Dengue Fever Presenting as Acute Acalculous Cholecystitis
Asma Nasim

ABSTRACT
Dengue Fever (DF) with acute acalculous cholecystitis is a rare and atypical presentation. We report a case of dengue fever presenting as acute acalculous cholecystitis. The patient presented with abdominal pain, vomiting and fever. Her platelet counts were low and Dengue antibody test was positive. Ultrasound showed acute acalculous cholecystitis. The patient was successfully managed conservatively.

Key words: Acalculous cholecystitis. Acute cholecystitis. Dengue fever. Gallbladder.

INTRODUCTION
Dengue Fever (DF) is a tropical disease caused by single stranded RNA flavivirus that is transmitted by the bite of female Aedes aegypti mosquito.1 Over the last few years, Pakistan is emerging as a region of endemic Dengue activity.2 WHO estimates 50-100 million infections annually and estimated 2.4 billion people live in endemic areas.1

Dengue fever is usually a non-specific and self-limiting biphasic febrile illness but the presentation may range from asymptomatic to Dengue fever, Dengue hemorrhagic fever and Dengue shock syndrome.3 Typical Dengue fever is characterized by high-grade fever, musculoskeletal pain, retrobulbar headaches, joint pains, nausea, vomiting and morbilliform rash.3 Headache and abdominal pain are common manifestations.3-5

Atypical presentations are rare e.g. encephalopathy, encephalitis, seizures, liver damage, cardiomyopathy, severe gastrointestinal hemorrhage, Guillain-Barre syndrome, rhabdomyolysis and acalculous cholecystitis.4-6 In these cases, a high clinical suspicion is required to make an early diagnosis and initiate prompt treatment. If unrecognized, the delay in treatment leads to disastrous outcomes.

This report describes atypical and unusual case of Dengue fever presenting as acute acalculous cholecystitis, which is a medical and surgical emergency.

CASE REPORT
A 50-year-old female presented with headache and altered sense of taste for 5 days and acute onset of abdominal pain, vomiting and fever for 2 days. She was non-diabetic and non-hypertensive with no other comorbidities. Her son had also developed fever with rashes 10 days back. It was the month of Ramazan (fasting) and she left fast 3 days before developing abdominal pain due to headaches and weakness.

On physical examination, she was in distress and pain. Her pulse was 100/minute and blood pressure was 100/60 mmHg. She was febrile with temperature of 37.5°C. The tongue was dry. There was no jaundice or petechiae noticed on general examination.

Abdominal examination revealed tenderness at right hypochondrium (RHC) associated with positive Murphy’s sign. The rest of the abdomen was soft. Laboratory findings showed hemoglobin level of 14.3 mg/dl with hematocrit of 44%, TLC was 9.2x10^9/l with 61% neutrophils and 36% lymphocytes. Platelet count was 46x10^9/l. Peripheral film showed atypical lymphocytes and thrombocytopenia. Serum biochemistry showed total bilirubin of 0.7 mg/dl with direct bilirubin 0.2 mg/dl, serum alkaline phosphatase of 507 µ/l, serum ALT 65 u/l and serum amylase 59 u/l. Her creatinine and electrolytes were within normal levels. MP was negative and blood cultures showed no growth after 7 days of incubation.

A clinical diagnosis of acute cholecystitis with sepsis was made. She was admitted and kept nothing per oral (NPO). She was started on IV fluids and IV broad spectrum antibiotics. For pain, she was kept on narcotic analgesics on demand basis.

Because of Dengue epidemic, low platelet counts and history of fever, Dengue serology was performed. Dengue IgM antibodies came out positive.

The ultrasound (U/S) of upper abdomen showed thick walled and striated (edematous) gallbladder measuring 8 mm suggestive of acute acalculous cholecystitis. No calculi, mass or sludge was seen in the lumen. There was minimal free fluid around liver (Figure 1).
The patient was managed conservatively with attention to volume status and platelet counts. Her condition stabilized on the 2nd hospitalization day with cessation of vomiting and regression of RHC pain. The platelet count rose to $51 \times 10^9/\text{l}$ on her 3rd hospital day and she was started on clear liquid diet. On the fourth day, she started tolerating soft diet without pain and the platelets rose to $133 \times 10^9/\text{l}$. She was discharged on 4th day. After two weeks, she was fine and fully recovered.

**DISCUSSION**

Dengue hemorrhagic fever is emerging as an endemic disease in Pakistan. Aedes aegypti mosquito breeds on relatively clean and stagnant water and it is a day-time feeder. Both these characteristics make it difficult to control. Dengue cases showed peak incidence from August to October in Karachi.

It has been found out that abdominal pain and vomiting are prominent symptoms of DHF, however, the association with acalculous cholecystitis as a presenting feature is rarely reported. Khan et al. reported upper abdominal tenderness in majority of their patients but did not mention U/S findings in their patients.

Acutely acalculous cholecystitis (ACC) is the inflammation of gallbladder without evidence of calculi or sludge. This form of cholecystitis comprises 5-10% of all cases of acute cholecystitis. It is known to occur in critically ill patients, postoperative patients, after severe trauma, prolonged fasting, or sepsis. ACC is believed to have a fulminant course associated with gangrene, perforation and empyema with high mortality. Recently, it has been reported to occur in healthy subjects as an outpatient disease with good prognosis.

Criteria for the diagnosis of acalculous cholecystitis are both clinical and sonographic findings. The clinical manifestations are: fever, right upper quadrant tenderness and a positive Murphy’s sign. Sonographic findings are gallbladder wall thickening > 3 mm; presence of striated gallbladder suggesting gallbladder wall edema; sonographic Murphy’s sign (localized gallbladder wall tenderness); pericholecystic fluid and no stones in the gallbladder.

The pathophysiology of acute acalculous cholecystitis in Dengue fever is unknown. Wu et al. suggested a direct invasion by the virus but they could not find any specific etiologic agent or findings on histological examination of surgical specimens. Cholestasis, and increased bile viscosity from infection, prolonged fasting and ischemia reperfusion injury have been suggested as possible causes. The main pathophysiologic change in DF could be increased vascular permeability, causing plasma leakage and serous effusion with high protein contents, which may induce thickening of the gallbladder wall.

Acute acalculous cholecystitis accompanying Dengue fever has been underreported. This complication may be more common than previously suspected. A retrospective study from Taiwan of 131 patients with Dengue fever has shown that acalculous cholecystitis occurred in about 7.63% of cases. A prospective study by Sharma et al. showed 14 out of 27 patients (51.8%) of DF with acute acalculous cholecystitis. It is important to be more vigilant about patients with low platelets presenting with signs of cholecystitis to prevent serious complications.

The conventional treatment of ACC is surgical removal of gallbladder. Initially, this patient presented as acute cholecystitis with sepsis. However, because of low platelet count, we chose to manage her conservatively. Wu et al. reported postsurgical complications due to thrombocytopenia and suggested to defer surgery unless diffuse peritonitis develops. This patient also recovered fully with conservative management, which provides further evidence that patients with DF complicated with ACC should be managed conservatively initially with close monitoring. Any signs of diffuse peritonitis should prompt surgical intervention as by that time platelet count will be high enough for surgery to proceed without complications.

Dengue fever should be strongly considered in patients that present with signs of cholecystitis in dengue endemic areas especially when radiological findings show no stones and the platelet count is low. As acute acalculous cholecystitis is known to have a fulminant course, a high index of suspicion and close monitoring of such patients is required.

**REFERENCES**


