



Incidentally Detected Residual Gallbladder Calculi by Computed Tomography in Acute Pancreatitis. Case Report

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Abstract

Calculi in the gallbladder or cystic duct remnant account for 0.3 to 2.5% of cases of post-cholecystectomy syndrome and must be considered in any patient who has undergone “difficult” cholecystectomy. We present an interesting case of a 62-year-old male, diagnosed to have moderately severe acute biliary pancreatitis, 4 years past laparoscopic converted to open cholecystectomy (LCOC). On evaluation with contrast computed tomography (CT) of the abdomen, changes of acute pancreatitis, along with a remnant gallbladder containing radiopaque calculi, were identified. The patient subsequently was managed successfully with completion cholecystectomy with common bile duct (CBD) exploration and T-tube drainage (for CBD calculi). Hence, differential diagnosis of residual gallbladder calculi (although rare) should be kept in a patient with acute biliary pancreatitis, following LCOC for a “difficult” gallbladder.

Keywords Gallbladder remnant · Calculi · Difficult cholecystectomy · Pancreatitis

Introduction

Laparoscopic cholecystectomy is one of the most commonly performed procedures worldwide. It has accomplished laparoscopically in 90 to 97% of cases, while the remaining group of “difficult” cholecystectomy requires open conversion [1]. The difficult gallbladder is a scenario caused by the inflammation, difficult exposure, Mirizzi syndrome, and cirrhosis of the liver. These are the situations where the surgeons often adapt the “bail-out” strategy such as subtotal

cholecystectomy (3–8% of total cholecystectomies), so as to avoid iatrogenic complications to the bile duct and bowel [2]. On the contrary, the subtotal cholecystectomy does have the risk of increased bile leak from the stump and rarely a residual gallbladder (GB) [3]. These residual GB and the cystic duct can harbor calculi and lead to a “post-cholecystectomy syndrome” [4]. We, herein, report a rare presentation of residual GB calculi presenting with acute pancreatitis following a difficult cholecystectomy.

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Case Report

A 62-year-old male presented to the emergency department with a 2-day history of severe epigastric pain in the abdomen, associated with nausea and vomiting. The patient’s past history was significant for difficult cholecystectomy converted to open 4 years back. On general examination, his pulse was 110 beats/min, blood pressure 110/70 mmHg, and respiratory rate 24/min. Abdominal examination revealed epigastric tenderness with a right subcostal scar of cholecystectomy. Chest auscultation was unremarkable. The laboratory investigation showed normal hemoglobin, raised total leukocyte counts, more than three times raised serum amylase and lipase, and deranged liver (total bilirubin—1.8 mg/dl, AST—112 U/L, ALT—136 U/L, alkaline phosphatase—1.5 times the upper

normal limit) and renal function tests. Ultrasonography of the abdomen was done, which showed a heterogenous pancreatic parenchyma and a normal extra-hepatic biliary system. Diagnosis of moderately severe acute pancreatitis (biliary type) was made and managed with fluid resuscitation, analgesics, and antiemetics. On the fourth day of admission, the patient underwent contrast-enhanced computed tomography (CT) of the abdomen, which revealed an edematous pancreas with inflammatory changes in the peripancreatic region, without any collection or necrosis. Surprisingly, there was a hyperdense structure in the gallbladder fossa suggesting residual gallbladder calculi (Fig. 1). It was not initially detected on the ultrasonography, as the radiologists may have overlooked it because of the past history of cholecystectomy.

With conservative management, the patient improved after 4 days of admission both clinically and biochemically. On the 8th day of the same admission, the patient underwent open completion cholecystectomy. Intraoperatively, there was a dense adhesion at the gallbladder fossa with the omentum, hepatic flexure of the colon, and the duodenum, which was meticulously dissected from the lateral to the medial approach. The common bile duct was initially dissected throughout its length, following which the residual gallbladder was identified (Fig. 2). It was 4 cm in size in the maximum dimension, containing multiple blackish calculi, which were subsequently removed at its cystic duct and bile duct junction (Fig. 3). Moreover, on palpation, there were multiple tiny calculi in the common bile duct (CBD), which were explored and removed (bile duct clearance confirmed by on table choledochoscopy), and a T-tube was placed.

The postoperative period was uneventful, and the patient was discharged on day 5. Follow-up cholangiogram on day 8 was normal, and the tube was clamped. The T-tube was

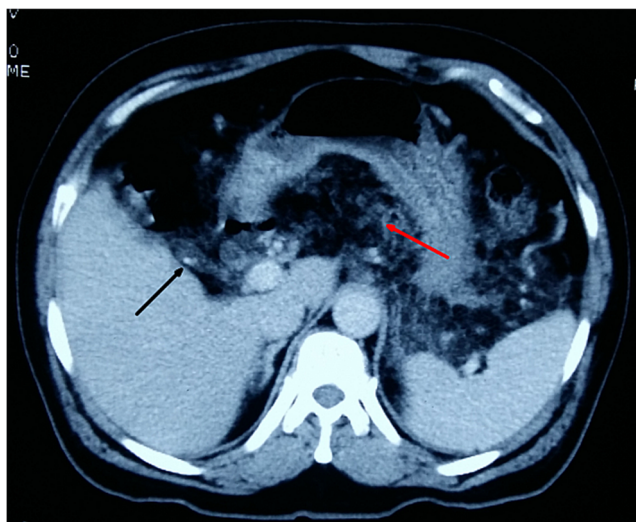


Fig. 1 Contrast CT of the abdomen showing peripancreatic stranding (red arrow) due to acute pancreatitis with a sac-like structure with radiopaque densities within it (black arrow)

