

The mystery of post-cholecystectomy persistent bile leak: a case report

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Abstract

Laparoscopic cholecystectomy (LC) is commonly performed for benign gallbladder diseases. Biliary leak is the most common complication of bile duct injury following this surgery. We report a case of persistent bile leak following the procedure despite endoscopic and radiological management. A female patient presented to the hepatopancreatobiliary unit of the Bahria International Hospital (Orchard), Lahore, with complaint of persistent bile leakage after laparoscopic cholecystectomy performed elsewhere. She had been investigated in various hospitals but the cause of the persistent bile leak remained a mystery and she was offered surgery. After real time fluoroscopic contrast enhanced imaging, further confirmed by a Computerised Tomography (CT) Scan of the abdomen, it was revealed that the persistent bile leak in the drain was due to iatrogenic injury of the duodenum secondary to percutaneous catheter insertion. The patient was managed non-surgically. She remained stable. This is a rare complication of one of the most common surgical procedures performed in the world.

Keywords: Laparoscopic cholecystectomy, Gallbladder, Bile leak, Case report.

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Introduction

Laparoscopic cholecystectomy is commonly performed for benign gallbladder diseases. With the advent of this technique, the rate of post-operative pain and hospital stay has reduced significantly¹. However, complications rate has increased as a result of this technique. Biliary leak is one of the commonest complications of bile duct injury following laparoscopic cholecystectomy². It can be because of anatomical variations of Calot's triangle, recurrent attacks of acute cholecystitis and over confidence of some surgeons³. We report a rare

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complication after laparoscopic cholecystectomy, i.e. bile leak due to iatrogenic duodenal injury which took place during percutaneous drain placement for post cholecystectomy sub-hepatic collection.

Case Report

A 25-year-old female presented in the outpatient department of Bahria International Hospital (Orchard), Lahore, in July 2021, with epigastric and right hypochondrium pain for one week. Ultrasound of the abdomen showed cholelithiasis with features of acute cholecystitis. She had undergone laparoscopic cholecystectomy (LC) at a tertiary care level hospital in April 2021 and a sub-hepatic drain had been placed. The drain was removed after three days of surgery. On the fifth post-operative day, the patient developed high grade fever and pain at the surgical site. When she visited the emergency department of the same hospital, ultrasound showed a collection of 70ml in the surgical bed, which was aspirated and sent for culture and sensitivity. Her symptoms improved for two days but she developed abdominal pain and discomfort again. Repeat ultrasound scan showed subhepatic collection again. This time, a pigtail catheter was placed which drained the bile. However, the drain output never settled and remained 200 to 400ml/ day. Endoscopic retrograde cholangiopancreatography (ERCP) showed normal looking ampulla and common bile duct (CBD), with possible leakage from cystic duct stump. Two stents were placed at the time of ERCP. A 7 French stent was placed across the CBD and a 5 French stent was placed across the pancreatic duct. No improvement in drain output was observed. After 10 days, another ERCP was performed. Both the stents were removed and Cholangiogram showed the same findings. A 10 French plastic stent was placed across the Common bile duct (CBD) again. After two months of surgery, a Magnetic Resonance Cholangiopancreatography (MRCP) scan showed accessory duct of Lushka, which could be the cause of continuous bile leakage with no intra-abdominal biloma formation. A follow up MRI was performed after 10 days which showed mildly dilated intrahepatic right lobe tributaries, no collection in the surgical bed, and narrowed first order division of the right lobe. However, there was persistent drainage of biliary content in the percutaneous drain. The patient then visited multiple



Figure-1: Fluoroscopic image: Contrast can be seen flowing through the catheter into the duodenum (white arrow) and into the biliary system through ampulla (Red Arrow).

confirmed with abdominal CT scan (Figure 2). As there was no obvious leak from the biliary system, it was decided to take out the pigtail catheter. The patient was explained the plan, i.e. removal of the pig tail catheter and then observation. The patient's consent was taken after explaining the pros and cons. She was explained that she might need re-exploration following the removal of the drain, if there was persistent bile leak. After removal of the tube, ultrasound of the abdomen confirmed that there was no collection in the gallbladder fossa or in subhepatic region. After one month, the patient remained stable and pain free. A follow-up ultrasound and liver function test (LFT) were performed after one month which confirmed that there was no collection in the surgical bed and liver enzymes were within the normal range. It was also confirmed with contrast enhanced CT scan.

