

First experience of laparoscopic adjustable banded sleeve gastrectomy for an extremely obese patient

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ABSTRACT

Patients with body mass index (BMI) over 60 kg/m² are considered super-super obese. This patient group, as well as patients with extreme co-morbidities, creates challenging conditions for bariatric surgery. Each step of laparoscopy, including insufflation, trocar placement, dissection, and performing complex procedures like bypass becomes technically more difficult. Furthermore, there is increased risk of postoperative complications, morbidity, and mortality in these groups. Presently described is adjustable gastric banded sleeve gastrectomy (LabSG) performed in 38-year-old female with BMI of 84.3 kg/m². Following an uneventful postoperative course, she lost 100 kg in 12-month period and BMI was reduced to 52.7 kg/m². LabSG seems to be a safe and effective alternative for super-super obese patients at experienced centers.

Keywords: Adjustable gastric banded sleeve gastrectomy; adjustable gastric banding; morbid obesity; sleeve gastrectomy; super-super obesity.

Introduction

Surgical approach is the most effective treatment for patients with morbid obesity.^[1] It's generally known that surgical treatment of super-super obesity (BMI >60 kg/m²) and high-risk patients with comorbidities is related with an increased risk of postoperative morbidity and mortality after bariatric surgery.^[2] Moreover, there are some specific difficulties in laparoscopic surgery for extremely obese patients such as an increased resistance of abdominal wall, necessity for an increased pressure of CO₂ in abdomen, longer instruments, and sometimes necessity for placing additional ports or modifying port sites.

The selection of bariatric procedure in case of extremely obese patients should be done in favor of the least traumatic procedure, given the minimal risks of complications. Sleeve gastrectomy is a recently used surgical technique with an acceptable rate of postoperative complications.^[3] It was described as the first step before a biliopancreatic diversion with duodenal switch, but it is also used as an independent procedure. The advantages of this procedure include lack of an intestinal bypass, thus avoiding gastrointestinal anastomoses, metabolic disorders, and internal hernias, shorter operating times, and



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no implantation of a foreign body.^[4] It is reported that with LSG about forty-eight percent of excess weight is lost after 6 to 8 years follow-up.^[5]

Laparoscopic sleeve gastrectomy was described as a revision bariatric procedure for failed gastric banding.^[6-8] There are some articles about banded sleeve gastrectomy in case of extremely obese patients for the prevention of gastric dilatation.^[9-11]

This case report presents our first experience of laparoscopic adjustable banded sleeve gastrectomy with one-year follow-up in the case of a super-super obese patient.

Case Report

A 38-year-old female patient weighing 267 kg and having a BMI of 84.3 kg/m² was admitted to our clinic so as to assess her present status for bariatric procedure. Her medical history suggested that in her twenties she weighed 70–74 kg with 178 cm height and worked as a confectioner. Later, she began to notice an increase in weight systematically about one or two kg per month. At the age of thirty, she weighed 120 kg (BMI 37.87 kg/m²), then at the age of 34, her body weight further increased following pregnancy. Although she temporarily lost weight with diet and exercise, eventually she gained further weight and was 267 kg at the time of hospitalization for the bariatric procedure.

Her medical history revealed that she had contracted purulent meningitis, two cranial traumas and also she attempted to suicide twice with medicines and by stabbing. Furthermore, she suffered from rheumatism with heart disease, high grade myopia, varicose veins without any trophic changes, anxiety, and depression. Preoperative instrumental examination showed: upper endoscopy -duodenal reflux, ultrasound (thyroid, abdominal cavity and gynecology) -no significant changes, echocardiography -middle pulmonary hypertension; Doppler ultrasound of feet vessels was not informative, 24 hour electrocardiography with middle rate of ventricular ectopic beats (186) and low rate of supraventricular ectopic beats (16), and 24 hour monitoring of blood pressure with no pathological changes. In her laboratory tests, there was iron deficiency (without clinical signs). Her laboratory evaluation is summarized in Table 1.

During the preparation phase for bariatric surgery, a course of antidepressants (Zoloft 100 mg/once per day) was initiated together with a light diet.

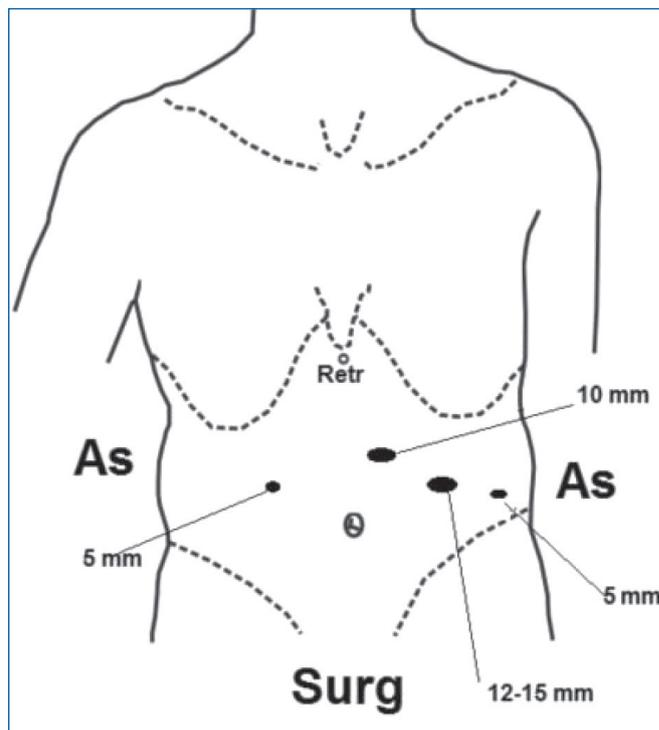


Figure 1. Surgical team and ports placement.

