

NEW SURGICAL PROCEDURE FOR TREATMENT OF MORBID OBESITY

Novi kirurški postupak za liječenje morbidne pretilosti

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Dear Editor,

I would like to inform you and your distinguished readers about a new surgical procedure for treatment of morbid obesity that we are introducing to the surgical practice at our hospital.

Bariatric surgery has been established as the most efficient approach in the treatment of morbid obesity [1–4]. Beneficial effects of bariatric surgery are not caused primarily by restriction or malabsorption in the gastrointestinal tract resulting from the surgery, but a complete reorganization of the gastrointestinal tract with changes in the metabolic and hormonal status occurs as well. Mini gastric bypass (MGB) and sleeve gastrectomy (SG) are well established bariatric procedures [5]. Despite being effective in general, about 20% of patients do not lose weight after surgery and 15% do not show improvement in the control of glucose levels [6–8]. MGB can also at times cause hypoglycemia, which may in turn lead to excessive food ingestion and therefore compromise the weight loss.

In this novel procedure we tried to combine the metabolic benefits of both mini gastric bypass and sleeve gastrectomy. The rationale behind this approach is the observation that reduced levels of ghrelin are found after SG, whereas higher levels of the hormone incretin are noticed after MGB [9, 10]. A combination of both procedures might provide a better control in two separate endocrine hormonal systems which are important in the control of glucose and weight loss after the bariatric procedure.

Mini gastric bypass + proximal sleeve gastrectomy

The laparoscopic technique begins with CO₂ insufflation to a working pressure of 12–14 mmHg. An optical instrument is introduced supraumbilically and lateral to the medial plane. Two 12 mm trocars are inserted into the left hemiabdomen for the surgeon and assistant. The position of the trocars must enable unhindered stapler utilization as well as unobstructed dissection of the greater curvature to the angle of His and left crus of the diaphragm. The first trocar is at the level or just below the trocar for the camera and the

second trocar is closer to the costal arch and more lateral in relation to the first one. The working trocar in the left hemiabdomen enables the surgeon to perform gastric resection with tube formation for the mini gastric bypass, to dissect the greater curvature to the left crus of the diaphragm and to manipulate with the small intestine from the ligament of Treitz to the level anticipated for gastroenteroanastomosis (about 200 cm). A 12 mm trocar is inserted into the patient's right hemiabdomen which is also at the level or just below the level of the optical trocar; a working instrument or stapler can be inserted through this trocar. A liver retractor is inserted high into the epigastrium through a 5 mm incision for the trocar. Exploration of the abdomen follows with special attention to possible adhesions, omentum mobility and mesentery of the small intestine. The position of the nasogastric tube is controlled as well as stomach emptiness.

MGB+PSG begins with opening of the gastrocolic ligament with an ultrasonic knife at the greater curvature of the stomach. The opening in the ligament enables exploration of the posterior wall of the gastric body in the zone of stapler resection at the gastric body adjacent to the antrum. The *pes anserinus* (crow's foot) is the marking at the lesser curvature. Gastric resection is performed with green loading of the 60 mm stapler. The resection line goes from the greater curvature next to the antrum towards the lesser curvature (two 60 mm loadings are used). The resection line is orally to the *pes anserinus* which is preserved (Fig. 1, Line 1). Gastric resection follows in the manner of sleeve resection. A 34 calibration probe is inserted into the stomach and placed next to the lesser curvature. The stomach is then resected parallel to this probe with a stapler to the angle of His (Fig. 1, Line 2). Caution must be taken not to place the resection line too close to the esophagus. The stapler loading can be either green or blue and the stapler length is 60 mm. The greater curvature is dissected with an ultrasonic knife and the resected part of the stomach (Fig. 1, Item 3) is placed in a bag and prepared for extraction. Another possibility is to dissect the greater curvature to the level of the left crus of the diaphragm with an ultrasonic knife and then do the resection of the gastric body in

the manner of sleeve resection.

The described part of the procedure leaves a created gastric stump ready for anastomosis with the small intestine. The first portion of the small intestine from the ligament of Treitz is mobilized, usually measured at about 200 cm and an antecolic, isoperistaltic gastroenteroanastomosis is formed (Fig. 2) with a 45 mm linear stapler with blue loading accompanied by a running one-layered suture of the stapler opening.

As mentioned earlier, this procedure is based on the benefits of both mini gastric bypass and sleeve resection: one anastomosis, achieved restrictive-malabsorptive effect, deficiency of hunger stimulating hormone. The possibility of dilation and retention in the gastric stump, which consists only of the antrum with preserved peristaltic function, is reduced. The lesser gastric curvature remains with a mostly intact blood supply as the lesser curvature is not skeletonized as with the initial preparation of the lesser gastric curvature for the mini gastric bypass. If necessary this procedure may be easily converted to Billroth I procedure.

