



A Rare Complication of Percutaneous Cholecystostomy: Biliary Peritonitis

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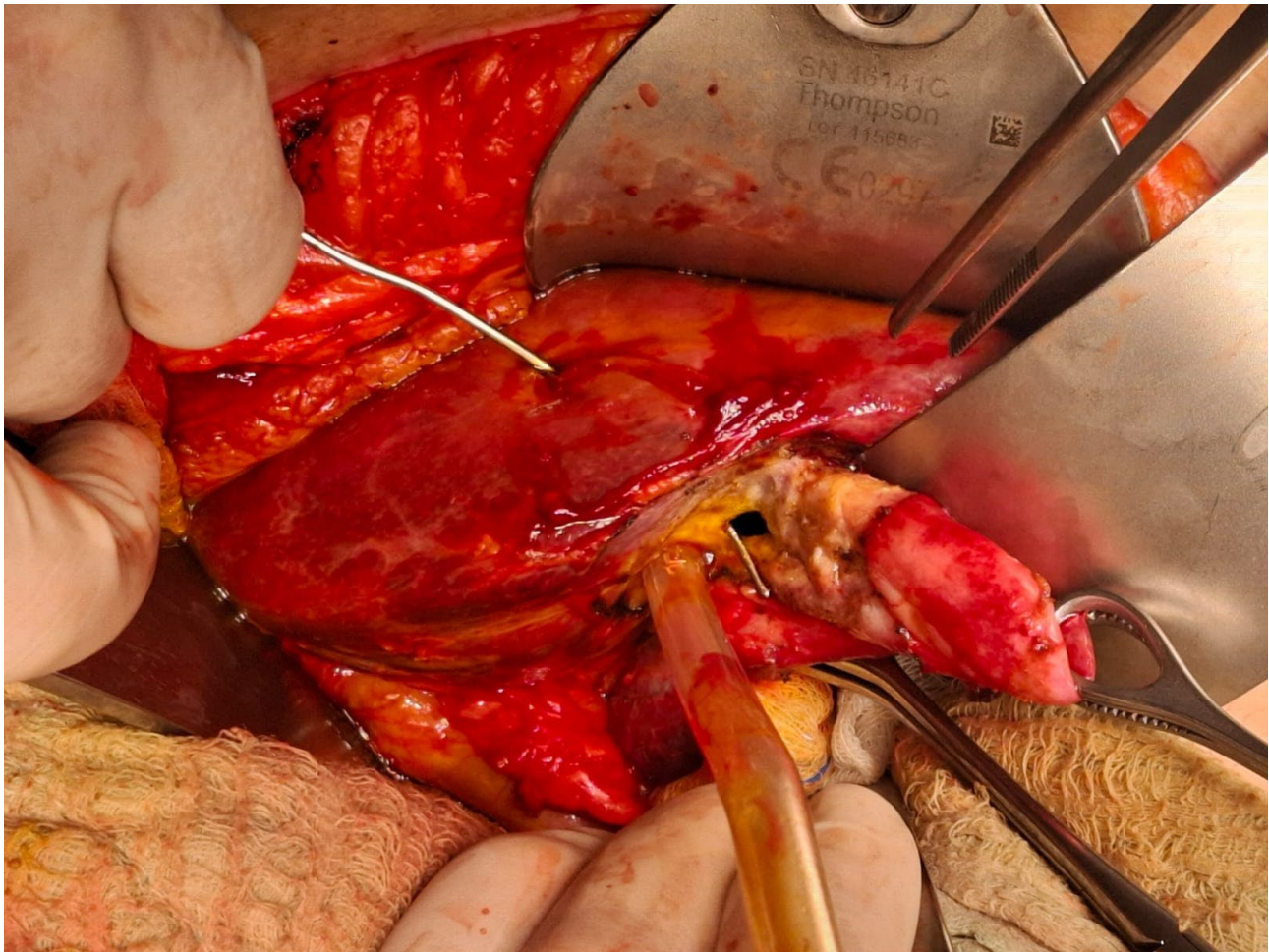
Dear Editor,