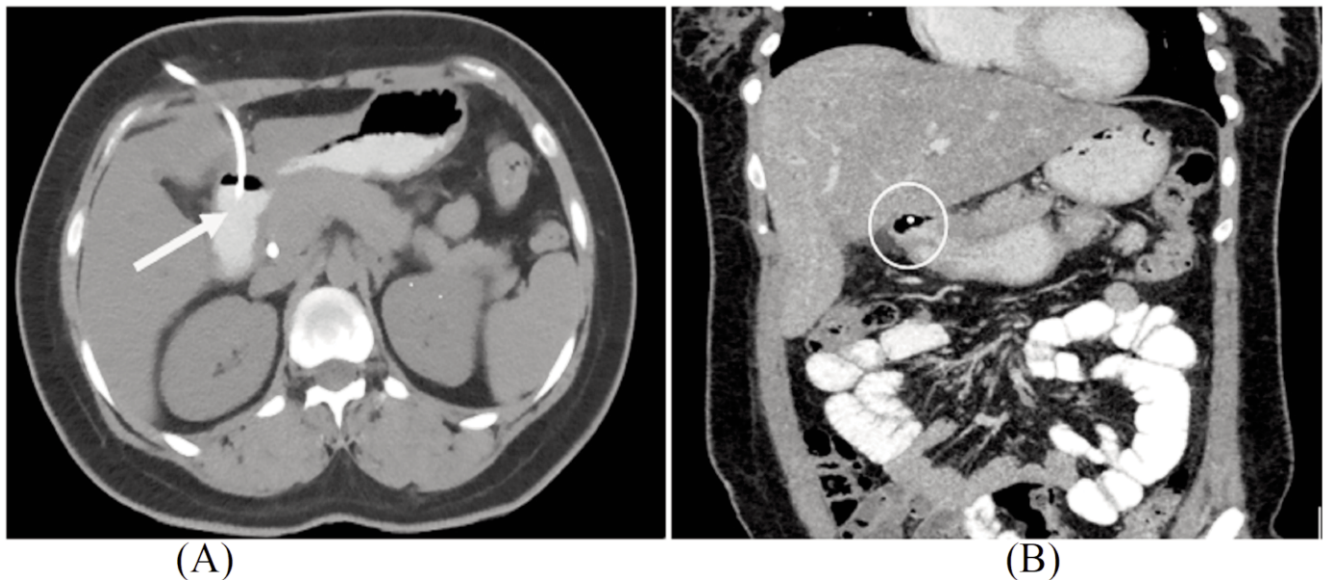


Figure-2: CT scan (Axial (A) and Sagittal (B) views) confirming the presence of Pig tail catheter in the duodenum, white arrow in A and white circle in B.*CT (Computerised Tomography)

hospitals and consulted hepatobiliary specialists; they all offered her surgery for the management of the persistent bile leak. After two months (in July 2021) of primary surgery, she presented at the Bahria Hospital. Real time fluoroscopic (RTF) imaging was carried out along with contrast injection through the percutaneous drain, and the diagnosis was made as pig tail catheter passing through the duodenum. The injected contrast was filling the duodenum and entered the biliary system through stented bile duct (Figure 1). These findings were

Discussion

Symptomatic gall-stones are the most common indication of laparoscopic cholecystectomy. This procedure was evolved in the last few decades. Bile leak following this surgery is one of the known complications. With the introduction of new advancements, management of bile leak is moving towards more minimally invasive techniques⁴. This case report will decipher the mystery about the management of persistent bile leak despite all the medical, radiological

and endoscopic interventions and eventually, surgery was thought to be the only hope.

Our department is a specialised hepatobiliary and liver transplant unit. We receive patients from all parts of the country. Hence, we see the complicated cholecystectomies and their sequelae. We have a fully dedicated team, consisting of medical specialists, Hepato-Pancreatico-Biliary (HPB) surgeons, endoscopists, and radiologists.

Clinical manifestation of bile leak includes persistent abdominal tenderness, generalised malaise, and anorexia. Our patient developed fever on the fifth post-operative day. Patients with bile leak usually present in the first week of surgery, however, it can take up to a month. Computed tomography scan and ultrasound are utilised to make the diagnoses of bile leak⁵. This patient underwent ultrasound of the abdomen, which confirmed the intra-abdomen fluid.

Common causes of bile leak after cholecystectomy are slipped cystic duct ligature and leak from an accessory or anomalous bile duct⁶. An MRCP was performed, which showed the presence of accessory duct of Lushka. Lushka defined these ducts as small (less than 1mm diameter) ducts running along the gallbladder fossa between gallbladder and liver parenchyma⁷. In the past few decades, ERCP is considered the best possible modality and has been used for diagnostic and therapeutic purposes⁸. This patient underwent ERCP and stenting twice, which are usually sufficient for the management of biliary leakage if the cause is accessory duct of Lushka. However, our patient had persistent biliary leakage despite endoscopic and radiological management. We assumed that if there was a cystic duct leak to start with, it should have healed because of stenting and the ongoing leak was due to percutaneous drainage.

Conclusion

Bile leak after cholecystectomy in our patient was difficult

to diagnose with standard imaging. However expertise in HPB surgery and routine use of contrast enhanced fluoroscopy helped us in reaching the diagnosis and treating the patient successfully by simply removing the misplaced catheter. We recommend that post cholecystectomy bile leak patients should be referred to specialised centre for further management.

Consent: A formal informed and written consent was taken from the patient for case report. identity would remain confidential.

Disclaimer: None to declare.

Conflict of Interest: None to declare.

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