

## ORIGINAL ARTICLE

**A Rare Case: Spontaneous Bilateral Rectus Sheath Hematoma in A Patient with Dengue Fever**

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**ABSTRACT**

Bilateral rectus sheath hematoma secondary to Dengue fever is very rare. Mainstay of treatment is conservative. Surgical intervention is reserved for those who have expanding hematomas, infected hematomas, persistent pain, hemodynamic instability, etc. We present a rare case of spontaneous bilateral rectus sheath hematoma in a patient with dengue fever. Patient was initially managed conservatively, and later drainage of bilateral rectus sheath hematoma was performed.

**Key Words:** *Dengue Fever, Hematoma, Rectus Sheath.*

**Case**

A 39-year-old female with no known co-morbidities presented in emergency department with three days history of fever, epistaxis, heavy menstrual bleeding, lower abdominal fullness and pain. At presentation patient was tachycardiac, febrile and tachypneic. Lower abdomen was mildly tender, more on left side as compared to right. Patient had Hemoglobin (Hb) of 11.6 g/dl, white blood cells (WBCs)  $2.14 \times 10^3$  /ul, Platelets count of  $41,000 \times 10^3$  /ul, Prothrombin time 11 seconds (Control 10.8 seconds), activated partial thromboplastin time (APTT) 27.3 seconds (Control 27 seconds) and International Normalized Ratio (INR) of 1. Dengue virus Non-Structural protein 1 (NS1) antigen was positive while liver function tests were normal. Ultrasound revealed 10.9ml left rectus sheath hematoma (RSH). After 12 hours of admission patient had platelets count of  $42000 \times 10^3$  /ul and Hb of 9.7 g/dL while remaining hemodynamically stable. On second day morning platelets increased to  $93000 \times 10^3$  /ul while Hb decreased to 7.7 g/dl. A CT Scan abdomen and pelvis with intravenous contrast was performed that showed hematoma involving bilateral rectus muscle measuring 9.7 x 6.5 cm on right side and 9.3 x 5.9 cm on left side (Arrows in Figure 1a, 1b and 2).

There was no active bleeding from epigastric vessels

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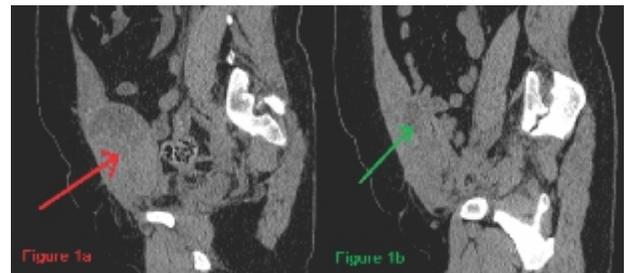
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**Figure 1a:** CT scan (Sagittal Section) with red arrow showing Right Rectus Sheath Hematoma

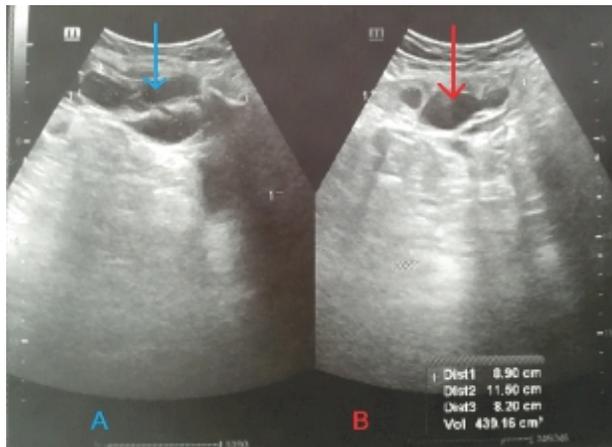
**Figure 1b:** CT scan (Sagittal section) with green arrow showing Left Rectus Sheath Hematoma



**Figure 2:** CT scan (Axial Section) Image showing Right (Red Arrow) and Left (Green Arrow) Rectus Sheath Hematoma

or contrast extravasation, so the patient was continued on conservative management and blood products transfusion. At night Hb was repeated and it came out to be 8.9 g/dL. Follow up ultrasound on day three showed no interval increase in size of hematoma and a platelet count of 180,000 /uL. Patient was discharged on day five after conservative management and followed up on outpatient basis.

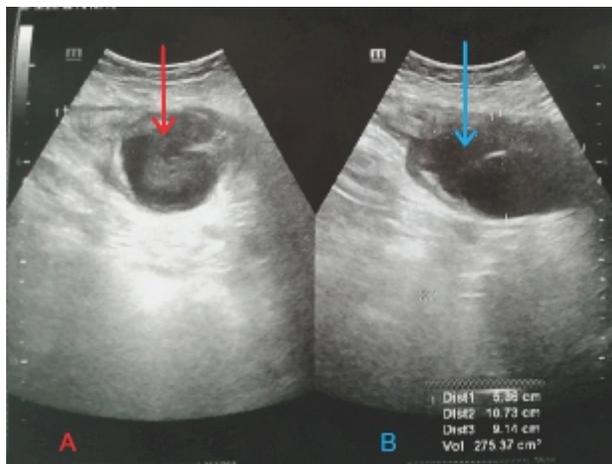
Patient remained well for four days at home and presented to us on day five with fever and lower abdominal pain for last 24 hours. Patient was tachycardiac and had tenderness in lower abdomen. Hb was 9.8 g/dL with raised WBCs of  $13.3 \times 10^3$  /uL. C-Reactive proteins test was also raised (70mg/dL). Patient had interval increase in RSH, 440ml on left side (Figure 3) and 275ml on right side (Figure 4).