Percutaneous cholecystostomy (PC) is recommended as the first alternative to surgical intervention in patients with acute cholecystitis (AC) who are at high surgical risk, according to the Tokyo Guidelines 2018.¹ The reported complication rate following this procedure ranges from 3% to 26%.^{2,3} Complications associated with PC typically occur immediately or within a few days and include hemorrhage, vagal reactions, sepsis, biliary peritonitis, pneumothorax, intestinal perforation, and secondary infections.⁴ Among these, biliary peritonitis is a rarer complication, necessitating urgent exploration and significantly increasing mortality and morbidity. This report presents two cases of AC patients who developed complications following PC and required emergency surgery. This study was conducted in accordance with the ethical principles of the Helsinki Declaration. Written informed consent was obtained from both patients about the use of their data and the purpose of the research.

Case 1: A 64-year-old female patient underwent PC at an external center due to AC. Her comorbid conditions included diabetes mellitus (DM) and hypertension. The PC catheter was removed 3 weeks later following a control cholangiography. Two days after catheter removal, the patient presented to the emergency department with acute abdomen symptoms. Abdominal computed tomography (CT) revealed diffuse intra-abdominal fluid collection, prompting emergency surgery. During exploration, a biliary fistula was observed at the transhepatic entry site of the gallbladder catheter, with bile leakage into the peritoneal cavity (Figure 1). The patient underwent cholecystectomy and primary repair of the minor bile ducts. The patient was discharged in good health on the 8th postoperative day.

Figure 1.

Operative demonstration of the catheter pathway, from its initial entry point into the liver to the gallbladder, using a guidewire



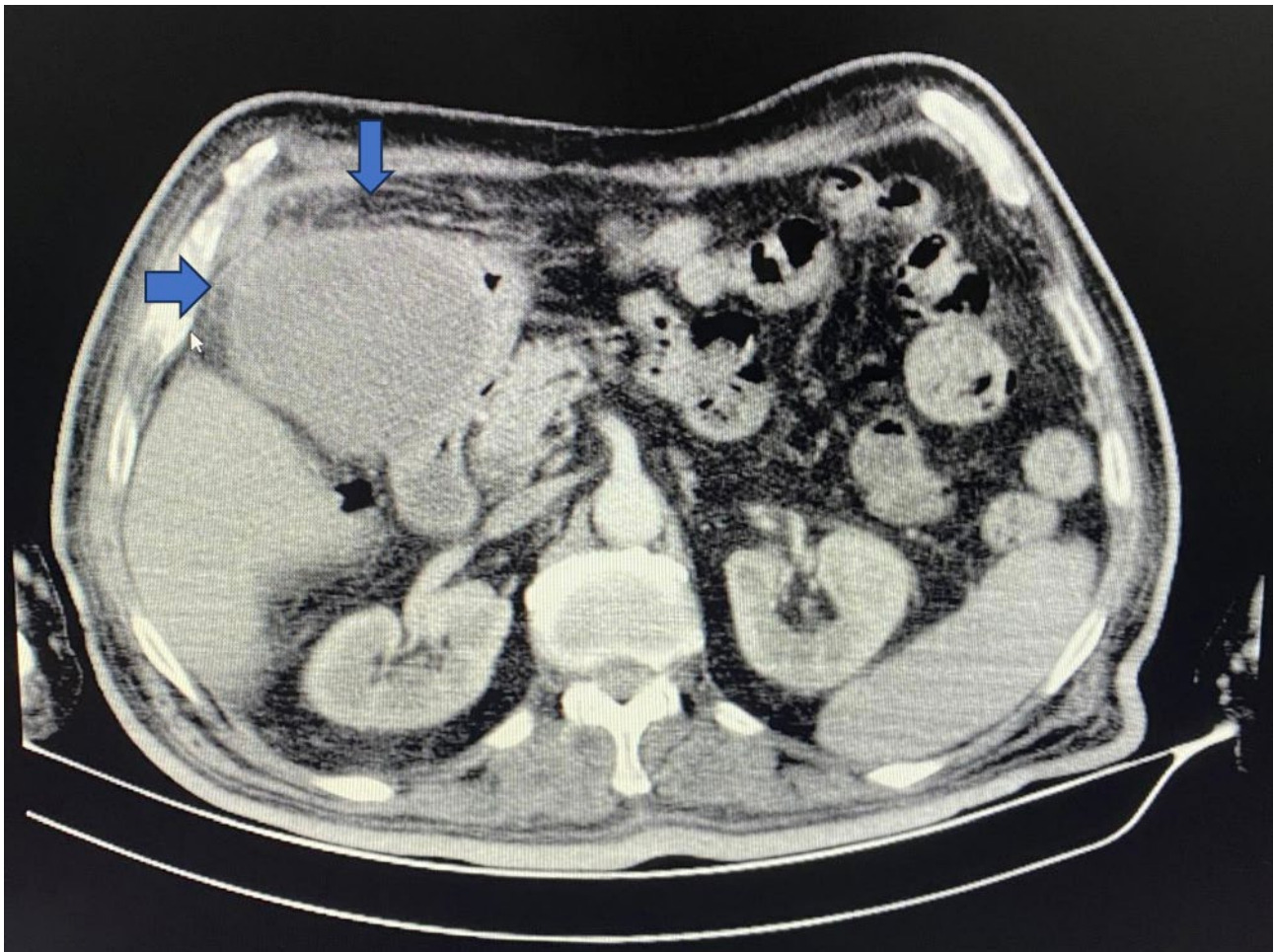
Case 2: A 70-year-old male patient underwent PC due to AC. His comorbid conditions included coronary artery disease, chronic obstructive pulmonary disease, and DM. The patient had a history of two prior PC catheter placements. On the third day after the most recent PC procedure, due to persistent symptoms and worsening abdominal pain, a CT scan was performed, which revealed gallbladder perforation and a pericholecystic abscess (Figure 2). The patient was taken to emergency surgery. Laparoscopic exploration showed that the catheter had perforated the gallbladder, with the omentum encasing the gallbladder and extensive necrosis of the organ. Cholecystectomy and abscess drainage

