TRABAJOS ORIGINALES

Stenosis in laparoscopic gastric bypass: management by endoscopic dilation without fluoroscopic guidance

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ABSTRACT

Objectives: gastric bypass is the surgical procedure that is carried out most frequently in the treatment of morbid obesity. Stenosis of the gastro-jejunal anastomosis is a relatively frequent complication that requires endoscopic management. However, the optimal dilation technique is yet to be determined. The purpose of this study was to evaluate the safety and efficacy of dilation with a hydrostatic balloon (CRE) without radioscopy guidance in morbidly obese patients treated by laparoscopic bypass.

Material and methods: retrospective review of the data elicited from 525 patients treated against morbid obesity with laparoscopic gastric bypass from January, 2006 to November, 2010.

Results: a total of 22/525 patients (4.1%) developed stenosis of the anastomosis [20 women (91%), 2 men (9%)]. In four patients (18.2%), there was an associated anastomotic ulcer, and in one case, there was a history of bleeding of an ulcer treated with sclerosis one month earlier. The diagnosis of stenosis was done in most patients during the first 90 days after the bypass. All cases were resolved by means of endoscopic dilation without radioscopy guidance, 15 cases (68.1%) required a single session, 6 cases (27.2%) two sessions, and 1 case (4.5%) required four sessions. This last case had an associated anastomotic ulcer. The diameter of the balloons ranged from 12 to 20 mm, generally using diameters of 12-15 mm in the first session, and increasing them in the following sessions according to the previous result. One patient treated with a 20 mm balloon presented with a small tear, without showing any evidence of leak of contrast medium in the radioscopy guidance, and was thus managed conservatively. In the follow-up, no re-stenoses were detected.

Conclusions: in our experience, stenosis of the anastomosis in the laparoscopic gastric bypass is an infrequent complication. When it happens, dilation with a hydrostatic balloon is an effective and safe treatment. Radioscopy guidance during dilation is not strictly necessary if norms of progressive dilation are followed.

Key words: Gastric bypass. Gastro-jejunal anastomosis. Hydrostatic balloon dilation. Stricture. Endoscopic dilation. Fluoroscopic guidance. Stenosis of the anastomosis. Obesity.

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INTRODUCTION

Obesity has become one of the main health problems in industrialized countries. In Spain, half of the adults suffer from overweight and around 20% are obese (1). This XXI century pandemic has important consequences, such as the increased morbidity and mortality in these patients. Bariatric surgery represents an effective therapeutic option in patients with morbid obesity (a body mass index, BMI ≥ 40), and among these options, gastric bypass is the bariatric surgery that is carried out most frequently. Over the last years, laparoscopic bypass has undergone great development. This route offers clear advantages compared to open surgery, such as: less blood loss during surgery, less postoperative pain, a lower incidence of wound infections, a shorter hospital stay, and a shorter period of recovery (2). The stenosis of the stoma (stenosis of the gastro-jejunal anastomosis) occurs in approximately 3-12% after gastric bypass, and must be suspected when the patient experiences dysphagia, nausea and vomiting (2-9). Endoscopic dilation of the stenosis by means of a balloon or bougie is considered the treatment of choice, even if in most studies it is not quite clear whether it should be done with or without a radioscopy guidance (4-6,9-18).

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Fig. 1. A. Stenosis of the gastro-jejunal anastomosis. B. Dilation of the stenosis with a 15 mm TTS (through-the-scope) balloon. C. Gastro-jejunal anastomosis after the dilation.

In this study, we informed of our experience in the management of the stenosis of the stoma in patients with laparoscopic gastric bypass by means of endoscopic dilation with a hydrostatic balloon, without fluoroscopic guidance.

PATIENTS AND METHODS

Retrospective review of the data elicited prospectively from all the laparoscopic gastric bypass procedures carried out by a same surgeon (J.L.C.V.) from January, 2006 to November, 2010. The surgical technique was the following: five trocars (10-12 mm) were generally used. The jejunum was sectioned at 40 cm from the Treitz angle. The feeding loop was measured to be between 100 and 150 cm, according to the body mass index. The Y-en-Roux jejuno-jejunal anastomosis was carried out with a 45/2.5 stapler, and was finished with a manual, continuous, reabsorbable suture. The gastro-jejunal anastomosis was carried out, with a 30/3.5 stapler, transversely and on the posterior side of the gastric bag's distal end, finishing it with a continuous reabsorbable suture and calibrating it with the 34F probe. Finally, water tightness was verified with methylene blue, an aspiration drain was placed between the bag and the gastric remnant, withdrawing the trocars and verifying hemostasis.

