

Dengue shock syndrome with retroperitoneal haematoma requiring repeated artery angioembolization

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SUMMARY

A 53-year-old lady was admitted with decompensated dengue shock syndrome during the febrile phase, complicated by massive retroperitoneal bleeding requiring angioembolization. She was initially stabilized by fluid resuscitation at emergency department prior to ICU admission. While in ICU, her haemoglobin level plummeted from 17.5 g/dL to 5.8 g/dL without any obvious source of bleeding. She had hemodynamic instability and worsening acidosis. The abdominal ultrasound performed showed complex ascites and CT abdomen revealed a large right retroperitoneal hematoma with ongoing bleeding. The patient's hemodynamic was restored and bleeding resolved after angioembolization of the right L2 lumbar artery and right phrenic artery.

KEY WORDS:

Dengue shock syndrome; retroperitoneal hematoma; right L2 lumbar artery and right phrenic artery angioembolization

INTRODUCTION

In 2014, Malaysia had a prevalence of 361 dengue cases per 100,000 population with case fatality rate of 0.2%.¹ The dengue fever has three distinct clinical phases namely febrile, critical and recovery phase. Dengue haemorrhagic fever or severe dengue has a correlation with abdominal pain, hepatomegaly and major bleeding outcome. Fariz et.al. reported 14.6% major bleeding tendency in their dengue study population which consisted of gastrointestinal bleeding, haemoptysis, and intracranial bleed.² However there were only a few reported cases of retroperitoneal bleeding in dengue fever. We reported a case of dengue shock syndrome with retroperitoneal hematoma requiring two angioembolizations to secure the bleeders.

CASE PRESENTATION

A 53 year-old lady presented with five days fever with chills. She had no comorbidities. She presented to the emergency department with a tympanic temperature of 40°C, blood pressure of 97/61 and tachycardia with a rate of 102 bpm. Physical examination revealed low pulse volume and cool peripheries. Her lungs were clear. There was no ascites. She had haemoconcentration and thrombocytopenia (total white cell count (TWBC) 4.21x10⁹/L; haemoglobin (Hb) 17.5 g/dL; haematocrit (Hct) 51; platelet 14x10⁹/L). Her dengue non-structural protein 1 (NS1) was positive. The dengue specific

IgM was sent and rendered positivity. She was treated as compensated dengue shock syndrome in febrile phase and received fluid resuscitation 15mls/kg/hour followed by tapering fluid therapy. Her condition stabilized after intravenous crystalloid fluid resuscitation and no inotropic support was initiated at this juncture. She was admitted to Intensive Care Unit (ICU).

While in ICU, she entered defervescence phase (day six of fever). During that critical period she became hypotensive and her haemoglobin level plummeted from 17.5 g/dL to 5.8 g/dL. There was no obvious bleeding externally. Her platelet count was documented as 14x10⁹/L; PT 16 sec; aPTT 190 sec. On clinical examination, she had reduced air entry and crepitation of the bibasal lungs with tensed abdomen and demonstrable ascites. She required inotropic support (intravenous infusion of noradrenaline) and multiple blood transfusions including 6 fresh frozen plasma (FFP) and 4 units' platelets. She was given fresh frozen plasma to arrest the possible bleeding which was complicated by the prolonged PT and aPTT. Her fibrinogen level was 295 mg/dL denoting that she was not in the state of disseminated intravascular coagulopathy (DIVC).

An emergency abdominal ultrasound showed complex ascites. The ensuing computed tomography of the abdomen revealed a large right retroperitoneal hematoma (12 (AP) x 11.2 (W) x 14.2 (CC) cm) with ongoing bleeding. There was the presence of haemoperitoneum and right haemothorax as well. (Figure 1) There was a pseudo aneurysm at the level of right lumbar (L) artery L3/L4. The feeder artery was likely arising from the distal branch of the right L2 artery. (Figure 2) The patient underwent angioembolization of L2 artery after informed consent taken by the attending interventional radiologist. She was given 4 unit platelet and 4 FFP prior to the procedure. The bleeding managed to be arrested and she remained well for a while before her haemoglobin level dropped from 9.8g/dL to 5.8 g/dL. An emergency computed tomography done showed the previous right retroperitoneal haematoma increased in its size of with new active bleeding site noted at the right sub-phrenic region. The patient underwent a second angioembolization of the right phrenic artery. She received another 10 units of packed red cells and 6 units of platelets. After the second angioembolization, her condition improved. She was discharged uneventfully after the treatment of her nosocomial infection. Her blood culture grown *Propionibacterium acnes* during her five days stay in ICU.

