

中文題目：登革熱病毒感染併發膽囊穿孔

英文題目：Dengue virus infection complicated with gallbladder perforation

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Background: Dengue fever may present with a wide spectrum of clinical manifestations ranging from a clinically unapparent infection to a potentially lethal disease. Dengue fever complicated by acalculous cholecystitis is less common, and progression to gallbladder perforation is even rarer.

Case Presentation: A 72-year-old male without systemic disease presented at our Emergency Department with acute onset of fever and epigastric pain for 2 days. He was well-nourished and hemodynamically stable. Physical examination revealed epigastric tenderness but no Murphy's sign. Laboratory assays showed hemoglobin at 12.6g/dL, platelets at $86 \times 10^3/\mu\text{L}$, white blood cell count at $8.30 \times 10^3/\mu\text{L}$, creatinine at 1.2mg/dL, alanine transaminase at 55 IU/L, and aspartate transaminase at 25 IU/L. Serum levels of electrolytes and amylase and the coagulation profile were within normal limits. The subsequent blood and urine culture were both negative for any bacteria growth. Enzyme-linked immunosorbent assay (ELISA) for Dengue IgM antibody was positive, confirming an acute Dengue infection. The patient was hospitalized from Emergency Department after day 2 but he remained febrile and his abdominal pain persisted, and Murphy sign became positive. Abdominal sonography showed homogenous thickening of the gallbladder wall (4.7mm in thickness) without stone, ascites, or pleural effusion. Positive peritoneal sign developed on the next day, abdominal computed tomography (CT) scan showed empyema with ruptured gall bladder and abscess formation in the subcapsular region of the left hepatic lobe. The patient underwent emergent open abdominal surgery with cholecystectomy and abscess drainage. Pathological examination confirmed acute acalculous cholecystitis with rupture. The postoperative recovery was smooth, and the patient was discharged without complications.

Discussion: Because of increased population growth, poor vector control and increased travel to

endemic areas, Dengue fever is becoming a global health problem. It has an estimated 30-fold increase in incidence over last 5 decades and with rising disease burden, atypical manifestations have increased as well, which are missed most often due to lack of awareness. In 2009, the WHO introduced a revised classification of Dengue fever under the following categories: Dengue without warning signs, Dengue with warning signs and severe Dengue. Early warning signs of Dengue infection like abdominal pain, persistent vomiting, hepatomegaly, lethargy or restlessness should be observed carefully. And timely intervention may prevent disease condition progression to severe infection, which is the major cause of mortality.

The manifestation of acalculous cholecystitis seemed less common in Dengue fever, but its prevalence is varied widely in different studies. According to one prospective hospital-based observational study in India, atypical manifestation such as hepatitis (40.6%), febrile diarrhea (12%), renal failure (8%), acalculous cholecystitis (6.66%), and conduction abnormalities of heart (6%) were pointed out. Shamim reviewed 357 patients in Pakistan with Dengue fever, 43 (12.04%) had acute abdomen; and acute cholecystitis was the most frequent cause of acute abdomen (7.28%), followed by acute appendicitis (1.96%), nonspecific generalized peritonitis (1.96%), and acute pancreatitis (0.84%). Anna K et al. reported the thickening of gallbladder wall is the most frequent (43~59%) ultrasonographic finding in patients with Dengue fever in Brazil. One retrospective review conducted in southern Taiwan revealed that 10 (7.6%) of the 131 patients with Dengue fever had the complication of acute acalculous cholecystitis. Khor et al, also from southern Taiwan, found that 14 of 328 patients with Dengue fever had acute abdomen, ten of these patients had presumptive diagnoses of acute cholecystitis (6 acalculous and 4 calculous), with acalculous cholecystitis accounting for 1.8% of the patients. Deshmukh N et al. mentioned that incidence of acute acalculous cholecystitis in Dengue is 27.5 % and gall bladder perforation in acalculous cholecystitis has been reported in the range of 2-18% in India.

In these patients with Dengue fever, if they present with right upper quadrant abdominal pain, fever, positive Murphy sign, abnormal liver function test and thickened gall bladder wall without

stones on abdominal ultrasonography, acalculous cholecystitis should be considered. The initial management of acalculous cholecystitis in Dengue fever should be conservative. The inflammation of gall bladder in these patients is frequently self-limited and would resolve as the patients recover from Dengue fever. Furthermore, these patients frequently have a high tendency for hemorrhagic complications due to their low platelet counts, making early surgery dangerous. But cases with gangrene and perforated gall bladder with peritonitis needing surgical intervention . The main pathophysiological changes in Dengue fever could be due to increased vascular permeability causing plasma leakage and serous effusion with high protein content which causes thickening of gall bladder wall.

There are 2 large scale studies investigated the risk factors of APC. One database enrolling 5704 patients with APC in Germany pointed out the risk factors included male gender, advanced age (>65 years), ASA score >2, elevated white blood count ($WBC > 12000/mm^3$), positive findings on abdominal ultrasound sonography, and fever. Another prospective hospital-based study identified the risk factors were male gender, advanced age (≥ 60 years) and cardiovascular morbidity.