Rapid weight loss following Roux-en-Y gastric bypass (RYGBP) for the treatment of obesity can increase the incidence of cholelithiasis formation. Nevertheless, routine simultaneous cholecystectomy at the time of bariatric surgery remains controversial. However, in case of delayed occurrence of common bile duct (CBD) stones, the difficulty to reach endoscopically the biliary tract after RYGBP should be kept in mind.

We here report the case of a patient who presented with CBD stones seven years after gastric banding followed five years later by RYGBP without associated cholecystectomy.

Our approach of transgastric laparoscopic assisted endoscopic retrograde cholangiopancreatographic followed by sphincterotomy and balloon stones extraction is illustrated.
Laparoscopic Roux-en-Y Gastric Bypass for Obesity

Operative procedure

Four abdominal trocars were introduced with the patient placed in supine position (Fig. 1).

An exploratory laparoscopy was performed to assess the feasibility of the procedure. Adhesiolysis between the liver and the gastric antrum was realised in order to obtain a wider access to the distal gastric pouch. The accessibility of the gallbladder was also satisfactory and there were no signs of cholecystitis.

A 20 mm diameter gastrotomy was then performed on the anterior aspect of the gastric antrum. The tip of the gastroscope (TJF 160R OD 11,3 mm - Olympus®) was introduced in the peritoneal cavity via the 12-mm umbilical trocar and then inserted in the antrum through the gastrotomy (Fig. 2). A sphincterotomy and CBD stones extraction by balloon were conveniently performed; the final cholangiography showing no residual stone into the CBD. The gastrostomy was then closed by four interrupted sutures placed laparoscopically and a retrograde cholecystectomy was performed. The total operative time was 90 minutes. The patient was discharged on the fourth postoperative day. Liver function tests progressively returned to normal and the patient has been free of symptoms for the past eight months.

Discussion

Bariatric surgery has been associated to gallstone formation following rapid weight loss due to Roux-en-Y gastric bypass. The weight loss induces cholesterol supersaturation of the bile, which is considered to be the etiological factor of gallstone formation. About 30% of the patients who are candidates for bariatric surgery either have already undergone cholecystectomy or present gallstones at the time of bariatric surgery (1, 2). A study on ultrasound screening after RYGBP revealed a rate of asymptomatic gallstone formation ranging from 30 to 53% within 6 to 12 months after bariatric surgery. Only 7 to 16% of the patients will develop symptomatic cholelithiasis (3).

Another multivariate analysis (4) of risk factors for gallstone formation after bariatric surgery concluded that weight loss of more than 25% of the initial weight was the only significant predictive factor for gallstone formation after RYGBP. These data suggest to select those patients for post operative ultrasound screening and subsequent cholecystectomy once gallstones were identified.

However, in case of CBD stones, the main clinical and technical problem following RYGBP is the difficulty to...
reach endoscopically the biliary tract to perform CBD stones extraction.

The double balloon endoscopic technique has been reported which permits to reach the biliary tract via the gastrojejunostomy loop (Fig. 3) and even to check the gastric pouch if necessary (5-7). But as expected the longer and the more tortuous the Roux-en-Y limb is, the lower the success rate will be.

Other authors have chosen a transgastric laparoscopic assisted endoscopic route to perform an ERCP but in only seven cases so far (8-10). In each case the catheterisation of the ampulla of Vater by this laparoscopic-ERCP procedure was successful.

Indeed our patient had undergone several previous procedures (i.e. gastric banding and RYGBP) on the stomach for treatment of her obesity. As a consequence there were many adhesions around the stomach and in the upper compartment of the peritoneal cavity. For this case, we elected to place the trocars through the right upper part of the abdominal wall in order to avoid injury to the colon or small bowel considering the likelihood of extensive peritoneal adhesions. Anyway, the combined laparoscopic-ERCP procedure can be completed provided that there is good coordination between surgeon and endoscopist. The movements of the GI endoscope can at all time be controlled by the laparoscopic video assistance. Furthermore, the laparoscopic-ERCP procedure allows to treat the biliary tract problem and to perform a cholecystectomy at the same time. In addition, this approach has the advantage to permit ruling out other causes of chronic abdominal pain such as internal hernia and marginal ulceration in the gastric pouch (9).

Despite the fact that one study reported a rate of stone clearance of 93% by laparoscopic choledochotomy (10), the access to the CBD through the gastric remnant is also feasible and rather easy. It allows to remove big stones through the sphincterotomy, which could be impossible by choledochotomy alone, while avoiding the risk of CBD stricture related to choledochotomy (11-12). In our case, we elected not to perform a choledochotomy because the access to the CBD was hazardous and the CBD was not dilated (8 mm diameter).

An interesting variant of the technique is the percutaneous access to the gastric remnant after RYGBP using ultrasound guidance. Once a gastrostomy tube is in place, ERCP can be performed. Some authors even recommend the placement of a gastric remnant tube at the end of bariatric operation just in case of a delayed biliary problem.

Other authors have described percutaneous transhepatic technique to approach the CBD, which allows the stones to be extracted and balloon sphincteroplasty to be performed (13). This option requires intrahepatic duct dilation with its inherent risks and complications.

Conclusion

The transgastric laparoscopic approach is a reasonable alternative to get access to the biliary tract and treat simultaneously CBD stones, as well as gallbladder stones. It requires good coordination between the surgeon and the GI endoscopist in order to offer the patient a rapid and definite positive result.

Bibliography


