

Case Report: Severe Dengue Masquerading as Venous Thromboembolism; A Rare Presentation of a Common Tropical Disease

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Abstract: *Severe Dengue masquerading as Venous Thromboembolism; A rare presentation of a Common Tropical Disease. Dengue infection is a prevalent mosquito - borne viral infection¹, recognized for its diverse clinical presentations, ranging from mild flu - like symptoms to severe manifestations involving plasma leakage and multi - organ impairment.² A 47 - year - old male with a recent diagnosis of Dengue and no prior history of coagulopathies or thrombotic disorders presented to the emergency room with complaints of swelling and pain in his right lower extremity. Three days before his presentation, he was seen in the ED for fevers, headaches, and myalgias, along with evidence of positive Dengue serology. He was diagnosed with dengue without warning signs and discharged with supportive care. Venous Doppler showed right popliteal vein thrombosis, and laboratory testing revealed thrombocytopenia (30 000 Thousands/uL), elevated LDH levels, and leukopenia 3600 thousands/uL. The patient was hospitalized for further evaluation. Four hours later, he had progressive shortness of breath with increasing oxygen requirements and undifferentiated shock requiring mechanical ventilation. He was started on Intravenous fluids, transfused Platelets vasopressors, and transferred to the intensive care unit. He remained in shock with a mean arterial pressure of 59 despite Norepinephrine 3mcg/kg. He was given boluses of both crystalloids and colloids; however, he remained in refractory shock. Despite aggressive management, the patient's clinical condition deteriorated, leading to multi - organ failure. Unfortunately, he succumbed hours after admission to the intensive care unit. Post Mortem revealed an occlusive thrombus in his pulmonary arteries. We present the case of an adult patient who presented hemodynamic instability, severe thrombocytopenia, and positive serology for dengue, in whom acute Popliteal Vein Thrombosis with embolization of deep vein thrombosis to Pulmonary Embolism causing hemodynamic instability and subsequent death. To our knowledge, there are limited case reports of venous thromboembolism (VTE) presenting in severe dengue.*

1. Introduction

Dengue fever caused by the dengue virus, which is primarily transmitted through the bite of infected Aedes mosquitoes, It is characterized by a sudden onset of high fever, severe headache, joint and muscle pain, and a distinctive skin rash, dengue infection can manifest in various clinical forms, ranging from mild flu - like symptoms to severe and potentially life - threatening complications, such as dengue hemorrhagic fever and dengue shock syndrome.¹

While both severe dengue and venous thromboembolism (VTE) manifest with distinct clinical features, an intriguing intersection occurs when severe dengue infection masquerades as VTE.³ This uncommon presentation poses a diagnostic dilemma for healthcare providers, necessitating a deeper understanding of the complex interplay between infectious diseases and thrombotic complications.

We explore a rare case where severe dengue infection mimicked VTE, shedding light on the intricacies of differential diagnosis and the need for heightened awareness in diverse clinical scenarios. By presenting this rare case, we aim to enhance awareness among healthcare professionals regarding the spectrum of manifestations associated with severe dengue, emphasizing the need for a multidisciplinary approach to diagnosis and management. As the understanding

of the interplay between infectious diseases and thrombotic complications evolves, this exploration contributes to the growing body of knowledge that guides clinical practice and future research endeavors.

2. Clinical Case

A 47 - year - old male with a recent diagnosis of Dengue and no prior history of coagulopathies or thrombotic disorders presented to the emergency room with complaints of swelling and pain in his right lower extremity.

Three days before his presentation, he was seen in the ED for fevers, headaches, and myalgias, along with evidence of positive Dengue serology. He was diagnosed with dengue without warning signs and discharged with supportive care.

He had no intrinsic risk factor for thromboembolic disease, no recent trauma or travel history. Physical examination revealed a swollen right thigh and calf with warmth and erythema. Dorsalis pedis and posterior tibial pulses were present. His Well's score for Deep vein thrombosis was three.

