

Spontaneous splenic rupture: A rare presentation of dengue fever

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Abstract

Spontaneous rupture of the spleen with hemoperitoneum is a very rare, but serious manifestation of dengue fever (DF). We report a case of a young female who was presented with atraumatic abdominal pain, hypovolemic shock, anemia, ascites and hepatosplenomegaly with a recent history of a febrile illness. Subsequent investigations proved the presence of hemoperitoneum with spontaneous splenic rupture with seropositivity for DF. Early diagnosis and conservative management in this case resulted in a favorable outcome.

Keywords: Dengue fever, hypotension, splenic rupture, spontaneous hemoperitoneum

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Introduction

Dengue fever (DF) is characterized by a spectrum of clinical features that ranges from asymptomatic infection to severe illness (dengue hemorrhagic fever [DHF]/dengue shock syndrome). Spontaneous splenic rupture is however a rarity, which we encountered in the case mentioned below.

Case Report

A 26-year-old female presented to the emergency department with an acute abdominal pain and prostration in a background of intermittent fever and watery diarrhea for 4-5 days. Her past medical history was unremarkable. On examination, she had severe pallor, tachycardia (pulse 120/min), tachypnea and a blood pressure (BP) of 90/60 mm Hg. There was a marked tenderness over all quadrants of the abdomen with ascites and hepatosplenomegaly. Other systemic examinations were non-contributory. Initial investigations revealed, hemoglobin (Hb)-3.4 g/dl, total leukocyte count- $3.3 \times 10^9/l$ (N-90%, L-8%, E-2%),

platelet count- $40 \times 10^9/l$ packed cell volume 12.2%, mean corpuscular volume 87 fl; microscopic examination of urine was normal.

Liver function test, serum amylase, lipase and electrolytes were within normal limits, but values of serum urea was 88 mg/dl and serum creatinine was 2 mg/dl. An urgent straight X-ray abdomen showed no evidence of pneumoperitoneum, whereas the chest X-ray revealed bilateral pleural effusions [Figure 1]. Diagnostic ascitic fluid tap from multiple quadrants showed hemoperitoneum. She was resuscitated with intravenous normal saline and blood transfusions (4 units of packed cells and 6 units of platelets) dopamine was used transiently in the first 24 h when fluids failed to raise BP adequately. After she became hemodynamically stable, ultrasonography was done and the report corroborated with clinical findings. The tourniquet test was normal. There was no growth of any organism in ascitic fluid and blood culture. Card test for pregnancy was negative. Subsequently computed tomography scan of the abdomen showed perisplenic hypoattenuating collection with the splenic border displaced by mass effect. There was also ascites and hepatosplenomegaly [Figure 2]. Patient denied any abdominal trauma; hence a diagnosis of hemoperitoneum due to spontaneous splenic rupture was entertained. Partial thromboplastin and activated partial thromboplastin time were within normal range.

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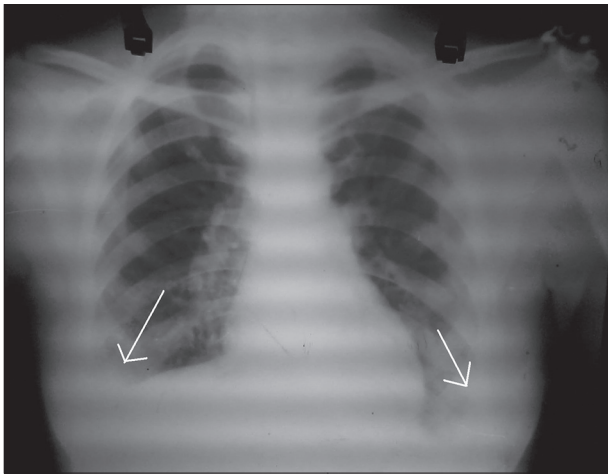


Figure 1: Chest X-ray showing bilateral pleural effusion

She was seronegative for malaria dual antigen, Widal test and human immunodeficiency virus. Blood test for Epstein-Barr virus was negative but dengue serology was positive for non-structural protein 1 (antigen capture ELISA) and immunoglobulin M (IVD micro-well ELISA DF kit) sent on the 2 day of admission (7th day after the onset of fever). Meanwhile her hemogram improved on the 4th day onward-Hb 11.4 g/dl, platelet $130 \times 10^9/l$ and hematocrit was 47%. She was discharged after 7 days of in-patient stay.

Discussion

DF is caused by all four serotypes of dengue virus carried by the vector *Aedes aegypti* and rarely by *Aedes albopictus*. The complicated DF affects primarily children, but because of shifting pattern of immunity and infection, it is now prevalent among the adult population too.^[1] The exact pathogenesis of complicated dengue is still unknown, but increased vascular permeability, abnormal homeostasis, increased capillary fragility, thrombocytopenia, impaired platelet function and disseminated intravascular coagulopathy all have been incriminated. Spontaneous splenic rupture is a rare, but the life-threatening complication of infectious diseases. The diagnosis of spontaneous splenic rupture should be entertained in young patients with acute atraumatic abdominal pain and hemoperitoneum with a history suggestive of a recent infection. Splenic rupture may be secondary to abdominal trauma or due to non-traumatic causes.^[2] Non-traumatic splenic rupture is of two types-pathologic or spontaneous. Spontaneous splenic rupture is caused by lymphoproliferative diseases, connective tissue disorders, solid neoplasm, aneurysm, pancreatitis and various infective disorders.^[2-4] DF is a rare cause of spontaneous splenic rupture and hemoperitoneum.

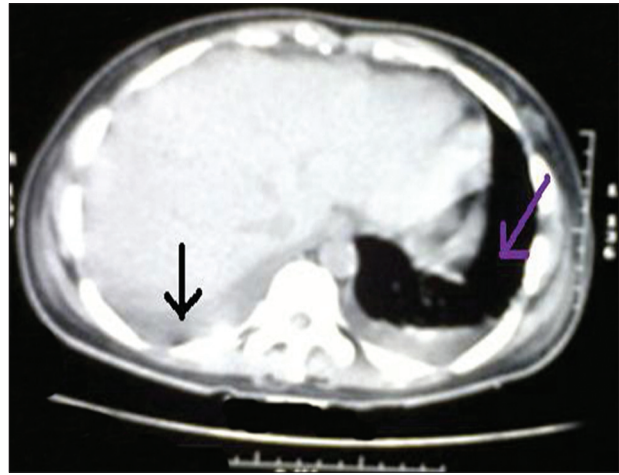


Figure 2: Computed tomography scan of abdomen showing perisplenic hypoattenuating collection with the splenic border displaced by mass effect and the fluid around spleen (purple arrow on the right), arrow on the left showed "fluid around the liver" (black arrow on the left)

The spleen is frequently congested in cases of DHF and sub-capsular hematomas are found in 15% of necropsy cases. Only anecdotal case reports have been documented to have splenic rupture in DF.^[5-8] Of the 11 dengue cases describing splenic rupture, eight (out of 11) patients have survived. The survival observed in these cases should be attributed to timely diagnosis and management rather than the natural course of splenic rupture, which is expected to be poor if the diagnosis is missed.

The pathogenesis behind this serious complication is probably congestion of spleen and thrombocytopenia or both.^[9] Splenectomy is the treatment of choice for spontaneous splenic rupture with hemoperitoneum, but several reports also advocate a trial of initial conservative management.^[10-12] The therapeutic choice depends upon the hemodynamic status of the patient and cases not responding to conservative therapy must undergo splenectomy. We kept the patient on conservative management to which she responded with a good outcome.

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