



Endoscopic retrograde cholangiopancreatography and gastroduodenoscopy after Roux-en-Y gastric bypass

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Abstract

Background: The use of Roux-en-Y gastric bypass (RYGB) for morbid obesity has raised concern that subsequent endoscopic evaluation of the gastric remnant and duodenum is difficult. By gaining percutaneous access to the gastric remnant, however, both gastroduodenoscopy and endoscopic retrograde cholangiopancreatography (ERCP) can be performed easily. This report describes the results of a novel technique for performing “transgastrostomy” gastroduodenoscopy and ERCP.

Methods: Six patients with a RYGB for morbid obesity underwent transgastric remnant endoscopic evaluations. If a gastric remnant tube had not been placed during prior surgery, one was placed percutaneously by an interventional radiologist. The tube tract then was dilated to either 20- or 24-Fr. At the time of endoscopy, the gastrostomy tube was removed and the skin anesthetized. Then either a pediatric duodenoscope (outer diameter, 7.5 mm) or a slim gastroscope (outer diameter, 5.9 mm) was inserted through the gastrostomy tube tract.

Results: Percutaneous gastroduodenoscopy was successfully performed for all six patients. The findings included two patients with prepyloric ulcers identified and assessed with a biopsy, one patient with intestinal metaplasia and a benign gastric polyp, and three patients with a normal gastric remnant and duodenum. A nonstrictured enteroenterostomy was noted in one of the three patients with a normal endoscopic evaluation. Percutaneous transgastrostomy ERCP was performed for three of the six patients who underwent gastroduodenoscopy. The findings included one patient who had papillary fibrosis treated with a sphincterotomy, a second patient with a normal biliary tree, and a third patient with a normal pancreatic duct. Selective cannulation of the common bile duct was not successful in the third patient.

Conclusion: The transgastrostomy endoscopic route ensures access to the excluded stomach and proximal small bowel after RYGB. This route is safe and effective, allowing the use of a duodenoscope to improve the cannulation success rate for ERCPs in this patient population.

Key words: Bariatric — Bilio — CBD — Common bile duct — Endoscopy — Endoscopic retrograde cholangiopancreatography — ERCP — Obesity

Obesity has become a national health problem in the United States. Obese patients are at increased risk for a number of diseases. Therefore, management of obesity is a public health priority. Over the past 20 years, the Roux-en-Y Gastric bypass has been successfully used as a treatment for morbid obesity. However, due to anatomic reconstruction of the gastrointestinal tract, subsequent endoscopic evaluation of the gastric remnant, duodenum, and biliary tree has been difficult.

A retrospective look at the literature shows that several disorders can affect the bypassed stomach [3, 4, 7]. Intestinal metaplasia, bleeding ulcers, anastomotic strictures, intestinal polyps, gastric cancer, and biliary/pancreatic abnormalities have been reported after Roux-en-Y gastric bypass. Because of these potential complications, a dependable route for endoscopic evaluation of this growing patient population must be identified.

Percutaneous access to the gastric remnant after Roux-En-Y gastric bypass using ultrasound or computed tomography (CT) scan guidance has been described [1, 9]. Once a gastrostomy tube is in place, both gastroduodenoscopy and endoscopic retrograde cholangiopancreatography (ERCP) can be performed easily.

We present a novel method for performing a “transgastrostomy” gastroduodenoscopy and ERCP for patients who have undergone an Roux- En-Y gastric bypass for morbid obesity.

Methods

Six patients were referred to our surgical endoscopy unit for endoscopic evaluation of the bypass segment of the bowel 2 to 20 years after a Roux-en-Y gastric bypass for morbid obesity. All six patients required gastric remnant and duodenal endoscopy. Evaluation of the enteroenterostomy was requested for one of the six patients. Three of the six patients required ERCP for biliopancreatic abnormalities.

An appropriately sized gastrostomy tube and a healed gastrostomy tract were required before transgastrostomy endoscopy. If the patient did not have a gastrostomy tube, one was placed by an interventional radiologist. This was achieved by identifying and insufflating the gastric remnant under CT scan guidance. After the stomach had been dilated, a 14-Fr gastrostomy tube was inserted under fluoroscopic guidance. The gastrostomy tract was dilated until it could accommodate a 20-Fr tube for gastroduodenoscopy or a 24-Fr tube for ERCP. The tube was upsized every 2 to 3 weeks until the goal size was reached.

