



Transjejunal Laparoscopic-Assisted ERCP: a Technique to Deal with Choledocholithiasis After Roux-En-Y Reconstruction

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Published online: 10 April 2019
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Abstract

Introduction In Roux-en-Y reconstructions, choledocholithiasis could represent a really challenging condition to treat which can be treated by a surgical-assisted ERCP. Only six cases of transjejunal laparoscopic-assisted ERCP (LAERCP) can be found in literature to date and no large series are present.

Methods A young woman who had undergone a laparoscopic Roux-en-Y gastric bypass 2 years earlier came complaining recurrent abdominal pain. Radiologic exams found stones in the common bile duct and no signs of internal hernia. We therefore decided to perform a transjejunal LAERCP finding a concomitant internal hernia in the Petersen's space which was repaired at the same time.

Results The post-operative course was uneventful.

Conclusion Transjejunal LAERCP is a feasible technique to deal with choledocholithiasis, and it allows at the same time to identify and treat concomitant conditions like internal hernias.

Keywords Transjejunal · Laparoscopy · ERCP · Roux-En-Y · Gastric bypass · Choledocholithiasis · Video · Surgical technique

Introduction

Despite an increased incidence of cholelithiasis after gastric surgery, the use of prophylactic cholecystectomy is still under debate [1, 2]. In Roux-en-Y reconstructions, choledocholithiasis could represent a really challenging condition to deal with, due to the anatomy altered by surgery. In such conditions, traditional endoscopic retrograde cholangiopancreatography (ERCP) may be very difficult to perform and balloon-assisted ERCP success rate varies considerably [3]. Post-Roux-en-Y Gastric Bypass (RYGB) choledocholithiasis can however be treated by a surgical-assisted ERCP either by a gastrotomy or an enterotomy. Transgastric ERCP seems to have high success

rates (98%) with low associated morbidity [4]. To our knowledge, only six cases of transjejunal laparoscopic-assisted ERCP (LAERCP) can be found in literature to date and no large series are present [5–10]. Thanks to the fact the jejunal loop can easily reach the abdominal wall, this approach can be performed in all Roux-en-Y reconstruction cases, even when the gastric remnant is not attainable.

Methods

A young woman, who had undergone a laparoscopic antegastric RYGB 2 years earlier at our institution, came complaining recurrent abdominal pain. During the previous intervention, a 100-cm biliopancreatic jejunal limb and a 120-cm alimentary limb were done, without closure of internal hernia defects. Her body mass index (BMI) had changed from 42.4 to 25.9 kg/m² after RYGB. A CT scan and a magnetic resonance cholangiopancreatography (MRCP) showed a choledocholithiasis and no signs of internal hernia were present. We performed the transjejunal LAERCP under general anesthesia with a standard French approach with four trocars, with the surgeon standing between the legs. We began exploring the abdomen for other associated conditions, finding an internal hernia in the Petersen's space. The hernia was reduced

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s11695-019-03882-9>) contains supplementary material, which is available to authorized users.

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and the defect sutured. Usually, we perform first the LAERCP and then the cholecystectomy, in order to be able to do an easier trans-cystic cholangiogram if required. In this patient, however, having a long cystic duct, we decided to perform the cholecystectomy immediately. After that, holding with laparoscopic forceps a stay suture on the biliary jejunal loop, we extended the left hypochondrium trocar incision to perform a 4-cm mini-laparotomy. Through a wound protector, we extracted the gallbladder and subsequently the biliary limb. A 1-cm transversal enterotomy was done to introduce a colonoscope towards the papilla, which was cannulated with a guide-wire. A cholangiography with fluoroscopy was done, and a 7-Fr × 7 cm plastic biliary stent was then placed into the papilla to guide the needle-knife sphincterotomy. Afterwards, the biliary stent was removed and the stones were extracted using a Fogarty balloon catheter. A new cholangiogram was finally performed to control for any residual stone.

The colonoscope was then removed, and the enterotomy sutured with a double-layer absorbable suture. The bowel was returned into the abdomen, and the pneumoperitoneum induced again to check for any biliary duct lesion. A non-suction tube drain was left in place near the cystic duct stump.

Results

Operative time was 120 min. The patient began a liquid diet on post-operative day (POD) 1 and was dismissed on POD 4. Three months after the intervention, the patient has no symptoms.

Conclusion

LAERCP is a feasible technique which allows, differently from traditional ERCP, to perform at the same time the sphincterotomy and the cholecystectomy. Moreover, it permits to identify concomitant conditions, like internal hernias, which can be treated at the same time. We prefer the transjejunal over the transgastric approach because the jejunum can almost always reach the abdominal wall and can be used even when a gastric remnant is not present (such as gastric resections or biliary diversions). However, it must be said that the transgastric approach allows the use of a duodenoscope with a traditional side-viewing approach, granting an easier cannulation of the papilla. The transjejunal approach needs instead a colonoscope to reduce the risk of intestinal injuries due to the limited visual field of side-viewing. The extremely low leak rate on small bowel sutures makes the procedure theoretically safe; however, in order to avoid unnecessary contamination risk, we suggest not to try an intra-abdominal access to the bowel, notwithstanding the

subsequent risk of incisional hernia at the site of the mini-laparotomy. More cases are needed to assess success and morbidity rates.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed consent was obtained from the participant.

Statement of Human Rights All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

1. Jun K-H, Kim J-H, Kim J-J, et al. Retrospective analysis on the gallstone disease after gastrectomy for gastric cancer. *Gastroenterol Res Pract Hindawi*. 2015;2015:827864–7.
2. Brockmeyer JR, Grover BT, Kallies KJ, et al. Management of biliary symptoms after bariatric surgery. *Am J Surg*. 2015;210:1010–6. discussion1016–7
3. De Koning M, Moreels TG. Comparison of double-balloon and single-balloon enteroscope for therapeutic endoscopic retrograde cholangiography after Roux-en-Y small bowel surgery. *BMC Gastroenterol BioMed Central*. 2016;16:98.
4. Aiolfi A, Asti E, Rausa E, et al. Trans-gastric ERCP after Roux-en-Y gastric bypass: systematic review and meta-analysis. *Obes Surg Springer US*. 2018;28:2836–43.
5. Mutignani M, Marchese M, Tringali A, et al. Laparoscopy-assisted ERCP after biliopancreatic diversion. *Obes Surg Springer-Verlag*. 2007;17:251–4.
6. Saleem A, Sawyer MD, Baron TH. Laparoscopy assisted transjejunal ERCP for treatment of pancreaticopleural fistula. *JOP*. 2010;11:69–71.
7. Lopes TL, Clements RH, Wilcox CM. Laparoscopy-assisted transjejunal ERCP in a patient with Roux-en-Y reconstruction following partial gastrectomy. *J Laparoendosc Adv Surg Tech A*. 2010;20:55–8.
8. Mansor S, Abdalla S, Bendardaf R. Laparoscopy assisted transjejunal endoscopic retrograde cholangiography for treatment of intrahepatic duct stones in a post Roux-en-Y patient. *Saudi Med J*. 2015;36:104–7.
9. Surdeanu IR, Moussaoui El I, Dika M, et al. Laparoscopy-assisted transjejunal ERCP in a patient with roux-en-Y gastric bypass. *Acta Chir Belg*. 2016:1–7.
10. Mita MT, Dalmonte G, Gnocchi A, et al. Transjejunal laparoscopic-assisted ERCP in Roux-en-Y patient: the new right path. *Ann R Coll Surg Engl*. 2018:e1–3.

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