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## Eating disorder difficult to diagnose after bariatric surgery – a case report

### Trudne do zdiagnozowania zaburzenia odżywiania po operacji bariatrycznej – opis przypadku

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#### S u m m a r y

Nowadays, obesity – a state of pathological accumulation of adipose tissue, is of epidemic nature in developed and developing countries. The most effective treatment for obesity is bariatric surgery. Sleeve gastrectomy (SG) is considered as one of the most common bariatric techniques (42% of all cases). SG allows a reduction of about 18-22% of the body weight. However, it should be noted that bariatric operations, despite constant perfection of surgical techniques, still carry the risk of complications and side effects. On the other hand, mortality associated with bariatric surgery is relatively low (< 1%).

The paper presents a patient in whom SG was performed due to morbid obesity (BMI 58 kg/m<sup>2</sup>) accompanied by a few related diseases. After surgery, significant weight normalization as well as full remission of concomitant diseases (type 2 diabetes mellitus, hypertension and nocturnal sleep apnea) were observed and the patient could completely stop the treatment used before. Unfortunately, the patient quickly developed problems that disrupted normal nutrition and functioning, i.e. nausea and vomiting each time the patient tried to ingest food of solid or even mixed consistency. As a result, the patient was repeatedly hospitalized and diagnosed in surgical and internal wards but the problems were not resolved. In our unit of endocrinology, a re-analysis of imaging tests conducted before hospitalization, together with a surgeon experienced in bariatric surgery, allowed to diagnose the presence of esophageal stenosis in the distal esophagus and in the subcardiac region with compensating extension above the narrowing, being most likely the cause of the ailments. The patient was informed of the need for a re-operation to dilate stenosis.

#### S t r e s z c z e n i e

Otyłość – stan patologicznego nagromadzenia tkanki tłuszczowej – przybiera na świecie charakter epidemii. Najskuteczniejszą metodą leczenia otyłości jest operacja bariatryczna, a do najczęściej wykonywanych obecnie zabiegów (42% wszystkich) należy tzw. rękawowe odcięcie żołądka (ang. *sleeve gastrectomy* – SG). SG pozwala na redukcję około 18-22% masy ciała. Należy jednak pamiętać, że operacje bariatryczne mimo stałego doskonalenia technik chirurgicznych wciąż niosą ryzyko powikłań i objawów niepożądanych, choć śmiertelność związana z takimi zabiegami jest relatywnie niska (< 1%).

Praca przedstawia opis pacjenta, u którego w wyniku operacji rękawowego odcięcia żołądka przeprowadzonej z powodu otyłości olbrzymiej (BMI 58 kg/m<sup>2</sup>) powikłanej współistnieniem chorób towarzyszących doszło do pożądanego znaczącego spadku masy ciała aż do jej normalizacji, a także do pełnej remisji chorób współistniejących: cukrzycy typu 2, nadciśnienia tętniczego oraz zespołu bezdechu sennego, w wyniku czego pacjent mógł całkowicie zaniechać stosowanego wcześniej leczenia. Jednak szybko pojawiły się problemy uniemożliwiające normalne odżywianie i funkcjonowanie – nudności i wymioty każdorazowo po pokarmach stałych, a nawet papkowatych. W efekcie pacjent był wielokrotnie hospitalizowany i diagnozowany w oddziałach chirurgicznych i wewnętrznych, bez dobrego efektu. W tutejszej klinice, w wyniku ponownej analizy badań obrazowych wykonanych przed hospitalizacją, przeprowadzonej z udziałem doświadczonego chirurga bariatry wykazano obecność zwężenia drogi pasażu kontrastu w dolnej części przełyku i w okolicy podwustowej, z kompensacyjnym rozszerzeniem przełyku powyżej zwężenia, będącego najprawdopodobniej przyczyną dolegliwości. Pacjenta poinformowano o konieczności powtórnej operacji, usuwającego zwężenie.

Nowadays, obesity – a state of pathological accumulation of adipose tissue, is of epidemic nature in developed and developing countries. The number of individuals with BMI > 30 kg/m<sup>2</sup> has doubled since 1980 and currently amounts to 300 million. Over 1.5 billion people are overweight. The rise of obesity and overweight among children and adolescents is particularly alarming. It is estimated that this problem concerns 20-25% of the pediatric population. The massive occurrence of this phenomenon and its health-related consequences make obesity the fifth major cause of mortality in the world (1).

