

Case Report

Spontaneous common bile duct perforation: a rare case report

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ABSTRACT

Spontaneous common bile duct (CBD) perforation is a rare and life threatening clinical condition. The course of management and choice of surgical intervention depends on clinical presentation; site, size, nature of defect. It is usually reported in infants and adults due to congenital anomalies and following invasive procedure respectively but spontaneous CBD perforation in older age groups is rare without underlying cause presenting as acute abdomen. In this case report, an 82-year-old female presented to the emergency room with an acute abdomen diagnosed as spontaneous CBD perforation and its prompt management and its successful outcome.

Keywords: Spontaneous common bile duct perforation, T-tube cholangiogram, Choledocholithiasis, Magnetic resonance cholangiopancreatography

INTRODUCTION

Spontaneous common bile duct (CBD) perforation is usually seen in infants and children from congenital anomalies due to its relative rarity diagnosis is typically confirmed on surgical exploration of the abdomen, often undertaken for other suspected pathology such as perforated viscus.¹ Mortality rate is often raised as it is most commonly reported in frail and elderly individuals undergoing surgical exploration.² The proposed theories for its etio-pathogenesis have included congenital weakness of CBD, distal obstruction and pancreatic reflux. Occasionally it has been reported in adults and rarely in elderly with different underlying causes including high intraductal pressure due to tumor obstruction of the ampulla, calculus, pregnancy, trauma and necrosis of duct wall secondary to vascular thrombosis.³

Hence, we are presenting a case report of a 82 year old female who presented with a complaint of generalized pain in abdomen, fever, vomiting and diagnosed with spontaneous common bile duct perforation.

CASE REPORT

An 82-year-old female presented to the emergency room with complaints of pain in the upper part of abdomen for 20-25 days, high grade fever for 5 days and vomiting for 2-3 days. She also reported passing flatus and stools. On examination, her vitals were stable. Per abdomen - soft, tenderness present in the right hypochondrium and flank; bowel sounds were present. Blood investigations show complete blood count and kidney function tests within normal range.

However, liver function tests as AST/ALT 28/24 and ALP 495.9 and CA 19.9 were 24.90. Ultrasound abdomen revealed a hypoechoic collection measuring 8.1×3×5.6 cm just beneath anterior abdominal wall across the right lumbar and iliac region and perinephric collection with dense septations. With the help of a radiologist, ultrasound guided aspirations showed around 220 cc of bile aspirated from anterior abdominal wall cavity.

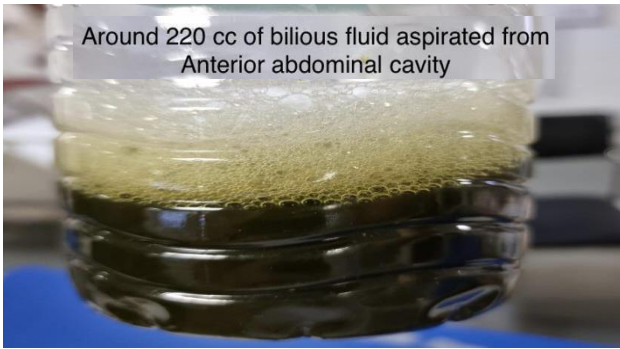


Figure 1: Bilious fluid aspirated from anterior abdominal wall.

Contrast enhanced computed tomography (CECT) abdomen revealed calculus cholecystitis, ascites, mildly dilated intra and extrahepatic bile duct with abrupt cut off at the distal common bile duct.

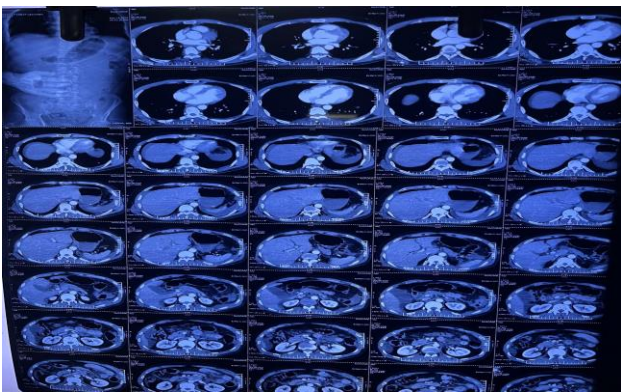


Figure 2: Axial view of CECT abdomen revealed dilated common hepatic and common bile duct with pericholecystic fluid.

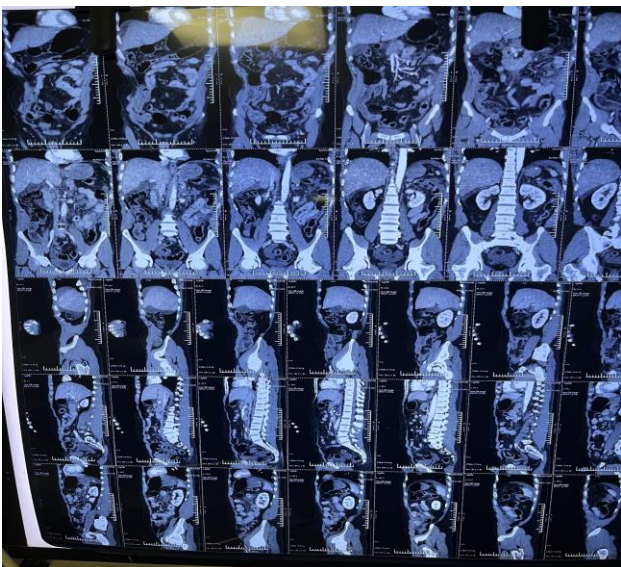


Figure 3: Sagittal view of CECT abdomen revealed dilated common hepatic and common bile duct with suspicious nodular lesion in periampullary region.

