Routine Abdominal Drains After Laparoscopic Roux-en-Y Gastric Bypass: A Retrospective Review of 593 Patients

Elias Chousleb, MD; Samuel Szomstein, MD; David Podkameni, MD; Flavia Soto, MD; Emanuele Lomenzo, MD; Guillermo Higa, MD; Colleen Kennedy, MD; Alexander Villares, MD; Fernando Arias, MD; Priscila Antozzi, MD; Natan Zundel, MD, FACS; Raul Rosenthal, MD, FACS

The Bariatric Institute and the Division of Minimally Invasive Surgery, Cleveland Clinic Florida, Weston, FL, USA

Background: The authors reviewed the benefits of routine placement of closed drains in the peritoneal cavity following laparoscopic Roux-en-Y gastric bypass (LRYGBP). The purpose of the study was to determine whether routine closed abdominal drainage provides diagnostic and therapeutic advantages in the presence of complications such as bleeding and leaks.

Materials and Methods: The medical records of 593 consecutive patients who had undergone LRYGBP from July 2001 through May 2003 were retrospectively reviewed. In all cases, antecolic antegastric LRYGBP was performed. Two 19-Fr Blake closed suction drains were left in place, one at the gastrojejunostomy and the other at the jejunojejunostomy. The incidence of bleeding and leaks was reviewed, and the utility of the drains relative to diagnosis and management was evaluated.

Results: Bleeding presented in 24 patients (4.4%); in 8, the diagnosis was based on increased sanguinous output from the drain and decreased hematocrit. None of the patients with intraabdominal bleeding required reoperation. Of the 10 patients (1.68%) who presented with leaks, the diagnosis was made within 48 hours postoperatively in 5 patients (50%), based on the characteristics of the drain output. Nonoperative management with drainage and total parenteral nutrition was accomplished in 5 (50%) of the 10 patients with leaks. There was no mortality in the series.

Conclusion: The routine use of abdominal drains after LRYGBP appears to be beneficial. Drains allowed early diagnosis of complications and in most cases, the successful treatment of leaks. When bleeding is suspected or documented, appropriate volume replacement therapy is mandatory to maintain adequate hemodynamic parameters. Drain output may orient the surgeon to take preventive measures such as discontinuing anticoagulation and early fluid resuscitation. In this series, in most cases the bleeding spontaneously stopped and no further surgical management was required.

Key words: Morbid obesity, bariatric surgery, laparoscopic gastric bypass, complications, drains

Introduction

Bleeding and anastomotic leaks, although rare, are two of the most common major postoperative complications of combined bariatric operations. Drains placed in the peritoneal cavity may facilitate identification and treatment of these types of complications. A retrospective review of our experience at Cleveland Clinic Florida was undertaken to assess the ability of routine drainage during laparoscopic Roux-en-Y gastric bypass (LRYGBP) to detect postoperative complications such as bleeding and anastomotic leaks. In addition, we aimed to assess whether drain placement provides additional therapeutic advantages in the management of patients with these complications. Despite the extensive lit-
erature regarding the use of drains in surgery, their placement is still controversial. Bariatric surgery is no different. The authors believe that bariatric patients have limited diagnostic options in the presence of such complications. Clinical signs are difficult to interpret, imaging studies are often not possible to obtain because of the patient’s physical limitations, and the use of drains may provide added safety in the postoperative care of these patients and help deal with potentially lethal complications.

Materials and Methods

The records of all patients who underwent LRYGBP from July 2001 through May 2003 were retrospectively reviewed. Patients were selected for surgery according to NIH guidelines which stipulate that patients with a body mass index (BMI) >40 kg/m² or >35 kg/m² with two or more co-morbidities, are candidates for LRYGBP; all operations were performed by two surgeons.

Procedure

After induction of general anesthesia, the airway was secured with endotracheal intubation. With the patient supine and the surgeon standing on the patient’s right side, a 7-trocar technique was used. The peritoneal cavity was accessed in all cases using the Optiview trocar (Ethicon EndoSurgery, Cincinatti, OH), and insufflation was carried out with CO₂ to 15 mmHg. The procedure commenced with dissection of the gastrophrenic ligament at the angle of His. On the lesser curvature 7.5 cm from the gastroesophageal junction, a window was dissected into the lesser sac, medial to the vagus nerve and large vessels. A 45-60 mm 3.5-mm linear stapler (Ethicon EndoSurgery, Cincinatti, OH) was used to transect the stomach and create a vertical pouch. All staple-lines were buttressed with bovine pericardium (Peristrips®, Synovis Surgical Innovations, St. Paul, MN) to help prevent bleeding and leakage. After identification of the ligament of Treitz, the small bowel was transected 50 cm distal to the ligament of Treitz. The distal end of the small bowel was then brought up to the upper abdomen in an antecolic antegastric fashion, and a side-to-side gastrojejunostomy was performed utilizing a 45-mm 3.5-mm stapler. The remaining defect was sutured closed using a double row of running 2-0 Vicryl® sutures. The omentum and mesentery were not divided. Generally, they are divided only in cases of anastomotic tension, wherein the omentum is divided first followed by the mesentery if necessary to further relieve the tension. The anastomosis was tested for leakage using air insufflation and methylene blue tests. The length of the alimentary limb was usually between 100-200 cm, depending on the individual patient’s BMI. Reconstruction was completed with a completely stapled side-to-side jejuno-jejunostomy. Two 19-Fr Blake drains (Johnson & Johnson) were inserted in the abdomen proximal to the anastomotic sites. All patients were admitted to the ICU for 24-hour observation and then transferred to the surgical ward after a negative Gastrografin® GI study confirmed the absence of leaks. All drains were removed on postoperative day 3 after resumption of bowel motility and before hospital discharge.

Parameters assessed included patient demographics, major and minor complications, and length of time to detection of postoperative complications.

Results

A total of 593 patients with a mean age of 41 years (19-64) were assessed. The mean BMI was 51.6 kg/m² (35-97), the female:male ratio was 8.8:1 and 87% of patients (N=515) had ASA class III. Of the cases, 98.6% (N=585) were completed laparoscopically at a mean operative time of 89 minutes (65-57). The mean hospital stay was 3.2 days (2-24) and complications occurred in 31.4% of patients (N=186): 18.4% (N=109) were minor and 13% (N=77) were major complications (Tables 1 and 2).

In the major complications group, bleeding was identified in 24 patients (4.0%). Of these, 16 (6.6%) presented with intraluminal bleeding detected by the presence of melena or hematemesis as well as an acute drop in hemoglobin and hematocrit levels. Eight patients (3.3%) presented with intraperitoneal bleeding, which was diagnosed by elevated bloody output from the drains and an acute drop in hemoglobin and hematocrit levels. In all patients with