



ACALCULOUS GANGRENOUS CHOLECYSTITIS- A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT

Introduction: Acalculous gangrenous cholecystitis (AGC) is a rare but potentially fatal condition characterized by gallbladder necrosis without calculi. It is predominantly seen in critically ill or immunocompromised patients, with a high mortality rate due to its rapid progression and diagnostic challenges. AGC often presents with nonspecific symptoms, making early recognition difficult. The condition is associated with increased morbidity due to delayed diagnosis, sepsis, and gallbladder perforation. Timely surgical intervention is essential for improving patient outcomes. **Case Presentation:** We report the case of a 65-year-old male with poorly controlled diabetes and a history of above-knee amputation due to gangrene, presenting with right upper quadrant pain, non-bilious vomiting, and fever. Laboratory investigations revealed leukocytosis, hyperbilirubinemia, and elevated creatinine, indicating biliary sepsis. Imaging studies, including USG and MRCP, confirmed acute cholecystitis with gallbladder perforation and adjacent bilioma. The patient underwent emergency open cholecystectomy with peritoneal lavage. Intraoperative findings revealed a necrotic gallbladder with dense adhesions and areas of erosion. Histopathology confirmed gangrenous cholecystitis. The patient showed significant improvement postoperatively and was discharged on the 14th day with no complications. **Conclusion:** This case underscores the diagnostic and treatment challenges associated with AGC. Early identification, precise imaging, and timely surgical action are essential for lowering morbidity and mortality rates. The report underscores the importance of considering AGC in critically ill patients with atypical abdominal symptoms, particularly in diabetic and immunocompromised individuals. Improved awareness and early intervention strategies can significantly enhance patient outcomes.

KEYWORDS : Acalculous cholecystitis, gangrenous gallbladder, acute cholecystitis, biliary sepsis, emergency surgery

INTRODUCTION:

Acalculous gangrenous cholecystitis (AGC) is a rare and severe form of acute cholecystitis that occurs in the absence of gallstones. It accounts for 5% to 15% of all cases of acute cholecystitis but is associated with a higher mortality rate due to its rapid progression and diagnostic challenges. AGC is most commonly observed in critically ill patients, such as those with sepsis, trauma, burns, or prolonged fasting. Risk factors include diabetes, immunosuppression, and advanced age. The pathophysiology of AGC involves ischemia, biliary stasis, and inflammation, leading to gallbladder wall necrosis and subsequent perforation. The clinical presentation is often nonspecific, making early diagnosis difficult. Symptoms may include right upper quadrant pain, fever, and leukocytosis, though these can be subtle or absent in immunocompromised individuals. AGC poses a diagnostic challenge due to its subtle and atypical presentation. In critically ill or diabetic patients, symptoms may be mild or masked by underlying conditions. Imaging modalities such as ultrasound (USG), magnetic resonance cholangiopancreatography (MRCP), and computed tomography (CT) play a vital role in diagnosing AGC. Early identification and prompt action are crucial to avert complications like sepsis and multi-organ failure.

CASE STUDY

A 65-year-old male presented to the emergency department with severe right upper quadrant pain and non-bilious vomiting for six days. He had poorly controlled diabetes mellitus and a history of above-knee amputation due to gangrene.

Clinical Examination:

- Pale and icteric appearance.
- Tenderness and guarding in the right hypochondrium.
- Laboratory findings: WBC count elevated, total bilirubin: 3.6 mg/dl (direct: 2.9 mg/dl), low albumin (3.3 g/dl), and increased creatinine (1.8 mg/dl), indicating biliary sepsis.

Imaging Studies:

USG abdomen: Dilated CBD, MPD with features suggestive of acute cholecystitis.

MRCP with MRI abdomen: Acute cholecystitis with gallbladder perforation, adjacent bilioma, and mesenteric inflammation.

Surgical Management:

The patient underwent emergency cholecystectomy with thorough peritoneal lavage.

Intraoperative findings: Gallbladder necrosis with dense adhesions, areas of erosion, and no calculi. (Fig 1 and 2).

The patient's leucocytosis, bilirubin, and creatinine levels improved postoperatively.

He was discharged on the 14th postoperative day with marked clinical improvement.

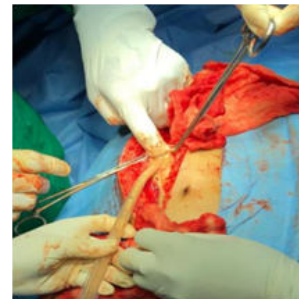


Fig 1: Perforation noted in gall bladder



Fig 2: Necrosed Gall bladder specimen

Acalculous cholecystitis represents 5% to 15% of all acute cholecystitis cases and carries a higher risk of mortality as a result of delayed diagnosis. Risk factors include sepsis, trauma, prolonged fasting, diabetes, and immunosuppression. The pathophysiology involves ischemia, biliary stasis, and sludge formation, resulting in necrosis and perforation.

Pathophysiology and Diagnostic Challenges: AGC develops due to ischemic injury and gallbladder stasis rather than stone obstruction. Critically ill patients often present with atypical symptoms, making diagnosis difficult. Imaging is crucial in detecting gallbladder necrosis and perforation. Delayed diagnosis can result in gallbladder perforation, sepsis, and multi-organ dysfunction, significantly worsening patient outcomes.

