

A Case Report on Gangrenous Cholecystitis Operated Laparoscopically in Bangladesh

*Salam MA¹, Sofiuzzaman M²

Abstract

Gangrenous cholecystitis (GC) is a severe complication of acute cholecystitis, commonly affecting elderly patients with comorbidities such as diabetes and coronary artery disease. This case report presented a 75 years old diabetic male from Bangladesh with right upper quadrant abdominal pain, nausea, and vomiting. Ultrasound revealed gallstones, a thickened gallbladder wall, and pericholecystic fluid. Despite initial conservative management, the patient's condition deteriorated, necessitating laparoscopic cholecystectomy. Intraoperative findings included omental wrapping, subhepatic bile collection, and gangrenous patches on the gallbladder. The critical view of safety was achieved, and surgery was completed without major complications. Histopathology confirmed GC. Postoperative recovery was uneventful, with the patient discharged on the third day. This case highlights the importance of timely surgical intervention for GC, even in high-risk patients, to achieve favourable outcome. Laparoscopic cholecystectomy, when performed by an experienced team, remains the standard of care for such cases.

Keywords: Gangrenous cholecystitis, Acute cholecystitis, Laparoscopic cholecystectomy, Gallstones

Received: 17.11.2025, **Accepted:** 22.11.2025 .

Introduction

Gangrenous cholecystitis (GC) is a serious complication of acute cholecystitis.^{1,2} GC is seen in 10%–40% of patients with acute cholecystitis.³⁻⁵ GC has been described since 1894, and figures vary depending on the percentage of acute cholecystitis (AC) that GC makes up. GC patients tend to be sicker than the average AC patients, and their surgical procedure tends to be more challenging and is associated with an increased risk of morbidity and mortality when compared to all causes of AC.⁶ GC risk factors include diabetes mellitus, males, older age, elevated white blood cells, and coronary heart disease.^{2,3} GC is the progression of AC, which is commonly due to obstruction of the cystic duct due to an impacted stone, which commonly dislodges on its own and does not progress to GC. If the stone does not dislodge, then there will be vascular compromise and epithelial injury leading to ischemia locally and necrosis of that region's gallbladder wall. These patients will require early interventions to

Ad-din Sakina Women's Medical College Journal. 2026; 7 (2) : 32-35

decrease morbidity and mortality.^{7,8} The incidence of GC is more common in older patients and is associated with a higher white blood cell count (WBC) and diabetes.⁹

Case Presentation

A 75-years-old diabetic, normotensive male patient presented with a history of right upper quadrant abdominal pain, nausea, and occasional vomiting for 3 episodes over 5 days. He was admitted under a gastroenterologist at a tertiary care hospital in Bangladesh. USG showed a gall bladder containing multiple calculi and a thickened wall. Liver function tests were SGPT U/L, ALP U/L, S. Bilirubin, total count 16000/mm³. Initially, he was treated conservatively with broad-spectrum antibiotics, but as the condition was not improving clinically, he was referred to a consultant surgeon.

Laparoscopic cholecystectomy was planned. Intraoperatively, the gall bladder was wrapped with omentum. Bile was found in sub-hepatic space. GB was inflamed; part of the fundus and body were found with gangrenous patch and a clear demarcation line. Calot's triangle was oedematous and friable, but a critical view of

1. Professor Dr. Md. Abdus Salam, Professor, Department of Surgery, Ad-din Sakina Women's Medical College, Jashore.

2. Dr. Mohammad Sofiuzzaman, Resident, Department of Surgery, Sir Salimullah Medical College, Dhaka. ORCID iD: 0009-0001-0552-8467

