First Sleeve Gastrectomy Series in Azerbaijan

Bayramov N.[1], Omarov T.[2], Zeynalov N.[3], Bayramli F.[4]

[1-4] Azerbaijan Medical University, Azerbaijan
Contact e-mail address: zeynalov.nadir@gmail.com

Abstract

Morbid obesity is one of common pathologies nowadays. Statistic results show increasing trend all over the world. While 31% of USA population has any type of obesity American Society for Bariatric and Metabolic Surgery and International Diabetes Federation consider this rate will be as high as 54% by 2050. Despite absence of official statistics number of morbid obesity patients in Azerbaijan is steadily growing.

Objectives: to start a series of bariatric operations in Azerbaijan with analysis of their results.

We have operated 18 patients with morbid obesity 2012 through beginning of 2015. There were 4 males and 14 females. Age of patients varied from 27 to 51, mean 40.7 years old. Weight of patients was 112-220 kg with according BMI 42 – 80.2, mean 59.5. 2 patients suffered from type 2 diabetes mellitus, 8 from arterial hypertension and 2 from sleep apnea syndrome. Most of female patients (12) had low level of follicle-stimulating hormone and sex hormone-binding globulin. All patients had grade 3-4 fatty liver disease. 16 patients underwent a laparoscopic gastric sleeve resection and 2 patients underwent an open Roux-en-Y gastric bypass surgery.

There was no intraoperative complication. 1 patient developed bleeding and abscess formation after a sleeve resection controlled by relaparoscopy. There was no mortality. Reduction of BMI 3 months after surgery varied from 11 to 22.2, mean 14.2. We continue the follow-up of patients.

The first results of applications of bariatric surgery in Azerbaijan are encouraging. Low morbidity and correction of concomitant metabolic disorders must help in further increase of number of patients. Laparoscopy is an optimal choice for gastric sleeve resection.

Introduction

Obesity is accepted as a chronic disease which negatively influences to life span and life quality. It is one of serious healthcare problems especially in developed countries (1, 2). Obesity is not only a problem of getting more kilos. It is a pathology provoking many other diseases and complicating them as well. Starting from type 2 diabetes mellitus and arterial hypertension the other pathologies include disorders of venous blood flow, blood hypercoagulation, non-alcoholic fatty liver disease, and disorders of reproductive system. Orthopedic problems, arthritis, increase of colon and breast cancer rate could be added to this list. Bariatric surgery allows reducing the insulin resistance, arterial hypertension and breathing abnormalities (3).

There are various techniques of surgery for obesity. First operations were quite radical (jejuno-ileal bypass, bilio-pancreatic bypass etc). Some negative results of such operations (malabsorption problem, bacterial translocation, metabolic disorders leading to liver cirrhosis) brought down to development of less radical, less invasive and more physiological approaches.

Surgical operations for obesity according to the technique could be merged in 3 groups:

1. Operations limiting food intake (restrictive procedures)
2. Operations leading to reduce in food absorption (malabsorptive procedures)
3. Operations limiting both food intake and food absorption (combined procedures)

One of most widely applied bariatric techniques is sleeve gastrectomy. Laparoscopic sleeve gastrectomy (LSG) is a relatively new operation. Volume of stomach is reduced till 75-100 ml. Among main mechanisms of its effect is the reduction of ghrelin hormone synthesis. The main features of this procedure are:

- Duration of surgery is 60-120 minutes
- Intensive care time – 0 or 1 day

- Hospital stay – 1-3 days
- Return to work – 7-12 days
- Weight loss lasts up to 12 months

Material and methods

18 patients have been operated 2012 through 2015. Indications to surgery were estimated according to IFSO 2006 criteria for bariatric surgery. Preoperative weight of patients, body mass index (BMI), and concomitant diseases were recorded. All patients underwent upper gastro-intestinal endoscopy and abdominal ultrasonography preoperatively. Chest, heart and endocrine system diseases were carefully checked with following examination of anesthesiologist and evaluation of risk of anesthesia.

