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Case Report

Post cholecystectomy Mirizzi syndrome: a rare complication of partial cholecystectomy as case report and review of literature

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ABSTRACT

Post cholecystectomy Mirizzi syndrome (PCMS) is defined as obstruction of the CHD leading to obstructive jaundice in a patient who has undergone cholecystectomy due to remnant calculus in the cystic duct or due to compression by infundibulum of gall bladder. It is a rare condition with limited cases described in literature. Herein, we describe a case of PCMS due to retained calculus in the cystic duct 12 years after cholecystectomy in a 40 year old male who presented with a 2 month history of pain fever and jaundice recurrently. Patient was diagnosed using MRCP and CT and ERCP was done but the stone could not be retrieved and patient was managed surgically and had a stable and uneventful post-operative course. As per literature reviewed there have been only 65 reported cases of PCMS and thus limited knowledge about the condition is present. Herein, we reviewed the available literature with various possible management techniques and their outcomes and also why surgical line of treatment was chosen in this case with an open approach preferred. PCMS is a rare clinical condition that requires high index of suspicion for diagnosis and can be treated with minimally invasive as well as open approach with good results and resolution of symtptoms of the patient.

Keywords: Mirizzi, Cholecystectomy, Laparoscopic, Endoscopic

INTRODUCTION

Mirizzi syndrome is defined as the occurrence of obstructive jaundice due compression on the common hepatic duct by the infundibulum of the gall bladder or by a calculus in the cystic duct.

Post cholecystectomy Mirizzi syndrome is defined as occurrence of Mirizzi syndrome in absence of gall bladder due to calculus in the cystic duct or small remnant of the gall bladder. Retained calculi in the biliary tree are rare after cholecystectomy and occur in 1.1 to 7% cases.

Management depends on the location and symptoms caused by these calculi. Calculi in the remnant of the cystic duct causing Mirizzi syndrome is an even rarer phenomenon with limited cases discussed in literature. PCMS is also an unusual condition with 65 reports noted so far in 15 case reports and series.[1]

Herein, we reported a case of Mirizzi syndrome due to cystic duct calculus compressing upon the CHD and its management with review of literature. This work has been reported in line with the scare and process criteria.

CASE REPORT

A 40 year old who had undergone subtotal cholecystectomy 12 years back presented with pain in abdomen in the right upper quadrant and nausea since the last 2 months with intermittent episodes of fever. Patient was admitted outside and managed symptomatically. One month back patient underwent abdominal imagine with USG CT and MRCP that was suggestive residual stump of

gall bladder (Figure 1 and 2) and an impacted stone in the cystic duct (Figure 2) without significant IHBR dilatation.

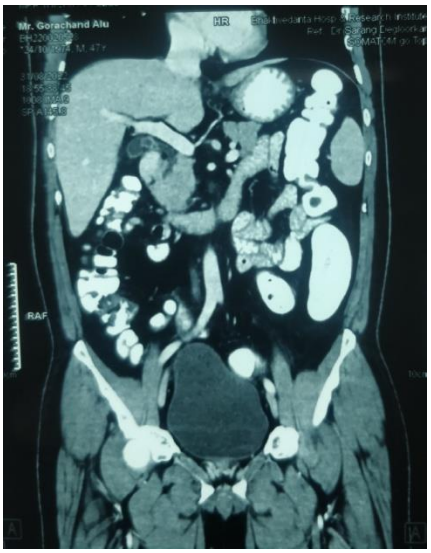

Figure 1: CT scan showing small remnant GB with calcific rim showing chronic inflammatory changes.

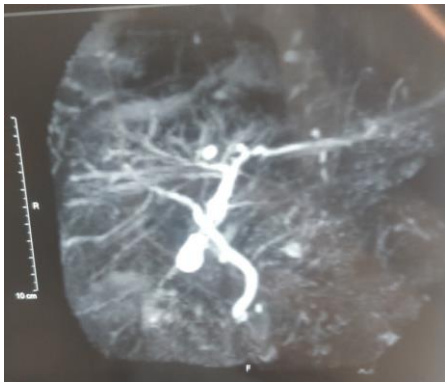

Figure 2: MRCP done on 23 September 2022 showing filling defect at the insertion of the cystic duct.