The most effective treatment of obesity is bariatric surgery. In 2013, approximately 179,000 bariatric procedures were conducted in the USA (according to the Bariatric Outcomes Longitudinal Database, American College of Surgeons/Metabolic and Bariatric Surgery as well as Quality Improvement Program National Inpatient Sample). Sleeve gastrectomy (SG) is considered as one of the most common bariatric techniques worldwide (42% of all cases) (2). It allows a reduction of about 18-22% of the body weight. It is thought to cause fewer complications and carry fewer risks but has similar efficacy compared with gastric bypass surgery (RYGB), which is a “gold standard” in surgical treatment of obesity. SG consists in removing approximately 85% of the stomach, leaving a small sleeve-shaped fragment with a volume of approximately 50 ml along the lesser curvature. As a result, ingesting large amounts of food at one occasion becomes impossible. The surgery also induces a decline in ghrelin, the most important gastrointestinal hormone with orexigenic action (3). Potential complications of SG include early reactions typical of other abdominal laparoscopic procedures, late reactions more specific to bariatric procedures and various dietary deficiencies.

## CASE PRESENTATION

A 39-year-old male after sleeve gastrectomy (SG), conducted due to morbid obesity 13 months before, was admitted to the clinic to determine the cause of inability to ingest solid or thickened foods. As the patient reported, he had been gaining weight gradually for 10 years, which he attributed to failure to follow diets and considerably limited physical activity. Several attempts to lose weight, undertaken with dietary consultants' assistance, brought little and short-term effects (2-4 kg) with a subsequent yo-yo effect. At the time of surgery, BMI amounted to 58 kg/m<sup>2</sup>. The patient developed arterial hypertension before the marked weight gain. Type 2 diabetes mellitus, requiring pharmacological treatment (metformin 2 x 850 mg), nocturnal sleep apnea (CPAP from 2011) and joint pain (particularly in the lower limbs) occurred secondary to obesity. Since conservative treatment was ineffective, the patient, having consulted a physician, decided to undergo surgery. On 12 March 2015, in the regional center of acknowledged experience in bariatric surgery, laparoscopic sleeve gastrectomy was conducted. The post-operative period proceeded without complications; the wounds healed with no signs of infection.

The patient was discharged in a good local and overall condition with recommendations to follow a liquid diet for 7 days and take enoxaparin 1 x 40 mg for 7 days and pantoprazole 2 x 40 mg for 20 days.

The patient was initially feeling well. However, he quickly developed pain in the epigastric region and mid-abdomen and had difficulty ingesting solid foods, which elicited vomiting. He was re-admitted to the surgical clinic on 11 September 2015. Radiography of the upper gastrointestinal tract revealed no abnormalities, whilst gastroscopy showed two 20 mm long linear mucosal defects in the esophagus and uneven coloring with redness in the gastric mucosa. Erosive gastritis was diagnosed and the patient was advised to ingest less food but more frequently with a greater amount of fluids. Trimebutine 3 x 100 mg and pantoprazole were ordered. Despite the implementation of medical recommendations, the patient complained about periodical epigastric pain. Emesis exacerbated and completely prevented intake of solid and semi-liquid foods with thicker consistency. On 18 January 2016, the patient was admitted to the internal medicine ward in the local Municipal Polyclinical Hospital. The physical examination conducted upon admission did not show any significant abnormalities (no data on body weight or BMI; the patient claimed to have reached the due weight). Total protein, albumin and vitamin D levels were found to have declined (5.3 g/dL, 33.0 g/l and 6.52 ng/dl, respectively). A repeated contrast-enhanced radiography of the upper gastrointestinal tract, which visualized the esophagus with 14.5 mm at the narrowest site, showed no obstacles in the passage of the contrast medium. Gastroscopy showed narrowing in the upper part of the antrum and body of the stomach as well as reddening, a single raised erosion and streaks in the cardiac region. A US examination showed numerous slight deposits in the gallbladder with normal, undilated common bile duct. A liquid diet was ordered: 5-6 meals of a small volume daily. Additionally, the patient was also recommended a preparation to supplement protein deficiency as well as vitamin D, zinc and selenium substitute therapy. On 29 February 2016, the patient underwent laparoscopic cholecystectomy due to symptomatic cholelithiasis. After surgery, swallowing disorders persisted; the patient could ingest only fluids. In April 2016, he was admitted to the Endocrinology Unit of the Medical Center for Postgraduate Education where he had control tests conducted. No protein, calcium, iron or vitamin B<sub>12</sub> deficiencies were found. Lower vitamin D (20.7 ng/ml) and folate levels persisted. A careful re-analysis of imaging tests conducted before the hospitalization, together with a surgeon experienced in bariatric surgery, allowed to diagnose the presence of esophageal stenosis in the distal esophagus and in the subcardiac region with compensating extension above the narrowing, being most likely the cause of the reported ailments. The patient was informed of the need for a re-operation to dilate stenosis.

