

Complications of Roux-en-Y Gastric Bypass

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Rezumat

Complicațiile bypass-ului gastric pe ansă în Y

Introducere: Chirurgia bariatrică reprezintă o metodă de tratament al obezității morbide ce ridică un interes din ce în ce mai mare în ultimii ani. Dintre toate tipurile de intervenții, cel mai frecvent utilizat este bypass-ul gastric pe ansă în Y, o intervenție atât restrictivă, cât și malabsorbativă, care conduce la cele mai bune rezultate în ceea ce privește scăderea în greutate. Chirurgia bariatrică, și în special bypass-ul gastric pe ansă în Y, nu este folosită pe scară largă în România, datorită slabei adresabilități a pacienților, secundare unor deficiențe atât în informarea pacienților, cât și îndrumarea acestora de către medicii de familie și specialității în boli metabolice.

Material și Metodă: Grupul studiat a inclus 14 pacienți cu vârste cuprinse între 18 și 65 de ani și un indice de masă corporală mai mare de 40 kg/m². Scopul acestui studiu este de a prezenta complicațiile apărute la acești pacienți la care s-a efectuat bypass gastric pe ansă în Y în Clinica de Chirurgie a Spitalului Clinic Municipal de Urgență Timișoara. Intervenția a fost efectuată printr-o laparotomie xifo-ombilicală. Postoperator, pacienții au fost evaluați la o lună și ulterior la fiecare 3 luni, timp de 2 ani.

Rezultate: Singurele complicații întâlnite au fost supurațiile de plagă (7/14 – 50%) și eventrațiile (5/14 – 35,71%).

Concluzii: Pacienții din grupul nostru au dezvoltat doar compli-

cații legate de plaga operatorie, acestea putând fi minimizate prin modificarea tehnicii de sutură a peretelui abdominal. Cu toate riscurile pe care le implică, bypass-ul gastric trebuie efectuat, oferind pacienților obezi șansa la o viață mai bună.

Cuvinte cheie: obezitate, bariatrică, bypass, complicații

Abstract

Introduction: Bariatric surgery is a method of treating morbid obesity, which has been raising more and more interest in the past years. Among all types of intervention, the most frequently used is Roux-en-Y gastric bypass, an intervention both restrictive and malabsorptive, which leads to best results in weight loss. In Romania, bariatric surgery, and especially Roux-en-Y gastric bypass, is not widely practiced due to poor addressability of patients, both due to lack of information, and to poor recommendation from general practitioners and specialists in metabolic diseases.

Material and Method: The study group includes 14 patients aged between 18 and 65 years old, with BMI above 40 kg/m². The study aims to present the complications that occurred in this group of patients in which we performed Roux-en-Y gastric bypass in the Surgery Department of the Emergency City Hospital Timișoara. The surgery was performed by xifo-umbilical laparotomy technique. Subsequently, patients were followed postoperatively at 1 month, and then every 3 months, up to 2 years.

Results: The only complications we found were wound infections (7/14 – 50%) and incisional hernias (5/14 – 35.71%).

Conclusions: We only found in our group only complications related to the postoperative wound that can be minimized by modifying the suturing technique of the abdominal wall.

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Gastric bypass should be performed despite all incriminated risks, providing a better lifestyle to obese patients.

Key words: obesity, bariatric, bypass, complication

Introduction

Because of the comorbidities, morbid obesity is a major health problem worldwide, requiring a multidisciplinary approach. Over time, various therapeutic methods were imagined for its treatment, both medical and surgical. The increasing interest in treating morbid obesity is determined by the multitude of obesity related complications that affect patient's quality of life and can shorten patient survival. High blood pressure, hypercholesterolemia, increased risk of stroke and myocardial infarction or diabetes are the most frequent, but they represent just a small part of all possible complications.

Because of the obtained results, bariatric surgery has become, in the past years, the treatment of choice for this type of obesity (1). The currently used methods are Roux-en-Y gastric bypass, vertical banded gastroplasty, gastric banding and biliopancreatic bypass. Bariatric surgery is addressed to patients with a body mass index (BMI) above 40 kg/m² or a BMI between 35 and 40 kg/m² with significant comorbidities (2).