Magnetic resonance cholangiopancreatography (MRCP) revealed calculus cholecystitis, ascites, mildly dilated intra and extra hepatic bile duct with abrupt cut off at distal common bile duct. She was immediately resuscitated with intravenous fluid, nasogastric tube insertion, Foley's catheterization, antibiotics and planned for emergency surgical intervention. The patient was taken to the emergency operation theater and managed by explorative laparotomy with peritoneal lavage with cholecystectomy and T tube insertion in the common bile duct. The operative findings were bile stained omental caking present over the right subhepatic space around the gallbladder, around 100 cc bilious perinephric collection present above the right gerota fascia and a perforation of 1x1 cm located in the posterolateral surface of supraduodenal portion CBD which was covered with a slough.

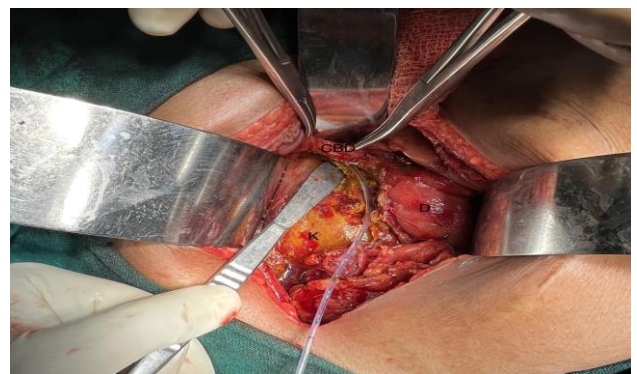


Figure 4: Intraoperative image showing distal common bile duct perforation on posterolateral aspect with feeding tube in-situ.

CBD-Common bile duct, K-kidney, D-duodenum

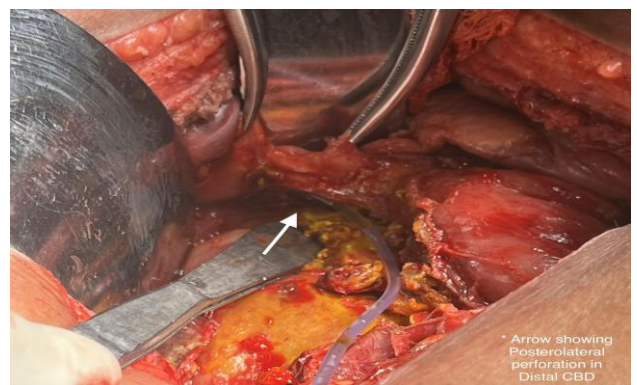


Figure 5: Intraoperative image a perforation of 1x1 cm located in the posterolateral surface of supraduodenal portion CBD.

She was gradually mobilized, nasogastric tube and Foley catheter removed and an enteral diet started on 5th postoperative day. The postoperative period was uneventful and T tube cholangiogram was done on 10th postoperative day revealed no intraperitoneal spillage of dye, T-tube removed and patient discharged on 14th postoperative day with advice for regular follow up.

DISCUSSION

Spontaneous common bile duct perforation is extremely rare and potentially life threatening complication of choledocholithiasis or described mainly in infants due to congenital anomalies of common bile duct.¹ Very few cases of bile duct perforation have been reported in adults.³

The pathogenesis of spontaneous bile duct perforation is poorly understood, likely related to its rarity. It is currently thought to be related to multiple factors including increased intraductal pressure, fluid stasis, dilation of bile duct (due to distal obstruction or spasm of the sphincter of oddi), diverticulum, abnormal glands in the bile duct wall, infection of bile duct, a connective tissue defect or ischemia compromise and occasionally malignancy.^{4,5} In 70% of reported cases, ductal stones are associated with the perforation.^{2,6}

Patient presentation is different in extrahepatic bile duct on the basis of onset either acute or insidious. Insidious onset is more commonly seen than acute which is characterized by progressive jaundice, painless abdominal distension and clay colored stools. In acute onset, patients present with symptoms of severe localized abdominal pain, vomiting, with tachycardia, tachypnea, hypotension suggestive of sepsis with peritoneal signs.¹ The diagnosis of spontaneous CBD perforation is challenging and requires a high index of suspicion.

The laboratory investigations can show raised liver enzymes, bilirubin and leukocytosis. USG and CT scans are useful in diagnosing the condition and determining the extent of disease. MRCP is a useful non-invasive tool for evaluating the biliary system.⁷ The management of spontaneous CBD perforation involves early diagnosis, prompt surgical intervention and appropriate postoperative care. The surgical approach can be either laparoscopic or open, depending on the severity of the conditions and the patient's overall health status.⁸ The goal of surgery to remove the underlying cause of perforation, such as gallstones or other biliary obstruction and repair of the perforation site. With advancement in surgical techniques, minimal invasive surgery through the laparoscopic approach used for diagnostic and therapeutic purposes for CBD perforation. T-tube insertion in the common bile duct can help to prevent further obstruction and aid in the healing process.^{3,8} Post-operative care with good nutrition and wound care essential with T-tube cholangiogram done to check free flow of bile in gut and no intraperitoneal spillage is a favorable outcome.

CONCLUSION

Spontaneous perforation of the common bile duct is a rare but serious complication of choledocholithiasis. An

emergency room clinician should keep a high degree of suspicion in early diagnosis and prompt surgical intervention of a rare condition which is crucial for a favorable outcome. With evolution in radiological imaging modalities such as USG, CECT abdomen and MRCP plays a crucial role in the diagnostic and therapeutic role in approaching this condition. An integrated multidisciplinary approach involving surgeons and radiologists plays an essential role for the management of complex rare clinical conditions.

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