In April 2013, the patient underwent laparoscopic adjustable banded sleeve gastrectomy. Briefly, the patient was placed in the supine position with both legs abducted, and then Trendelenburg after first port placed. Four ports technique was used (Figure 1): 10 mm -camera port, 12 mm -main surgeon port, 5 mm -surgeon assistant port, 5 mm assistant port, and epigastric 5 mm port for Nathanson liver retractor to retract the left lateral liver segment. Gastric mobilization was performed by the Harmonic scalpel (Johnson&Johnson, USA). The window into omental bursa was made about 5 cm proximal to the pylorus. Graeter gastric curvature was mobilized till the left diaphragmatic crus and after esophagus visualization, short gastric vessels were carefully sealed and divided. Sleeve was created on the 33 Fr bougie by the Endo GIA stapler (Covidien, Ireland) using 45 mm green cartridge (2 pieces) and 60 mm blue cartridge (4 pieces). Different types of cartridges were used depending on the thickness of the gastric wall. Staple line was oversewn by the vicryl 3–0 run suture in order to prevent staple line leaks. Thereafter, the adjustable gastric banding system (Medsil, Russia) was placed on the gastric sleeve right below the esophago-gastric junction without gastro-gastric sutures, and thereby, the gastric band ring was fixed only in the lesser omentum. At the end of the surgery, abdominal cavity was drained in splenic sinus area and banding system port was placed on the aponeurosis of the external oblique abdominal

Table 1. Laboratory examination before and 6 months after LabSG

Object	Before bariatric procedure	6 months after LabSG
Hemoglobin (g/dL)	11.5	14.5
Protein total (g/L)	66.9	71.9
Glucose (mmol/L)	5.4–5.9	5.37–7.09
Cholesterol (mmol/L)	3.88	4.28
HDL (High-density lipoproteins) (mmol/L)	0.93	1.34
LDL (Low-density lipoproteins) (mmol/L)	2.28	2.35
Potassium (mmol/L)	4.03	3.75
Sodium (mmol/L)	139.6	139.2
Calcium (mmol/L)	2.27	2.45
Iron (mkmol/L)	7.7	8.2

Table 2. Vitamin levels at 6 and 9 months after surgery

Object	6 months after LabSG	9 months after LabSG
Nicotinic acid (17–85 mg/mL)	15.92	46.72
Vitamin C (4–15 µg/mL)	7.3	8.7
Biotine (>1250 µg/L)	1520	1740
Vitamin D (47.7–144 µg/L)	16.7	40.22
Vitamin B1 (30–66 µg/L)	10	15
Vitamin B2 (50–206)	58.8	98.0
Vitamin B5 (36–147 pg/mL)	23.92	52.3
Vitamin B6 (4.8–17.7 µg/L)	2.4	3.5
Vitamin B9 (3.8–23.2 ng/mL)	0.7	5.0
Vitamin B12 (25–500 pg/mL)	588.9	415.7
Retinol binding protein (20–75 µmol/L)	36.1	25.4

muscles by the anterior axillary line. The patient had an uneventful postoperative period. She started drinking on the second day after surgery and had been on a soft diet for 3 weeks. On the third day after surgery, the patient was transferred to general therapy unit and then discharged at the 6th postoperative day.

On the third and 6th month after surgery, a general check-up was performed for alimentary, laboratory and psychological status assessment and instrumental examination. There were no pathological changes in instrumental (X-ray barium scan, upper endoscopy and abdomen ultrasound scan) tests and the postoperative laboratory results are summarized in Table 1. Her psychiatric evaluation revealed signs of anxiety and depression six months after surgery, which were overcome with psychological support and a course of antidepressants. On the sixth and 9th month after surgery, advanced laboratory tests were car-

ried out and vitamins insufficiency was diagnosed (Table 2). In order to remedy vitamins malabsorption, vitamins (A, B1, B12, B9, and D) were prescribed. Weight loss one year after bariatric procedure was about 100 kg (BMI-52.7 kg/m²). She presented a stable weight loss the whole year without band adjustments and a favorable psychological status with no condition of depression after psychotherapy sessions.

Conclusion and Discussion

This case presented laparoscopic adjustable banded sleeve gastrectomy as a safe and effective bariatric procedure for patients with high risks for surgery. Systematically carried out advanced laboratory tests, together with dietary corrections and psychological support (multidisciplinary approach) are required for better results in cases of extremely obese patients.

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