The indications for the MGB+PSG operation are identical to the indications for sleeve gastrectomy and mini gastric bypass. The time to perform the procedure is prolonged for 30–50 minutes at most in the initial phase of performing the procedure.

Future

The introduction of this procedure into the practice of our Department is a part of a project conducted at our hospital and all necessary relevant ethical approvals have been obtained. The levels of numerous hormones and markers are obtained perioperatively and a long term patient follow-up will be undertaken with monitoring of the weight loss and body mass index (BMI). I look forward to reporting the results of this

surgical procedure and the results of the follow-up of our patients.

Sincerely yours,

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Figures

Figure 1.

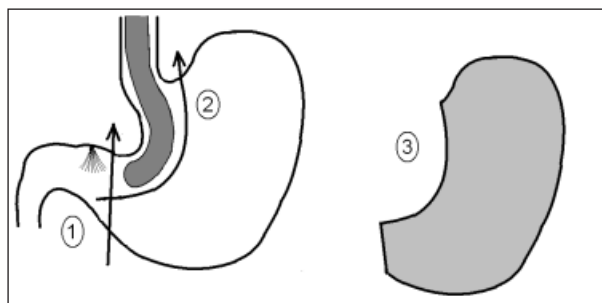
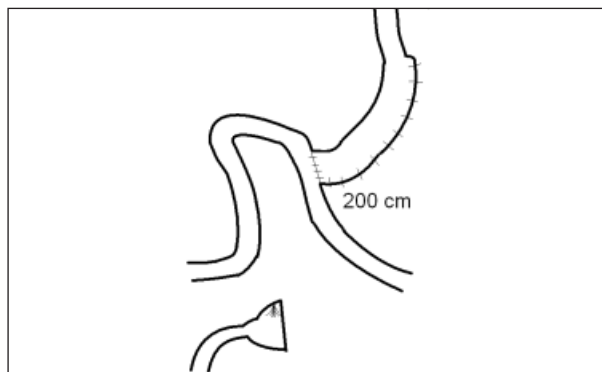


Figure 2.



References

- Nikolic M, Kulis T, Kirac I, Bekavac Beslin M. Prompt treatment of intestinal obstruction after biliopancreatic diversion can save the intestinal loop. *Obes Surg* 2008 Nov;18(11): 1495–1497.
- Grgić T, Kuliš T, Vidović D. Laparoscopic sleeve gastrectomy for morbid obesity – case report. *Acta Chir Croat* 2008;5: 20–22.
- Franjić BD, Puljiz Z, Grgić T, Matejčić A, Bekavac-Bešlin M. Laparoscopic surgery in the treatment of morbid obesity: first experiences with the Swedish adjustable gastric band at Sestre Milosrdnice University Hospital. *Acta Chir Croat* 2004;1: 9–13.
- Bekavac-Bešlin M, Car-Peterko A, Gaurina A, Diklić D, Grgić T, Filipović J. What is the bariatric surgery? *BH Surgery* 2011;1: 66–79.
- Baltasar A, Serra C, Perez N, Bou R, Bengochea M, Ferri L. Laparoscopic sleeve gastrectomy: a multi-purpose bariatric operation. *Obes Surgery* 2005;15: 1124–1128.
- Tice JA, Karliner L, Walsh J, Petersen AJ, Feldman MD. Gastric banding or bypass? A systematic review comparing the two most popular bariatric procedures. *Am J Med* 2008;121: 885–893.
- Nguyen NT, Varela E, Sabio A, Tran CL, Stamos M, Wilson SE. Resolution of hyperlipidemia after laparoscopic Roux-en-Y gastric bypass. *J Am Coll Surg* 2006;203: 24–29.
- Pinheiro JS, Schiavon CA, Pereira PB, Correa JL, Noujaim P, Cohen R. Long-limb Roux-en-Y gastric bypass is more efficacious in treatment of type 2 diabetes and lipid disorders in super-obese patients. *Surg Obes Relat Dis* 2008;4: 521–527.
- Kuliš T, Glavan E, Škorjanec S, Ledinsky M, Bekavac-Bešlin M. Biliopancreatic diversion with sleeve gastrectomy and antroileal anastomosis – case report. *Acta Clin Croat* 2007;46: 37–40.
- Lee WJ, Yu PJ, Wang W, Chen TC, Wei PL, Huang MT. Laparoscopic Roux-en-Y versus mini-gastric bypass for the treatment of morbid obesity: a prospective randomized controlled clinical trial. *Ann Surg* 2005;242(1): 20.