Gastric bypass is the most common procedure (2,3) used to treat morbid obesity and has the advantage of a double mechanism: restrictive, by reducing the gastric reservoir to 20-50 ml, and malabsorptive by excluding a variable portion of the jejunum from the digestive tract, which induces weight loss in these patients (4). Gastric bypass surgery can be done both in an open and a laparoscopic way. When the laparoscopic approach in these patients is not possible, either due to lack of appropriate technical equipment or of trained personnel, open gastric bypass remains the saving solution for obese patients.

Although the morbidity rate after gastric bypass dropped from approximately 40% in the pathfinder century to 10% nowadays (4), because of the learning curve, postoperative complications of bariatric surgery are still a problem requiring solution. Complications can occur early or late. Most of the early complications are pulmonary thromboembolism, anastomotic leakage or postoperative wound infections (3). Late complications are more numerous and more frequent, incisional hernias, dumping syndrome, mineral and vitamin deficiencies (2), anaemia, kidney or gall stones and intestinal obstruction being just a few (5). Worth mentioning are anastomotic ulcers (6), gastritis or digestive bleeding on distal stomach (7), and not least the psychological implications of gastric bypass surgery on obese patients.

Material and method

This study was conducted on a group of patients that addressed the surgeon on their own initiative requesting this

kind of intervention. Before the procedure, we assessed their indication to undergo it, in accordance with international recommendations: age 18-64 years, body mass index (BMI) > 40 kg/m² or > 35 kg/m² and the presence of at least two comorbidities (diabetes mellitus, high blood pressure, sleep apnoea or respiratory insufficiency, dyslipidemia, coronary heart disease or cardiomyopathy, significant musculoskeletal dysfunction), history of morbid obesity for at least five years, strong motivation and good compliance of the patient. We did not accept patients who had contraindications, namely: history of alcohol or drug abuse, bulimia, psychosis, previous bariatric surgery or major abdominal surgery for other conditions, Cushing's disease, chronic use of glucocorticoids, immobilization in a wheelchair before becoming obese.

The study group included 14 patients, 9 women and 5 men. The average age was 38.69 years with extremes of 18 and 53. Mean BMI was 46.74 with extremes of 55.37 and 40. It should be noted that the peculiarity of this group of patients undergoing bariatric surgery is represented by their self-addressing to the surgeon in order to assess the possibility of benefiting from this type of treatment.

Surgery was performed through median xifo-supraumbilical incision. After opening the peritoneal cavity and exploring it, we applied the same technique in all patients. We made a high gastric resection leaving a small gastric reservoir with a volume of approximately 50 ml. We resected the distal antrum to a level that we clogged with separate wires in double layer. We prepared the Y loop, by sectioning the jejunum about 25 cm from the Treiz angle. Implantation in the ileum was performed at a distance between 80 and 120 cm depending on the patient's BMI. Gastric anastomosis, both anterior and posterior layers, was performed with continuous suture (sourjet). On 11 of the patients we performed tactic cholecystectomy, in order to prevent further biliary complications (gall stones, biliary dyskinesia) due to the section of the vagus nerve. After checking haemostasis and washing the peritoneal cavity, we placed a drainage tube near the anastomosis, in the posterior region. In the first 11 patients, the reconstruction of the abdominal wall was performed in a total layer, with separate threads. We also applied Blair-Donatti suture to the skin. Although we did not initially use this technique, we decided to place subcutaneous drainage in the last five patients.

For the last three patients we modified the abdominal closure technique, preparing the abdominal wall in order to avoid the interposition of subcutaneous tissue in the suture. For that, we removed the subcutaneous tissue from the musculo-aponeurotic wall, up to the level where we inserted the stitches. Of course, the placement of subcutaneous drainage was mandatory for these cases.

Postoperatively, we administered anticoagulant medication, painkillers, antibiotics and parenteral nutrition. We used a combination of two antibiotics, a third generation cephalosporin and a quinolone, for a period of 5 days in all patients.

