Case Report

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Haemothorax, an Unusual Presentation in Dengue: A Case Report

Internal Medicine Section

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ABSTRACT

Dengue Fever (DF) is a self-limiting mosquito transmitted disease characterised by fever, headache, muscle pain, joint pain, rash, nausea and vomiting. Dengue Haemorrhagic Fever (DHF) is a severe and more serious form of DF, characterised by fever, bleeding manifestations, plasma leakage and thrombocytopenia. This is a report of a 32-year-old male, presented with history of fever and myalgia with two episodes of vomiting and presence of petechial rash. Patient was diagnosed with DHF. The patient presented with absent breath sounds on respiratory examination and his chest radiograph (posteroanterior view) showed right-sided pleural effusion. Pleurocentesis revealed haemorrhagic fluid in the absence of trauma. Unprovoked haemothorax as an initial presentation of DHF is a rare occurrence.

Keywords: Dengue haemorrhagic fever, Pleural effusion, Thrombocytopenia

CASE REPORT

A 32-year-old male, presented to Emergency Department with seven days history of high grade fever and myalgia with two episodes of vomiting. There was no history of periodicity of fever, no pain abdomen, no cough and no arthralgia or chest trauma. There was no significant medical or family history. The patient was a non smoker and occasional drinker.

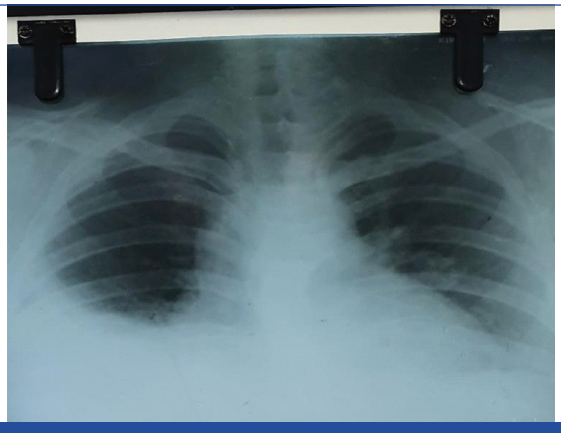
On examination, he was febrile with temperature of 101°F with pulse being 110 bpm and BP being 110/80 mmHg. His oxygen saturation was 98% in room air. Other general examination was well within normal limits. His respiratory system examination showed stony dull note on percussion on right side of chest below 4th rib anteriorly, 5th rib on axillary area and 6th rib on posterior area.

On auscultation, absent breath sounds were heard on right infra-mammary, infra-axillary and infra-scapular region. His cardiovascular system, abdominal system and Central Nervous System (CNS) examination were well within normal limits. His blood investigations showed WBC count=9.76×10^3/UL and thrombocytopenia (platelet count 31×10^3/UL). His liver enzymes were elevated i.e., aspartate transaminase=204 U/L and alanine transaminase=268 U/L, with normal renal functions.

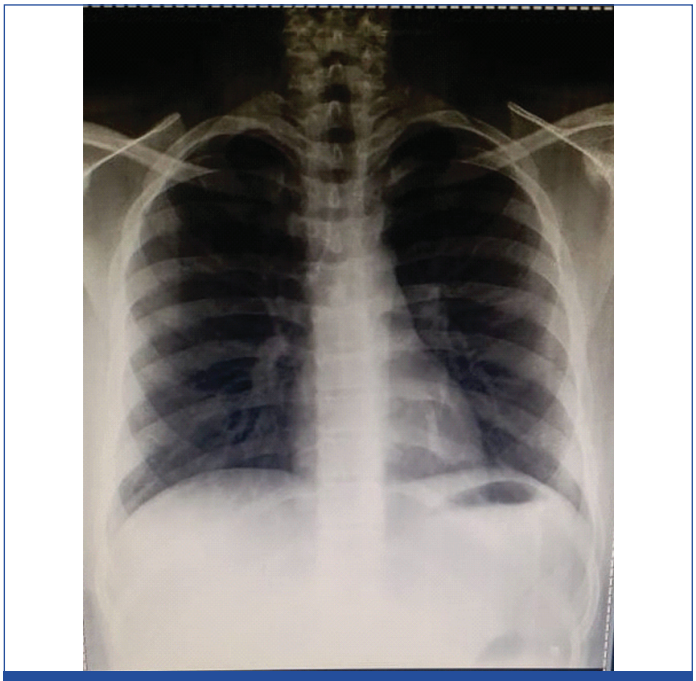
His chest radiograph (PA view) showed right-sided pleural effusion [Table/Fig-1]. Ultrasonography (USG) of whole abdomen was normal and showed no changes. Tests for endemic causes of acute febrile illness such as dengue, typhoid, malaria and leptospira were done. The dengue IgM by ELISA method came positive and malaria, typhoid and leptospira were negative. ESR was 45 mm and the viral markers were negative. Thus, the patient was diagnosed with DF at this point.

