Case report

NON-TRAUMATIC SPLENIC RUPTURE IN DENGUE-POSITIVE PATIENT- A CASE REPORT

Abstract

Background: Non-traumatic splenic rupture is a dramatic abdominal emergency that requires immediate diagnosis and surgical treatment for patient survival. We report a case of non-traumatic splenic injury in a 23 years male who presented with fever and tested positive for NS-1 (Dengue).

Methods: USG showed increased spleen size right to minimal pleural effusion. Fluid is present in the peri-splenic and pelvic regions.

CECT: CECT Abdomen shows mild hepatosplenomegaly increasing non-enhancing areas in the spleen.? Ruptured spleen. Diffuse mesenteric fat stranding with fluid along the mesenteric sleeves of edematous bowel loops. ascites in the pelvis and mesenteric sleeves of bowel loops with increased attenuation/S/O peritonitis.

HPE: spleen with features of infarction gallbladder chronic acalculous cholecystitis.

CONCLUSION

Non-traumatic splenic rupture is a rare entity that needs a high index of suspicion for diagnosis in a case of dengue fever.

Keywords :Splenic rupture, Dengue fever, Splenectomy, Cholecystectomy, Pigtail Catheterization

INTRODUCTION

Dengue virus is an arbovirus classifiable in the *Flaviviridae* family. Dengue Fever is caused by all four serotypes of dengue virus carried by the vector *Aedes aegypti* and rarely by *Aedes albopictus*. It was classified as dengue without warning signs, dengue with warning signs, and severe dengue(SD) by World Health Organization (WHO) in 2009[1]. This infection can lead to several complications, such as gastrointestinal or an acute abdomen[2]. Symptoms of infection vary from asymptomatic, mild febrile dengue fever (DF) to severe disease with plasma leakage as dengue hemorrhagic fever (DHF). Spontaneous splenic rupture, a rare condition in dengue infection was endured in the present case. The mechanism underpinning acute abdomen formation is still unclear, but it is believed to be due to the depletion of coagulation factors and platelets, leading to intra-splenic hemorrhage and its consequent rupture[3].

CASE REPORT

A 23 years old male patient complained of intermittent high-grade fever for three days, associated with vomiting, generalized weakness, and headache. The patient is a known alcoholic and pan-chewer. On examination, petechial rash present over bilateral upper limbs (flexor aspect) and upper back, yellow discoloration of sclera. R/S Normal vesicular breath sounds heard.P/A soft tenderness present per umbilical area. Vitals stable with raised temperature. Blood investigations showed decreased platelet count and elevated liver function test with total bilirubin 4.4. The patient was transfused with six platelet concentrations and two packed red blood cells. On fifth day of admission, patient developed distention of

the abdomen and decreased breath sounds on the right lower lobe. **USG** showed increased spleen size and right sided minimal pleural effusion. Fluid is present in the peri-splenic and pelvic regions. On the 14th day of admission patient developed tachycardia, tachypnea, hypotension, and rebound tenderness in the lower abdomen. Guarding and rigidity were present. R/S decreased breath sounds. right basal > left basal. Total bilirubin levels were further elevated. Patient developed anemia. **CECT Abdomen** shows mild hepatosplenomegaly, increasing non-enhancing areas in the spleen.? Ruptured spleen. Dengue fever with hemolytic jaundice with hepatitis and peritonitis. Emergency exploratory laparotomy (FIG.1) was done with the removal of the spleen and gall bladder. Peritoneal lavage was done with 3 liters of NS.

Intraoperative findings had the presence of 1 liter of bilious ascites and 500ml of pus in between spleen and peritoneal wall. The gall bladder was turgid edematous acalculous cholecystitis (FIG.2). Drain placed in pelvic and left hypochondria region. Pus, and ascitic fluid was sent for culture sensitivity. Gall bladder and spleen were sent for HPE. The patient was kept under IV antibiotics, and vaccinations were given (Pneumococcal, H influenzae, Meningococcal). Pus culture and sensitivity test isolated Escherichia coli. A review ultrasound showed peri-splenic fossa collection of about 150ml which was drained with pigtail catheterization. The pigtail catheter was removed after nil drainage. Histopathological examination shows spleen with features of infarction (FIG.3), and gallbladder with chronic acalculous cholecystitis.