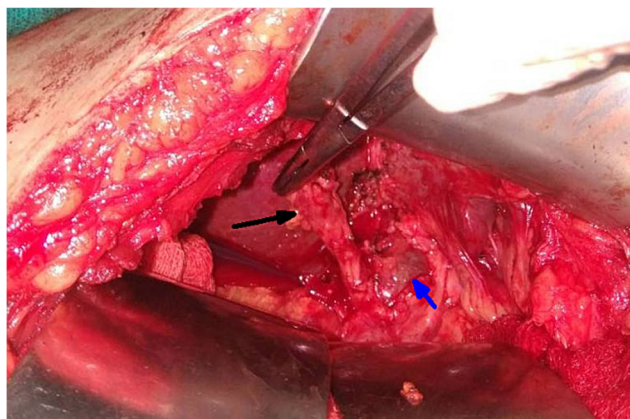


Fig. 2 Intraoperative image demonstrating (critical view of safety) a sac-like structure communication with the common bile duct (blue arrow) suggesting residual GB calculi

removed at 6 weeks of follow-up. Histopathological report confirmed the residual gallbladder with chronic cholecystitis. At 6 months of follow-up visit, the patient is fine without any recurrence.

Discussion

Calculi in the gallbladder or cystic duct remnant accounts for 0.3 to 2.5% of cases of post-cholecystectomy syndrome, but must be considered in any patient presenting with acute biliary pancreatitis, especially following difficult or laparoscopic converted to open cholecystectomy (LCOC) [2, 4]. Residual GB calculi for unknown reasons most commonly occur following open cholecystectomy (70%) [4]. The symptoms can arise from 6 months to 20 years (mean time of detection—4 year) following the index operation. The most common presentations are recurrent right hypochondrial pain, fever, and jaundice. Rarely, they present with pseudocyst, liver abscess, and acute pancreatitis as seen in our patient [5].

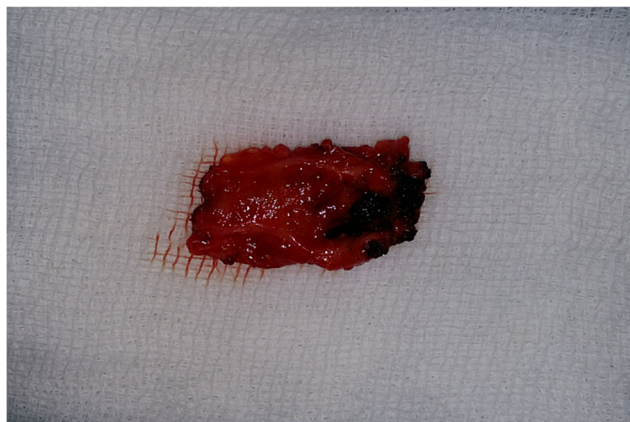


Fig. 3 Cut-open view of the residual gallbladder (4 cm in size) containing multiple blackish calculi

Diagnosis is made by a high index of suspicion in a patient who has undergone difficult cholecystectomy or subtotal excision of the gallbladder with post-cholecystectomy syndrome and biliary-type acute pancreatitis. The residual GB and cystic stump calculi can even be seen in patients with laparoscopic cholecystectomy where the residual gallbladder is left unintentionally. This is because of failure to identify infundibulum-cystic duct junction and the recent guidelines emphasizing against cystic duct-common bile duct junction identification to prevent bile duct injury. The diagnosis even becomes difficult to clinch, but should always be considered [2, 4].

Residual GB is further confirmed by ultrasound, CT scan of the abdomen, magnetic resonance cholangiopancreatography (MRCP), and recently endoscopic ultrasound (EUS). Abdominal ultrasound, although the initial test for abdominal pain can frequently miss (11–40%) the residual GB calculi [6]. Similarly, CT of the abdomen too is not the sensitive investigation of choice for GB calculi, as most of the stones are radiolucent. But contrarily, for unknown reasons, in remnant gallbladder calculi, it is sensitive enough (up to 90%) to detect a dilated structure with radiopaque densities in the GB fossa during evaluation in symptomatic patients, as was seen in our patient [2]. Moreover, the preferred best modality of choice for confirmation with high accuracy is MRCP (sensitivity—92%) and EUS (sensitivity—100%) [4–7].

Treatment is by completion cholecystectomy by using either the open or laparoscopic approach, depending upon the availability of the expertise [5]. The total laparoscopic approach is feasible (institution with advanced laparoscopic experience) in 30% of cases but is associated with a higher conversion rate of 40% due to the difficult cholecystectomy [4]. Almost 15–40% of cases are associated with common bile duct stone (as in our case) and do require an additional biliary procedure (CBD exploration and/or bilio-enteric anastomosis) [4, 5].

Conclusion

There should be a strong clinical suspicion of residual gallbladder calculi (although rare) in a patient with acute biliary pancreatitis, following LCOC for a “difficult” gallbladder.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Written informed consent from the patient was obtained for publication of the case details.

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