

# AN ANALYSIS OF GASTROJEJUNOSTOMY STRICTURES IN 222 CONSECUTIVE PATIENTS UNDERGOING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

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## Abstract

**Introduction:** Stenosis of the gastrojejunostomy after Roux-en-Y gastric bypass occurs with all techniques used to construct the gastroenterostomy.

**Materials and Methods:** 222 consecutive patients underwent laparoscopic Roux-en-Y gastric bypass for morbid obesity. The gastrojejunostomy was performed in all patients with the 25mm circular stapler inserted transorally. Anastomotic stricture was defined as progressive dysphagia with the inability to pass a 9 mm endoscope.

**Results:** 16 patients underwent 24 upper gastrointestinal endoscopies. Stricture was found in 14 out of 222 patients (6.3%). The average size of the stenotic anastomosis was 4.6mm. All patients with stricture underwent balloon dilation at the time of endoscopy. Eight patients required one dilation, 4 patients required two dilations, and 2 patients required three dilations. There were no complications associated with the dilations and no need for reoperation in any of the patients. There were no deaths. All patients resumed tolerance to solid food with a mean follow-up of 20.35 months.

**Conclusion:** Controlled radial expansion of the anastomotic stricture to 9mm via upper gastrointestinal endoscopy is an effective and safe method of treating gastrojejunostomy stenosis after Roux-en-Y gastric bypass.

## Introduction

Stenosis of the gastrojejunostomy after Roux en Y gastric bypass is a complication that carries significant morbidity. It has been reported with both the open and laparoscopic operation, and with all surgical techniques used to construct the gastroenterostomy (1, 3, 4, 5, 6, 7, 8). Its incidence has been reported as being between 2 to 27% of patients after gastric bypass (2, 4). The incidence of gastrojejunostomy strictures, their morbidity, management, and outcomes in 222 consecutive patients undergoing laparoscopic Roux-en-Y gastric bypass were analyzed.

## Materials and Methods

222 consecutive patients underwent laparoscopic Roux-en-Y gastric bypass at New York Methodist Hospital, Brooklyn, New York between August 2001 and August 2004. All patients were operated on by the same surgeon. Data was entered prospectively into the database. The gastrojejunostomy was performed in all patients with the same technique using a 25-mm circular stapler inserted transorally. Anastomotic stricture was defined as progressive inability to tolerate solid food with the endoscopic finding of stenosis that did not permit the passage of a 9 mm endoscope ( figure 1 ).

Patients diagnosed as having an anastomotic stricture of the gastrojejunostomy underwent the following procedure of dilation. After an overnight fast, the patient was placed in the left lateral position. Sedation was done with a combination of midazolam, meperidine, and propofol. The endoscope (regular upper endoscope 2730K, Pentax, Japan – outer diameter of scope is 9.0mm, inner working channel is 2.8mm ) was inserted through the mouth and into the esophagus and gastric pouch. Once the stricture area was evaluated, balloon dilation was done under direct visualization of endoscopy. Dilation was performed with a through-the-scope balloon dilator ( figure 2 ). Controlled radial expansion balloon dilator (Microinvasive, Boston Scientific, Quincy, MA) was used. The balloon dilator's inflated outer diameter comes in a variety of sizes which range from 6mm ( 8 French ) to 20mm ( 60 French ). Dilation started at a similar size as the stricture and proceeded sequentially to 10 – 12mm, dependent on the level of post-dilation trauma around the stricture. The balloon was inflated with normal saline by using the inflation device for 30 – 60 seconds. The endoscope usually could be passed through the stricture with gentle force after dilation to 10mm. Following the procedure, the patient was discharged home after two hours observation and intravenous hydration. Patients were prescribed a proton pump inhibitor and instructed to stay on a liquid diet for two days.

## Results

Sixteen patients suspected of having stenosis of the gastrojejunostomy underwent 24 upper gastrointestinal endoscopies. The average interval between surgery and the diagnosis of stricture was 6 weeks (2-22 weeks) and the mean time from the onset of symptoms to the time of endoscopy was 1.3 weeks (0.5 to 6.5 weeks). Stricture was found in 14 out of 222 patients (6.3%). Two patients suspected of having stenosis were diagnosed with marginal ulceration. Two patients with diagnosed stricture had concomitant marginal ulceration. The average size of the stenotic anastomosis was 4.6 mm (3mm – 7 mm). All patients with stricture underwent balloon dilation at the time of endoscopy. Eight patients required one dilation, four patients required two dilations, and two patients required three dilations. Four patients were admitted to the hospital for IV hydration. There were no complications associated with the dilations and no need for reoperation in any of the patients. There were no deaths in these 14 patients. All patients with stricture resumed tolerance to solid food and have been followed-up for an average of 20.35 months (2 – 37 months) after their last definitive dilation.

