

Case Report

Surgical management of the impacted dormia basket during ERCP

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ABSTRACT

The incidence of associated common bile duct stones in patients undergoing cholecystectomy is 10%. The present day management of common bile duct stone is pre- or post-operative endoscopic retrograde cholangio-pancreatography and clearance of common bile duct. Complications of ERCP and CBD stone extraction have been reported to occur in 5 to 10% cases which may range from mild to life threatening. Here we report a case of cholelithiasis with choledocholithiasis with obstructive jaundice and patient while undergoing ERCP and stone retrieval had complication of impacted dormia basket which was managed by surgery.

Keywords: Common bile duct stone, Impacted dormia basket, ERCP

INTRODUCTION

The current management of common bile duct stone associated with gall stone is pre- or post operative (Laparoscopic or open) endoscopic retrograde cholangio-pancreatography (ERCP), sphincterotomy and clearance of the common bile duct (CBD) stone by balloon or basket.^{1,2} One sitting laparoscopic cholecystectomy and laparoscopic common bile duct exploration and stone removal is also being done more frequently. But this requires advanced expertise in minimally invasive surgery. This may not be available in all the centers. So still in majority of the centers perform ERCP and CBD stone clearance followed or preceded by surgery.¹⁻⁴ The reported complications for endoscopic retrograde cholangiopancreatography are 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 less than 5%.⁴ However, with development in therapeutic techniques its incidence rate has declined to 0.8%.¹¹

CASE REPORT

A 45-year old woman presented with pain in the right upper abdomen and jaundice to our hospital. Patient was afebrile. Laboratory findings on admission showed: total bilirubin 6.4 mg/dl, direct bilirubin 4.2 mg/dl, alkaline phosphatase 240 U/L, AST 86 U/L and ALT was 64 U/L. Total white blood cell count was 11,400 / mm³. Renal functions were within normal limits. Abdominal ultrasonography showed presence of gallbladder stone along with dilation of the intrahepatic bile duct and a dilated common bile duct (CBD) of 1.4 cm diameter and a stone of 2 cm in it. As per the protocol of the department, initial ERCP and clearance of the CBD stone followed by laparoscopic cholecystectomy was planned. Next day ERCP was performed which revealed a stone in the CBD. One cm sphincterotomy was performed and stone crushing and extraction with the dormia basket was tried. Unfortunately, the dormia basket got entrapped with the stone in the CBD and in spite of repeated attempt it became impossible to remove the basket (Figure 1).

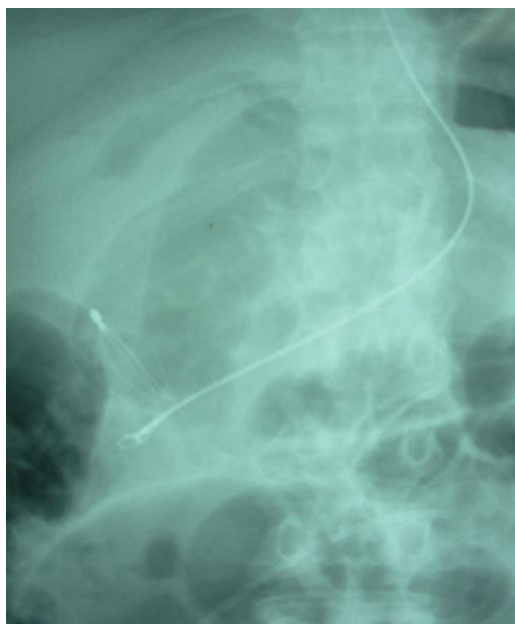


Figure 1: Plain abdominal X-ray showing impacted dormia basket in the common bile duct with the stone.