All patients were administered low molecular weight heparin before and after surgery. Elastic compression of lower extremities until full activity of patients was routinely applied. A broad spectrum antibiotic was administered 1 dose before and 2 doses after surgery.

Duration of operation, hemodynamic parameters and hospital stay time was recorded for all patients.

Body weight and BMI changes as well as weight loss percentage were checked 1, 3, 6 and 12 months after surgery.

Operative technique

Below is a description of our LSG technique. A patient is put to a reverse Trendelenburg position with 5 trocars insertion. Abdominal cavity is punctured with Veress needle and filled with gas until 14-15 mmHg pressure. 10 mm trocar is inserted through incision in epigastric area. Other trocars are inserted under direct camera control. Greater curvature of stomach is separated from omentum till His angle. 36 Fr bougie is inserted into stomach till pylorus. A sleeve resection of stomach is applied by means of 60 mm linear stapler. A dye solution is injected into stomach to control the staple line. Drainage tubes to control any possible leakage are placed. Resected stomach is removed from 15 mm trocar wound (Figure 1).

There were 4 males and 14 females. Age of patients varied from 27 to 51, mean 40.7 years old. Weight of patients was 112-220 kg with according BMI 42 – 80.2, mean 59.5. 2 patients suffered from type 2 diabetes mellitus, 8 from arterial hypertension, 2 from sleep apnea syndrome and 1 patient from chronic obstructive pulmonary disease. Most of female patients (12) had low level of follicle-stimulating hormone and sex hormone-binding globulin. All patients had grade 3-4 fatty liver disease. 16 patients underwent a laparoscopic gastric sleeve resection and 2 patients underwent an open Roux-en-Y gastric bypass surgery.

Change of patients' body weight is shown in table 1.

The mean duration of operation was 3.3 hours with no intraoperative complication. Mean hospital stay was 2.5 days and there was no mortality.

1 patient developed bleeding and abscess formation after sleeve resection controlled by relaparoscopy. 1 patient had arterial hypotension the next day after surgery. This condition was controlled by conservative therapy with intravenous fluids. 1 patient had agitation on 3rd day after surgery. 1 patient developed a problem swallowing by the end of 1st postoperative month. However there was no narrowing at endoscopy detected. This condition was self-limiting on 3rd month. 6 patients complained of symptoms of gastro-esophageal reflux on 2nd month after operation. They were treated with proton pump inhibitors, antacids and diet. 11 patients underwent abdominoplasty and other esthetic operations in various periods after bariatric surgery giving them a normal body appearance.

Results and discussion

Poor results of management of obesity by medications and diet as well as fast weight regain promoted surgical methods of treatment of this condition for the last 50 years.

The aim of surgery for obesity is not only reduction of body weight but also some contribution to management of concomitant diseases. Follow-up of patient underwent bariatric operations confirms the success of this approach (5).

In 6 patients with concomitant arterial hypertension normal blood pressure periods became longer after surgery, while 2 patients had no improvement. 2 patients with type 2 diabetes mellitus had no

improvement of blood glucose level in first 3 months after surgery, however it completely normalized later. 1 of our patients had an ulcer of left lower limb related to obesity. This ulcer significantly reduced in size after surgery.

We consider the cases with no improvement of concomitant diseases after LSG to be related to deficient resection. Other conditions predisposing to no improvement in concomitant pathologies could be fistula formation, no harmonization to new condition after surgery, psychological stress and preoperative BMI over 50 kg/m².