Venous Doppler showed right popliteal vein thrombosis, and laboratory testing revealed thrombocytopenia (30 000 thousands/uL), elevated LDH levels, and leukopenia 3600 thousands/uL. The patient was hospitalized for further

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evaluation. Four hours later, he had progressive shortness of breath with increasing oxygen requirements and undifferentiated shock requiring mechanical ventilation. He was started on Intravenous fluids, transfused Platelets vasopressors, and transferred to the intensive care unit. He remained in shock with a mean arterial pressure of 59 despite Norepinephrine 3mcg/kg. He was given boluses of both crystalloids and colloids; however, he remained in refractory shock.

Laboratory Investigation.	Results.
Hemoglobin	13.4 mg/dl
Platelets	30 x 10⁹/L
White Blood Cells	3.6 x 10⁹/L
INR	1.6 %
APTT	26 seconds
BUN	26 mg/dl
Creatinine	1.6 mg/dl
Total bilirubin	4.6 mg/dl
ALP	22 IU/L
GGT	165 IU/L
AST	123 IU/L
ALT	139 IU/L
LDH	791 U/L
Amylase 21	21 U/L
CPK	561 U/L
ABG:	PH 7.22, HCO3: 13.5, PCO2: 30 Lactate: 9.7
Blood Culture	No organism isolated
*Abnormal results are shown in bold	

Figure 1



Figure 2

3. Discussion

Dengue fever, caused by the mosquito - borne dengue virus, is a major global health concern. Characterized by symptoms

ranging from mild fever to severe hemorrhagic manifestations, dengue infection affects millions of people annually, particularly in tropical and subtropical regions.⁴ While the classic clinical presentation involves flu - like symptoms, severe dengue can lead to plasma leakage, organ impairment, and, in extreme cases, death.⁴

The exact mechanism by which dengue fever predisposes individuals to VTE is not yet fully understood. It is hypothesized that the virus may induce a hypercoagulable state by affecting endothelial cells, platelets, and the coagulation cascade.³ Additionally, the systemic inflammatory response triggered by dengue infection may contribute to the development of thrombotic events.⁴

Diagnosing dengue associated with VTE poses a challenge due to the atypical presentation and the need for a high index of suspicion. Laboratory tests, imaging studies, and clinical evaluation are crucial for accurate diagnosis. It is essential for healthcare professionals to consider dengue fever as a potential cause of unexplained VTE, especially in regions where the virus is endemic.

The diversity of its clinical manifestations' challenges healthcare professionals in timely and accurate diagnosis¹.

Although there is no direct causative link established between Dengue and VTE, it is known that severe infections and inflammatory conditions can put someone at an increased risk of thrombotic events⁴.

4. Outcome

Despite aggressive management, the patient's clinical condition deteriorated, leading to multi - organ failure. CT Pulmonary angiogram was unable to be performed because of rapid clinical deterioration, Therapeutic anticoagulation was also withheld because of severe thrombocytopenia.

Unfortunately, he succumbed hours after admission to the intensive care unit. Postmortem revealed an occlusive thrombus in his pulmonary arteries.

5. Conclusion

In conclusion, the manifestation of dengue as a venous thromboembolism (VTE) represents a rare and potentially serious complication of the viral infection. While dengue fever is primarily known for its characteristic symptoms such as fever, severe headache, retro orbital pain, and joint pain, healthcare professionals should also be vigilant for atypical presentations, including VTE.

The association between dengue and VTE underscores the multifaceted nature of the disease and the diverse ways in which it can affect the body. Clinicians should be aware of the possibility of thrombotic events in dengue patients, especially in regions where the virus is endemic. Timely recognition and appropriate management of dengue associated with VTE are crucial to prevent further complications and improve patient outcomes.

This case highlights the importance of considering venous thromboembolism as a potential complication in patients with severe dengue, even in the absence of traditional risk factors. This atypical presentation highlights the diverse and evolving clinical spectrum of dengue fever, emphasizing the importance of maintaining a high index of suspicion, particularly in endemic regions.

Further research is warranted to better understand the underlying mechanisms linking dengue and venous thromboembolism, as well as to identify specific risk factors that may predispose certain individuals to this uncommon complication.

In the meantime, healthcare providers should consider the possibility of VTE in dengue patients presenting with unusual symptoms or clinical findings, and appropriate diagnostic measures and interventions should be implemented promptly to ensure optimal patient care.

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