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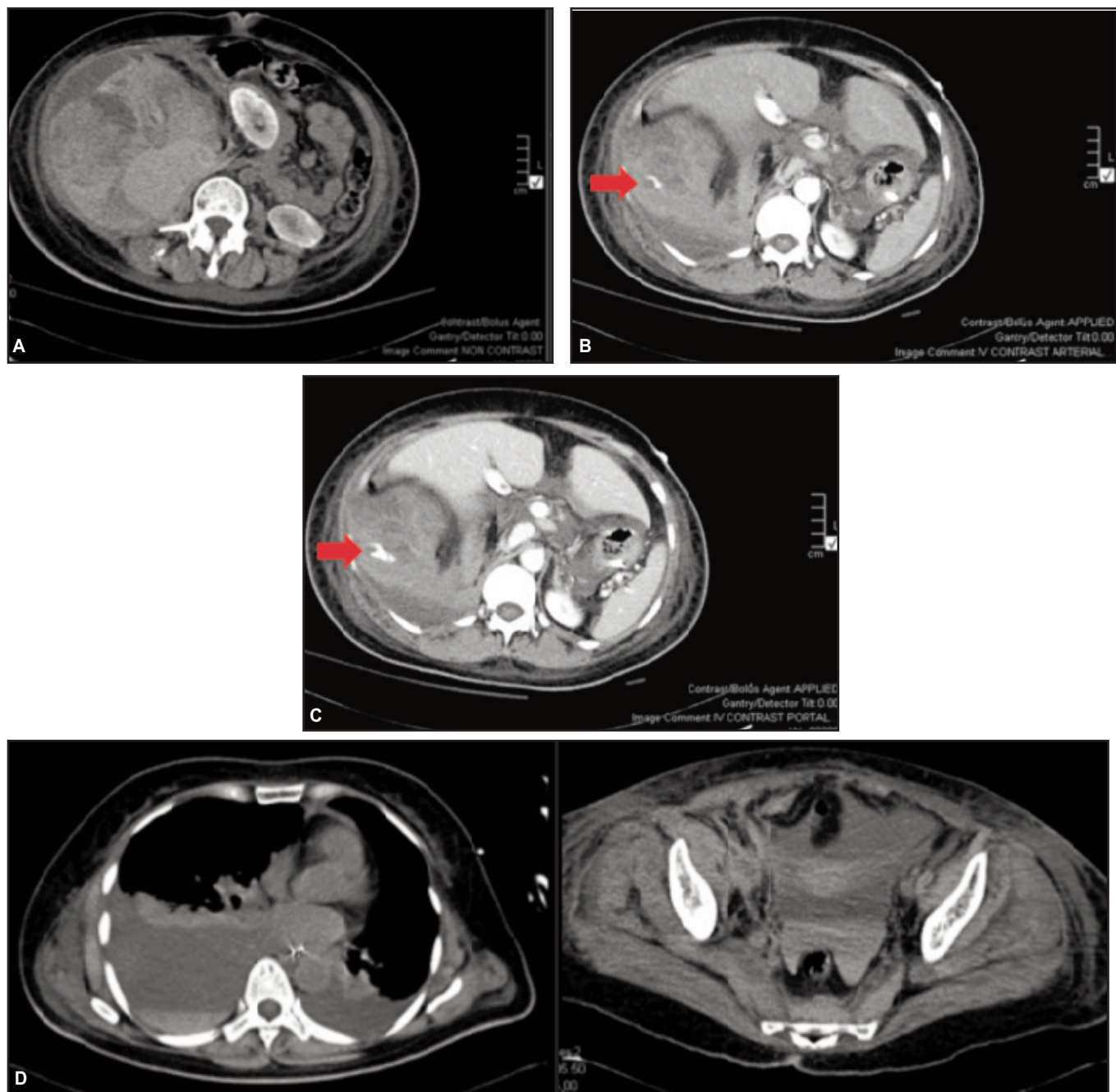


Fig. 1: In panel A, abdominal CT scan obtained without intravenous contrast material shows non-enhancing heterogeneous retroperitoneal mass displacing the bowel, omentum, and right kidney anteromedially. In panel B and C, abdominal CT scans obtained with intravenous contrast material show extravasation of contrast to the mass confirming an ongoing bleeding (red arrow). In panel D, the CT scan reveals layering of hyper density suggestive of haemothorax and haemoperitoneum.