Another problem for discussion is a gastro-esophageal reflux after LSG. Main causes are change of esophago-gastric angle and fast eating. We had 6 such patients in our study. Literature reports the rate of gastro-esophageal reflux after LSG to be 3-21% (6, 7). The important problem of patients with obesity which can decrease the effect of surgery is a psychological disorder. Researches on relations between obesity and psychiatric conditions show bipolar disorders in up to 89% of patients (8). Though it is not a surgical problem, remaining psychological habits such as being happy because of eating, hidden food shares, and complicated meal intake can decline the estimated weight loss over time. "Successful" and "unsuccessful" words for bariatric procedures were accepted lately with many authors having considered 15-50% body weight loss to be a successful result (9). Our result is 42.6% mean reduction of body weight 12 months after surgery, which can be accepted as "successful" (Figure 2). We had 1 patient with relatively "unsuccessful" result. After careful questioning we found out that having a hunger crisis that patient took liquid chocolate and high caloric drinks a lot. He showed improvement after a special diet.

One of the most dangerous complications in surgery for obesity is anastomosis leakage. MEDLINE search reports about 2.9% rate in series of 4888 patients underwent sleeve gastrectomy (10). We had no anastomosis leakage in our series.

Though short and mid-term follow-up results of LSG are promising, there are no sufficient long-term follow-up results yet. 3 of 4 patients with morbid obesity show significant improvement of concomitant diseases after surgery. Our small series of LSG is first in Azerbaijan and gives promising results as well.

Table 1 Mean weight of patients and change of BMI

Postoperative month	Mean weight, kg	Mean reduction of BMI, kg/m²
1	150.8	52.8
3	122.4	41.8
6	101.2	35.6
12	85.6	27.5

References

1. Bariatric Today. (n.d.) Retrieved 15 November 2012 from http://www.bariatrictoday.com/bariatric-surgery-information/the-most-important-questions-to-ask-your-doctor.html
2. Karmali S, Schauer P, Birch D, Sharma AM, Sherman V (April 2010). "Laparoscopic sleeve gastrectomy: an innovative new tool in the battle against the obesity epidemic in Canada". Canadian Journal of Surgery 53 (2): 126–32. PMC 2845949. PMID 20334745.
3. Adams TD, Gress RE, Smith SC, et al. (August 2007), "Long-term mortality after gastric bypass surgery", N. Engl. J. Med. 357 (8): 753–61,doi:10.1056/NEJMoa066603, PMID 17715409
4. Buchwald, H; Cowan, GSM; Pories, WJ (2007), Surgical Management of Obesity, Saunders Elsevier, ISBN 978-1-4160-0089-1
5. Buchwald, H; Consensus Conference, Panel (2005), "Bariatric surgery for morbid obesity: health implications for patients, health professionals, and third-party payers", J Am Coll Surg 200 (4): 593–604, doi:10.1016/j.jamcollsurg.2004.10.039, PMID 15804474
6. Christou, N; Sampalis, J; Liberman, M; Look, D; Auger, S; McLean, A; MacLean, L (2004), "Surgery decreases long-term mortality, morbidity, and health care use in morbidly obese patients", Ann Surg 240 (3): 416–23; discussion 423–4, doi:10.1097/01.sla.0000137343.63376.19, PMC 1356432, PMID 15319713
7. Buchwald, H; Cowan, GSM; Pories, WJ (2007), Surgical Management of Obesity, Saunders Elsevier, ISBN 978-1-4160-0089-1

8. Buchwald, H; Consensus Conference, Panel (2005), "Bariatric surgery for morbid obesity: health implications for patients, health professionals, and third-party payers", J Am Coll Surg 200 (4): 593–604, doi:10.1016/j.jamcollsurg.2004.10.039, PMID 15804474
9. Christou, N; Sampalis, J; Liberman, M; Look, D; Auger, S; McLean, A; MacLean, L (2004), "Surgery decreases long-term mortality, morbidity, and health care use in morbidly obese patients", Ann Surg 240 (3): 416–23; discussion 423–4, doi:10.1097/01.sla.0000137343.63376.19, PMC 1356432, PMID 15319713
10. Aurora Alexander R, Khaitan L, Saber Alan A. Sleeve gastrectomy and the risk of leak: a systematic analysis of 4888 patients. Surg Endosc (2012) 26:1509–1515