

## Case Report

# A Case of Unusual Hemorrhage as a Complication of Dengue Fever

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### Abstract

*Common bleeding complications of dengue hemorrhagic fever are epistaxis, gum bleeding, gastrointestinal bleeding, menorrhagia, hematuria. Major hemorrhage like intracranial hemorrhage have been documented but rare. We present here a case of 24 year old man with complaints of high grade intermittent fever for 5 days, upper abdominal discomfort for 3 days and swelling of right upper limb for same duration. Laboratory investigations revealed a positive dengue serology, thrombocytopenia and elevated transaminases. USG of the hand revealed a hematoma involving the right upper arm. The patient was managed conservatively with elevation and immobilization of the upper limb and recovered gradually.*

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### Introduction

Dengue is a disease caused by an arbovirus, which has four serotypes and that is transmitted by Aedes mosquito. It is regarded as the most important arthropod transmitted human viral disease, and constitutes an important global health problem.<sup>1</sup> Most of the patients recover spontaneously without any symptoms, however Dengue virus infection (DENV) can lead to grave complications, such as dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS). Moreover, certain serious complications, such as myocarditis, encephalopathy, liver failure, splenic rupture, acute kidney injury, pancreatitis, and muscle hematoma, can also be associated with dengue infection. Hemorrhagic complications range from petechiae and purpura to gastrointestinal bleeding, hematuria, and in rare cases even serious intracranial hemorrhage.<sup>3</sup>

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### Case Report

A 24 year old male with no known co-morbid illness or any significant past medical or surgical history presented to the Emergency Department with complaints of fever for the past 5 days. The fever was high grade, intermittent in nature but not associated with any chill or rigor. It was accompanied with a diffuse headache and generalized myalgia. His other complaints were a mild abdominal pain which was epigastric, dull aching and had no radiation or any relation to meals. He also gave history of swelling of his right upper arm for the past 3 days which was gradually increasing and associated with reddish discoloration over the swelling. On physical examination, the patient was conscious, oriented and other vital parameters were stable like blood pressure, pulse and SpO<sub>2</sub>. Examination of the abdomen revealed mild tenderness over the epigastrium and right hypochondrium. There were no palpable organs and shifting dullness. Skin examination revealed a massive ecchymosis encompassing the entire flexor aspect of the right arm and forearm. No other bleeding points were found. The rest of the systemic examination were unremarkable.

Baseline workup was done which revealed thrombocytopenia (25,000/cu.mm) and elevated transaminases (SGPT-440 U/L, SGOT- 403U/L). However, there was no coagulopathy. Dengue fever was confirmed by a positive NS1 antigen test. The patient was treated conservatively with oral

acetaminophen and IV saline infusions. Regarding the upper arm swelling, USG was done which revealed a subdermal hematoma involving the fascial planes. It was also managed conservatively with elevation of the limb and immobilization with a sling. The patient was monitored daily with checking of blood pressure and examining the arm to detect any further expansion of the hematoma. He did not develop any further complications and improved gradually with resolution of the swelling and shrinking of the hematoma. His platelet counts also improved after admission and did not require any transfusion. The patient was ultimately discharged home on the 6<sup>th</sup> day of admission with a follow up 1 month later.



**Figure:**

### Discussion

DF is a mosquito-borne tropical infection with an increasing number of cases each year. During the 1950s, the average number of cases reported annually to the World Health Organization (WHO) was around 900 from 10 countries. With time, the incidence of DF increased significantly with around 0.5 million cases reported in the year 2000 and 3.3 million cases recorded in the year 2015. According to an estimate, the annual incidence of DF is around 390 million with 96 million developing clinical symptoms of varying severity.<sup>2</sup>

According to the new revised guidelines from WHO dengue can be classified into three groups based on severity.

Group A: Dengue fever without any warning signs

Group B: Dengue fever with warning signs, like severe abdominal pain, persistent vomiting or diarrhea >3 times/day, mucosal bleed, hepatomegaly or evidence of fluid accumulation

Group C: Dengue fever with shock or major hemorrhage or any organ involvement.<sup>3</sup>

The exact mechanism of bleeding manifestations in dengue fever is unknown, but it appears to be multifactorial. Plasma leakage is the key initiator of bleeding manifestations in DHF. Several studies have proposed autoimmunity of viral infection against human cells resulting from excessive production of cytokines and chemokines, including C3a, C5a, tumor necrosis factor (TNF)- $\alpha$ , interleukin (IL)-2, IL-4, IL-6, IL-8, IL-10, interferon (INF)- $\alpha$ , monocyte chemotactic protein (MCP)-1, and histamine. Activation of these mediators increase vascular permeability, cause thrombocytopenia, leukopenia and eventually result in shock or hemorrhagic manifestations of dengue fever.<sup>2</sup>

Reported atypical manifestations of dengue are neurological (encephalopathy or encephalitis, aseptic meningitis, myelitis, intracranial hemorrhages, thrombosis, mononeuropathies, polyneuropathies, and Guillan–Barre syndrome), gastrointestinal/hepatic (hepatitis, fulminant hepatic failure, acalculous cholecystitis, acute pancreatitis, febrile diarrhea), renal (hemolytic uremic syndrome, and renal failure), cardiac (myocarditis, pericarditis), respiratory (ARDS and pulmonary hemorrhage), musculoskeletal (myositis and rhabdomyolysis), and lymphoreticular (spontaneous splenic rupture and lymph node infarction). Proper knowledge of these atypical features is essential for early recognition and management.<sup>4</sup>

Early recognition and monitoring of severe forms can significantly reduce dengue morbidity and mortality. Early diagnosis of the disease and careful monitoring coupled with fluid therapy can decrease the mortality to 1%.<sup>4</sup>

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