The patient was was treated symptomatically with antibiotics (Tab. azithromycin 500 mg, OD), intravenous fluids (Normal saline (NS) and Ringer's lactate (RL) as was required), antipyretics (Tab. paracetamol 500 mg BD then later SOS) and antiemetic (Inj. ondansetron 4 mg BD then SOS). Diagnostic percutaneous thoracic paracentesis was done which was bloody in appearance and the sample was sent to laboratory for investigation. The pleural fluid examination revealed non malignant exudative nature. RBCs were present in the pleural fluid. Adenosine Deaminase was negative.

Progressively, rise in platelet counts were seen with no bleeding manifestations. On fourth day, patient started to improve, and platelet count came to be 1.68×10^3/UL. On fifth day, platelet count was 1,81,000/UL, LFT showed aspartate transaminase=79 IU/L and alanine transaminase=88 IU/L and thus improved. A repeat chest radiograph (Posteroanterior view) showed no recurrent effusion [Table/Fig-2]. Patient recovered and then was discharged with advice for follow-up.



[Table/Fig-1]: Posteroanterior view of chest radiograph. Note the right-sided obliteration of costophrenic angle suggestive of pleural effusion.



[Table/Fig-2]: Post-treatment chest radiograph.

DISCUSSION

Severity and nature of the dengue virus is influenced mainly by human genetic variability, age and immune status of the host. Antibody dependent enhancements, a phenomenon which controls the kinetics of dengue virus infection, justifies the correlation of vascular permeability syndrome of dengue infection. WHO defines DHF as presence of severe thrombocytopenia (<100 000 microlitre), continuous high fever, plasma leakage syndrome and increased haematocrit (>20% above baseline) [1].

Ascites, pleural effusion and hypoprotienemia are characteristics features of plasma leakage syndrome. Thrombocytopenia occurs due to alteration in megakaryocytopoises caused by infection of human haematopoietic cells [2].

Significant difference is noted in degree of haemoconcentration in dengue patients with and without pleural effusion. In DHF, hypoalbuminemia can occur due to loss of albumin due to occurrence of plasma leakage; however in the index case there was no evidence of hypoalbuminemia [3].

The pathogenesis of lung involvement in DF is incompletely understood. Respiratory manifestations in DF are pulmonary haemothorax, pneumonitis and acute respiratory distress [4]. Interstitial oedema and haemorrhage are histological findings. The virus has been detected in pulmonary endothelial cells and macrophages [5,6]. Factors involved in development of haemothorax in dengue include platelet dysfunction, defect in coagulation cascade, thrombocytopenia and disseminated intravascular coagulation [7]. Vascular leak is also caused by histamine release. In DHF, plasma leakage syndrome can present as pleural effusion, ascites and hypoprotienemia.

Pleural effusion is a sign of severe dengue infection as stated by Neeraja M et al., [8]. The authors found that 11% of the patients with severe dengue had pleural effusion. Pleural effusion was also noticed as sign of dengue haemorhagic fever and dengue shock syndrome by Namvongsa V et al., [9]. Similarly, unilateral haemothorax was noted by Karanth SS et al., but in this case haemothorax was massive and it required intercostal drainage in contrast to the index patient where only antibiotics lead to resolution of effusion [10]. Another case reported by Manappallil R, patient developed pleural effusion which was found to be haemothorax. Although the patient had symptomatic relief following intercostal drainage, but due to disseminated intravascular coagulation he died later [11].

Plasma leakage occurs via endothelial cell and histamine release. Severe plasma leakage leads to shock. There may be organ involvement in dengue infection in form of encephalitis, hepatitis or myocarditis [11].

In the resolution phase of dengue, there is gradual resorption of extracellular compartment fluid with rise in platelet count and stabilisation of haematocrit [2]. The index patient presented with febrile illness and on clinical examination and investigation was found to have pleural effusion. The patient was cured with antibiotics and proper fluid management but in severe cases patient require intercostal drain insertion and drainage of fluids.

CONCLUSION(S)

Physicians must be aware of DHF as a cause of non traumatic haemothorax as a presenting feature of DHF especially in an endemic area. Early diagnosis with aggressive treatment reduces mortality in the patient.

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