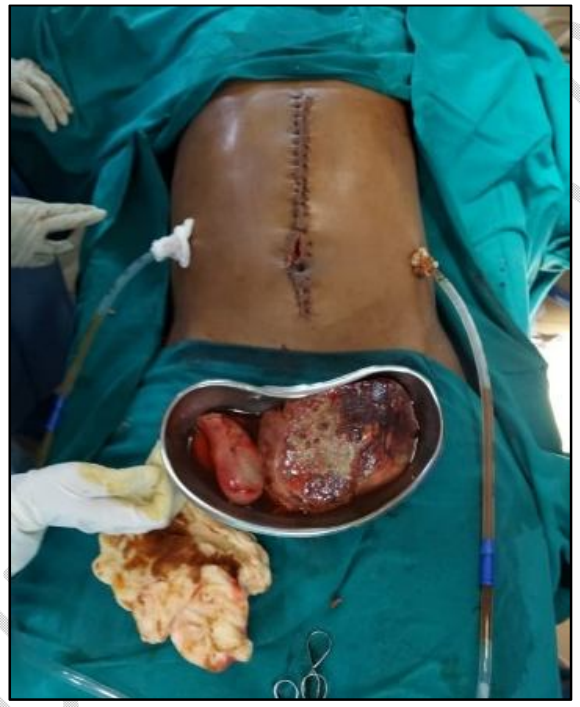

FIG.1-Exploratory laparotomy in mid-vertical line incision showing spleen and gall bladder.

