Management of choledocholithiasis after previous gastrectomy

S Anwer¹, R Egan², N Cross¹, S Guru Naidu¹, K Somasekar¹

¹Aneurin Bevan University Health Board, UK

²Cardiff and Vale University Health Board, UK

ABSTRACT

Common bile duct stones in patients with a previous gastrectomy can be a technical challenge because of the altered anatomy. This paper presents the successful management of two such patients using non-traditional techniques as conventional endoscopic retrograde cholangiopancreatography was not possible.

KEYWORDS

Common bile duct calculi – Biliary tract disease – Choledocholithiasis – Endoscopic retrograde cholangiopancreatography

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CORRESPONDENCE TO

Salman Anwer, E: salmananwer80@hotmail.com

The presence of a gastrojejunal anastomosis after a partial gastrectomy (Billroth II or Roux-en-Y reconstruction) has traditionally been considered a relative contraindication to endoscopic retrograde cholangiopancreatography (ERCP) as selective bile duct cannulation and intervention via an intact papilla in these cases can be technically challenging. This paper presents the management of two such patients with bile duct stones, where conventional ERCP failed.

Case 1

A 64-year-old man presented with an episode of acute gall-stone pancreatitis. He had undergone a previous partial gastrectomy and Roux-en-Y reconstruction for gastric cancer. Ultrasonography and subsequent magnetic resonance cholangiopancreatography (MRCP) confirmed the presence of multiple stones in a thick-walled gallbladder, and choledocholithiasis in a non-distended common bile duct (CBD). ERCP was attempted and confirmed the surgical changes but failed to retrieve the stones.

The patient subsequently underwent an elective laparoscopic cholecystectomy with on-table cholangiography. A laparoscopic transcystic bile duct exploration was performed as the CBD was not dilated (6–7mm). However, not all of the stones in the CBD could be retrieved owing to the limitations of this approach. A balloon sphincteroplasty (9mm × 4cm ATB® Advance® angioplasty balloon; Cook Medical, Bloomington, IN, US) was performed under fluoroscopy guidance in an attempt to facilitate stone removal. The balloon catheter was placed via the cystic duct across the papilla by the surgeon and radiologist together but the duct could still not be fully cleared. A 6F biliary

manipulation catheter (Torcon NB® Advantage; Cook Medical) was placed via the cystic duct and CBD into the duodenum to facilitate subsequent percutaneous access (Fig 1). The cystic duct was clipped snugly around the catheter and the cholecystectomy was completed, leaving the catheter in situ.

Three weeks later, a rendezvous ERCP and formal sphincterotomy was performed. The percutaneous transcystic catheter was easily repositioned near the gastrojejunostomy under fluoroscopic control in the radiology department (Fig 2). A guidewire was passed through the catheter, retrieved from the stomach using a gastroscope and withdrawn orally. The patient was reintubated with a duodenoscope over the guidewire. This facilitated intubation of the afferent jejunal loop up to the duodenal papilla, which was previously not possible. A formal endoscopic sphincterotomy and duct trawl resulted in the removal of a residual 5mm stone. Check cholangiography confirmed bile duct clearance. The percutaneous catheter was removed without complication. The patient was discharged with normal liver function tests on day 2 after the procedure.

Case 2

An 86-year-old man was admitted with a history of abdominal pain and jaundice of a few days duration. He had a past history of multiple abdominal operations, including a total colectomy for colitis, followed by a laparotomy for abdominal sepsis and resiting of the ileostomy many years later, as well as a previous partial gastrectomy (Billroth II) for a peptic ulcer.

Figure 1 Transcystic biliary catheter in the duodenum following bile duct exploration

Figure 3 X-ray showing balloon catheter along with gallstone in duodenum

The patient's liver function tests were consistent with obstructive jaundice. Subsequent imaging confirmed the presence of gallstones and an 8mm stone in the common bile duct. The biliary tree was not dilated. ERCP was

attempted but this failed. In view of his age, co-morbidities and the history of extensive abdominal surgery, the risks of laparoscopic/open bile duct exploration were deemed too high. After detailed discussion with the patient, the decision was taken to treat the bile duct stone with a percutaneous approach through the gallbladder.

A percutaneous cholecystostomy was performed initially and an 8.5F drain placed in the gallbladder. Two weeks later, the cystic duct and CBD were cannulated via the drain tract and an 8.5F biliary drain was placed across the sphincter of Oddi, which was left in for a further couple of weeks. Finally, the bile duct was accessed via the drain tract and a 10mm balloon sphincteroplasty was performed, after which the stone was pushed into the duodenum (Fig 3). Further imaging confirmed stone clearance from the CBD. The patient was discharged a few days later.

Discussion

The technical difficulties in performing endoscopic evaluation of the biliary tree in patients following gastric surgery have been well documented. An extensive search of the available literature has indicated that our first patient is the only reported case of successful treatment of choledocholithiasis with percutaneous transcystic catheter guided rendezvous ERCP and sphincterotomy, in a patient with a Roux-en-Y gastrojejunostomy.

Although some of the anatomical variants associated with previous gastric surgery can be overcome by using a forward viewing endoscope (such as the tight angle at the anastomosis site and long limb lengths), this can reduce

Figure 2 Transcystic biliary catheter near gastrojejunostomy after manipulation under x-ray guidance

the ability to cannulate the biliary tree and perform a sphincterotomy.¹ This difficulty has been overcome with our method by subsequent intubation with a duodenoscope, facilitated by a guidewire retrieved with a forward facing endoscope, thereby utilising the benefits of both scopes during the procedure. A similar method of consecutive cannulations using balloon enteroscopy in rendezvous ERCP has been reported previously as part of a percutaneous transhepatic biliary drainage approach to CBD stones in this setting.²

ERCP after Roux-en-Y reconstruction has been described using both a single balloon and double balloon endoscopy technique, both potentially allowing cannulation of Roux-en-Y limbs.^{3–5} Nevertheless, poor manoeuvrability of these scopes can lead to the passage of accessories through the working channel becoming difficult or impossible. Moreover, these are costly and technically challenging interventions that are not available in most smaller district general hospitals.

In patients who are unsuitable for surgery, a transcholecystic percutaneous approach is an option for treating bile duct stones in the setting of a smaller hospital, particularly when the biliary tree is not dilated. However, such cases need careful selection based on the clinical picture and imaging as well as detailed discussion with the patient.

Conclusions

This paper describes two different techniques for the treatment of CBD stones in patients with a previous gastrectomy and reconstruction, where conventional methods are unlikely to work. As these scenarios can be technically challenging, it may be appropriate to manage such patients only in centres with the relevant expertise in surgery, radiology and endoscopy.

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