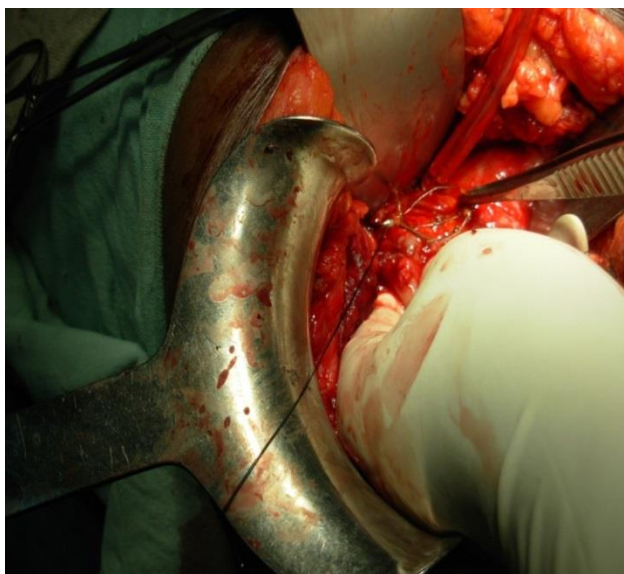


Figure 2: Intraoperative picture showing the impacted dormia basket in the common bile duct.

The patient was immediately shifted to the surgical emergency area. The patient and the attendants were informed about the serious situation and explained regarding the need for immediate surgery. After proper consent patient was taken up for emergency surgery to remove the impacted dormia from the CBD and definitive surgery for gallbladder and common bile duct stone. Open cholecystectomy and CBD exploration with the removal of the dormia from the CBD along with the stone was done (Figure 2). The size of the stone was around 2 cm in diameter (Figure 3). Intraoperative choledochoscopy revealed no residual stone in the CBD. A T-tube was inserted in the CBD. The postoperative

course of the patient was uneventful and she made a rapid recovery and was discharged from the hospital on 4th postoperative day. After 14-day T-tube cholangiogram was performed, this revealed no abnormality. The T-tube was removed on 21st day of surgery. The patient is doing well in the follow-up.



Figure 3: The common bile duct stone (2 cm diameter) with the dormia basket.

DISCUSSION

With the advancement of minimally invasive surgery along with diagnostic and therapeutic endoscopy advancement, the management of common bile duct stone associated with gall stone has undergone vast change from the era of open surgery.^{1,2} The current management of common bile duct stone associated with gall stone is pre- or post operative (Laparoscopic or open) endoscopic retrograde cholangiopancreatography (ERCP), sphincterotomy and clearance of the common bile duct(CBD) stone by balloon or basket.^{1,2} The success rate for endoscopic removal of CBD stone is about 90%.⁵ But this procedure may be associated serious complications. The reported incidence is 5-10%. Complications ranging from mild pain to hemorrhage, perforation and severe pancreatitis have been reported.³⁻⁵ Impaction of dormia basket during extraction of common bile duct stone by ERCP is a very rare but serious complication. The reported incidence is around 0.8%.⁴

The most likely cause for dormia basket impaction in the CBD is large stone (more than 2 cm), inadequate sphincterotomy and tissue edema due to the presence of obstructing stone.^{4,6} Our patient had a 2 cm stone which got entangled with the dormia making the retrieval of the stone and the basket impossible. Various procedures have been reported for successful removal of the impacted

dormia basket without the need for surgery. Extension of the sphincterotomy, extracorporeal shock waves lithotripsy (ESWL) to break the stone, mechanical, electrohydrolic or laser lithotripsy or by dissolving agents has all been used and reported in the literatures.^{4,6-9} Percutaneous methods have also been used for removal of impacted dormia.⁹ But if these procedures fail or are unavailable in the hospital than surgery have to be done. In our case the ESWL was out of order and the patient wanted a one-time procedure. The advantage of surgery is that it is a one-time procedure and tackles all the problems in one sitting. It removes the gallbladder, remove the CBD stone and the impacted dormia basket at one go. It obviates the need for further procedure which may be very traumatic for the patient both physically and mentally. Also the success rate of surgery is hundred percent and it is associated with very low morbidity.^{4,10}

In conclusion, impacted dormia basket is a very rare and serious complication of therapeutic endoscopy. The selection of patient is a very important factor for successful therapeutic endoscopy. If this complication occurs surgery should be offered as first choice to the patient.

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