*Correspondence: E-mail: drsalam1971@gmail.com

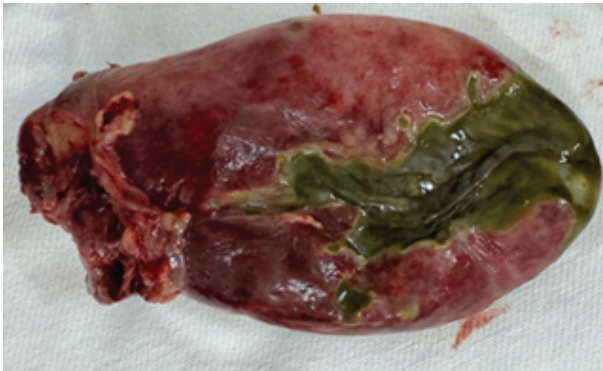


Photo 1: Perforated gangrenous Gall bladder

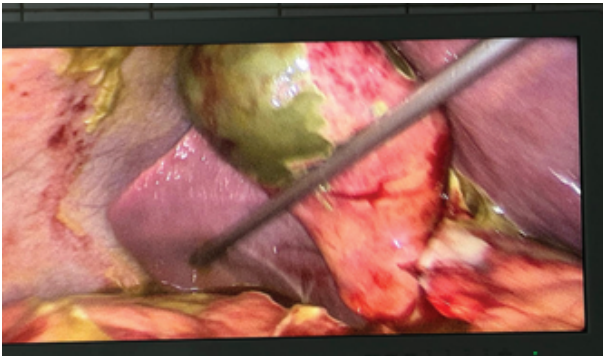


Photo 2: Exudation and bile under the right sub hepatic space

safety was established. Cystic duct was divided between clips. The cystic artery was divided using bipolar diathermy. Sub hepatic space collection was sucked out, irrigated with copious amount of normal saline. Gallbladder was retrieved through umbilical port by increasing the previous longitudinal incision generously.



Photo 3: There was adhesion among the gall bladder, gut and omentum

Postoperative period was uneventful. Minimal peritoneal collection was found at the subhepatic drain tube. Patient was kept on intravenous antibiotics and analgesics for 3 days and then discharged to home. The histopathological report of the gallbladder showed gangrenous cholecystitis. On follow up at 10 th post-operative day, the patient was good-looking with no wound complications.

Discussion

Acute calculus cholecystitis in the patients having gall stone may suffer from varieties of physical illness and may develop Gangrenous cholecystitis in around 2-29.6% of patients.^{10,11} There is an increased risk of GC from AC if the patient has diabetes, coronary artery disease, elevated white blood cells count and/or is elderly.² Gangrenous cholecystitis is defined as cholecystitis involving necrosis and the bleeding of tissues after oedematous alterations.¹²

The initial impaction of calculus at the infundibulum or cystic duct causes noticeable distension of gall bladder, which raises the GB wall's tension. Ischemic necrosis of the wall is caused by concomitant inflammation, and may be followed by secondary bacterial infection which may or may not be accompanied by cystic artery thrombosis.³ The obstruction of the cystic duct leads to prolonged increase in intraluminal pressure to the point where this pressure exceeds the arterial inflow causing ischemia.¹³

Diabetic patients due to neuropathy have less feeling of pain or may be asymptomatic were later found to have GC during surgery^{11,14} around 10% of such cases GB may found perforated.^{3,11} Biliary fluid may accumulate around the liver and grow to the area between the Glisson's capsule and the liver itself, known as the subcapsular space.¹⁵

Traditionally the first imaging modality used in patients with clinically suspected acute cholecystitis is ultrasonography, which showed the presence of thickening of gall bladder wall and pericholecystic fluid collections.¹⁶

The mainstay of the treatment is surgical intervention. However, due to chronic inflammation and adhesions, it can be challenging to visualize Calot's triangle.¹⁷ The first surgical option is laparoscopic cholecystectomy (LC) for such cases.¹⁸ However it has been reported in randomized controlled trial and meta-analysis that LC has an equivalent treatment outcome with open cholecystectomy along with a shorter postoperative admission duration, lower incidence of complications, and superiority in mortality and morbidity.¹³

Although achieving the anatomical critical view of safety is challenging, skilled teams and centres can accomplish it with minimal complications. In Bangladesh a study of 172 laparoscopic cholecystectomy procedure reveals less than 2% of major complications such as bowel & bile duct injuries which included 30 acute cases.¹⁹ In our case we have observed excellent post-operative outcomes and patient satisfaction with no per operative major injuries.

Conclusion

We experienced an elderly case of acute cholecystitis that later during cholecystectomy was found to be gangrenous gall bladder and spilled out bile at sub hepatic region. Definitive diagnosis prior to surgery is very difficult to be made in such cases. But if an appropriate treatment method can be carried out an elderly comorbid patient can be discharged to home with smiley faces without any adverse events.

