

Emphysematous cholecystitis: the deadly variant

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Background: Emphysematous cholecystitis (EC) is a rare but severe form of acute cholecystitis, distinguished by the presence of gas within the gallbladder wall, lumen, or surrounding tissues. It predominantly affects elderly, diabetic, and immunocompromised individuals and carries a significantly higher risk of complications and mortality compared to typical acute cholecystitis. The condition is caused by gas-forming organisms, most commonly anaerobic and facultative anaerobic bacteria such as *Clostridium* spp., *Escherichia coli*, and *Klebsiella pneumoniae*. These pathogens lead to ischemia, necrosis, and rapid progression to gangrene or perforation.

Case Presentation: A 70-year-old lady with comorbid of hypertension and hyperlipidemia presented to the emergency department with two days history of abdominal pain, which more over the epigastric region radiated to the right side with concurrent episodes of vomiting. She was also complaining of having loose stool for the past two days. However, no fever was documented. Upon examining her, her vital sign was stable; however, in the abdomen, there was tenderness over the right iliac fossa with a positive Murphy sign. Bedside transabdominal ultrasound of the gallbladder revealed mixed hypogenicity over the liver segment II surrounding the gallbladder with sludge and stone seen within, the common bile duct was dilated. Bedside transabdominal ultrasound of the gallbladder revealed mixed hypogenicity over the liver segment II surrounding the gallbladder with sludge and stone seen within, the common bile duct was dilated. She was then proceeded to CECT abdomen, which showed a distended gallbladder with thickened gallbladder wall measuring 0.5 cm in thickness. Calculus within measuring 1.6cm x 1.7 cm with heterogeneous and enhancing pericholecystic fluid, and multiple areas of wall defects at the gallbladder. The findings suggestive of perforation. Infective markers showed raised in inflammatory cells, which indicate infection. She was then initially treated with antibiotics and subsequently proceeded to open cholecystectomy to remove the gallbladder. She was treated with antibiotics after the operation, and her condition improved tremendously. Discussion: Emphysematous cholecystitis carries 15 % higher mortality rate than that of typical uncomplicated cholecystitis. Furthermore, the incidence of gallbladder perforation is 5 times higher than in typical cholecystitis. The condition is caused by gas-forming organisms, most commonly anaerobic and facultative anaerobic bacteria such as *Clostridium* spp., *Escherichia coli*, and *Klebsiella pneumoniae*. These pathogens lead to ischemia, necrosis, and rapid progression to gangrene or perforation. EC is particularly common in older patients with diabetes mellitus because ischemia environments in diabetic patients reduce phagocytes' mobility in the areas of infection and further reduce antimicrobial activity. Due to the high mortality rate, prompt diagnosis and intervention are crucial. Conclusion: This case illustrates the potential of a life-threatening condition that should have been recognized early for the better outcome. It highlights the importance of timely recognition and aggressive management, including the broad-spectrum antibiotics and early surgical intervention to reduce the mortality and morbidity.

Keywords: Emphysematous cholecystitis, EC, high mortality, gallbladder perforation, gallbladder gangrene.