were performed. The patient was discharged in good health on the 5th postoperative day.

AC can lead to severe clinical outcomes, particularly in patients with comorbid conditions. Percutaneous and endoscopic treatment modalities have been described as alternatives to surgery.^{1,5} However, complications have also been observed with these endoscopic techniques, and their prospective outcomes remain uncertain.⁶ While PC is the first-choice treatment for AC patients at high surgical risk, its complications can further exacerbate the clinical condition. Among potential complications, biliary peritonitis is considered a major one, though it is less frequently reported in the literature.²

Figure 2.

Computed tomography (CT) image of the abscess with arrows indicating the post-drainage changes following percutaneous catheter placement



Meta-analyses indicate that even in patients with high surgical risk, the success of PC in the treatment of AC does not surpass that of cholecystectomy.⁵ Additionally, emergency cholecystectomy has resulted in shorter hospital stays, lower risks of readmission, and reduced mortality compared to PC in treating AC.⁵ Although Arik et al. found high success in the treatment of 36 AC patients with PC, 2 patients were taken to emergency operation due to gallbladder perforation.⁷

In our first case, biliary peritonitis developed despite adherence to the minimum 21-day catheter retention period following PC recommended in the clinical literature, resulting in the need for emergency laparotomy.⁸ In the second case, the patient's AC worsened following three repeated PC procedures, with catheter perforation of the gallbladder necessitating emergency laparoscopic cholecystectomy for

treatment. PC was chosen for both cases due to the patients comorbid conditions. Both patients were discharged in good health following their respective surgeries.

Since PC is recommended as the first option for patients with poor general health and significant comorbidities, it should be performed by experienced interventional radiologists. Potential complications that may develop after PC and catheter removal should be kept in mind, and patients should be carefully followed up.

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