Management Strategies:

- Surgical Management:
- Early cholecystectomy with peritoneal lavage is the gold-standard treatment. Minimally invasive laparoscopic surgery is typically the preferred option when possible; however, open surgery is frequently required in more severe cases.
- Antibiotic Therapy: Broad-spectrum antibiotics targeting gram-negative and anaerobic bacteria are essential.
- Supportive Care: Fluid resuscitation, electrolyte correction, and nutritional support are necessary adjuncts.
- Prognosis and Complications: Failure to intervene in a timely manner heightens the risk of gallbladder perforation, sepsis, and multi-organ failure.

Timely surgical intervention greatly decreases both morbidity and mortality. Complications such as peritonitis, abscess formation, and bile leak are common in delayed cases.

Literature Review:

Several studies have highlighted the importance of early diagnosis and surgical intervention in AGC. A study by Smith et al. (2020) reported that delayed intervention in AGC cases resulted in a 45% higher incidence of sepsis-related complications. Similarly, Gupta et al. (2019) emphasized the significance of early laparoscopic cholecystectomy in reducing hospital stay and mortality rates. Recent findings indicate that early percutaneous cholecystostomy could be an option for high-risk surgical patients as a temporary measure before definitive surgery.

CONCLUSIONS

1. AGC is a rare but life-threatening condition: It requires early clinical suspicion and accurate diagnosis due to its rapid progression and high mortality rate.
2. Timely imaging and intervention are crucial: Early MRCP, USG, or CT scans play a vital role in identifying gallbladder perforation and necrosis.
3. Prompt surgical management reduces morbidity and mortality: Emergency cholecystectomy with thorough peritoneal lavage is the gold-standard treatment, improving patient outcomes.
4. Early antibiotic therapy is essential: Broad-spectrum antibiotics targeting gram-negative and anaerobic organisms are necessary to prevent sepsis.
5. Importance of early recognition in high-risk patients: Diabetic and immunocompromised patients presenting with atypical abdominal symptoms should be evaluated for AGC.
6. Potential for minimally invasive approaches: Emerging evidence suggests that early percutaneous cholecystostomy may be a viable alternative in critically ill patients.
7. Future directions: Advanced imaging techniques and biomarkers may enhance early diagnosis and improve clinical outcomes.

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REFERENCES:

1. Strasberg SM. Clinical practice. Acute calculous cholecystitis. *N Engl J Med*. 2008;358(26):2804-11.
2. Barie PS, Fischer E. Acute acalculous cholecystitis. *J Am Coll Surg*. 1995;180(2):232-44.
3. Gupta A, Patel P, Patel M, et al. Early laparoscopic cholecystectomy versus delayed cholecystectomy in acute cholecystitis: A comparative study. *J Minim Access Surg*.

- 2019;15(3):205-10.
4. Smith J, Thomas M, Scott R, et al. Risk factors and outcomes of acalculous cholecystitis in critically ill patients. *Am J Surg*. 2020;220(1):173-9.
5. Andersson R, Nilsson J, Tingstedt B. Early versus delayed laparoscopic cholecystectomy in acute cholecystitis. *Ann Surg*. 2006;244(4):567-75.
6. Yokoe M, Takada T, Strasberg SM, et al. New diagnostic criteria and severity assessment of acute cholecystitis. *J Hepatobiliary Pancreat Sci*. 2012;19(5):578-85.
7. Hirota M, Takada T, Kawarada Y, et al. Diagnostic criteria and severity assessment of acute cholecystitis: Tokyo Guidelines. *J Hepatobiliary Pancreat Surg*. 2007;14(1):78-82.
8. Strasberg SM, Hertl M, Soper NJ. An analysis of the problem of biliary injury during laparoscopic cholecystectomy. *J Am Coll Surg*. 1995;180(1):101-25.
9. Papi C, Catarci M, D'Ambrosio L, et al. Timing of cholecystectomy for acute calculous cholecystitis: A meta-analysis. *Am J Gastroenterol*. 2004;99(1):147-55.
10. Koti RS, Davidson CJ, Davidson BR. Surgical management of acute cholecystitis. *Langenbecks Arch Surg*. 2015;400(4):403-19. SM. Clinical practice. Acute calculous cholecystitis. *N Engl J Med*. 2008;358(26):2804-11.
11. Barie PS, Fischer E. Acute acalculous cholecystitis. *J Am Coll Surg*. 1995;180(2):232-44.
12. Gupta A, Patel P, Patel M, et al. Early laparoscopic cholecystectomy versus delayed cholecystectomy in acute cholecystitis: A comparative study. *J Minim Access Surg*. 2019;15(3):205-10.
13. Smith J, Thomas M, Scott R, et al. Risk factors and outcomes of acalculous cholecystitis in critically ill patients. *Am J Surg*. 2020;220(1):173-9.
14. Andersson R, Nilsson J, Tingstedt B. Early versus delayed laparoscopic cholecystectomy in acute cholecystitis. *Ann Surg*. 2006;244(4):567-75.
15. Yokoe M, Takada T, Strasberg SM, et al. New diagnostic criteria and severity assessment of acute cholecystitis. *J Hepatobiliary Pancreat Sci*. 2012;19(5):578-85.