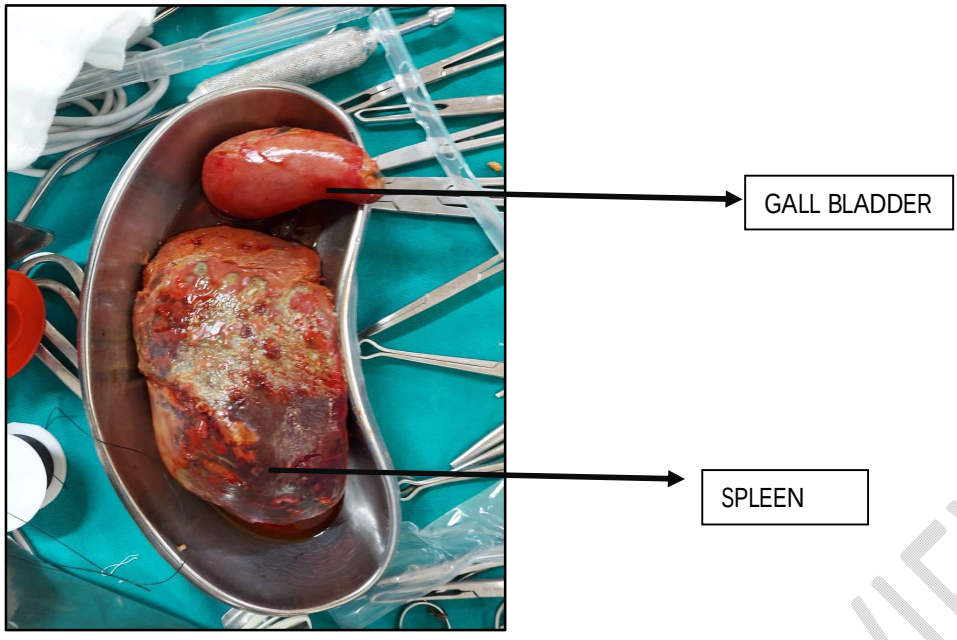

FIG.2- Showing ruptured spleen with turgid gall bladder

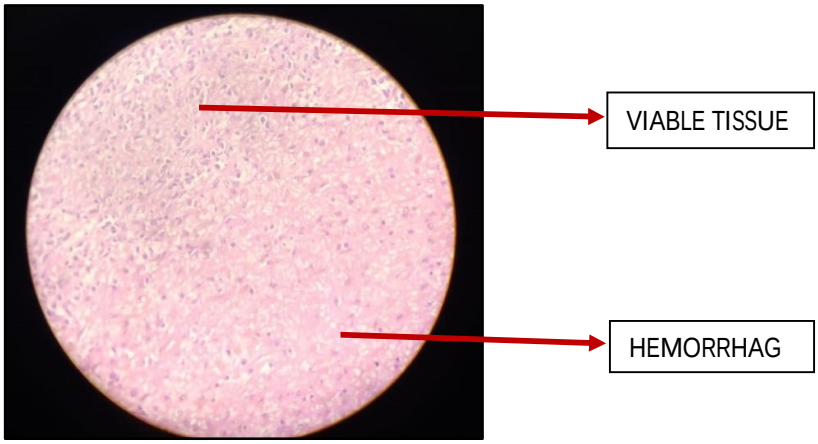

FIG.3- HPE Showing hemorrhagic infarct and viable tissue in 400X

DISCUSSION

Dengue fever is a viral infection. It is primarily complicated in children due to shifting patterns of immunity and infection. Now, it is prevalent among the adult population. The viremic stage of dengue loss from the 2nd to 7th day and characterized by sudden onset of high fever, headache, rash, generalized weakness, muscle pain, nausea, vomiting, and retroorbital pain. Alarm signs usually arise from the 3rd and 7th days of disease onset, like uncontrolled vomiting and continuous abdominal pain, painful hepatomegaly. Severe signs seen with features of organ dysfunction, shock, and severe bleeding. The spleen is often congested in severe dengue, and subcapsular hematomas are found in 15% of necropsies[3]. However, a splenic rupture in dengue infection is extremely rare, and only a few cases have been reported in the literature.

According to Tonolini et al, splenic rupture can be with or without hemoperitoneum and acute abdominal manifestations. In young age patient with acute infection suggest an atraumatic splenic rupture[4]. Non-traumatic splenic rupture(NSR) may result from infection connective tissue and malignancies in infections like mononucleosis, malaria, typhoid, endocarditis, aspergillosis, and dengue[5]. NSR can be pathological or spontaneous. Silva et al hypothesized that combination of coagulation factors and thrombocytopenia contributes causing splenic rupture[6]. In majority of cases, splenic rupture occurs in the viremic phase of dengue, that is, before the development of antibodies in the presence of antigen.

In the present case, the diagnosis of spontaneous splenic rupture was ruled out by Orloff and Peksin criteria[7]. The diagnosis was confirmed by means of ultrasonography and CT diagnosis. On 14th day of admission, exploratory laparotomy was performed followed by splenectomy and cholecystectomy. Histopathology demonstrated splenic infract and chronic acalculous cholecystitis. Acute acalculous cholecystitis is a common and well-known complication of dengue and differential diagnosis for splenic rupture[8].

Management of patients with spontaneous splenic rupture is well debated. Among 136 pathological splenic ruptured, 88 received the surgical intervention. Of this, 55 (63%) survived, and 33 (37%) died. Of which 43 patients who had conservative management, 40 died[9]. surgical treatment controls bleeding and also results to almost immediate resolution of thrombocytopenia, reestablishing hemostasis in about two days. The current recommendation in most cases of dengue infection is still splenectomy.

CONCLUSION

Non-traumatic splenic rupture is a rare entity in dengue fever that need high suspicion for diagnosis. Increased awareness of splenic rupture in dengue fever enhances the early diagnosis in the presence of abdomen pain. Radiological investigations helps in the efficient treatment and further decreases the morbidity and mortality.

Competing interests: Authors declare no competing interests exist.

Consent form: written Consent form was taken from the patient for publishing this case.

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DEFINITIONS

CECT- Contrast Enhanced Computerized Topography

HPE- Histo-Pathological Examination

NSR- Non-traumatic Splenic Rupture