## Discussion

Gastrojejunostomy stricture after Roux-en Y gastric bypass is a relatively common complication which potentially could cause considerable morbidity. Balloon dilation is an effective and safe treatment for this complication (1, 2, 3, 5) but ideally should be performed by either the operating surgeon (2, 4 ), or by a gastroenterologist who is thoroughly familiar with the technical details of the operation. We suggest that the key aspects of the technique of balloon dilation in order to avoid complications are controlled radial expansion with cessation of further dilation if any evidence of trauma becomes evident ( figure 3 ). In addition, it should not be necessary to dilate beyond 9 mm in order to achieve a satisfactory long-term dilation while at the same time avoid the complication of perforation.

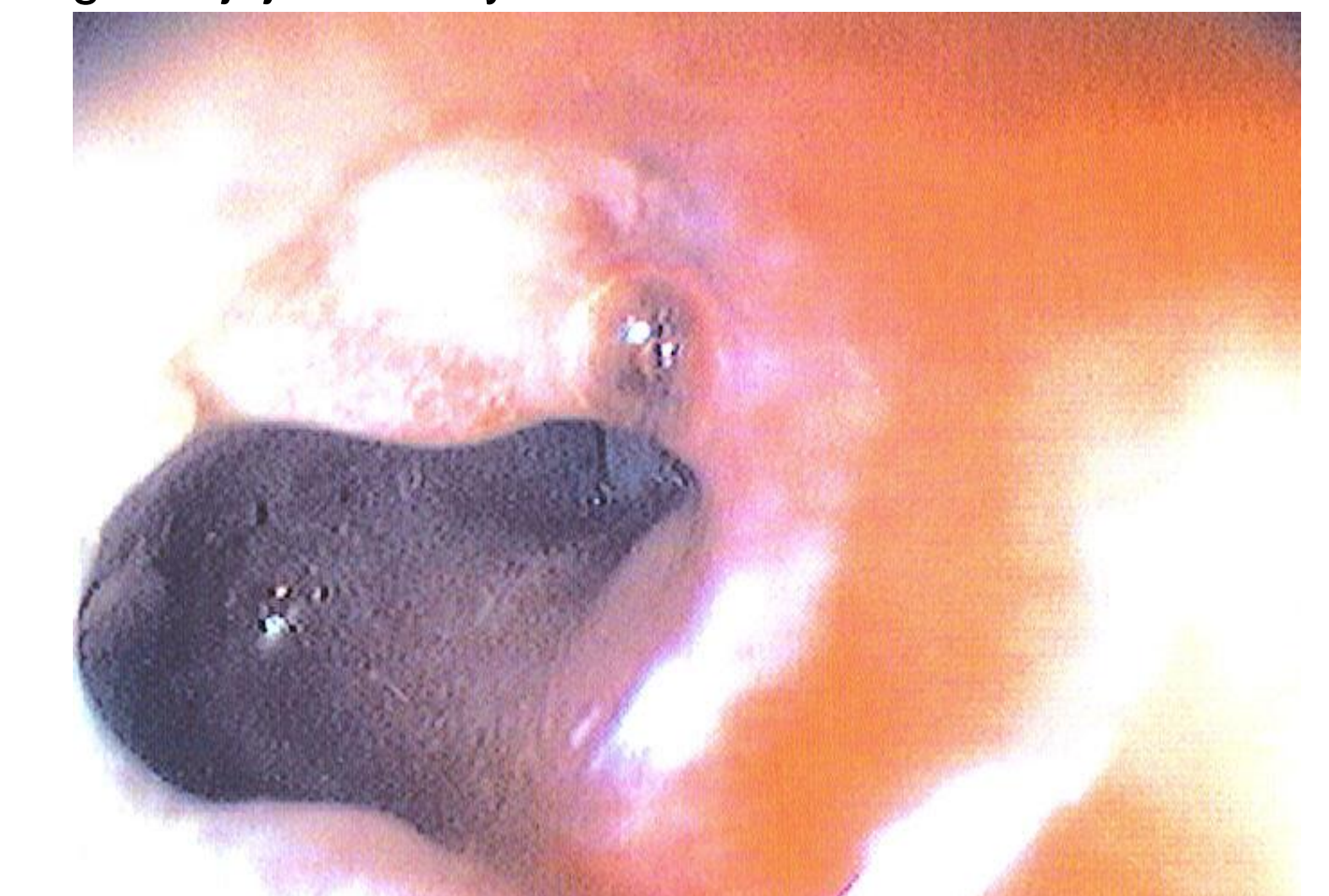
**Fig 1.** Endoscopic appearance of the anastomotic stricture



**Fig 2.** Balloon Dilation



**Fig 3.** Postdilation appearance of the gastrojejunostomy. Minimal trauma is visible.



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