Results

Duration of surgery was variable, ranging between 4 and 5

hours, with an average of 4.42 hours. Seven of the fourteen patients required treatment and monitoring in the intensive care unit for the first 24 hours postoperatively. Postoperative evolution of the entire group of patients was favourable. Most have resumed bowel movements within 48 hours after surgery, in 4 cases this happening in the 3rd postoperative day. We have not recorded major complications, such as postoperative bleeding or anastomotic leakage. The duration of hospital admission ranged from one patient to another, with an average of 6.78 days, a minimum of 6 days and a maximum of 9 days.

Early complications occurred in seven patients (50%) and consisted in wound infections. Infections occurred between the seventh and the fourteenth day after surgery. The germs isolated in the wound were *Proteus mirabilis*, *Staphylococcus aureus*, *Klebsiella pneumoniae* and *Escherichia coli*. We administered antibiotics according to the antibiogram and we made dressings 2 times per day. In all cases the evolution was favourable, with complete healing.

Five patients (35.71%) developed late complications represented by single or multiple incisional hernias with various sizes of the wall defects. All were simple incisional hernias, with epiploic content, and did not develop any complications. Incisional hernias occurred at different periods after surgery, but most of them developed after about 6 months. In all cases we solved the wall defects surgically. No mesh reinforcement was necessary and all patients had favourable outcome.

In the last three patients where we applied the modified abdominal closure technique, we managed to avoid both, wound infections and incisional hernias so far, and to decrease hospital stay for these patients to the minimum of 6 days.

Discussions

By various tricks or changes in surgical technique, the frequency of some of the complications of the gastric bypass procedure can be reduced or they can even be avoided (8). Thus, to avoid complications of surgical wound (suppurative complications, incisional hernias), we removed the subcutaneous tissue from the musculo-aponeurotic wall, up to the level where we inserted the stitches. By preparing the abdominal wall in this way and by adding a subcutaneous drainage we managed to avoid suppurative complications and incisional hernias so far in patients where this technique had been used, but this last aspect requires further monitoring.

Among the early complications of gastric bypass cited in the literature, besides the suppurative complications discussed above, the most common are pulmonary embolism and anastomotic leakage.

Early mobilization of patients, the use of elastic stockings and low molecular weight heparin administered in prophylactic doses, prevented thromboembolism in our patients.

In order to avoid anastomotic leakage, we performed a surjet suture using 3-0 Vicryl, with a total posterior layer after previously fixing a few sero-serous threads and an extramucosal anterior layer, along with a transanastomotic nasogastric tube maintained until resumption of intestinal

transit, avoiding gastric stasis and forcing the anastomosis. We did not record any anastomotic leakage.

Creating a small gastro-jejunal anastomosis, usually between 1.5 and 3 cm (9), reduces the risk of dumping syndrome by avoiding rapid passage of the food through the gastric reservoir into the jejunum. Proceeding that way, we avoided the development of dumping syndrome.

The development of gallstones, secondary to massive weight loss in these patients (10) as well as to intraoperative section of the vagus nerve performed in the skeletonization of the lesser curvature of the stomach, has been avoided by performing routine cholecystectomy.

There are a series of complications in the distal stump of the stomach described in the literature, among which gastrointestinal bleeding, gastritis and even gastric cancer. These complications, although rare, provide real diagnostic problems, because the distal stump of the stomach is not accessible to endoscopic exploration (4). To avoid these complications we performed the resection of the distal stomach.

Conclusions

Roux-en-Y gastric bypass is a major surgical procedure, involving the possibility of multiple complications, both before and after the intervention, early and late.

The data published over the last years shows that a proper surgical technique, open or laparoscopic, is correlated with a decreased risk of complication. Most of the complications can be avoided, while those that do occur can be solved relatively easily.

Consistent with these data, we found in our group only complications related to the postoperative wound that can be minimized by modifying the suturing technique of the abdominal wall.

As discussed more and more nowadays, despite all incriminated risks, the benefits of surgery are significantly greater than the risks, leading to the conclusion that this kind of surgical treatment of obesity is worth applying, as it provides the chance to regain a more proper lifestyle for these patients and, in addition, of course, it decreases the risk of obesity-related diseases, primarily, but not limited to cardiovascular risk.

This study is an analysis of the surgical procedure and its early complications, but the group of patients will undergo a periodical follow-up, both in terms of late complications, and in terms of clinical and biological evolution.

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