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Dengue Hemorrhagic Fever Complicated by Intercostal Artery Hemorrhage

Syed Ahsan Ali, Sara Ahmed and Mehmood Riaz

ABSTRACT

Hemorrhagic manifestations are fairly common in Dengue hemorrhagic fever and are associated with increased mortality. During last few decades there have been increasing reports of Dengue infection with unusual manifestations. Here we present a case of dengue hemorrhagic fever complicated by spontaneous rupture of an intercostal artery leading to a large hematoma which was treated successfully with angio-embolization. To the authors' knowledge this is a first case of dengue hemorrhagic fever complicated by spontaneous intercostal artery hemorrhage.

Key Words: *Dengue hemorrhagic fever. Intercostal artery. Hemorrhage. Angio-embolization.*

INTRODUCTION

Dengue fever has become the most common worldwide arboviral infection. Around 100 million new cases are reported annually to the World Health Organization. Like many other regions of world Pakistan has become an endemic area of dengue fever.^{1,2} Spontaneous bleeding is one of the main problems attributed to dengue. Its frequency is particularly high among inpatients and is associated with increased mortality.³ Hemorrhagic manifestations of dengue hemorrhagic fever include skin hemorrhages such as petechiae, purpuric lesions and ecchymoses. Epistaxis, gum bleeding, gastrointestinal hemorrhage, menorrhagia and hematuria occur less frequently. At time bleeding can occur at unusual sites. There are several case reports showing atypical hemorrhagic manifestations of dengue hemorrhagic fever like hemoperitoneum, hemothorax, sub-capsular hematomas and rupture of spleen, intracranial hemorrhage and lingual hematoma.⁴⁻⁸

The authors report a case of Dengue hemorrhagic fever in which hemorrhage of an intercostal artery leads to a large hematoma which was treated successfully by radiological guided angio-embolization. To authors' knowledge this is the first ever case of dengue hemorrhagic fever complicated by intercostal artery hemorrhage.

CASE REPORT

A 67 years male residing in Karachi came to emergency room of The Aga Khan University Hospital, Karachi, with

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complaints of fever and lethargy for the last 4 days. He also had vomiting and diarrhoea. He was a known case of hypertension and taking amlodipine. There was no history of trauma or fall. Physical examination was completely unremarkable. Initial investigations revealed hemoglobin 12.3 g/dl (hematocrit 35%), white cell count 8000/mm³ with neutrophils of 75.5%, lymphocytes 13.6%, and platelets 98,000/mm³. PT was 9.6 seconds (INR 0.91) and APTT was 29.5 seconds. ALT 91 IU/L and AST 189 IU/L. Dengue serology was positive for IgM.

On the third day of the admission patient complained of pain at his right upper abdomen. Examination revealed a large bruise with an ill-defined mass palpable at right upper abdomen and adjacent chest wall which was not present at the time of admission. Patient was hypotensive as well at that time. Repeat investigations revealed hemoglobin of 7.0 g/dl (hematocrit 21.1%), white cell count 18,100/mm³ with neutrophils of 86%, and platelets 173,000/mm³. Repeat PT and APTT were 10.7 (INR 1.02) and 30.4 seconds respectively. Patient underwent packed cell transfusions. Meanwhile, CT scan abdomen with contrast was done which revealed an extensive diffuse soft tissue thickening involving the intramuscular planes of the right abdominal wall suggestive of a large hematoma in between the right internal oblique and transversus abdominis muscles with extravasation of contrast through the vessels (Figure 1). It measured approximately 22.9 x 6.3 x 15.9 cm.

Later patient underwent angiography which revealed small pseudo-aneurysm with extravasation of contrast from the right 11th intercostal artery (Figure 2A). Successful embolization of the artery performed using polyvinyl alcohol (PVA) particles under radiological guidance (Figure 2B). Hematoma was not drained in view of its tamponade effect for hemostasis. Patient remained stable after the procedure and repeat ultrasound showed regression in the size of hematoma. He was discharged after a stay of few days in hospital.



Figure 1: CT scan abdomen with contrast axial view. Extensive diffuse soft tissue thickening involving the intramuscular planes of the right abdominal wall suggestive of a large hematoma in between the right internal oblique and transverse abdominis muscles (white arrow) with extravasation of contrast through the vessel (black arrow).

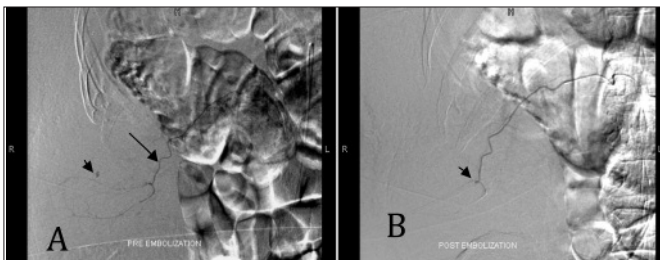


Figure 2: Digital subtraction angiography. (A) Extravasation of contrast (small arrow) noted from a branch of right 11th intercostal artery (large arrow) before embolization. (B) After embolization with PVA particles complete occlusion of the bleeder vessel (arrow) with no further extravasation of contrast.

DISCUSSION

Dengue fever is an endemic disease of tropical and sub-tropical countries. Dengue hemorrhagic fever, a severe form of dengue, is characterized by hemoconcentration, thrombocytopenia, vascular collapse, abdominal pain, and hemorrhagic manifestations.⁹ The mechanisms of thrombocytopenia and coagulopathy in dengue fever are complex, involving platelet activation, procoagulant and anticoagulant components of the coagulation system, complement, cytokines, and endothelial cells.¹⁰ The predictors of spontaneous bleeding in dengue hemorrhagic fever are skin rash, vomiting, higher temperature, lower platelet and leukocyte counts, and age group of 12 - 45 years.³

Despite having normal platelets, PT and APTT, this patient developed hematoma from spontaneous rupture of intercostal artery. However, it is quite rare to have such significant bleeding with normal clotting profile in dengue hemorrhagic fever. Only Chandrashekar reported a patient who developed hemoperitoneum as a complication of dengue hemorrhagic fever with normal coagulation profile and platelets.⁴ In other case reports of atypical bleeding manifestations of dengue hemorrhagic

fever the coagulation profile as well as platelets were abnormal.⁷⁻⁹

Although this patient developed a bruise on abdominal wall which pointed out towards an underlying hemorrhagic event, patients with dengue hemorrhagic fever may develop occult but significant bleeding which can only be detected by hemodynamic instability and dramatic drop in hemoglobin. Therefore, regular monitoring of vitals and hemoglobin in patients with dengue hemorrhagic fever is very important to avoid any catastrophic event. Any hemodynamic instability or significant drop in hemoglobin should lead to search of a source of bleeding which may be overt or occult.

To best of authors' knowledge, this case is the first ever reported case of dengue hemorrhagic fever with unique complication of spontaneous rupture of an intercostal artery leading to formation of a large hematoma. This case also proved that apart from conservative and surgical treatment for bleeding episodes in dengue hemorrhagic fever, radiological intervention can also be used as an important interventional therapeutic tool where it is applicable. Administration of activated factor VII has been reported in a small case series for controlling severe bleeding episodes in dengue hemorrhagic fever.

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