

CASE REPORT

Complicated course after sleeve gastrectomy for obesity

Zonca P, Cambal M¹, Jacobi CA*Centre for Visceral und Miniinvasive Surgery, Wesseling, Germany. chirurgia@post.sk*

Abstract: The authors present a case of a 52-year old female patient with sleeve gastrectomy for obesity. Two major complications occurred after the surgery. The first one was a leakage on the third day after the surgery. The routine swallow examination on the first day after the surgery was normal. The pathological secretion from the drainage occurred on the third day after the surgery with a simultaneous increase in inflammatory markers. There were no clinical signs of sepsis. An indication for laparoscopic revision was done and a small defect in the staple line was identified. The oversewing of the small defect on the stomach was performed. Immediately after the second surgery the patient was clinically without any problems. The inflammatory markers decreased promptly after the surgery. The second complication was presented with decompensated psychosis, which developed on the 4th day after the second surgery. The patient complained of problems with swallowing despite the fact that the swallow contrast examination was normal. The patient received her psychiatric medication intravenously. The problem with swallowing was not based on any organic reason, and lasted for 4 weeks. During this period the patient was fed only parenterally. Almost 6 weeks after the surgery the patient became compensated and was dismissed. We would like to point out to the problems potentially occurring in patients with a psychiatric disease. Good compensation and stabilization of psychiatric disease is a condition that has to be met before a surgery (*Tab. 1, Fig. 1, Ref. 21*). Full Text (Free, PDF) www.bmj.sk.
Key words: sleeve gastrectomy, complication, psychiatric, swallow.

Laparoscopic bariatric surgery is spreading rapidly. It corresponds with the increasing prevalence of obesity. Obesity has reached a global epidemic in both developed and developing countries (1). The epidemic of obesity in the United States shows that more than a third of adults are now considered to be obese (BMI ≥ 30 kg/m²). In the USA about 140,000 cases of bariatric surgeries are performed annually. This fact corresponds with the former epidemic data (2, 3).

The obesity treatment requires a complex and systematic care. Many studies have proved the superiority of surgery over the conservative treatment. Health-related comorbidities, health-care utilization, and direct health-care costs are decreased after the surgery (4, 5, 6). Long-term studies show that there is a substantial reduction in mortality after the bariatric surgery. Bariatric surgery is an established and integral part of the comprehensive management of morbidly obese patients.

The amount of sleeve gastrectomy surgeries performed yearly has increased rapidly.

Case report

A 52-year old female patient with BMI 39 was indicated for sleeve gastrectomy. Diabetes mellitus typ II, hypertension, de-

pressive psychosis, and history of embolisation into lung with deep venous thrombosis were known in the history of the patient. The standard sleeve gastrectomy with manual oversewing of the stapler line was performed. The tube 40 Ch was used for calibration of the resection line. The intraoperative testing via a tube with diluted methylene blue revealed no leak. The intra-abdominal drainage was put into the left subphrenic space (routine drainage). The routine swallow examination on the first day after the surgery was normal as well (Fig. 1). A pathological secretion from the drainage with a simultaneous increase in the inflammatory markers (leu, CRP) occurred on the third day after the surgery. There were no clinical signs of abdominal complications. The indication for laparoscopic revision with suspicion of small leakage was done and a small defect in the proximal staple line was identified. The oversewing of the small defect with single stitches on the stomach was performed. There were no signs of peritonitis and no abscess was presented. Immediately after the second surgery, the patient was clinically without any problems. The inflammatory markers decreased promptly after reoperation. Nausea and swallow disturbance occurred after the reoperation and were ascribed to postoperative oedema. The swallow examination was performed one week after the reoperation. No stenosis was described then. The deep patient, depression with impossible peroral intake of both solid nutrition and fluids occurred. Parenteral nutrition with all-in-one system was introduced one week after the first surgery because of peroral food and fluid intolerance. The intravenously applied anti-depressive treatment was necessary because of the swallow disturbance. The patient tolerated no gastric or enteral tube for feed-

Centre for Visceral und Miniinvasive Surgery, Wesseling, Germany, and ¹1st Department of Surgery, University Hospital Bratislava, Slovakia

Address for correspondence: M. Cambal, MD, 1st Dept of Surgery, University Hospital Bratislava, Mickiewiczova 13? SK. 813 69 Bratislava, Slovakia.