DISCUSSION

Dengue bleeding usually manifests as petechiae, mucosal bleed, and per vaginal bleed. Severe haemorrhagic tendency such as intracranial bleed, and gastrointestinal bleed have been described. The platelet count is not predictive of bleeding.¹

The pathogenesis for bleeding manifestation in severe dengue still remains elusive. Increased vascular permeability, perivascular oedema, viral virulence, antibody-dependent

enhancement, complement system activation, and cytokine storm have explained partly but not wholly of the haemorrhagic tendency in dengue fever.³ Idiopathic retroperitoneal bleeding in dengue is rare but it poses a potentially life threatening complication of dengue haemorrhagic fever. There were only a few reported cases of haemoperitoneum in dengue fever.⁴ Our patient had a rare presentation of multiple vascular bleeders requiring angioembolization to restore hemodynamic status. She had no family history or past medical history of arteriovenous

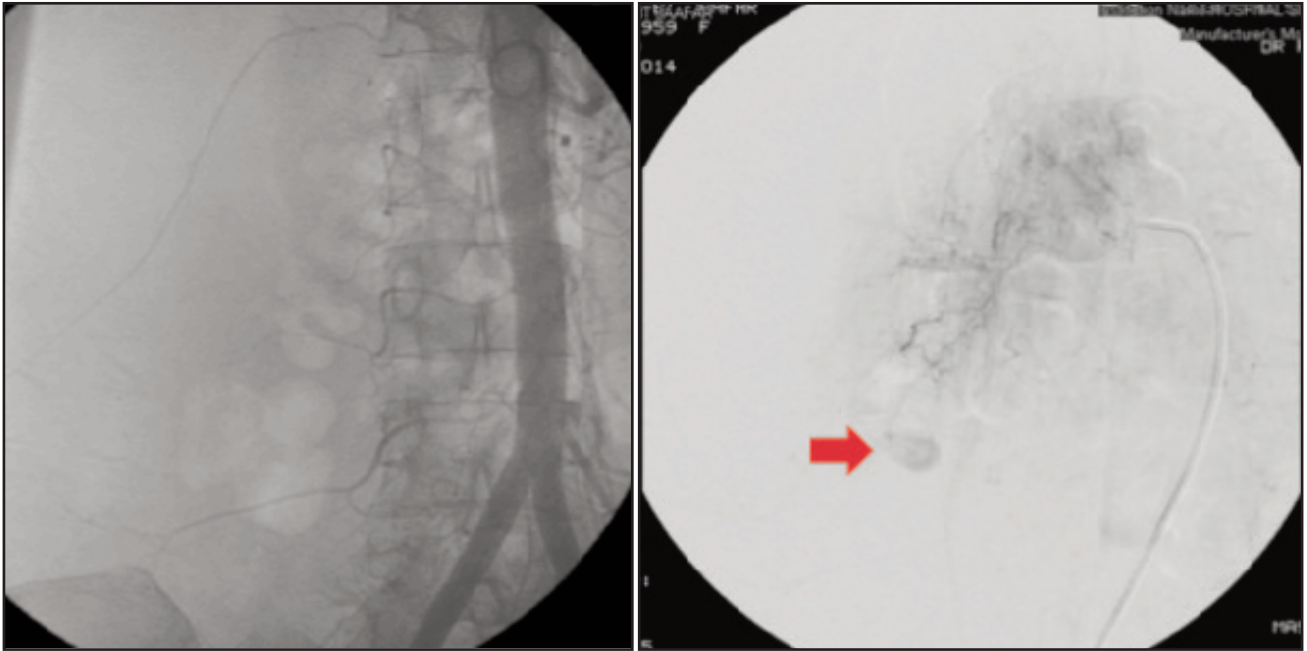


Fig. 2: Selective angiography of the second lumbar artery on the right side reveals an extravasation of contrast medium (red arrow).

malformation. Prompt computed tomography and angioembolization in this patient had prevented her from progressing into disseminated intravascular coagulopathy culminating in multi-organ failure which was commonly described in dengue patients with massive bleeding. To date, the role of angiography and selective angioembolization in managing severe dengue bleed have not been explored. This could provide a valuable alternative to conservative management with blood products transfusion especially in fast deteriorating case. Our case illustrated that angioembolization may play an important role in managing patient with major bleeding involving arterial bleed.

CONCLUSION

Computer tomography angiography and catheter angiography with selective angioembolization in life-threatening retroperitoneal arterial bleeding in a dengue haemorrhagic fever can be lifesaving.

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