Patient presented to our hospital with non-resolution of complaints. On presentation patient had 1 day history of pain vomiting fever with yellowing of eyes and skin and generalised itching. He also complained of dark urine. On examination there was mild tenderness in the right hypochondriac without any significant guarding or rebound. Routine investigations were done for the patient that was suggestive of obstructive jaundice with increased total and direct bilirubin and raised alkaline phosphatase. Neutrophilic leukocytosis was also seen with rest of the lab values being normal. Liver enzymes were partially elevated. It was suspected that the cystic duct calculus must have passed on to the CBD and patient was referred for MRCP. During imaging this time around there was an abrupt cut off at the insertion of cystic duct in the CHD with resultant IHBR dilatation (Figure 3) and prominent CHD of diameter 12 mm. Rest of the CBD below the insertion of the cystic duct was normal. Patient was planned for ERCP and a side viewing duodenoscope was passed till d2 and ampulla was selectively cannulated with guide wire and dye injected. Filling defect was seen just adjacent to the CBD suggestive of calculus in the cystic duct (Figure 4). CBD swiped multiple times but stone could not be retrieved and 10 Fr plastic stent was placed to decompress the system.

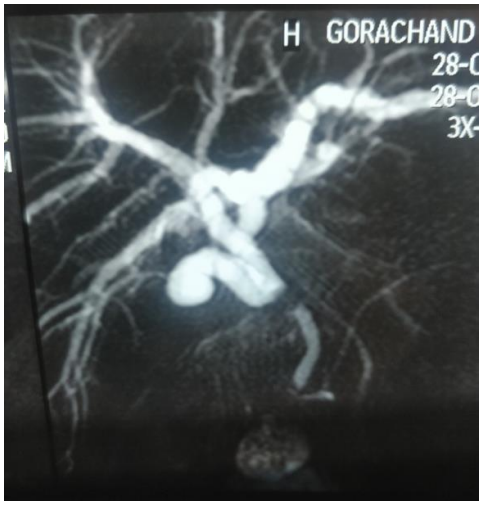

Figure 3: MRCP done on 29 October 2022 showing abrupt cut off in the CBD with IHBR dilatation.

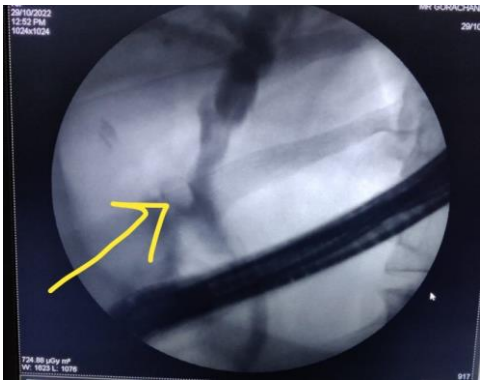

Figure 4: ERCP showing filing defect just adjacent to the CBD.

Patient was planned for surgical removal of the remnant of gall bladder with the stone. Due to multiple episodes of cholangitis, and suspected intra-peritoneal adhesions an open approach was planned. Midline vertical incision was taken and careful dissection of the omental adhesions was done. Dense adhesions between duodenum and stump of gall bladder seen which were separated. Cystic duct stump was tightly stuck to the distal CBD that was separated by blunt and sharp dissection. After complete exposure 3-0 vicryl stitch was taken n the cystic duct to aid in retraction (Figure 5) of the duct and the duct was opened near the insertion with the CHD (Figure 6). Stone was retrieved and residual GB excised and opening sutured with 4-0 prolene.

Patient was kept nil by mouth for 1 day following which liquids and subsequently solid diet was started. He had an

uneventful post op course with drain removal on POD 3 and discharge on POD 4.

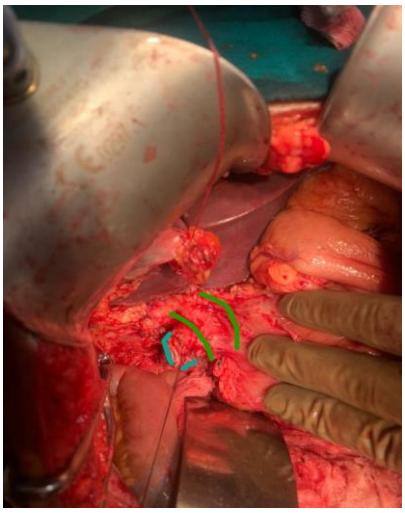

Figure 5: GB stump with CBD after dissection.

