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Percutaneous transhepatic cholangiography for choledocholithiasis after laparoscopic gastric bypass surgery

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ABSTRACT

INTRODUCTION: Gallstones are a common condition in bariatric patients after a laparoscopic Roux-en-Y gastric bypass (LRYGB). The management of ductal stones is challenging due to the altered gastrointestinal anatomy. Various techniques have been reported to manage bile duct stones.
PRESENTATION OF CASE: We present the successful percutaneous trans hepatic management of common bile duct stones after LRYGB.

One year after a LRYGB for morbid obesity, a 59-year-old female presented with acute cholecystitis. One month after laparoscopic cholecystectomy a 1 cm calculus was found within the distal CBD and patient underwent a percutaneous trans hepatic cholangiography under local anesthetic. This involved a right sided anterior segmental duct puncture. With the sphincter dilated to 10 mm, a balloon catheter was used to push the stone into the duodenum leaving an internal- external drain. Patient recovered completely at follow up.
DISCUSSION: Patients with morbid obesity have a higher incidence of gallstones. After LRYGB, the altered anatomy does not allow the conventional endoscopic retrograde cholangiopancreatography (ERCP) for choledocholithiasis.

Various techniques have been reported as means of managing bile duct stones in LRYGB patients. These include a double balloon enteroscope-assisted ERCP, laparoscopic transgastric ERCP, laparoscopic or open biliary surgery and interventional radiology. We report a non-surgical approach using percutaneous transhepatic technique under local anesthetic that resulted effective and could be applied more extensively.
CONCLUSION: Due to the increase of global obesity, bariatric centers need to strategically plan resources such as interventional radiology in order to manage post LRYGB choledocholithiasis safely, efficiently and in a cost effective manner.

1. Introduction

Gallstones are a common condition in bariatric patients after a laparoscopic Roux-en-Y gastric bypass (LRYGB). The management of ductal stones in these patients is also challenging due to the altered gastrointestinal anatomy. The Roux-en-Y reconstruction makes the conventional endoscopic retrograde cholangiopancreatography (ERCP) for choledocholithiasis difficult in such patients (Fig. 1). Various techniques have been proposed to treat bile duct stones in LRYGB patients. These include a double balloon enteroscope-assisted ERCP using direct cholangioscopy with the aid of a gastroscope to perform a sphincterotomy in patients after a Roux-en-Y and a Billroth II gastrojejunostomy. Laparoscopic transgastric ERCP is another option for treating biliary tract disease in LRYGB patients. This involves a combined surgical and endoscopic procedure under general anesthetic. A gastrostomy is performed through the anterior wall of the greater curve of the excluded stomach with the introduction of a duodenoscope to perform the ERCP and a sphincterotomy. Laparoscopic or open biliary surgery and interventional radiology have been also reported.

2. Presentation of case

We present the successful percutaneous trans hepatic (PTC) management of common bile duct retained stones after laparoscopic cholecystectomy in a patient who had a previous LRYGB.

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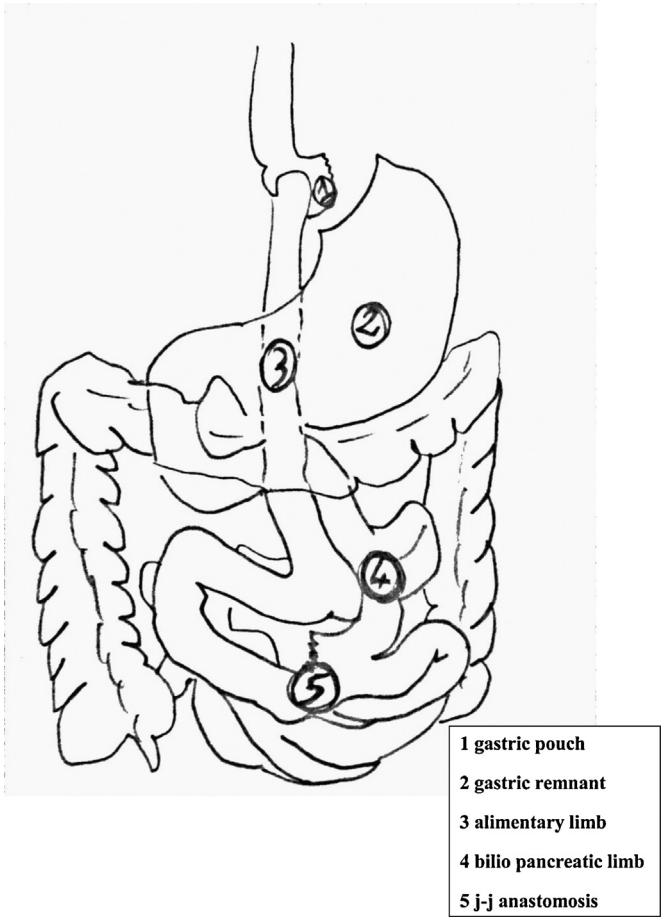

Fig. 1. Roux en Y gastric bypass – Anatomy.

