Transjejunal laparoscopic-assisted ERCP in Roux-en-Y patient: the new right path

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ABSTRACT

The incidence of biliary lithiasis after gastric surgery seems to be higher than in the general population. Endoscopic retrograde cholangiopancreatography (ERCP) allows several biliary and pancreatic pathologies to be dealt with; however, in patients with an altered anatomy of the upper and mid gastrointestinal tract, this endoscopic manoeuvre can be extremely challenging. We report a case of a 79-year-old woman with previous subtotal gastrectomy and Roux-en-Y reconstruction, admitted with a diagnosis of cholecystitis and choledocolithiasis. She was successfully treated with transjejunal laparoscopic-assisted ERCP and laparoscopic cholecystectomy, which appears to be a safe and useful procedure for choledocolithiasis treatment in patients with surgically altered anatomy.

KEYWORDS

Choledocholithiasis – Endoscopic retrograde cholangiopancreatography – Laparoscopy – Transjejunal – Gastric surgery – Roux-en-Y

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Introduction

Patients who underwent surgical procedures resulting in a Roux-en-Y reconstruction cannot undergo routine endoscopic retrograde cholangiopancreatography (ERCP) if necessary. Among the techniques proposed to reach the papilla of Vater and perform an ERCP in such patients, laparoscopic-assisted ERCP (LAERCP) allows the papilla to be reached through either gastrotomy, if gastric remnant is available, or enterotomy on the biliary jejunal limb. To our knowledge, four cases of transjejunal LAERCP have been described to date in the literature and one more awaiting publication. The case we report is the first described in the literature without a transpapillary guide in place.^{1,2}

Case history

A 79-year-old woman who had undergone laparoscopic subtotal gastrectomy with Roux-en-Y gastrojejunostomy for gastric cancer four years previously presented with a clinical diagnosis of cholecystitis with choledocolithiasis supported by abdominal computed tomography and magnetic resonance cholangiopancreatography demonstration of common bile duct calibre of 13 mm with two filling defects inside (13 and 11 mm, respectively), cholelithiasis and slight dilation of main pancreatic duct. Her symptoms improved quickly with antibiotic therapy and laboratory examinations reverted to normal range.

One month after discharge, the patient underwent video-laparoscopic cholecystectomy with concurrent transjejunal LAERCP.

A standard French approach with four trocars was used. After gentle bowel adhesiolysis and identification of the Braun anastomosis, the biliary limb of the jejunum was drawn up to the abdominal wall through a mini-laparotomy obtained by extension of the left hypochondrium trocar incision after wound protector positioning. A 1-cm enterotomy was performed on the anti-mesenteric side of the externalised jejunum and an Olympus 145I colonoscope was introduced into the enterotomy and moved towards the papilla, which was cannulated, and a 7 Fr × 7 cm plastic biliary stent was placed to guide the sphincterotomy. A cholangiography with fluoroscopy confirmed multiple stones in the common bile duct (Fig 1), so a needle-knife sphincterotomy was performed (Bedogni II technique), the biliary stent was removed and stones were extracted using a Dormia basket (Fig 2) and a Fogarty balloon catheter (Fig 3), obtaining a subsequent normal cholangiogram (Fig 4).

The enterotomy was sutured in a double layer, the bowel returned to the abdomen and the pneumoperitoneum reinduced. The intervention ended by performing the video-laparoscopic cholecystectomy and placing a non-suction tube drain near the cystic duct stump (Fig 5). The postoperative period was uneventful and the patient was discharged six days later.

Figure 1 Cholangiogram at the beginning of the procedure. Black stars: stones in the common bile duct.

Figure 3 Cholangiogram during the procedure: extraction of the stones using a Fogarty catheter.

Discussion

The incidence of biliary lithiasis after gastric surgery seems to be higher than in the general population (which is up to 20% in Europe) and ranges from 5% to 71% depending in different studies. Pathogenetic theories suggest a role for vagotomy, the extent of gastrectomy, exclusion of the duodenum from food transit, non-physiological

gastrointestinal reconstruction and the degree of lymph node dissection.^{3,4}

Luckily, only 0.4–17% of patients require surgical intervention for symptomatic biliary lithiasis, so prophylactic cholecystectomy is still under debate and, to date, it does not seem justified.^{3,4} On the other hand, the management of biliary tract stones after gastric surgery, which become

Figure 2 Cholangiogram during the procedure: extraction of the stones using a Dormia basket.

Figure 4 Cholangiogram at the end of the procedure: no more stones in the bile duct.

Figure 5 Patient abdomen at the end of the procedure. Blue arrow: mini-laparotomy obtained by extension of the left hypochondrium trocar incision.

symptomatic in 1.9 % of cases, entails greater difficulties.⁴ The altered anatomy of Roux-en-Y reconstruction may prevent a traditional ERCP and this endoscopic manoeuvre could become extremely challenging, if not impossible, with standard equipment. The main obstacles are the intubation of the anastomosis, the length of the afferent limb to the Braun anastomosis, the cannulation of the papilla and the lack of customised endoscopes and accessories.

Success rates for traditional ERCP in patients with Roux-en-Y anatomy decrease significantly to 33%, while new endoscopic approaches including single or double balloon enteroscopy can reach up to 75% of successful diagnostic or therapeutic ERCP, performed by a single well-trained endoscopist. Nevertheless, the working channel diameter, forward viewing and the lack of dedicated accessory tools are all intrinsic limitations that could prevent a wide application of this approach.⁵

ERCP through percutaneous or surgical gastrostomy represents a feasible strategy developed in patients post-Roux-en-Y gastric bypass. However, even though this procedure allows a traditional side viewing approach to the major papilla, it is more invasive than the pure endoscopic technique.

With the progresses of laparoscopy, a mini-invasive combined surgical and endoscopic approach represents a

reliable diagnostic and therapeutic option: studies have presented encouraging results with low morbidity and high success rates. The LAERCP allows the papilla to be reached through either a gastrotomy, after Roux-en-Y gastric bypass or a transjejunal access. Even if visualisation of the papilla is more difficult, since the endoscopic instrument passes through the duodenum from below, the transjejunal technique seems to be effective and allows ERCP and sphincterotomy to be performed with traditional endoscopic accessories.

In our case, we chose to use a colonoscope instead of a duodenoscope to reduce the risk of intestinal injuries and perforation correlated to the limited visual field of side-viewing. LAERCP also has the advantage of performing consecutively ERCP and cholecystectomy within a single procedure, thus tempering inherent risks of surgery and general anaesthesia linked to LAERCP.

The surgical–endoscopic approach to the papilla gives access to complete examination of the abdomen and diagnosis of collateral conditions. A laparoscopic access, rather than open access, should be preferred for its recognised advantages: a low rate of wound infection, lower levels of postoperative pain and early return to normal activity. Finally, specific complications related with LAERCP, including bowel injury and stricture of the enterotomy site, could become negligible in expert hands.

Conclusions

To date, most authors do not recommend prophylactic cholecystectomy during gastric surgery, so procedures like LAERCP are worth implementing, considering the high prevalence of Roux-en-Y reconstruction in gastric surgery.

The laparoscopic approach to gastrectomy is gaining consensus among surgeons, so in the years to come we can expect fewer post-gastrectomy adhesions, ensuring even easier LAERCP procedures. LAERCP seems to be a safe and feasible procedure and it should represent a specific tool for choledocolithiasis treatment in high volume centres. Further studies with a higher number of cases are needed to better assess success rate, morbidity and costs of this new procedure.

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