Figure 6: Cystic duct stone after extraction.

DISCUSSION

Post cholecystectomy syndrome is defined as experiencing symptoms of biliary colic and right upper quadrant pain after cholecystectomy that are similar to those experienced before. This is can be due to retained calculi in the biliary tree or in the remnant of the cystic duct and gall bladder stump, as also due to biliary sphincter dysfunction or benign strictures. It presents with fatty food intolerance, heartburn, nausea, vomiting, diarrhea and pain in abdomen. It can present early within 2 months of surgery or delayed after 10-15 years.[2] The biliary aetiologies include: biliary strictures, bile leakage, retained calculi, dropped calculi, chronic bilioma or abscess, long cystic duct remnant, stenosis or dyskinesia of the sphincter of oddi, bile salt-induced diarrhoea or gastritis.[3]

Mirizzi syndrome is named after Dr. Pablo Mirizzi who was the first to identify gall stone induced CHD obstruction and perform a peroral cholangiogram to show the findings in 1940s. The main difference between Mirizzi and PCMS is the absence of cholecystitis in PCMS as the gall bladder has already been excised. Classification of Mirizzi syndrome is dependent upon the presence or absence of a cholecystobiliary fistula and its extent. Type I is characterized by compression of the distal common hepatic duct with an impacted stone at the level of the gallbladder neck or infundibulum without fistula formation. Type II is characterized by fistula formation involving less than a third of the common bile duct circumference. Type III also has fistula formation but involves one-third to two-thirds of the common bile duct circumference. Type IV is characterized by obliteration of the entire common bile duct wall.[4] This case is suggestive of type 1 mirizzi with extrinsic compression but no fistula formation. Risk factors for developing PCMS were long cystic duct remnant, low insertion of cystic duct and need for subtotal cholecystectomy at the time of the initial surgery.[5]

The diagnosis of PCMS requires a very high index of suspicion and is generally imaging based. USG can be done but does not have a very high sensitivity and will only show dilation of intra and extra hepatic biliary ducts. MRCP is shown to have a good sensitivity for diagnosis of cystic duct remnant calculi. Thin sliced t2 weighted axial MR images can show cystic duct stones compressing onto the CHD.[6] In the study conducted by Palanivelu et al they demonstrated that MRCP had 100% sensitivity in diagnosing cystic duct stones. Abdominal CECT can also be used in places where MRI is not readily available.

Regarding treatment of post cholecystectomy Mirizzi syndrome due to cystic duct stone, recently minimally invasive and endoscopic modalities have taken over the conventional approach of treatment. Endoscopic approach with ERCP guided removal of cystic duct stones by passing a catheter and balloon swiping or basket retrieval is the treatment of choice today.[7] Laparoscopic removal of the stone and primary suturing of the cystic duct is also performed commonly with good results.[5] Herein, the remnant gall bladder and cystic duct is dissected and opened and stone removed and closure is done with absorbable suture. In the case reported by Amin et al combined approach using lap and endoscopy was done wherein, intraop-ercp was performed and CHD was stented after which closure of the CHD was done for mirizzi syndrome.[7]

However in this case endoscopic modality had failed to retrieve the stone and due to extensive adhesions anticipated by recuring cholangitis, open surgery was done and the stone was retrieved making sure entire residual stump was excised and the defect was sutured primarily.

Some literature also mentions the use of extracorporeal shock wave lithotripsy to extract stones that are endoscopically difficult to retrieve but this is reserved for patients not fit for surgery as it has higher failure and complication rate. A study performed by Benninger et al.

showed success of ESWL in 5 out of 6 patients and 1 patient required surgery due to persistent impaction of the stone.[8]

This case report is in accordance with SCARE criteria.[10] This case report is in accordance with PROCESS group criteria.[11]

CONCLUSION

Post cholecystectomy Mirizzi syndrome is a rare condition that must be taken into account with high degree of clinical suspicion and can be treated accurately with minimally invasive or open procedures with equally good results as mentioned in the report.

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