Case Report

Spontaneous arterial hemorrhage as a complication of dengue

Shoma Vinay Rao, Gijoe George Jacob, Nithin Abraham Raju, Sneha Ann Ancheri[1]

Abstract

Bleeding complications of dengue hemorrhagic fever such as epistaxis, gum bleeding, gastrointestinal bleeding, hypermenorrhea, hematuria, and thrombocytopenia have been documented. A 49-year-old female presented with complaints of intermittent high-grade fever for the past 4 days, lower abdominal pain and altered sensorium for 1 day. Laboratory investigations revealed severe anemia, mild thrombocytopenia, hypofibrinogenemia, and positive dengue serology. Emergency ultrasound examination of the abdomen revealed a possible rapidly expanding hematoma from the inferior epigastric artery and suggested urgent computed tomography (CT) angiogram for confirmation of the same. CT angiogram was confirmatory, and patient underwent emergency embolization of the right inferior epigastric artery. We report the first case of inferior epigastric hemorrhage and rectus sheath hematoma as a consequence of dengue.

Keywords: Arterial haemorrhage, dengue, recus sheath haematoma

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Introduction

Dengue is a common tropical, acute infectious disease caused by an arbovirus with significant mortality and morbidity.[1] Most cases of dengue are self-limiting, may be asymptomatic or present with fever, myalgia, headache, maculopapular rash, leukopenia, and thrombocytopenia.[2,3] Dengue hemorrhagic fever (DHF) is a more severe form, characterized by minor to major bleeding, thrombocytopenia, and plasma leakage.[3] Common hemorrhagic manifestations are epistaxis, gum bleeding, gastrointestinal bleeding, hypermenorrhea, and hematuria.[4] Only two cases of spontaneous arterial hemorrhage as a consequence of dengue have been reported till date, one hemoperitoneum and the other an intercostal artery bleed.[5] We report an unusual case of spontaneous inferior epigastric artery hemorrhage and rectus sheath hematoma, as a complication of dengue.

Case Report

A 49-year-old female with no known comorbid illnesses presented to the emergency department with a history of intermittent high-grade fever, for 4 days, worsening lower abdominal pain, and altered sensorium for 1 day. There were periods of normal temperature in between the fever episodes. The altered sensorium was unrelated to the intensity of fever. On examination, she was pale, tachypneic (respiratory rate 28/min), and tachycardic (heart rate 110/min) with blood pressures of 100/60 mm of Hg. Abdominal examination revealed right iliac fossa tenderness and an irregular, ill-defined 3 × 4 cm nonpulsatile mass in the right iliac fossa. Laboratory investigations revealed severe anemia (hemoglobin - 5.5 g/dl), thrombocytopenia (platelet count 75,000/cumm) and

From:
Division of Critical Care, Christian Medical College, [1]Department of Anaesthesiology, Christian Medical College, Vellore, Tamil Nadu, India

Correspondence:
Dr. Nithin Abraham Raju, Division of Critical Care, Christian Medical College, Vellore - 632 004, Tamil Nadu, India.
E-mail: drnithinraju@gmail.com

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hypofibrinigenemia (fibrinogen 92.3 mg/dl), other coagulation parameters were normal. Emergency ultrasound examination of the abdomen revealed a rapidly expanding hematoma (10.7 × 5.9 cm) in the intramuscular plane on the right lower abdomen [Figure 1] and urgent computed tomography (CT) angiogram was suggested for definitive diagnosis. CT angiogram revealed a large rectus abdominus hematoma and active contrast extravasation within the hematoma, inferior epigastric artery being the probable source [Figure 2]. Multidisciplinary consultations were sought and embolization of the inferior epigastric artery was planned. The patient was admitted to a high dependency unit for preprocedure stabilization and correction of anemia, thrombocytopenia and coagulation derangements with packed cells, platelet concentrate, and cryoprecipitate respectively, following which the patient underwent successful embolization of the right inferior epigastric artery. Postprocedure the platelet counts were 50,000/cumm and other coagulation parameters were within normal limits. During this time, dengue serology NS1Ag, IgM and IgG were reported to be positive, suggesting early secondary dengue infection; however, the patient did not give history suggestive of previous dengue infection. Subsequently, she developed acute respiratory distress syndrome (ARDS) requiring ventilatory support. The patient did not require any further transfusion of blood or blood products. She was gradually weaned off the ventilator, her thrombocytopenia resolved and she was discharged in a stable condition.

Discussion

Fever and pain abdomen are common manifestations dengue.[6] Common causes of pain abdomen in dengue patients are spontaneous bacterial peritonitis, acalculus cholecystitis, acute pancreatitis, appendicitis, acute hepatitis, gastric erosions, peptic ulcer disease, and enteritis.[6]

Rectus sheath hematoma has been described as a consequence of trauma and anticoagulation.[7] Other rare causes described are severe exertion, pregnancy, insulin injections, as a sequel of laparoscopic cholecystectomy or even after violent coughing after an acute exacerbation of bronchial asthma.[7] All these causes were ruled out.