A 59-year-old female presented as an emergency with right upper quadrant pain and vomiting. She had a LRYGB for morbid obesity with a body mass index (BMI) of 44.5 kg/m^2 a year before. Her BMI at the time of admission was 30.9 kg/m^2, with an excess weight loss of 62%. Her past medical history included asthma, depression and a total abdominal hysterectomy. Blood tests showed a bilirubin of 8 (0–21) μmol/l, alkaline phosphatase (ALP) of 221 (30–130) iu/l and an alanine transaminase (ALT) of 199 (0–40) iu/l. An ultrasound scan performed at the time showed an acute cholecystitis and fatty infiltration of the liver. There was no evidence of intra or extrahepatic biliary tree dilatation and no ductal stones were demonstrated. She was discharged on antibiotic treatment and liver function tests normalized in the following weeks. An MRCP demonstrated several small gallstones with no evidence of intra or extrahepatic biliary tree dilatation or ductal stones. The acute symptoms resolved in a few days and 4 weeks later an elective laparoscopic cholecystectomy was performed with an uneventful post-operative period.

The patient presented a month later complaining of epigastric pain radiating to the back and localized peritonism. Her bilirubin was 66 μmol/l, ALT 437 iu/l, ALP 849 iu/l and a normal amylase. An initial CT scan did not show any evidence of a perforation or collection. An MRCP showed mild intrahepatic duct dilatation, with a common bile duct (CBD) of 1 cm and a calculus within the distal CBD. She underwent a percutaneous trans hepatic cholangiogram (PTC) under local anesthetic (Fig. 2) through a right-sided anterior segmental duct puncture. The sphincter was dilated to 10 mm with a balloon catheter which was then used to push the stone into the duodenum leaving an 8-French internal-external drain. The patient clinically improved within a few hours with normally functioning

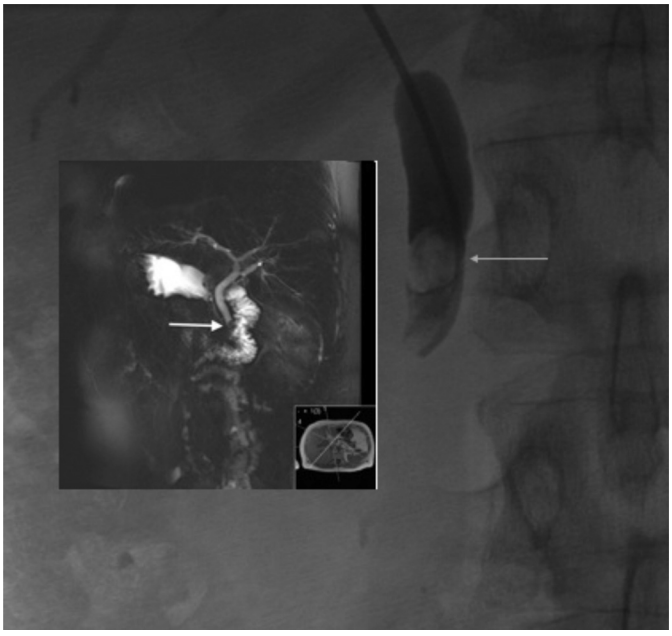

Fig. 2. The initial cholangiogram with an inset image of the MRCP showing the location of the stone in the bile duct (white arrow).

drainage. After 24 h, contrast was injected through the drain, showing no filling defects to suggest retained stones, and normal passage into the duodenum (Fig. 3). The drain was therefore withdrawn into the distal CBD and a repeat cholangiogram performed, which again showed no evidence of choledocolithiasis, demonstrating excellent drainage of the biliary tree and the internal-external drain was then removed on the same day. There was no bleeding or significant bile leak from the tract. The patient was discharged home after 2 days with improving liver function tests (bilirubin 35 μmol/l, ALT 121 iu/l, ALP 436 iu/l) and she recovered completely at follow-up six weeks later.

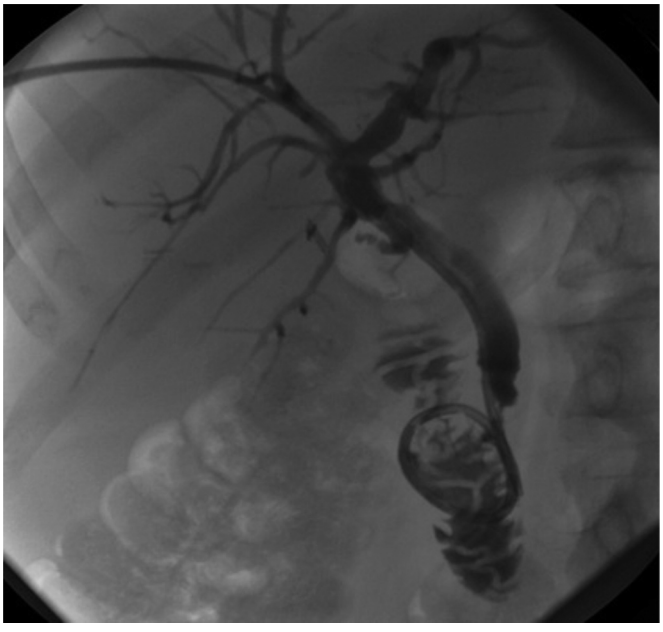

Fig. 3. Cholangiogram following injection of contrast through the pigtail drain showing no filling defects to suggest retained stones.