

Case Report

An unusual presentation of acute gallbladder perforation: a case report from a tertiary care-centre in Visakhapatnam, India

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ABSTRACT

Gallbladder perforation is an uncommon but potentially life-threatening complication of acute cholecystitis. Clinical presentation may be atypical, particularly in elderly patients, making early diagnosis challenging. We report an unusual case of free perforation of a gangrenous gallbladder with a relatively stable clinical presentation. A case of an 85 year old female presenting with acute abdominal pain was evaluated clinically and radiologically. Laboratory investigations and contrast-enhanced computed tomography (CT) were performed, followed by operative assessment and postoperative follow-up. An 85-year-old woman presented with three days of progressively worsening generalized abdominal pain associated with diarrhea and chills. Examination revealed epigastric and right hypochondrial tenderness with a positive Murphy's sign. CT demonstrated an irregularly enhancing gallbladder with multiple wall defects, extensive inflammatory changes, and free intraperitoneal fluid, suggestive of perforated gangrenous cholecystitis. Laparoscopy revealed approximately 1 litre of free bile and a gangrenous gallbladder with perforation involving the fundus and body. Laparoscopic cholecystectomy, peritoneal lavage, and drain placement were performed. The postoperative course was uneventful, and the patient was discharged on postoperative day 5. Histopathology revealed acute on chronic cholecystitis. Free gallbladder perforation may present atypically despite severe underlying pathology. CT is valuable for diagnosis, and laparoscopic cholecystectomy with adequate peritoneal lavage can provide effective treatment in appropriately selected patients.

Keywords: Gallbladder perforation, Gangrenous cholecystitis, Laparoscopic cholecystectomy, Computed tomography, Acute abdomen

INTRODUCTION

Gallbladder (GB) diseases are common and may be associated with a variety of complications. Gallbladder perforation (GBP) is an uncommon but potentially fatal complication that requires early recognition, prompt diagnosis, and appropriate management to reduce morbidity and mortality.¹ Elderly patients may have an atypical clinical presentation with a relatively vague

history and inconclusive clinical findings, which can make the diagnosis particularly challenging.

The present case is noteworthy because the patient had a relatively stable clinical presentation despite having a free perforation of a gangrenous gallbladder. Based on the clinical assessment and radiological findings, the patient was taken to the operating room for laparoscopic cholecystectomy, with a satisfactory postoperative outcome.

CASE REPORT

An 85 year old female presented to the emergency department of King George Hospital, Visakhapatnam, with progressively worsening generalized abdominal pain for three days. The pain was associated with diarrhea and chills. There was no history of abdominal trauma or dark-coloured urine. The patient had no known chronic medical illnesses. Her past surgical history was significant for a left-sided mastectomy performed approximately 20 years earlier, following which she had received adjuvant chemotherapy; details regarding the duration and regimen of chemotherapy were not available.

On examination in the emergency department, the patient appeared ill but was clinically stable. There was no icterus of the sclera or mucous membranes. Her heart rate was 75 beats/min, blood pressure was 105/75 mmHg, oxygen saturation was 90%, and temperature was 36.5°C. The abdomen was mildly distended, with tenderness predominantly over the epigastrium and right hypochondrium. Murphy's sign was positive.

Laboratory investigations revealed a white blood cell count of $7.81 \times 10^3/\mu\text{l}$, neutrophil count of $3.16 \times 10^3/\mu\text{l}$, and platelet count of $300 \times 10^3/\mu\text{l}$. Direct bilirubin was 2.54 $\mu\text{mol/l}$ and total bilirubin was 10 $\mu\text{mol/l}$. Serum amylase was 101.59 U/l, alkaline phosphatase was 40 U/l, alanine transaminase was 72 IU/l, and aspartate transaminase was 100 IU/l. Serum potassium was 4.77 mmol/l, chloride was 102.95 mmol/l, sodium was 135.83 mmol/l, and lactate was 3.47 mmol/l. Troponin was negative, and the coagulation profile was within normal limits. Chest radiography did not reveal any significant abnormality.

Contrast-enhanced computed tomography (CT) of the abdomen and pelvis demonstrated a gallbladder with a thin, irregularly enhancing wall and multiple wall defects. There was marked inflammatory soft tissue stranding around the gallbladder fossa and hepatic space, along with free intraperitoneal fluid in the perihepatic region, right paracolic gutter, and pelvis. These findings were suggestive of perforated gangrenous cholecystitis with associated intra-abdominal fluid collection. There were no radiological features suggestive of bowel ischemia, bowel obstruction, or pneumoperitoneum (Figure 1).

In view of the clinical and radiological findings, the patient was transferred to the operating room after obtaining high-risk consent for laparoscopic cholecystectomy. At laparoscopy, approximately 1 litre of bile was found within the abdominal cavity, particularly involving the right paracolic gutter and pelvis. The gallbladder was gangrenous and showed perforation involving the fundus and body (Figure 2). The common bile duct and cystic duct were intact. No gallstones were identified within the peritoneal cavity

