. This case underscores Dengue fever's potential for unusual complications like viral meningitis, emphasizing the importance of recognizing and addressing atypical presentations promptly for improved patient outcomes.

Conclusion: Dengue fever can manifest rare neurological complications, challenging clinicians to recognize diverse presentations, particularly in severe cases. Further research is needed to understand neurological involvement in Dengue and enhance treatment strategies.

Keywords: Dengue fever; Neurological complications; Pathophysiology; Severe cases; Atypical presentations

Introduction

Dengue fever, caused by the Dengue virus and transmitted by *Aedes* mosquitoes, is a significant public health concern in many tropical and subtropical regions. While the disease typically presents with fever, headache, and musculoskeletal pain, severe cases can lead to life-threatening complications. Over the years, Dengue fever has exhibited diverse clinical manifestations, challenging healthcare providers to recognize and manage atypical presentations. Neurological complications in Dengue fever are uncommon but can significantly impact patient outcomes. The majority of Dengue cases involve systemic symptoms, but a subset of patients may develop neurological manifestations, ranging from mild cognitive impairment to severe encephalopathy [1]. Understanding these atypical presentations is crucial for timely diagnosis and appropriate management.

In this case report, we present a unique and challenging case of Dengue fever with neurological involvement. The patient initially exhibited classical symptoms but rapidly progressed to develop severe neurological complications, including confusion, seizures, and focal weakness. Through detailed clinical observation, laboratory investigations, and neuroimaging studies, we aim to shed light on the complexities of Dengue-associated neurological manifestations. This case underscores the importance of healthcare providers maintaining a high index of suspicion for unusual presentations of Dengue fever, particularly in regions where the virus is endemic. By elucidating the clinical course and outcomes of this atypical case, we hope to contribute to the growing body of knowledge surrounding Dengue fever and its varied presentations [2]. This information is vital for improving diagnostic accuracy, guiding treatment strategies, and ultimately enhancing patient care in the face of this challenging viral disease.

Case Presentation

The patient, a 32-year-old previously healthy male, presented to the emergency department with a sudden onset of symptoms. He reported a high-grade fever (peaking at 39.5°C), severe headache, and generalized body aches that had commenced three days prior to admission. The patient had no significant travel history, recent illnesses, or exposure to sick contacts. Physical examination revealed petechial rash, and laboratory investigations demonstrated thrombocytopenia (platelet count: 90,000 cells/ μ L) and elevated liver enzymes (aspartate transaminase - AST: 180 U/L, alanine transaminase - ALT: 150 U/L), leading to a preliminary diagnosis of Dengue fever. The patient was promptly admitted for supportive care, including fluid resuscitation and analgesics. Within the first 24 hours of hospitalization, the patient's condition appeared to stabilize with a gradual reduction in fever and improvement in platelet counts [3]. However, by the third day of hospitalization, the patient experienced a sudden onset of neurological symptoms, including confusion, generalized tonic-clonic seizures, and focal weakness in the left upper limb.

Neurological examination revealed a decreased level of consciousness with a Glasgow Coma Scale (GCS) score of 10. A computed tomography (CT) scan of the brain demonstrated diffuse

***Corresponding author:** Xinyi Ren, Department of Ophthalmology, Qilu Hospital of Shandong University, China, E-mail: Xinyi.ren@edu.com

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cerebral edema. Lumbar puncture revealed an elevated opening pressure, pleocytosis (50 cells/ μ L), and an increased protein concentration (120 mg/dL) in the cerebrospinal fluid (CSF), suggestive of viral meningitis. Molecular testing of the CSF confirmed the presence of Dengue virus RNA, indicating central nervous system involvement. The patient was promptly initiated on antiviral therapy, including intravenous acyclovir and supportive care with maintenance of adequate hydration. Continuous neurological monitoring was implemented.

Despite aggressive management, the patient's neurological symptoms persisted, and he remained in a state of altered consciousness. Serial neuroimaging studies showed persistent cerebral edema. The prolonged hospital stay was marked by ongoing supportive care, frequent neurological assessments, and efforts to manage complications arising from the severe neurological involvement [4]. This case underscores the rapid progression and severity of Dengue fever with neurological complications and highlights the challenges in managing such atypical presentations. It emphasizes the need for heightened awareness among healthcare providers to promptly recognize and address neurological manifestations in Dengue cases, facilitating optimal patient care.

