

# THE MINI GASTRIC BYPASS – PARTICULAR TECHNIQUE IN THE SURGICAL TREATMENT OF MORBID OBESITY

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**Keywords:** mini bypass, technique, morbid obesity

**Abstract:** The obesity represents one of the most serious health problems of the modern society, by the high social and material costs. After the medical and comportamental methods of treatment have failed, the bariatric surgery, or surgery of obesity represents the method with best results. Among the interventions used, the laparoscopic gastric bypass is the most used on international scale. The mini gastric bypass is a simplified variant of the Roux-en-Y bypass, safer and faster in execution, with similar results. We present the technique, and some discussions about the method's effectiveness.

**Cuvinte cheie:** mini bypass, tehnică, obezitate morbid

**Rezumat:** Obezitatea reprezintă una dintre problemele grave ale societății moderne, prin costurile ridicate materiale și sociale pe care le implică. După eșecul tuturor metodelor comportamentale și medicale de tratament, chirurgia obezității sau chirurgia baritatică reprezintă soluția cu cele mai bune rezultate. Printre intervențiile chirurgicale folosite, bypass-ul gastric, tehnică mixtă de tratament, efectuat pe cale laparoscopică, este cea mai folosită metodă la scară mondială. Mini bypass-ul gastric reprezintă o variantă tehnică simplificată a acestuia, mai rapidă și sigură în execuție și cu rezultate comparabile. Prezentăm tehnica de execuție și unele discuții legate de eficacitatea metodei.

## SCIENTIFIC ARTICLE OF BIBLIOGRAPHIC SYNTHESIS

Obesity is the most common nutritional disease, and the loop of the laparoscopic Roux (Wittgrove), 1997 Mini bypass on the Roux Y loop (Griffen), 1993 Y gastric bypass in the loop of the laparoscopic Roux (Wittgrove), 1997 Mini Bypass (Rutledge). The promoter of the method is Robert Rutledge, who recognized as such by the World Health Organization since 1997. The performed the first such interventions in 1997, by laparoscopy, health experts attending the Consensus Conference in Geneva identified presenting the first report on a group of 1,200 patients in 2001 (not necessarily overdeveloped), that threatens both adults, and children. Classical method uses two procedures: Collis gastroplasty and Billroth type II gastro-enteroanastomosis (Figure 1) adolescents. Today obesity is a medical and social condition, medical costs accounting for 2-7% of the total costs of health care systems in developed countries (1). The phenomenon is even more worrying in the United States, where over 50% of the adult population is overweight or obese, 5% of the population presenting morbid obesity (2). In the period 1999-2002, of adults over 20 years, 65.1% were overweight or obese, 30.4% were obese, and 4.9% over-obese. Among children 6-19 years, 16% were overweight or obese (3).

### Objective of the study

This paper aims to present a relatively new technique used in the treatment of morbid obesity, namely gastric minibypass. This is a relatively new method in surgical treatment of obesity. The basic concept is based on gastric bypass originally proposed by Mason in 1967, but the present technique eliminates the shortcomings of the original method, along with their adverse effects.

### Gastric bypass interventions history

The technical concept underlying such interventions is derived from the surgeon's general observation that after subtotal gastric resection followed by anastomosis type II Billroth a significant and persistent weight loss is noted. Billroth II type anastomosis was and is still widely used in ulcer surgery, gastric neoplasia, or in various other interventions followed by reconstruction with gastro-enteric anastomosis. The idea was taken up and used with the emergence of obesity surgery as a branch of its own. Technical variants used have evolved in parallel with the experience and technical advances: 1967 Gastric bypass the omega loop (Mason), 1977 Gastric

bypass on the Roux Y loop (Griffen), 1993 Y gastric bypass in the loop of the laparoscopic Roux (Wittgrove), 1997 Mini Bypass (Rutledge). The promoter of the method is Robert Rutledge, who performed the first such interventions in 1997, by laparoscopy, presenting the first report on a group of 1,200 patients in 2001. Classical method uses two procedures: Collis gastroplasty and Billroth type II gastro-enteroanastomosis (Figure 1)

Figure no.1 Mini gastric bypass (after 4)



The fundamental difference from the original version ("omega loop") is that the gastrojejunal distal anastomosis is placed along the lesser curvature, at greater distance from esophageal-jejunal junction, which dramatically decreases the incidence of complications related to gastroesophageal reflux disease. Gastric bypass, area where the ghrelin is produced is taken out of the digestive circuit, thus providing an additional mechanism of weight loss.

