

## Case Report

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# Post-ERCP Dormia basket impaction: a case report and literature review

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## ABSTRACT

The incidence of Common bile duct stones (CBD) in patients undergoing cholecystectomy is 10%. The present-day management of common bile duct stone may be pre-, intra-, or post-operative Endoscopic retrograde cholangio-pancreatography (ERCP) with stone extraction. The reported complications of ERCP and CBD stone extraction range from 5 to 10% cases, that might be life threatening. Herein, we reported a case of calculus obstructive jaundice and cholangitis. Unfortunately, trials for ERCP and stone retrieval was followed by impacted Dormia basket which was successfully managed by surgery.

**Keywords:** Common bile duct stone, Impacted Dormia basket, ERCP

## INTRODUCTION

Currently, for CBD stones, ERCP with stone extraction by balloon or basket can be done pre-, intra-, or post-operatively while treatment of gall stones with laparoscopic cholecystectomy.

If ERCP is failed or contraindicated, laparoscopic or open common bile duct exploration and stone extraction using choledochoscopy could be done.<sup>1-3</sup>

The reported complications for endoscopic retrograde cholangio-pancreatography include hemorrhage, pancreatitis, cholangitis, and rarely impaction of lithotripter basket. Impaction of Dormia basket during extraction of common bile duct stone is a very rare but serious complication accounting for 0.8%.<sup>4</sup>

Herein, we presented a case of impacted dormia basket that was managed with open CBD exploration and choledocho-duodenostomy and cholecystectomy for concomitant Mirizzi syndrome.

## CASE REPORT

52 years old Indian gentleman, known to have diabetes and hypertension on oral treatment was admitted to the emergency department of King Khalid Hospital, Hail under gastroenterology service with picture of acute calicular obstructive jaundice with cholangitis. He was resuscitated and prepared for urgent biliary decompression.

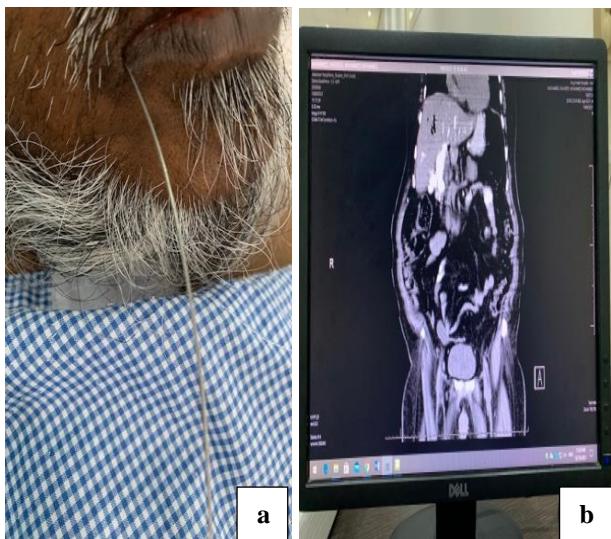
Ultrasonography and MRCP showed intra-and extra-hepatic biliary dilatation with CBD OF 22 mm with large distal CBD stone of 26 mm and a small gallbladder attached to the side of CBD was noted- Mirizzi syndrome. Urgent ERCP was done, but failed to retrieve the stone. A10F plastic stent was left. Magnetic resonance cholangio-pancreatography (MRCP) showed areobilia and stone impaction (Figure 2a). Labworks showed mild improvement in liver functions and fever subsided. A week later, he was taken for another ERCP trial but the Dormia basket was impacted and stone could not be retrieved. Post-ERCP, patient came with the basket wire

coming out of mouth (Figure 1a). A Contrast enhanced computerized abdominal scan (CECT) showed no contrast leakage but the oral contrast was noted in biliary system up to the intrahepatic ducts (Figure 1b).