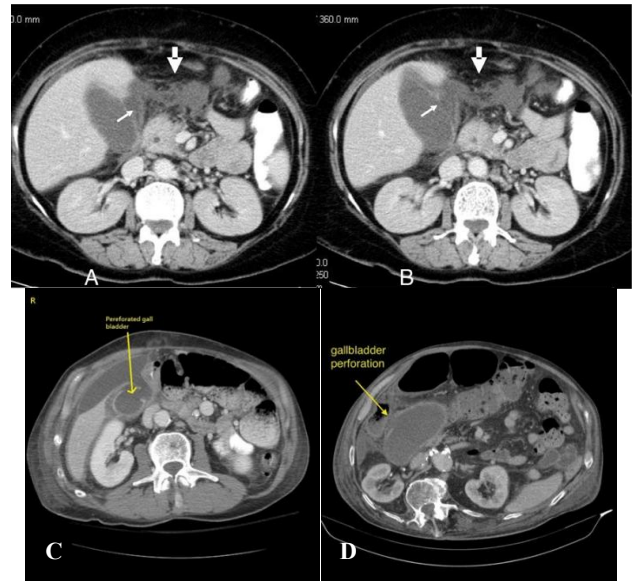


Figure 1 (A-D): CT scan showing a perforated gallbladder.



Figure 2: Gangrenous gallbladder with free bile in the right paracolic gutter.

The critical view of safety was obtained, following which laparoscopic cholecystectomy was performed. The free bile was thoroughly suctioned, and extensive peritoneal irrigation was carried out using normal saline. Two drains were placed, one in the subhepatic region and another in the pelvis. The patient tolerated the procedure well and was transferred to the postoperative ward in a stable condition.

Postoperatively, the patient was kept nil per os and was administered intravenous fluids and piperacillin/tazobactam. On the first postoperative day, the subhepatic drain produced approximately 50 ml of greenish bile, while the pelvic drain produced approximately 250 ml of greenish bile. The drain output gradually decreased and subsequently became serous. By postoperative day 5, the pelvic drain output was approximately 50 ml and the subhepatic drain had no further output. Oral intake was initially restarted with clear liquids and was progressively

advanced to a regular diet following the return of normal bowel function.

The patient's total and direct bilirubin levels remained within normal limits, while liver function tests showed improvement. The white blood cell count decreased from 15 to $13 \times 10^3/\mu\text{l}$. Following satisfactory clinical improvement, the drains were removed and the patient was discharged on postoperative day 5 in good condition. At one-week follow-up, she was clinically well, with appropriately healed surgical wounds and no evidence of wound infection or other postoperative complications. Histopathological examination of the resected gallbladder revealed acute on chronic cholecystitis, with no evidence of dysplasia or malignancy.

DISCUSSION

Gallbladder perforation is an uncommon and potentially life-threatening complication when not recognized and treated promptly, and it is associated with considerable morbidity and mortality. The exact incidence remains uncertain, with reported rates ranging between 2% and 11%.^{2,3} Acute cholecystitis, both calculous and acalculous, represents the principal underlying cause of gallbladder perforation. Other reported causes include trauma, malignancy, infection, biliary tract obstruction, anticoagulant therapy, and idiopathic causes. The proposed mechanism involves impairment of the gallbladder blood supply resulting in ischemia. The fundus is particularly susceptible to perforation. Increased intraluminal pressure secondary to obstruction of the biliary tract may also contribute to perforation.⁴⁻⁶

There is no single pathognomonic clinical feature of gallbladder perforation. The clinical severity varies according to the type of perforation. Contained perforation may produce a clinical picture resembling acute cholecystitis, with symptoms such as abdominal pain, fever, and vomiting. In contrast, free perforation may result in a more severe clinical presentation with generalized peritonitis.⁷

Cases of asymptomatic gallbladder perforation have also been described, particularly in patients with diabetic neuropathy and/or immunosuppression.⁸ Computed tomography is considered the most accurate imaging modality for establishing the diagnosis, although ultrasonography continues to be used as the initial imaging investigation in many clinical settings.^{8,9}

Several classification systems have been proposed for gallbladder perforation. The commonly used classification is based on the system described by Niemeier and subsequently modified by Anderson et al. It consists of four types: type 1, acute free perforation into the peritoneal cavity; type 2, subacute perforation associated with a pericholecystic abscess; type 3, chronic perforation with formation of a cholecystoenteric fistula; and type 4, chronic perforation with fistulous

communication between the gallbladder and the biliary tree.^{10,11}

According to this classification, the present case represents type 1 gallbladder perforation. Despite the presence of free perforation, the patient did not develop generalized peritonitis or septic shock. Her advanced age and relatively stable clinical presentation made the condition particularly atypical. A similar atypical presentation of free gallbladder perforation has been described in a patient with nasopharyngeal carcinoma who had received chemotherapy and radiotherapy. That patient also presented without the expected severe clinical features and was initially considered to have gastrointestinal tract perforation before gallbladder perforation was identified during diagnostic laparoscopy. The authors suggested that chemotherapy and radiotherapy may represent possible risk factors for free gallbladder perforation.¹²

Laparoscopic cholecystectomy is an acceptable treatment option for gallbladder perforation when appropriate equipment and adequate surgical expertise are available. It provides good visualization of Calot's triangle and allows assessment of other abdominal organs. It also facilitates suction of intra-abdominal collections and extensive peritoneal lavage, which may be more difficult to achieve through an open approach in certain situations.¹³

CONCLUSION

Gallbladder perforation should be considered in elderly patients presenting with acute abdominal pain, particularly because the clinical presentation may be atypical despite the severity of the underlying pathology. Computed tomography plays an important role in establishing the diagnosis. Laparoscopic cholecystectomy can be considered an appropriate management approach in selected patients with gallbladder perforation, depending on the patient's clinical condition, available facilities, and the surgeon's expertise.

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