The small gastric reservoir created along the lesser curvature is less prone to expansion in the late postoperative

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period, and lowering site of anastomosis makes it easier to achieve, and therefore less susceptible to fistula.

Intervention requires only one anastomosis, which also decreases the incidence of fistulas. Duration of surgery is also greatly reduced because of this, in his group Rutledge reported an average operative time of 38 + / - 23 minutes (4).

Placing the omega loop antecolic without mesenteric breaches is minimizing the risk of internal hernias. No mesenteric sections lower the haemorrhagic complications.

Below the main steps of the intervention in its original form:

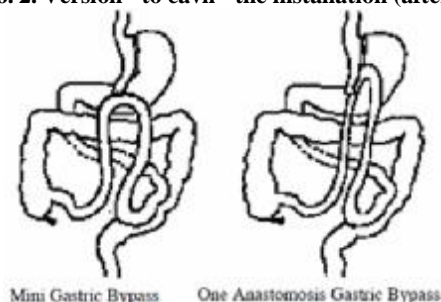
- 1) 5 working trocars are mounted, one of them with a liver retractor
- 2) A small hole in the omentum is created, for a good access to the upper posterior gastric wall
- 3) Using a endoGIA stapler the stomach is divided.
- 4) The cutting of the stomach continues upward
- 5) The new gastric reservoir is created by advancing to the eso-gastric junction
- 6) Measure 200 cm from Treitz's angle
- 7) Gastrojejunal anastomosis with endoGIA stapler
- 8) Closing of the gastric and jejunal breaches
- 9) Inspection, checking the integrity of the anastomosis

The original technique for achieving mini gastric bypass, proposed by Robert Rutledge was modified in order to optimize the intervention and reduce operative time, as well as to reduce the rate of postoperative complications, early or late

Caballero (5) proposed a modified version, where the jejunal loop is fixed to the wall of the gastric reservoir created by a few stitches (EndoStitch), before performing gastro-jejunal anastomosis with a EndoGIA stapler. This type of installation provides a "chicanery", which avoids the entero-gastric reflux, and on the other hand is relaeasing tension from anastomosis, reducing the default risk of anastomotic fistula (Figure 2).

Gastro-jejunal anastomosis is latero-lateral, and there are no symptoms related to gastric irritation after contact with digestive enzymes on a group of 200 patients. Achieving these using linear staplers reduces the risk of anastomotic stricture, one of the main complications of this intervention. (5)

**Figure no. 2. Version "to cavil" the installation (after 5)**



The final step of the intervention is placement of a drainage tube, removed at 24-48 hours postoperatively, after the radiological control with contrast.

## Communicated results in literature

### Anastomotic fistula

Fistula from the gastro-jejunal anastomosis and jejuno-jejunal bypass for the Roux Y loop is one of the most formidable complications of the procedure. The percentage of anastomotic fistula for Roux-en-Y gastric bypass varies between 0% and 5.4% (6,7). In the largest series of mini bypass, presented by Rutledge et al (4), anastomotic fistula rate reported was 1.5%, to over 1,000 cases analyzed. Mini bypass technique has only one anastomosis, and hence the risk of fistula is running low.

### Internal hernia, intestinal obstruction

"Classic" Gastric bypass graft surgery is burdened by the possibility of internal hernias, most commonly through the space posterior to the ascended loop (Petersen area) or the hole in the transverse mesocolon. Occurrence of this complication can reach values around 3%. (6,8)

Installation of the jejunal loop in continuity and total lack of mesenteric defects make the internal hernias occurrence rate extremely low. Herniation through the mesenteric space created above the omega loop is theoretically possible, but the protective effect of gravity and the great omentum, that holds the jejunum and ileon in submezocolic in space make this complication not cited in any case of mini bypass.

### Mortality peroperatorie

For large groups of patients with laparoscopic or open gastric bypass peri-operative mortality rate was 0.2% - 0.3% (7). Rutledge et al presents a mortality rate of 0.08% (4). Low duration of the intervention appears to play an important role in reducing the rate of life-threatening complications (thromboembolic complications, cardiac arrhythmias, pulmonary lesions). Also, the relative technical simplicity is less prone to anastomotic fistula, postoperative bowel obstruction, bleeding, etc.

The purpose of surgery in the treatment of morbid obesity is to get a durable excess weight with a minimal risk (mortality, morbidity). Surgery leads to an improvement in quality of life and a reduction in comorbidities. Laparoscopic surgery has advantages over the traditional interventions in terms of peri-operative morbidity, length of hospitalization and postoperative recovery. Minibypass intervention on the stomach is a viable intervention with a number of advantages that recommend the method

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