## DISCUSSION

A globally growing phenomenon of obesity, including the rapidly rising number of individuals with morbid

obesity (BMI > 40 kg/m<sup>2</sup>), calls for urgent search for effective prevention and treatment methods. The most efficacious form of therapy is bariatric surgery. However, it must be remembered that despite continuous improvement of surgical techniques, including broad availability of laparoscopic surgery, the risk of complications and adverse reactions after surgery still remains. Early serious complications (i.e. those occurring within 30 days of operation) include atelectasis, pulmonary embolism (0.5-1.0%), anastomotic leak, early bleeding, disrupted patency and inner hernias. Late complications are more specific to bariatric procedures. They include: anastomotic stricture, marginal ulceration, postoperative hernias and symptoms associated with dietary deficiencies: Wernicke's encephalopathy (vitamin B<sub>1</sub> deficiency), peripheral neuropathies, protein-calorie malnutrition, metabolic bone diseases (calcium and vitamin D deficiency) as well as iron, folate and vitamin B<sub>12</sub> deficiency or cholelithiasis. Generally, mortality associated with these procedures is currently lower than 1% (4). The most common complications after sleeve gastrectomy include bleeding and fistulae at the site of gastric wall closure with a stapling device. The leak may result from a technical error or ischemia (5).

In the patient presented above, the surgery resulted in desirable significant weight loss until its normalization as well as in full remission of concomitant obesity-related diseases: type 2 diabetes mellitus, hypertension and nocturnal sleep apnea. The patient could discontinue the therapies used before. Unfortunately, he quickly developed problems that disrupted normal nutrition, i.e. nausea and vomiting upon each intake of food of solid or even mixed consistency. When looking for causes of such a condition, one must first consider leaks or bleeding at the site of anastomosis. Nausea and vomiting occurred in 4 of 6 patients with surgical complications in the study of Casella et al. (6), but such ailments usually concern several percent of patients (7). However, long-term, persisting nausea and vomiting that prevent normal functioning suggest alimentary tract stenosis – a relatively rare complication of sleeve gastrectomy. In the observation of Han et al. (8), these complications were observed in one of 130 patients

and persisted for 21 days post-surgery. In another study, of 148 patients after SG, anastomotic stenosis requiring re-intervention occurred in one case (9). According to the data concerning 14,776 GS procedures presented during the Second International Consensus Summit for Sleeve Gastrectomy in March 2009 in Miami Beach, narrowing obstructing food passage was found in 0.9% of cases (10). Moreover, Frezza et al. compared their own results, based on 53 operated patients, with those reported in 17 other publications (11). In the group of their own patients, vomiting occurred in only one case as a result of Salmonella infection. In the references analyzed by the authors, prolonged vomiting was also observed in only one case (0.1%). Anastomotic narrowing results from a too tight stapler closure in the region of the gastric angle (5).

The patient described above was discharged from the Endocrinology Unit in April 2016 with the following diagnosis: "Swallowing difficulties most likely caused by precardiac narrowing in the patient with a history of laparoscopic sleeve gastrectomy conducted a year ago due to morbid obesity. Cholecystectomy due to cholelithiasis conducted 3 weeks ago. Well controlled arterial hypertension. Vitamin D and folate deficiency". Despite suggested re-operation, the patient has not expressed consent to the procedure and continues using liquid and semi-liquid diet. Moreover, he uses calcium and vitamin D supplementation of 1000 mg and 4000 IU daily. The body weight remains steady.

To conclude, sleeve gastrectomy is considered as a relatively safe and effective method for morbid obesity treatment. It enables 22-25% of body weight reduction, and sometimes, as in the case reported above, its normalization. Moreover, it may also result in remission of obesity-related diseases. The most severe complications are anastomotic leaks and bleeding. However, other complications that are difficult to diagnose, deteriorate the quality of life and require re-intervention may also develop. Their risk can be reduced by referring patients to adequately prepared centers with considerable experience. This enables optimal operations as well as early diagnosis and proper treatment in the case of complications.

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