At the time of endoscopy, the tract site was anesthetized with 10 ml of 1% lidocaine. The gastrostomy tube was removed, and the endoscope was introduced through the gastrostomy tract. Two scopes were used. The first was a pediatric duodenoscope (Olympus PJF-7.5, Tokyo, Japan) with an outer diameter of 7.5 mm, a working channel of 2 mm, and a length of 103 cm. The second scope was an upper endoscope (Olympus GIF XP-160) with an outer diameter of 5.9 mm, a working channel of 2 mm, and a length of 103 cm. For the ERCP cases, a Mini-Tome double-lumen sphincterotome catheter (Wilson-Cook Medical, Salem, NC, USA) was used. Before the side-viewing scope was introduced, the gastroscope was used to inspect the tract and verify that it was not disrupted. No tract disruption was encountered during the use of the scopes.

Results

Endoscopic evaluation of the gastric remnant and duodenum was successful for all the patients. For two of the three patients in whom ERCP was attempted, it was successful. For the third patient, only selective cannulation of the pancreatic duct was achieved. No complications resulted from the gastrostomy tube placement or the endoscopy.

Diagnostic and interventional techniques were performed according to the findings for each patient. The first patient had a dilated common bile duct at ERCP, and sphincterotomy was performed for papillary fibrosis. The endoscopy results for the excluded bowel were normal. The second patient presented with a dilated gastric remnant on CT scan. Endoscopic evaluation of the gastric remnant and duodenum ruled out recurrence of a duodenal tumor, which had been resected previously. The third patient, with a history of upper gastrointestinal bleed, had a nuclear medicine scan, which localized the bleeding to the gastric remnant. A healing prepyloric ulcer was seen, and a biopsy ruled out malignancy. The fourth patient required endoscopic surveillance of a prepyloric ulcer with a history of bleeding. A healing ulcer was identified, and a biopsy ruled out malignancy. The fifth patient, with a history of melena and abnormal liver function test, was found to have a benign gastric polyp and gastritis. A normal biliary tree was seen on ERCP. The sixth patient, with chronic nausea, vomiting, abdominal pain, and intermittent elevation of liver function, was found to have a normal gastric remnant and nonobstructed enteroenterostomy. The ERCP for this patient demonstrated a normal pancreatic duct, but the common bile duct was not visualized.

Discussion

With a growing population of patients who have undergone a Roux-En-Y gastric bypass for morbid obesity, investigators have been concerned about the consequent inaccessibility of the gastric remnant. Traditional ERCP has been described as nearly impossible for patients who have undergone long-limb Roux-en-Y gastric bypass. Because of these difficulties, investigators have published available techniques for evaluating this patient population.

The least invasive routes for evaluating the excluded segment of bowel involve virtual gastroduodenoscopy and percutaneous contrast approaches. These are useful diagnostic tools, but they are limited by their nontherapeutic potential. Other authors have reported a laparoscopic transgastric or intraoperative transjejunal route to ERCP [5, 6]. The route most commonly reported in the literature is the retrograde approach. Transoral retrograde endoscopic evaluation of the gastric remnant and the duodenum after gastric bypass has a reported success rate of 65% [8]. It is expected that as the Roux and Y limbs become longer, the success rate will fall. Other studies have reported a success rate of 67% for ERCP using a retrograde approach [10]. The limiting factor reported in the study was advancement of the scope along the afferent limb. Once the major papilla was accessed, biliary and pancreatic therapeutic techniques were feasible [10]. The transgastrostomy route virtually guarantees access to the major papilla. The disadvantages of the retrograde ERCP route involve the necessity of longer scopes (pediatric colonoscope or enteroscope) with a front viewing orientation and no elevator [2]. These longer scopes also render a number of ERCP tools useless.

In conclusion, we recommend the transgastrostomy endoscopic route as a safe and effective technique for evaluating the bypassed segment of the intestine in patients who have undergone Roux-en-Y gastric bypass. Once a gastrostomy tube is in place, endoscopic evaluation of the gastric remnant and duodenum is secured. The use of standard duodenoscopes and the ability to reach the area of the major papilla with minimal difficulty should improve the cannulation success rate during ERCP for this patient population.

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