

Pneumoperitoneum Secondary to Biliary Peritonitis: A Case Report and Review of the Literature

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INTRODUCTION

Gallbladder perforation is a rare but serious complication of gallstone disease, which can present as generalized biliary peritonitis. Its preoperative diagnosis is often difficult, especially in diabetic patients. The prognosis depends on the promptness of diagnosis and the rapidity of surgical management.

CASE REPORT

A 56-year-old female, type 1 diabetic under insulin therapy and hypertensive under medical treatment, with a history of cesarean section via Pfannenstiel incision 17 years earlier, was admitted to the emergency department of Ibn Rochd University Hospital for generalized abdominal pain.

On examination, the patient was conscious and hemodynamically and respiratory stable, with diffuse abdominal tenderness but no localized guarding. Pelvic examination was unremarkable.

Abdominal CT scan revealed biliary peritonitis secondary to gallbladder perforation: a distended gallbladder containing a large calculus, with mural air bubbles and perivesicular fluid. Laboratory findings showed hemoglobin at 14 g/dL, leukocytes at 10,500/mm³, and C-reactive protein (CRP) at 200 mg/L.

The patient underwent emergency surgery via a right subcostal laparotomy. Intraoperative exploration revealed a distended gallbladder with thickened walls, partially embedded in the liver, and perforated at the fundus. A retrograde cholecystectomy was performed with subhepatic drainage using a Redon drain. Postoperative recovery was uneventful under antibiotic therapy and metabolic stabilization.



Figure 1: Axial CT section showing a distended gallbladder with macro-lithiasis and mural air bubbles.



Figure 2: Surgical specimen showing the extracted large gallstone.



Figure 3: Intraoperative view showing the gallbladder embedded within the liver

DISCUSSION

Gallbladder perforation remains an uncommon complication of acute cholecystitis, with an incidence estimated between 2% and 11% according to various studies [1]. It occurs mainly in elderly, diabetic, or immunocompromised patients [2]. In these individuals, autonomic neuropathy and microvascular ischemia may delay diagnosis and promote gallbladder wall necrosis [3].

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Preoperative diagnosis is rarely made because the clinical presentation can be misleading. Abdominal computed tomography (CT) is the gold-standard imaging technique, allowing visualization of gallbladder distension, mural air bubbles, perivesicular fluid, and sometimes the impacted calculus responsible for the perforation [4].

Niemeier's classification distinguishes three types of perforations:

- Type I: Acute free biliary peritonitis
- Type II: Localized pericholecystic abscess
- Type III: Cholecystoenteric fistula [5]

The present case corresponds to Type I. Treatment is based on emergency cholecystectomy. The retrograde approach is often preferred in inflamed and adherent forms [6].

The prognosis depends on the timeliness of diagnosis and correction of metabolic disturbances. Mortality rates up to 30% have been reported in diffuse forms when diagnosis and treatment are delayed [7].

CONCLUSION

Gallbladder perforation is a rare but life-threatening surgical emergency. It should be considered in any case of peritonitis of unknown origin, particularly in diabetic patients. Abdominal CT plays a key role in diagnosis, and emergency cholecystectomy remains the treatment of choice.

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