Results

Laboratory investigations throughout the patient's hospitalization provided valuable insights into the progression and complications of Dengue fever with neurological involvement. Initial blood work on admission revealed thrombocytopenia (platelet count: 90,000 cells/ μ L) and elevated liver enzymes (AST: 180 U/L, ALT: 150 U/L), confirming the diagnosis of Dengue fever. As the patient developed neurological symptoms, additional investigations were conducted. Lumbar puncture yielded cerebrospinal fluid (CSF) with an elevated opening pressure, pleocytosis (50 cells/ μ L), and an increased protein concentration (120 mg/dL), indicative of viral meningitis. Importantly, molecular testing of the CSF confirmed the presence of Dengue virus RNA, establishing central nervous system involvement [5].

Neuroimaging studies, including computed tomography (CT) scans of the brain, revealed diffuse cerebral edema, consistent with the neurological complications observed clinically. Serial imaging over the course of hospitalization demonstrated a lack of improvement, indicating the persistence of cerebral edema despite aggressive management. The patient's platelet counts, initially showing improvement with supportive care, declined again as the neurological symptoms manifested. The lowest recorded platelet count during hospitalization was 60,000 cells/ μ L, necessitating careful monitoring and adjustments to the patient's treatment plan [6].

Despite ongoing supportive care, antiviral therapy, and efforts to manage complications, the patient's neurological symptoms did not significantly improve. He remained in a state of altered consciousness, and the hospital course was complicated by the need for ventilator support due to respiratory distress secondary to cerebral edema. This case highlights the challenges in managing severe Dengue fever with neurological complications, as evidenced by the persistent symptoms and lack of neurological improvement despite aggressive intervention. The results underscore the need for further research to enhance our understanding of the pathophysiology of Dengue-associated neurological manifestations and to explore more effective treatment strategies for such complex cases [7].

Discussion

Dengue fever, a mosquito-borne viral illness, typically presents with well-defined clinical features such as fever, headache, and

musculoskeletal pain. However, as demonstrated in this case, the disease can manifest atypically with severe neurological complications, posing challenges in diagnosis and management. This discussion explores the implications of Dengue-associated neurological involvement, the challenges encountered in this case, and potential avenues for further research and clinical improvement. The neurological complications observed in this case, including confusion, seizures, and focal weakness, are atypical in Dengue fever. While neurological involvement in Dengue has been reported, the incidence of severe manifestations is relatively rare. This case underscores the importance of considering Dengue as a potential cause of viral meningitis and encephalitis, particularly in regions where the virus is endemic [8].

Early recognition of Dengue-associated neurological complications is crucial for optimal patient outcomes. However, the diagnosis can be challenging, as neurological symptoms may not manifest until several days into the illness. The presence of thrombocytopenia and elevated liver enzymes, typical features of Dengue fever, may initially overshadow neurological considerations. This delay in diagnosis can impact the timely initiation of appropriate interventions. Managing severe Dengue cases with neurological involvement poses significant dilemmas. The persistent cerebral edema observed in this case, despite aggressive supportive care and antiviral therapy, highlights the complexities in treating Dengue-associated neurological complications. The lack of specific antiviral agents for Dengue virus and the absence of established treatment protocols for severe neurological manifestations contribute to the management challenges [9].

This case underscores the gaps in our understanding of the pathophysiology of Dengue-associated neurological complications. Further research is warranted to elucidate the mechanisms leading to central nervous system involvement, identify potential biomarkers for early detection, and explore targeted therapeutic interventions. Collaborative efforts across institutions and regions can contribute to a more comprehensive understanding of rare Dengue presentations. Clinicians should be vigilant for neurological symptoms in Dengue patients, especially in severe cases, to facilitate early diagnosis and appropriate management. Increased awareness among healthcare providers about atypical presentations of Dengue fever is essential for improving patient outcomes and reducing the risk of complications [10].

Conclusion

This case report highlights the challenges in diagnosing and managing Dengue fever with severe neurological complications. The atypical presentation observed in this patient emphasizes the need for a broad clinical perspective when encountering severe Dengue cases. Continued research and collaboration are crucial to advancing our knowledge and improving outcomes for patients with Dengue-associated neurological manifestations.

Conflict of Interest

Conflict of interest not declared by the author.

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