Patients who presented with symptoms of dysphagia, nausea or vomiting after the bypass underwent an endoscopy with sedation (midazolam and petidine or propofol). Stenosis of the stoma was considered if passage of the standard endoscope (9.8 mm) (videoendoscope Olympus) was hindered. The size of the stenosis was estimated by the endoscopist (J.E.), and dilation was carried out with a diameter that was deemed safe. All stenoses were dilated with a dilating TTS balloon (through-the-Scope) (CRE Wire guided Balloon Dilator, Boston S.C.) (Fig. 1). No fluoroscopic guidance was used in any patient. After dilation, patients were advised to call or schedule an appointment if their symptoms persisted.

RESULTS

Five hundred twenty five (525) patients underwent a laparoscopic gastric bypass. None needed reconversion to open laparotomy. The mean preoperative body mass index was 45.7 kg/m². Twenty seven percent (27%) of the patients had a BMI > 50 (super obese). The mean age of the patients was of 37.5 years (range: 21-52). A total of 22/525 patients (4.1%) developed stenosis of the anastomosis [20 women (91%), 2 men (9%)]. In four patients (18.2%), there was an associated anastomotic ulcer, and in one case, there was a history of bleeding ulcer treated with sclerosis one month earlier. The time between the moment the bypass was carried out and the diagnosis ranged between 26 and 768 days (mean: 126 days, median: 60 days), the majority being diagnosed within the first 90 days. All cases were resolved by means of endoscopic dilation without radioscopic guidance, 15 cases (68.1%) required a single session, 6 cases (27.2%) two sessions, and 1 case (4.5%) required four sessions (Table I). This last case had an associated anastomotic ulcer. The diameter of the balloons ranged from 12 to 20 mm, generally using diameters of 12-15 mm in the first session,

Table I

Characteristics	Value
n	22/525 (4.1%)
Gender (male/female)	2/20
Anastomotic ulcer	4 (18.2%)
Endoscopic resolution	22 (100%)
• 1 session	15 (68.1%)
• 2 sessions	6 (27.2%)
• 4 sessions	1* (4.5%)
Complications	1 (4.5%)
Re-stenosis during follow-up	0 (0%)

*Associated anastomotic ulcer.

and increasing them in the following sessions according to the previous result. One patient treated with a 20 mm balloon presented with a small tear, without showing any evidence of leak of contrast medium in the radioscopic guidance, and was thus managed conservatively. In the follow-up (mean: 27 months), no re-stenoses were detected.

DISCUSSION

In spite of the warnings about the growing incidence of obesity, it continues to rise in industrialized countries. One of the main therapies of morbid obesity is bariatric surgery, which has shown good long-term results. Laparoscopic bypass has clear advantages over open surgery, however, the possibility remains, in a variable percentage, of the appearance of stenosis of the gastro-jejunal anastomosis. The pathophysiological mechanisms involved in the formation of stenosis are not well known, although situations such as stoma ulcer, reflux, ischemia of the suture, retraction of the scar, or an inadequate technique, may contribute to its appearance (2,5). Considering the uncertainty of the pathophysiology of stenosis, as a lesser evil is to know that it is an infrequent complication and that the endoscopic treatment achieves a correct and quick resolution of the problem, in most cases, without the need for another surgical intervention.

The optimal method for endoscopic dilation of stomal strictures remains to be determined. Some authors have obtained good results by Savary-Gilliard bougies (11). Although most prefer the use of through-the-scope (TTS) (4,5,8,10,12,14-18). Our experience shows that the dilation of the stenosis of the stoma using TTS balloon is safe and effective. In our study, 68.1% of the patients were treated successfully with a simple dilation, and 95.3% with 1 or 3 sessions. Only 1 patient, who had an associated anastomotic ulcer, required 4 sessions. The rational use of dilators, according to the characteristics of the stenosis, allowed these good results. No significant complications were seen during the procedure. The majority of the initial dilations, in spite of being millimetric stenoses, were carried out with balloons of 12-15 mm. This demonstrates the safety of the dilator treatment, in spite of the dilation initiating at high gauges, and the relative low resistance of the fibrosis that conditions the stoma's stenosis. An aspect that we want to highlight in our study is that all the endoscopic dilations were carried out without fluoroscopic guidance. Published studies are not clear when it comes to describing this aspect. The minority of them clearly manifest not using fluoroscopy during dilation (4,18), others claim to have used it in all or in one of their patients (5,6,8,11,16), and finally, others do not make any sort of comment in this regard in their publications (9,10,14,15,17). Our experience demonstrates that carrying out dilations in patients with stenosis of the anastomosis in the gastric bypass is possible without a fluoroscopic guidance, allowing carrying out the technique in the

simplest manner, in the same endoscopy room, without radiation for the patient or for the medical staff, and probably for a shorter period of time.

In conclusion, stenosis of the gastro-jejunal anastomosis in laparoscopic gastric bypass is an infrequent complication. Endoscopy allows for its diagnosis and treatment, surpassing carrying out reinterventions. Carrying out a rational dilation allows, in most cases, for the initial management of stenosis with dilators around 15 mm, without the need for radioscopic guidance, and without significant complications.

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