Fig. 1. Swallow examination on the 1st day after surgery.

ing. There was some reflux with saliva in the horizontal as well as vertical position. The saliva reflux occurred only during the day, it was not present at night. Gastroscopy was performed two weeks after the reoperation. The examination revealed no stenosis and it was possible to pass an instrument easily into the duodenum. Both the swallow examination and gastroscopy excluded an organic obstacle in the stomach. The continuous food and fluid intolerance with vomiting lasted for four weeks. The patient was under intensive psychiatric care during the whole period. After the four weeks of parenteral psychiatric medication and parenteral feeding, the clinical signs of depression and swallowing disturbance came back. The regular oral intake of food and psychiatric medication was successfully introduced. The patient was physically and psychologically in good shape. Almost six weeks after the first surgery the patient was dismissed.

Discussion

Marceau et al (7) originally described the gastric sleeve resection in 1993 as a restrictive component of the biliopancreatic diversion with duodenal switch procedure.

About seven years ago, some surgeons began to do the first part as a first stage in poor-risk patients, intending to do the second stage later. If necessary, the second-stage bariatric operation may be performed with increased safety (8). The indications for sleeve resection have been increasing, because it was noted that patients occasionally lost significant weight and did not require

the second stage. Interesting data were presented at the First International Consensus Summit for Sleeve Gastrectomy in October 2007. According to this summit, there were 10 centers in the USA that had achieved a 5-year follow-up. Only one death was reported in the first 260 patients. Sleeve gastrectomy according to the data presented at the summit represents 2 % of the bariatric operations in the USA. This took place despite the fact that the surgery had no specific insurance code (9). On April 9, 2008, the Advisory Committee of the American College of Surgeons Bariatric Surgery Center Network (ACS BSCN) Accreditation Program updated the criteria in the Bariatric Accreditation Manual regarding the standard surgical procedures. The committee added the Sleeve Gastrectomy to its list of standard bariatric surgery procedures. The standard procedures according to this manual are summarized in Table 1.

For its proven safety and long-term efficacy, sleeve gastrectomy has been gaining popularity as a primary, staged, or revisional operation.

The First International Consensus Summit for Sleeve Gastrectomy dealt with questions regarding the surgical technique. There are multiple technical variations for the laparoscopic sleeve gastrectomy. There are variations in the size of bougie. The bougie size is an important tool for calibration of gastric resection. The bougie sizes range from 32 to 60 Fr according to studies. Paradoxically, the development of sleeve stricture is associated with using larger size bougies, while the smaller sizes were not linked to postoperative strictures. Another question is the division level in the antral area. There is the risk of malfunction of antral pumping mechanism if the dissection is too close to the pylorus. It can lead to nausea and vomiting. Many surgeons oversew the staple-line to prevent bleeding and leaking (10). Rather than the bougie size, the oversewing of the staple line can lead to sleeve stricture. The stricture occurs usually at the incisura (11). Another option is the use of collagen-like material along the staple-line (12). Some surgeons suture the crura by presented hiatus hernia to prevent the reduced stomach from slipping. It is possible to start the procedure by dividing the gastrocolic ligament, and construct the sleeve first. Most surgeons mobilize the greater curvature up to the cardia and left crus, and then perform the vertical division (13). Intraoperative testing via a tube with diluted methylene blue or air under saline using a gastroscope is another question. Many surgeons use this testing routinely after the sleeve resection. The testing with gastrographin swallow is ordered by many surgeons on the 1st day after surgery. Others perform

Tab. 1. American College of Surgeons Bariatric Surgery Center Network (ACS BSCN) – standard surgical procedures.