**Figure 3: Ultrasound Image showing Left Rectus Sheath Hematoma (Arrows)**

**A (Blue) - Transverse View**

**B (Red) - Longitudinal View**



**Figure 4: Ultrasound showing Right Rectus Sheath Hematoma (Arrows)**

**A (Red) - Longitudinal View**

**B (Blue) - Transverse View**

Patient was admitted and bilateral separate incision and drainage of infected expanding hematoma was performed under spinal anesthesia. About 400ml hematoma was drained on the right side and 200ml hematoma was drained on the left side. Specimen for culture sensitivity was sent. After securing

hemostasis, wound was kept open and daily dressings were continued. Patient was discharged on day three and injectable antibiotics (tazobactam + piperacillin and metronidazole) were continued for two more days. Patient was then shifted to oral antibiotics for five days according to culture sensitivity report. Patient remained well and was completely settled in further three weeks.

## Introduction

Dengue fever is a viral illness common in tropical and subtropical regions of the world.<sup>1,2</sup> It has four serotypes and it is transmitted to humans by bite of *Aedes mosquito*.<sup>[1,3]</sup> The disease ranges from asymptomatic to serious dengue hemorrhagic fever or dengue shock syndrome that may cause bleeding into retroperitoneal tissues or gastrointestinal tract.<sup>4</sup> Bleeding is due to complex pathophysiological pathways involving vasculopathy, thrombopathy and disseminated intravascular coagulopathy.<sup>5,6</sup> In very rare cases it may cause rectus sheath hematoma which is an uncommon disease itself. RSH may occur due to tear in rectus muscle or bleeding from epigastric vessels.<sup>7</sup> Rectus sheath is deficient below arcuate line in abdomen so hematomas below the arcuate line have the tendency to expand.<sup>8</sup> It presents as abdominal pain or palpable abdominal mass or fullness.<sup>7,9</sup> Predisposing factors for RSH include anticoagulation, old age, female gender, pregnancy, trauma, iatrogenic injury, intramuscular injection, hypertension, hematologic disease, coughing or strenuous physical activity.<sup>9,10</sup> The mainstay of treatment is conservative management. Conservative management includes intravenous hydration, blood products transfusion, vitals and input-output monitoring, stoppage of anticoagulation, etc. In case of hemodynamic instability, persistent pain, infective process or neurologic deficit, intervention is required. Intervention can be angioembolization or surgery.<sup>11,13</sup> Rectus sheath hematoma secondary to dengue fever is uncommon and in literature only few cases are reported.<sup>5</sup> Bilateral RSH are even rarer. We discuss a case of spontaneous bilateral rectus sheath hematoma secondary to Dengue Fever requiring surgical intervention.

## Discussion

RSH associated with dengue fever is rare and only a few cases of bilateral rectus sheath hematoma

complicated by dengue fever are known to date.<sup>5</sup> Bleeding complications in dengue hemorrhagic fever patients result from combination of thrombocytopenia, increased vascular fragility, increased fibrinolysis, immunological disturbance and unbalance between pro-coagulation and anti-coagulation.<sup>5,13</sup> Persistent thrombocytopenia was seen in our patient. Our patient presented with fever, abdominal fullness, leucopenia, and thrombocytopenia which is usual presentation of a dengue fever patient with RSH.<sup>9,10</sup> Literature review shows female predisposition attributed to lesser muscle mass, as was our case.<sup>5,12</sup> Ultrasound abdomen is the initial radiological investigation of choice. CT scan with intravenous contrast is superior to ultrasound since it gives accurate identification of bleeding vessels, contrast extravasation, hematoma, its size, and extent.<sup>7,13</sup> It has the disadvantage of need to transfer to CT room, radiation exposure and contrast induced nephrotoxicity. MRI is superior to CT scan but needs more time. For MRI our patient needed to be transferred to nearby facility due to non-availability at our setup and additionally our patient was claustrophobic. Therefore, CT Scan with intravenous contrast was performed to know the exact details of bilateral RSH, contrast extravasation, hemoperitoneum, hematoma size and extent. Our patient was initially managed for Dengue Fever and RSH conservatively, including intravenous hydration, analgesia, blood transfusion and platelets transfusion. Platelets transfusion is based on individual case, but transfusion is usually considered when levels fall below 50,000 /uL.<sup>5</sup> Later expanding hematoma with fever and pain required surgical intervention in the form of Bilateral Incision and Drainage of Hematoma.<sup>7,12</sup> Angioembolization is reserved for cases where active bleeding epigastric vessels are identified as well as the availability of Interventional Radiology services.

### Conclusion

Dengue fever in complicated cases can present with RSH. These patients should be admitted and kept on strict observation. CT scan is the investigation of choice. RSH can be managed by conservative management. Surgical intervention should be reserved for cases with expanding hematoma, infected hematoma, or hemodynamically unstable

patients. Outcomes are usually good with proper management.

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**CONFLICT OF INTEREST**

Authors declared no conflicts of Interest.

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**DATA SHARING STATEMENT**

The data that support the findings of this study are available from the corresponding author upon request.

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