

## Diagnostic and therapeutic ERCP in symptomatic choledocholithiasis, via laparoscopic transgastric access, after roux-en-y gastric bypass

## CPER diagnóstica e terapêutica na coledocolitíase sintomática, via acesso transgástrico por videolaparoscopia, após bypass gástrico em y-de-roux

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### SUMMARY

Treatment of choledocholithiasis is a challenge in patients previously submitted to gastric bypass and especially in those already cholecystectomized. We describe here the details of a technique that was shown to be safe, minimally invasive and effective in the treatment of a patient with a calculus of 1.8 cm in the middle third of the common bile duct with various associated problems.

**Keywords:** Choledocholithiasis, Common Bile Duct, Endoscopy, Endoscopic Retrograde Cholangiopancreatography, Morbid Obesity, Bariatric Surgery.

### RESUMO

O tratamento da coledocolitíase é um desafio em pacientes previamente submetidos a bypass gástrico e especialmente naqueles que já colecistectomizados. Descrevemos aqui os detalhes de uma técnica que se mostrou segura, minimamente invasiva e eficaz no tratamento de um paciente com um cálculo de 1,8 cm no terço médio do ducto biliar comum, com várias comorbidades associadas.

**Unitermos:** Coledocolitíase, Ducto Biliar Comum, Endoscopia, Colangiopancreatografia Endoscópica Retrograde, Obesidade Mórbida, Cirurgia Bariátrica.

### INTRODUCTION

Morbid obesity is an increasingly common problem worldwide<sup>6</sup>, and therefore, there is increasing utilization of surgical procedures for the treatment of this disease<sup>5</sup>. One of the preferred techniques is the Roux-en-Y gastric bypass. This technique which generally leads to rapid weight loss is associated with the formation of biliary calculi and consequently to its complications (e.g., acute pancreatitis, cholangitis, symptomatic choledocholithiasis and colecystitis)<sup>4,5</sup>. Endoscopic retrograde cholangiopancreatography (ERCP) which has become first line treatment for the resolution of calculi of the common bile duct, faces in these patients difficulties using the conventional route, in view of the tortuosities, angulations and distances of the intestinal loops and anastomoses<sup>2,4</sup>. A more viable technique is direct transgastric access which consists of the introduction of the duodenoscope through the bypassed stomach by a gastrostomy performed by videolaparoscopic surgery<sup>2,8</sup>, thereby greatly facilitating access to the duodenum and duodenal papilla<sup>2</sup>.

### CASE REPORT

A 34-year-old female patient presented with a month-long clinical picture of recurrent colic abdominal pain, located in the right hypochondrium and epigastrium, who later developed jaundice and choluria along with worsening of pain intensity. The

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patient had a clinical history of having undergone a conventional cholecystectomy ten years prior due to acute cholecystitis and ERCP and endoscopic papillotomy seven years prior because of symptomatic choledocholithiasis. She also had bariatric surgery (Roux-en-Y gastric bypass) 3 years prior, at which time abdominal ultrasonography did not suggest alterations in bile ducts.

The patient complained of abdominal pain and was submitted to abdominal ultrasonography which demonstrated dilatation of the extrahepatic bile ducts with an acoustic shadow suggestive of biliary calculus of about 1.8 cm in the middle third of the common bile duct and laboratory tests suggestive of bile duct obstruction. Based on the results, we decided on endoscopic treatment by direct access via videolaparoscopic gastrostomy of the bypassed stomach. After the procedure, the gastrostomy was kept open by insertion of a Foley catheter.

Twenty-four days after the first procedure, the patient relapsed showing abdominal pain with the same characteristics as before, requiring then a cholangioresonance which demonstrated a calculus of 1.3 cm in the distal third of the common bile duct. She was then submitted to another CPRE, via gastrostomy, with removal of the calculus. The patient from then on was asymptomatic, and the gastrostomy was closed 35 days after the second procedure. Because the patient was predisposed to the formation of biliary calculi, she was maintained on ursodeoxycholic acid at a dose of 450 mg/day.