References

1. Bingener J, Stefanidis D, Richards ML, et al. Early conversion for gangrenous cholecystitis: impact on outcome. *Surg Endosc.* 2005 Aug;19(8): 1139-1141.
2. Grant RL, Tie ML. False negative biliary scintigraphy in gangrenous cholecystitis. *Australas Radiol.* 2002 Mar;46(1):73-75.

3. Chaudhry S, Hussain R, Rajasundaram R, et al. Gangrenous cholecystitis in an asymptomatic patient found during an elective laparoscopic cholecystectomy: a case report. *J Med Case Rep.* 2011 May 21;5:199.
4. Nikfarjam M, Niumsawatt V, Sethu A, et al. Outcomes of contemporary management of gangrenous and non-gangrenous acute cholecystitis. *HPB (Oxford).* 2011 Aug;13(8):551-558.
5. Bennett GL, Rusinek H, Lisi V, et al. CT findings in acute gangrenous cholecystitis. *AJR Am J Roentgenol.* 2002 Feb;178(2):275-281.
6. Ganapathi AM, Speicher PJ, Englum BR, et al. Gangrenous cholecystitis: a contemporary review. *J Surg Res.* 2015 Jul;197(1):18-24.
7. Hunt DR, Chu FC. Gangrenous cholecystitis in the laparoscopic era. *Aust N Z J Surg.* 2000 Jun;70(6):428-430.
8. Teefey SA, Baron RL, Radke HM, et al. Gangrenous cholecystitis: new observations on sonography. *J Ultrasound Med.* 1991;10(11): 603-606.
9. Bennett GL, Rusinek H, Lisi V, et al. CT findings in acute gangrenous cholecystitis. *AJR Am J Roentgenol.* 2002 Feb;178(2):275-281.
10. Medina VJ, Martial AM, Chatterjee T. Asymptomatic Gangrenous Acute Cholecystitis: A Life-Threatening Condition. *Cureus.* 2023 Mar 25;15(3):e36672.
11. Lahham EE, Ghweir AA, Alsalah QA, Alsahouri MI, AlQadi M. A Case of Asymptomatic Perforated Gangrenous Cholecystitis in a Diabetic Patient: A Critical Condition. *Cureus.* 2023 Oct 30;15(10): e48014.
12. Inoue H, Ochiai T, Kubo H, et al. Laparoscopic cholecystectomy for gangrenous cholecystitis in around nineties: Two case reports. *World J Clin Cases.* 2021 May 16;9(14):3424-3431.

13. Aubin JM, Ball CG, Pitt HA. Management of the gangrenous gallbladder. In: Case-based lessons in the management of complex hepato-pancreato-biliary surgery. New York: Springer International Publishing; 2017. p. 201-213.
14. Merriam LT, Kanaan SA, Dawes LG, et al. Gangrenous cholecystitis: analysis of risk factors and experience with laparoscopic cholecystectomy. *Surgery*. 1999;126:680-686.
15. Faraji M, Sharp R, Gutierrez E, et al. Perforated Gangrenous Gallbladder in an Asymptomatic Patient. *Cureus*. 2020 Apr 18;12(4):e7728.
16. Katsumata R, Manabe N, Urano T, et al. Asymptomatic gangrenous cholecystitis diagnosed using contrast-enhanced ultrasonography in a patient with pancreatic cancer. *Radiol Case Rep*. 2022;17(7):2309-2314.
17. Ashfaq A, Ahmadi K, Shah AA, et al. The difficult gall bladder: Outcomes following laparoscopic cholecystectomy and the need for open conversion. *Am J Surg*. 2016 Dec;212(6): 1261-1264.
18. Wakabayashi G, Iwashita Y, Hibi T, et al. Tokyo Guidelines 2018: surgical management of acute cholecystitis: safe steps in laparoscopic cholecystectomy for acute cholecystitis (with videos). *J Hepatobiliary Pancreat Sci*. 2018;25: 73-86.
19. Maitra TK, Ullah ME, Faruquzzaman, et al. Operative and Postoperative Complications of Laparoscopic Cholecystectomy: Experience from a Tertiary Care Hospital of Bangladesh. *Bangladesh Crit Care J [Internet]*. 2017 May 11 [cited 2026 Apr. 19];5(1):11-16.