Roux-en-Y Gastric Bypass
Laparoscopic Adjustable Gastric Band
Vertical Banded Gastroplasty
Biliopancreatic Diversion with Duodenal Switch
Biliopancreatic Diversion without Duodenal Switch
Sleeve Gastrectomy
Revisional Surgery

gastrographin swallow only when there is a problem. The incidence of complications after sleeve resection according to the studies is relatively low. Himpens et al. presented the long follow-up data after sleeve gastrectomy. The incidence of postoperative complications requiring reoperation was 5 % (14). Gumbs et al reported the incidence of complications among 646 patients who underwent sleeve gastrectomy. Morbidities included reoperation (4.5 %), leak (0.9 %), strictures (0.7 %), postoperative bleeding (0.3 %), pulmonary embolism (0.3 %), delayed gastric emptying (0.3 %), intraabdominal abscess (0.1 %), wound infection (0.1 %), splenic injury (0.1 %), and trocar site hernia (0.1 %). Four mortalities were reported (0.6 %). A large retrospective series of 146 patients was published by Lalor et al looking at sleeve gastrectomy as a single-stage operation. The mean age of enrolled subjects was 47 years with BMI of 44 kg/m²; the reported complications comprised gastric leak (0.7 %), abscess (0.7 %), bleeding (0.7 %), stricture (0.7 %), and late choledocholithiasis (0.7 %) (15). The possibilities of leak treatment were presented by Deitel. The treatment of leak included four cases of early oversewing, seven drainages (CT or open, two with NJ feeding and six with TPN), and three endoscopic clippings. Three cases of persisting fistulas were treated with fibrin glue, five with stents, one with Roux loop, and one with total gastrectomy (16). Although the sleeve gastrectomy encompasses a long staple line, the risk of gastric leak is as low as in RYGB.

Another problem is the possibility of development of GERD after sleeve gastrectomy.

Sleeve gastrectomy removes gastric fundus and His angle. It impairs the function of the lower esophageal sphincter. This procedure predisposes patients to postoperative reflux symptoms according to Klaus (17). Himpens in his study showed GERD incidence of 21.8 % at 1-year follow-up with subjective improvement of the symptoms (3.1 %) at 3-year follow-up. On the contrary, Melissas et al showed that gastric emptying is accelerated after sleeve gastrectomy and it might play a beneficial role to improve GERD symptoms (18). The objective of manometric studies of the lower esophageal sphincter function and esophageal motility before and after sleeve gastrectomy is to correlate GERD. A similar problem is described after gastric banding. There is some reflux with saliva, predominantly in the horizontal position. Food intake is more or less severely impaired. Gastrographin swallow usually shows in this case a gastric pouch dilatation with or without band slippage and esophageal dilatation. Some patients experience it from the very beginning of the procedure, some many years after perfectly coping with the band (19). Theoretically, a similar problem could occur in effect of stricture after sleeve gastrectomy.

The food intolerance because of mechanical obstacle could occur immediately after sleeve resection. This problem is usually caused by postoperative swelling. Technical failures are uncommon. The normal situation usually comes back in a couple of days. Long-term intolerance because of stricture was discussed above.

Another question relates to psychiatric disorders. The consideration of psychological involvement comes after excluding the organic reason. For example, the term of “psychological band

intolerance” is known after gastric banding. Gumbs presents this problem as a common complication (20). Dargent disagrees with referring to this complication as to a common problem, although the subjective evaluation demonstrates that there is such an involvement in some patients who actually cannot cope with the restriction. He considers that it can be ruled out in the majority of cases. It is important to keep in mind that unstable psychotic disorders, severe depression, and personality disorders, unless specifically advised by a psychiatrist experienced in obesity are considered as a contraindication specific to bariatric surgery. All contraindications are summarized in Interdisciplinary European Guidelines for Surgery for Severe (Morbid) Obesity (21).

Conclusion

There is a need for a relatively easy, low risk, minimally invasive, and eventually reversible procedure. The gastric sleeve resection presents a suitable option. The above-described coincidence of complications is uncommon. The complication rate after sleeve gastrectomy is equivalent to another bariatric procedure. In indicated patients, this procedure is effective as a one-stage procedure. The second stage of procedure is considered in case of inadequate weight loss or when comorbidity resolution is not achieved.