Thrombocytopenia is associated with alterations in megakaryocytopoieses by the infection of hematopoietic cells and impaired progenitor cell growth, resulting in platelet dysfunction.[8] Hemorrhage may thus be a consequence of thrombocytopenia and associated platelet dysfunction or disseminated intravascular coagulation (DIC).[8] Isolated hypofibrinigenemia although rare can cause significant hemorrhage, and must be treated with cryoprecipitate transfusion.[9,10]

Dengue is the most rapidly spreading mosquito-borne viral infection in the world, with the Asia Pacific region bearing 75% of the disease burden.[8] Symptomatic dengue viral infections are classified as dengue fever, DHF, and dengue shock syndrome (DSS).[8]

Dengue has a wide spectrum of clinical presentations, and the progress and outcome are often unpredictable.[8] The spectrum ranges from the more common self-limiting, nonsevere course to severe disease characterized by plasma leakage and hemorrhage.[8]

Expert consensus groups in Latin America (Havan, Cuba, 2007), South-East Asia (Kuala Lumpur, Malaysia, 2007), and at WHO headquarters in Geneva in 2008

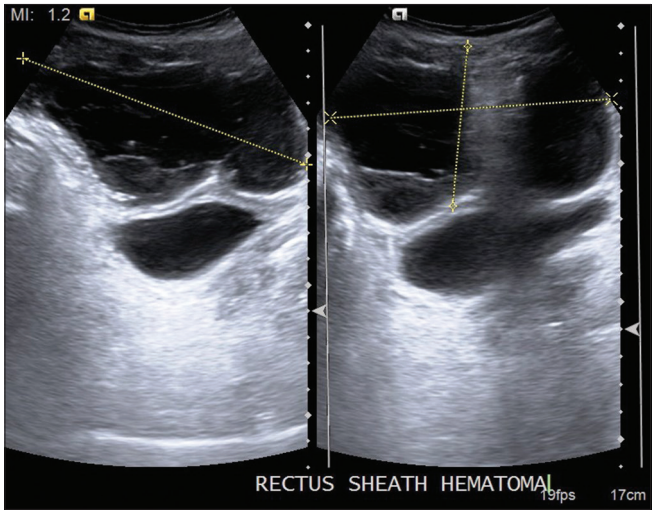

Figure 1: Ultrasound abdomen shows hematoma (10.7 cm × 5.9 cm) in the intra-muscular plane on the right lower abdomen

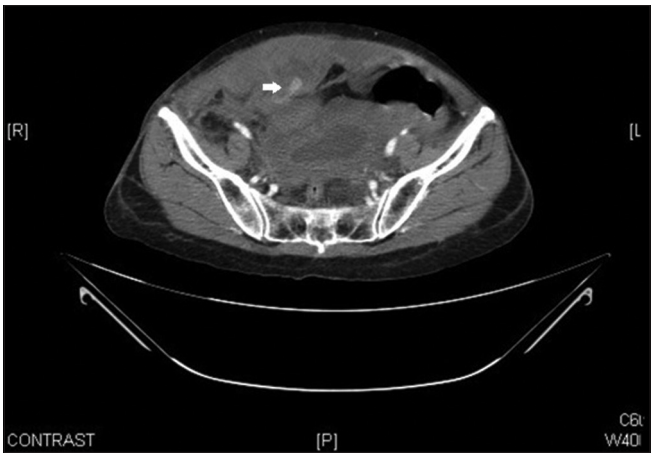

Figure 2: Computed tomography angiogram showing a large rectus abdominus hematoma and active contrast extravasation within the hematoma

agreed that "dengue is one disease entity with different clinical presentations and often with unpredictable clinical evolution and outcome."[8]

Dengue virus (DEN) is a small, single-stranded RNA virus with four distinct serotypes (DEN-1 to -4).[8] They belong to the genus *Flavivirus*, family *Flaviviridae*. These are transmitted to humans via bites of infected *Aedes aegypti*.[8]

Risk factors determining the severity of the disease include secondary infection, age, ethnicity and chronic diseases (bronchial asthma, sickle cell anemia, and diabetes mellitus).[8]

Severe dengue is characterized by plasma leakage, hemoconcentration and abnormalities in homeostasis.[8] The immune response, the genetic background of the individual and virus characteristic may all contribute to severe dengue.[8]

Petechiae and mucosal membrane bleeding are the mild hemorrhagic manifestations that may be seen.[8] Massive vaginal bleeding in women of childbearing age and gastrointestinal bleeding are rare.[8]

Depending on the degree of plasma leakage and volume of fluid therapy, pleural effusion and ascites may be seen.[8]

Severe organ impairment such as severe hepatitis, encephalitis or myocarditis and/or severe bleeding may develop without obvious plasma leakage or shock.[8]

Severe dengue is defined by one or more of the following:

1. Plasma leakage that may lead to dengue shock and/or fluid accumulation, with or without respiratory distress, and/or
2. Severe bleeding, and/or
3. Severe organ impairment.[8]

Patients with severe dengue may present coagulation abnormalities, but these are usually not sufficient to cause major bleeding.[8]

Reported atypical manifestations of dengue are neurological (encephalopathy, 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, and acute parotitis), renal (hemolytic uremic syndrome, and renal failure), cardiac (myocarditis, pericarditis, and conduction abnormalities), respiratory (ARDS and pulmonary hemorrhage), musculoskeletal (myositis and rhabdomyolysis), and lymphoreticular (spontaneous splenic rupture and lymph node infarction).[11] Given the global burden of dengue, knowledge of its atypical manifestations is vital for diagnosis and management of the disease.

Early recognition and monitoring of severe forms can significantly reduce dengue morbidity and mortality.[12] The mortality of DHF and DSS may be as high as 40–50% if left untreated.[12] Early diagnosis of the disease and careful monitoring coupled with fluid therapy can decrease the mortality to 1%.[12] Deaths from DHF/DSS are caused by prolonged shock, hemorrhage, fluid overload and acute liver failure with encephalopathy.[12] Severe refractory shock, DIC, ARDS, liver failure, and neurological manifestations, singly or in tandem were the most common causes of death.[12]

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Conflicts of interest

There are no conflicts of interest.

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