

Delayed presentation of CBD injury - intrahepatic lithiasis with choledochoduodenal fistula post laparoscopic cholecystectomy

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Abstract

we describe an unusual case of post operative CBD (common bile duct) injury with uneventful post operative course, our patient underwent elective laparoscopic cholecystectomy in view of symptomatic cholelithiasis 8 years back, now presented with pain in right hypochondrium and obstructive jaundice.

Patient was investigated and diagnosed with proximal CBD stricture with hepato lithiasis Preoperative MRCP revealed multiple calculi in both right and left hepatic duct, multiple calculi studded at confluence with abrupt cut-off of upper CBD. Pre operatively PTBD was done as drainage procedure then open roux en Y end to side hepaticojejunostomy was done, intra operatively it was found that the PTBD was traversing to the left lateral wall of proximal CBD via a fistula opening in the first part of duodenum. Fistula take-down was done, and primary repair of duodenal defect was done.

Keywords: hepatolithiasis, choledochoduodenal fistula, Laparoscopic cholecystectomy, Choledocholithiasis, Common bile duct stone, Bile duct injury

Introduction

Incidence of bile duct injuries is 0.4 to 1.5% in laparoscopic settings compared to open 0.2 to 0.4%, most are

identified early post operatively [1]. However, the delayed presentation due to formed stricture can be months till years after surgery. Hepatolithiasis is the presence of gall stones in the bile duct proximal to the confluence of hepatic ducts. The exact incidence of hepato lithiasis after cholecystectomy is not known, the cause can be endo-clip migration or lateral thermal damage. Biliary-enteric fistula is a known complication of chronic gallbladder disease which has a reported incidence of 0.06%-0.14% [2]. However, they usually happen before cholecystectomies, and there are no accurate data for the biliary-enteric fistula, especially for the Choledocho duodenal fistula after laparoscopic cholecystectomy.

Biliary strictures, hepatic atrophy, cholangitis, and intrahepatic lithiasis are late manifestations of bile duct injury (BDI).

The condition can later progress to fibrosis or possibly secondary biliary cirrhosis and portal hypertension. Prolonged biliary obstruction with associated recurrent cholangitis is the major risk factor for onset of secondary biliary cirrhosis One important risk factor for morbidity and mortality is the onset of secondary biliary cirrhosis.

The type of biliary injury, associated vascular injury, atrophy of a liver segment, presence of intra-hepatic ductal strictures, intra-hepatic calculus, recurrent infectious complications, quality of underlying liver parenchyma (fibrosis, secondary biliary cirrhosis), and presence of portal hypertension all play a role in the proper management of late complications after bile duct injury. [3]

The procedure of choice is to do is a Roux en Y hepaticojejunostomy. Hepatic resection is only seldom necessary, usually in cases of extended hilar stricture, localised multiple stones, or a patient with liver atrophy who requires a technically challenging repair. Rarely, secondary biliary cirrhosis with liver failure, portal hypertension, and/ or recurrent sepsis necessitates liver transplantation.

Fewer than fifty cases of liver transplantation for iatrogenic BDI have been described in the literature. Among these, 15 BDI occurred during laparoscopic cholecystectomy to my and 26 during traditional open cholecystectomy in the study reported by Ardiles et al. [4].

Case presentation

A 46-year-old female who underwent a laparoscopic cholecystectomy 8 years ago in a peripheral hospital in view of multiple episodes of biliary colics, now presented with jaundice and pruritus.

Patient was vitally stable but icteric, her abdomen was soft and nontender with no organomegaly.

On further evaluation, Laboratory parameters on admission were as follows: Hb- 11 g%, WBC-10,800/ mcL, Platelets 2.6L/ mcL, BUN-10, s. creat-0.8, Total Biliru bin-4.1, Direct bilirubin-3.2, SGOT-30IU, SGPT-31IU.

CECT(A+P): Mild hepatomegaly, multiple hyperdense calculi in CHD, and just proximal to RHD and LHD with resultant mild IHBRD and pneumobilia.

MRCP- upper CBD stricture with multiple proximal stones, 3 calculi just proximal to the confluence of right and left hepatic duct, and both right and left hepatic ducts were studded with calculus, mild IHBRD

A radiology guided PTBD tube insertion was done in the right hepatic duct, and it was further internalized into the duodenum, this intervention rendered patient non-icteric. Biochemically patients LFTs were normalised.

Patient was taken up for elective open hepatico-jejunostomy, intraoperatively it was seen that, dilated CBD 1.5 CM, mid CBD stricture with PTBD tube entering the 1st part of duodenum via a choledocho-duodenal fistula, multiple hepatoliths in right and left duct system.

Procedure done was meticulous extraction of each hepatolith, withdrawal of PTBD tube, takedown of CD fistula and primary repair of duodenal defect and end to side Roux-en-Y hepatico-jejunostomy.

During immediate post operative course patient developed cholangitis and was managed by higher anti-biotics. Rest of the course was uneventful and LFTs were normal throughout the course.

Patient was discharged and follow up till 6 months was uneventful.

Discussion

Delayed complication of CBD injury usually presents with signs of obstructive jaundice, the stricture formation owing to lateral thermal damage can present as late as 6 weeks to 15 years after surgery, stone formation at multiple levels can be seen, one such complication is intrahepatic lithiasis. This may present with jaundice, pruritus or recurrent cholangitis or intrahepatic abscess formation. Without timely intervention this can progress to secondary biliary cirrhosis warranting liver transplantation Endoscopic drainage can be indicated alone or in association with surgical treatment, particularly when uncontrolled sepsis is present or when patients are at

high-risk for surgery (biliary cirrhosis, PHT, multiple metallic stents. . .). Hepatic resection is rarely indicated, being reserved for extended hilar stricture, multiple lithiasis in one segment of the liver, technically difficult repair because of multiple metallic stents or intra-hepatic strictures. Liver resections are associated with high morbidity and mortality, especially when PHT is present. Liver transplantation is indicated in exceptional instances but can be the only solution in patients with secondary biliary cirrhosis resulting in liver failure, PHT and repetitive episodes of sepsis.[5],[6].

The case was managed with first doing a PTBD in the right biliary system and internalizing into the duodenum and thus patients' biliary system was decompressed while the patient was electively prepared for hepatico jejunostomy. Intra-operatively PTBD tube traversing through a fistulous tract from the CBD proximal to the CBD stricture to the first part of duodenum. The patient was managed with fistula takedown and repair of duodenal perforation and Roux en Y hepaticojejunostomy.

Most of the complications in a laparoscopic cholecystectomy occur during learning phase of the surgeon's career, it advised to give adequate traction to fundus of GB while clipping the cystic duct and cystic artery, it is advised to avoid using electro-surgical unit near Callot's triangle to avoid lateral thermal damage to bile duct.

The unique presentation and unnoticed Choledocho duodenal fistula till the time of surgery prompted us to discuss this case here.

Conclusion

We offer a rare case of a lateral thermal damage to the CBD, resulting in upper CBD stricture and Choledocho duodenal fistula after laparoscopic cholecystectomy further complicating into stone-studded hepatic duct confluence and intra-hepatic lithiasis. This situation can be managed by meticulous extraction of intra-hepatic stones

and reconstructing the biliary tract via a hepaticojejunostomy with a Roux-en-Y procedure and could be potentially avoided by cutting cystic duct and cystic artery without energy source.

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