References

1. **Obesity:** Preventing and managing the global epidemic. Report of a WHO consultation. WHO Technical Report Series 894, Geneva, 2000.
2. **Ford E, Mokdad A, Giles W et al.** Geographic variation in the prevalence of obesity, diabetes, and obesity-related behaviors. *Obes Res* 2005; 13 (1): 118—122.
3. **Moy J, Pomp A, Dakin G, Parikh M, Gagner M.** Laparoscopic sleeve gastrectomy for morbid obesity. *Am J Surg* 2008; 196 (5): e56—e59.
4. **Buchwald H.** Bariatric surgery for morbid obesity: health implications for patients, health professionals, and third-party payers. *J Am Coll Surg* 2005; 200: 593—604.
5. **Buchwald H, Avidor Y, Braunwald E et al.** Bariatric surgery: A systematic review and meta-analysis. *J Amer Med Ass* 2004; 292: 1724—1737.
6. **Cancello R, Henegar C, Viguier N et al.** Reduction of macrophage infiltration and chemoattractant gene expression changes in white adipose tissue of morbidly obese subjects after surgery-induced weight loss. *Diabetes* 2005; 54: 2277—2286.
7. **Marceau P, Biron S, Bourque RA, Potvin M et al.** biliopancreatic diversion with a new type of gastrectomy. *Obes Surg* 1993; 3 (1): 29—35.
8. **Aggarwal S, Kini SU, Herron DM.** Laparoscopic sleeve gastrectomy for morbid obesity: a review. *Surg Obes Relat Dis* 2007; 3: 189—94.
9. **Akkary E, Duffy A, Bell R.** Deciphering the Sleeve: Technique, Indications, Efficacy, and Safety of Sleeve Gastrectomy. *Obes Surg* 2008; 18: 1323—1329.
10. **Gumbs A, Gagner M, Dakin G et al.** Sleeve gastrectomy for morbid obesity. *Obes Surg* 2007; 17: 962—969.
11. **Cottam D, Qureshi F, Mattar S et al.** Laparoscopic sleeve gastrectomy as an initial weight-loss procedure for high-risk patients with morbid obesity. *Surg Endosc* 2006; 20: 859—863.

- 12. Lee CM, Cirangle PT, Jossart GH.** Vertical gastrectomy for morbid obesity in 216 patients: report of two-year results. *Surg Endosc* 2007; 21: 1810–1816.
- 13. Dapri G, Vaz C, Cadiere GB et al.** A prospective randomized study comparing two different techniques for laparoscopic sleeve gastrectomy. *Obes Surg* 2007; 17: 1435–1441.
- 14. Himpens J, Dapri G, Cadiere G.** A prospective randomized study between laparoscopic gastric banding and laparoscopic isolated sleeve gastrectomy: results after 1 and 3 years. *Obes Surg* 2006; 16: 1450–1456.
- 15. Lalor PF, Tucker ON, Szomstein S et al.** Complications after laparoscopic sleeve gastrectomy. *Surg Obes Relat Dis* 2008; 4: 33–38.
- 16. Deitel M, Crosby RD, Gagner M.** The First International Consensus Summit for Sleeve Gastrectomy, New York City, October 25–27, 2007. *Obes Surg* 2008; 18: 487–496.
- 17. Klaus A, Weiss H.** Is preoperative manometry in restrictive bariatric procedures necessary? *Obes Surg* 2008; Apr 2.
- 18. Melissas J, Koukouraki S, Askoxyllakis J et al.** Sleeve gastrectomy: a restrictive procedure? *Obes Surg* 2007; 17: 57–62.
- 19. Dargent J.** Isolated Food Intolerance After Adjustable Gastric Banding: A Major Cause of Long-Term Band Removal. *Obes Surg* 2008; 18: 829–832.
- 20. Gumbs A, Pomp A, Gagner M.** Revisional bariatric surgery for inadequate weight loss. *Obes Surg* 2007; 17: 1137–1145.
- 21. Fried M, Gauner V, Basdevant A, Buchwald H, Deitels M, Finer N, Willem M, Grepe J, Hober F, Mythus-Vliegen E, Scopinaro N, Steffen R, Tsigos C, Wiener R, Widhalm K.** Bariatric Scientific Collaborative Group Expert Panel. Interdisciplinary European Guidelines for Surgery for Severe (Morbid) Obesity. *Obesity Surgery* 17; (2): 260–270.

Received September 22, 2009.

Accepted January 17, 2010.