Urgent surgery consultation was done and patient was prepared for urgent laparotomy. A large subcostal incision was made. Exploration revealed a 2.5 cm dilated CBD and a small gall bladder attached to side of CBD with no cystic duct. A supra-duodenal choledochotomy was done and both the stone and basket were retrieved carefully. The duodenum was kocherized and a 2 cm incision was made on the superior aspect. A side to side choledocho-duodenostomy using continuous Vicryl 3/0 stitch was fashioned. Cholecystectomy was done for a Mirizzi syndrome, type 2 gall bladder (Figure 3). A large drain was left.

In Morrison's pouch and abdomen closed in layers. From the third postoperative day, a low output biliary fistula of less than 200 ml/24 hrs was noted. Clinically, patient gradually improved and became afebrile, maintaining vital signs. The abdomen was soft with mild tenderness at the wound site. Ultrasonography failed to show significant free intraperitoneal collection. Patient was kept on conservative measures, including: TPN, SC octreotide 60 mg Q8 hrs, IVF, IV meropenam, IV omeprazole, SC clexan. Another MRCP failed to show the exact site of the minimal leakage (Figure 2b).

Over the following days, our patient improved both clinically and bio-chemically, tolerating oral feeds and drain output ceased on the 9th post-operative day. Drain was removed and patient discharged on 11th post-operative day in a good condition. He was seen for follow up in surgery OPD and was free of complaints.



**Figure 1: The basket wire coming out of patients' mouth (a) CECT photo showing a reflux of oral contrast inside the hugely dilated CBD; and (b) also intrahepatic ducts that show aerobilia.**



**Figure 2: Pre-operative MRCP showing a hugely dilated CBD and common hepatic, hepatic, and intrahepatic ducts(a) post-operative MRCP showing improvement of the situation, with reduction of size of biliary system; and (b) a drain is seen also in Morison's pouch.**



**Figure 3: Post-operative photo of retrieved (1) Dormia basket; (2) large CBD stone; and (3) gallbladder.**

## DISCUSSION

Due to the improvement of minimally invasive surgery and also of diagnostic and therapeutic endoscopy, the current management of CBD stones associated with gall stone is pre- or intra-, or post-operative (laparoscopic or open) ERCP with sphincterotomy and retrieval of stones by balloon or basket.<sup>1,2</sup> The success rate for endoscopic retrieval of CBD stone is about 90%. 5-10% incidence of complications may occur; ranging from mild to serious including: pain, hemorrhage, perforation and severe pancreatitis.<sup>3-5</sup> Impaction of Dormia basket during extraction of common bile duct stone by ERCP is a very rare but serious complication, accounting for 0.8%.<sup>3</sup>

60% of ERCP failure is reported to be due to impacted large stone. Also, the most likely cause of Dormia basket impaction in the CBD is a large stone (more than 2 cm), inadequate sphincterotomy or tissue edema due to the presence of impacted stone.<sup>4,6</sup> Our patient had a 2.6 cm stone which got entangled within the fibers of the basket making the retrieval of the stone and basket impossible.

Many procedures have been reported for retrieval of the impacted stone and Dormia basket without referral to surgery. Extension of the sphincterotomy, Extracorporeal shock waves lithotripsy (ESWL) to break the stone, mechanical, electro-hydrolic or laser lithotripsy or by dissolving agents has all been used and reported in the literatures.<sup>6-8</sup> Percutaneous methods have also been used for removal of impacted dormie.<sup>5</sup> If these procedures fail or lack of expertise, then surgery will be the only choice available. We preferred the open surgery to address the whole story at one go, including cholecystectomy for Mirizzi syndrome, retrieval of impacted large stone and Dormia basket together with some form of internal drainage in the form of choledocho-duodenostomy that is best option in his situation with hugely dilated CBD. This avoids the need for many procedures that may harm a patient with very rare and serious complication.

## CONCLUSION

While impacted Dormia basket is a very rare serious complication of ERCP, selection of patient is a very important factor for its prevention. If this complication occurs surgery should be offered as first choice to the patient.

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