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ORIGINAL ARTICLE

Access to excluded structures after Roux-en-Y gastric bypass: Experience in a high-level bariatric center without a technical platform for endoscopic retrograde cholangiopancreatography

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KEYWORDS

Bariatric surgery complications;
Endoscopic retrograde cholangiopancreatography;
Gallstones disease

Summary

Background: Rapid weight loss after bariatric surgery is associated with a high prevalence of gallstone formation. In laparoscopic Roux-en-Y gastric bypass (RYGBP), the bypassed segment is not readily available for endoscopic or radiographic examination. We propose a laparoscopic Janeway gastrostomy for secondary access to excluded structures in bariatric centers with no mandatory technical equipment in endoscopic retrograde cholangiopancreatography (ERCP), double-balloon ERCP or spiral enteroscopy.

Method: This was a single-institution retrospective review of a prospectively collected database of patients with a history of laparoscopic RYGBP who underwent laparoscopic Janeway gastrostomy for duodenal and biliary access. The operative indications, technical aspects, endoscopic findings, outcomes, and complications were investigated.

Results: Five patients with a history of RYGBP underwent laparoscopic Janeway gastrostomy for exploration of the bypassed segment. All of them had biliary pathology, and all underwent successful ERCP and papillotomy. The gastrostomies were closed secondarily. The mean duration of hospitalization was 12 days. No complications developed. All procedures were performed laparoscopically.

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Conclusion: If access to excluded structures and simultaneous ERCP was not possible, temporary laparoscopic Janeway gastrostomy could be the last option alternative for a staged ERCP to gain access to the bypassed structures. It is a feasible and safe solution for the exploration and treatment of patients with a history of RYGBP in bariatric centers that have no endoscopists with expertise in ERCP.

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Introduction

The incidence of obesity has dramatically increased during the last few decades. Surgery is the only option to produce and maintain effective weight loss and treat the comorbidities associated with morbid obesity [1]. Unfortunately, the incidence of gallstone formation after bariatric surgery is higher than that in the overall population due to the rapid weight loss and altered gallbladder [2]. This is a problem for patients in whom the endoscopic access to the biliary tree remains challenging due to modified gastro-intestinal anatomy, such as patients who have undergone Roux-en-Y gastric bypass (RYGBP) or biliopancreatic diversion.

Several procedures with which to access the excluded stomach and biliary tree to facilitate diagnosis and treatment have been described. These procedures include purely endoscopic approaches with forward-viewing endoscopes or side-viewing duodenoscopes [3–5], the percutaneous transhepatic approach [6], the percutaneous transgastric approach [7–9] and the laparoscopic transgastric approach [10]. All of these methods require a hospital with both surgeons and well-trained endoscopists with specific technical platform in place.

For General Hospitals or Bariatric Centers lacking the adequate technical and logistics infrastructures, the management of patients with Roux-en-Y gastric bypass history who need endoscopic retrograde cholangiopancreatography (ERCP) or exploration of the excluded stomach, remains very difficult. In our university bariatric center, we developed a staged approach involving a temporary Janeway gastrostomy [11] that endoscopists can use to perform diagnostic and therapeutic endoscopy in the immediate future.

Methods

Patients' characteristics

Patients were identified using a prospectively maintained database of all procedures performed for bariatric patients. After gaining approval from the institutional review board, we completed a retrospective analysis of these prospectively collected data. All patients ($n=5$) who underwent laparoscopic Janeway gastrostomy from 2004 to 2014 were included in the study. The following data were retrieved: patients' demographics, presenting symptoms, body mass index (BMI) before RYGB, BMI at the time of exploration of the excluded structures, time period after RYGB, indication for the gastrostomy, surgical and endoscopic findings, and outcomes. Data concerning the endoscopic procedure were retrieved from the database of the regional hospital after approval from the local ethics committee.

The primary outcome measurements were cannulation rates of the papilla and therapeutic success. The secondary outcome measurements were hospital stay, complication of Janeway gastrostomy and complication of ERCP (hemorrhage, pancreatitis, perforation).

Surgical method

The gastrostomy procedure was the same for all 5 patients (Video 1). The patient was placed in the decubitus position with the legs abducted, the surgeon stood between the patient's legs, and the assistant stood on the patient's right side. First, we established pneumoperitoneum to a pressure of 17 mmHg using a Veress needle through a left upper flank incision. Care was taken to ensure that the incision for the Verres needle was adequately distant from previous incisions. A 10-mm trocar was inserted through a supraumbilical skin incision for a 30° laparoscope. The second and third trocars were placed in the right lateral abdomen along the midclavicular and auxiliary line (5 mm and 10 mm) for the working instruments and live retraction. Initial adhesiolysis was needed to access the area under the liver and the anterior face of the excluded stomach because of previous interventions. During the initial adhesiolysis, care was taken to entirely liberate the excluded stomach from the adhesions. After the adhesiolysis, a 15-mm trocar was inserted into the left upper abdomen approximately at the midclavicular line. This trocar puncture site serves as the exit of the gastrostoma and consequently must be placed in a position according to the location and mobility of the excluded stomach. Creation of this puncture site must also take into consideration the direction and length of the gastric tube, which will be the channel of the gastrostoma. Moreover, close attention must be given to the direction of this gastric channel to facilitate the future introduction of the endoscope. An angle that is too acute can be a constraint during the future endoscopy.

Next, a purse string suture was placed on the anterior wall of the stomach for traction. A 6-cm-long gastric tube was formed from the excluded stomach fold using an endoscopic stapling device (Endo GIA 30 mm Articulating Medium/Thick Reload; Covidien/Medtronic, Minneapolis, MN, USA). Using the fixation forceps, this gastric tube was led out through the 15-mm trocar site after evacuation of the pneumoperitoneum (Fig. 1) and extended about 1 cm beyond the abdominal wall. The distal end was opened and fixed to the skin (Fig. 2) with absorbable sutures (3-0 Vicryl; Ethicon, Somerville, NJ, USA). A Foley catheter was inserted and left in place for gastric decompression. On the third postoperative day ("maturation" period), a standard adult side-viewing duodenoscope was introduced through the gastrostomy and ERCP performed in a regional

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