### Surgical technique

The patient was then submitted to videolaparoscopy, where only two portals were utilized. The first portal was placed on the medial line above the navel for entrance of the optic probe. The second portal was made in the left hypochondrium, on the hemiclavicular line. Through this portal, some adhesions were removed and the bypassed stomach was pulled up to the abdominal wall. The incision was widened to 2 cm and the stomach was fixed to the abdominal musculature, with the stomach still closed. The stomach was then opened and the edges sutured to the abdominal wall, after which the endoscopic technique was performed (described next). After the endoscopic procedure, we decided to temporarily maintain the gastrostomy in case of the need for reintervention.

### Endoscopic technique

In the first procedure, the duodenoscope was introduced via gastrostomy, with progression of 20 cm of the instrument in relation to the abdominal wall, with consequent localization of the duodenal papilla which was found to be partially open by the a previous papillotomy. Next was the selective catheterization of the bile duct and cholangiography, demonstrating dilatation of the intra- and extrahepatic bile ducts and an image corresponding to a movable filling defect, located in the middle third of the common bile duct. The calculi were then extracted from the bile duct with the help of

basket and balloon catheters. At the end of the procedure a control cholangiography was performed demonstrating the unobstructed bile duct. In the second procedure, the same technique was used, where it was necessary to widen the papillotomy to remove a biliary calculus of about 1.2 cm in diameter which was located in the distal common bile duct.

## DISCUSSION

The technique described was a complete success in its therapeutic aim, being rapid, safe and without complications for the patient in question, even though it was necessary to perform a second endoscopic procedure. This modality of access of the duodenum and biliary tree was already reviewed previously by Ceppa and coworkers in a series of 10 cases, where 9 achieved therapeutic success and with no postoperative complications in any of the cases [4]. Another feasible technique that is less invasive than that described above is transoral ERCP with double balloon endoscopy. However, the difficulty of catheterization of the bile duct and the progression of endoscope due to the angulations and suture lines, together with the lack of adequate accessories and the slow learning curve for such procedure as well as limited availability of such instrumentation, make it difficult to employ this technique [6]. In the present case, it was decided to keep the gastrostomy patent with the introduction of a Foley catheter until there was certainty that the problem was resolved and with the aim of fewer surgical interventions to obtain new access. Because the patient was predisposed to the formation of biliary calculi, she was maintained on ursodeoxycholic acid indefinitely. The ERCP technique via direct transgastric access with the help of videolaparoscopy appears to be safe, efficacious and widely applicable in the treatment of calculosis of the bile ducts in patients previously submitted to Roux-en-Y gastric bypass. *Acknowledgments:* The authors would like to thank Dr. A. Leyva for his help with translation and English editing of the final draft of the manuscript.

## REFERENCES

1. Fobi MA, Chicola K, Lee H. Access to the bypassed stomach after gastric bypass. *Obes Surg.* 1998;8:289-95.
2. Martinez J, Guerrero L, Byers P, Lopez P, Scagnelli T, Azuaje R, Dunkin B. Endoscopic retrograde cholangiopancreatography and gastroduodenoscopy after Roux-en-Y gastric bypass. *Surg Endosc.* 2006;20:1548-50.
3. Mergener K, Kozarek RA, Traverso LW. Intraoperative transjejunal ERCP: case reports. *Gastrointest Endosc.* 2003;58:461-3.
4. Nakao FS, Mendes CJ, Szego T, Ferrari AP. Intraoperative transgastric ERCP after a Roux-en-Y gastric bypass. *Endoscopy.* 2007;39 Suppl 1:E219-20.
5. Nguyen NT, Hinojosa MW, Slone J, Lee J, Khiatani V, Wilson SE. Laparoscopic transgastric access to the biliary tree after Roux-en-Y gastric bypass. *Obes Surg.* 2007;17:416-9.
6. Patel JA, Patel NA, Shinde T, Uchal M, Dhawan MK, Kulkarni A, Colella JJ. Endoscopic retrograde cholangiopancreatography after laparoscopic Roux-en-Y gastric bypass: a case series and review of the literature. *Am Surg.* 2008;74:689-93; discussion 693-4.
7. Peeters G, Himpens J. A hybrid endo-laparoscopic therapy for common bile duct stenosis of a choledocho-duodenostomy after a Roux-en-Y gastric bypass. *Obes Surg.* 2009;19:806-8.
8. Roberts KE, Panait L, Duffy AJ, Jamidar PA, Bell RL. Laparoscopic-assisted transgastric endoscopy: current indications and future implications. *J Soc Laparoendosc Surg.* 2008;12:30-6.