C. perfringens Causing Emphysematous Cholecystitis: A Case Report

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Abstract

Emphysematous cholecystitis is an uncommon but life-threatening form of acute cholecystitis caused by gas forming organisms in the gallbladder. Commonly affects elderly man and it is associated with organisms such as Clostridia spp., E. coli, Klebsiella spp. A 56-year-old male, presenting with diffuse abdominal pain, leukocytosis, and diarrhea, was found to have emphysematous cholecystitis due to C. perfringens on basis of ultrasound, CT, and culture of surgical specimen. Patient was surgically treated and made full recovery.

Case Report

A 56-year-old white male present to Emergency Department with severe watery diarrhea and abdominal pain for 24 hours. Sudden onset of diffuse cramping pain began a few hours after eating freshly bought ham, cheese, and hamburger. No prior history of similar pain was noted. Patient had associated nausea, but denied vomiting, fever or chills. He has significant medical history of diabetes mellitus type 2 with neuropathy, nephropathy, retinopathy, and foot amputation. Other significant issues include hyperlipidemia, morbid obesity, and hypertension (HTN). On physical examination, patient was found to be hypotensive with BP of 60/44. On abdominal examination, non-specific right upper quadrant (RUQ) pain was elicited on deep palpation. Initial CBC revealed elevated WBC of 21.3 K/mm3 with bands of 8%. BMP showed hyponatremia with indication of volume depletion. Other labs were total bilirubin 0.9 mg/dL, direct bilirubin 0.5 mg/dL, alkaline phosphatase 91 units/L, ALT 12 units/L, AST 17 units/L and amylase 35 units/L. RUQ ultrasound showed distended gallbladder and shadowing secondary to pneumobilia with no stones. Thickening of gallbladder wall with peri-cholecystic fluid was suggestive of acute acalculous cholecystitis and pneumobilia. CT of abdomen revealed pneumobilia and moderate gallbladder distention. It was difficult to assess Murphy's sign due to patient's body habitus. Open cholecystectomy revealed gangrenous gallbladder with localized infection and inflation consistent with emphysematous cholecystitis. Culture result of surgical specimen grew C. perfringes as primary pathogen.

Introduction

Acute acalculous cholecystitis (AAC) is an acute necroinflammatory disease of the gallbladder with several pathogenesis in the absence of gallstones. It makes up approximately 5-10 percent of all acute cholecystitis and it is associated with high morbidity and mortality. Multiple risk factors such as diabetes, infections, burns, and trauma, are present in the majority of patients with acalculous cholecystitis. In some cases, infectious etiologies have been documented. Infections predisposing to acalculous cholecystitis include Escherichia coli, Enterococcus faecalis, Klebsiella, Pseudomonas, Proteus spp., and Bacteroides is common.

Discussion

Emphysematous cholecystitis is a form of acute acalculous cholecystitis with high mortality rate associated with gas-forming pathogens such as Clostridia, Krebsiella, and E. coli species. It is relatively uncommon as it develops in only 1% of all acute cholecystitis. Overall mortality rate varies from 15 -25%. Proposed pathophysiology includes ischemic events of gallbladder from vascular compromise, gas-forming bacterias. Risk of complications like sepsis increases with comorbidities like diabetes. In atypical presentation with risk factors for acute cholecystitis, C. perfringes should be taken into consideration when making clinical diagnosis of emphysematous cholecystitis in order to prevent a fatal outcome.

References


Figure 1. Pneumobilia and air in the gallbladder

Figure 2. Reverberation shadow produced by gas