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Original article

The impact of preoperative investigations on the management of bariatric patients; results of a cohort of more than 1200 cases

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Abstract

Background: Despite the increasing use of bariatric surgery as the most effective treatment of morbid obesity, there is still no consensus on its preoperative diagnostic workup. The aim of this study was to identify the pathologies of the endoscopic and radiologic investigations before performing bariatric surgery and to evaluate their impact on the patient management.

Methods: Retrospective analysis of prospectively collected data of 1225 consecutive patients who underwent laparoscopic Roux-en-Y gastric bypass (n = 834) or sleeve gastrectomy (n = 391) at our institution. An abdominal ultrasound was performed in 1188 patients, 1190 patients underwent upper gastrointestinal (GI) endoscopy, 1178 patients underwent upper GI series, and 610 patients underwent esophageal manometry.

Setting: Private hospital, Switzerland.

Results: Gallstones were detected in 222 (21.0%) patients, and a synchronous cholecystectomy was performed in 220 (18.0%) patients. The upper GI series indicated hiatal hernias in 325 (27.6%) patients. The most common findings of the upper GI endoscopy were type-C gastritis (224 patients, 18.8%), reflux esophagitis (229 patients, 19.2%), *Helicobacter pylori*-positive gastritis (158, 13.3%), and hiatal hernia (55 patients, 4.6%). Additionally, we detected 1 Barrett's high-grade dysplasia, 2 Barrett's carcinomas, and 1 stomach cancer in asymptomatic patients, who were scheduled to have a sleeve gastrectomy. Esophageal motility disorders were detected in 104 (17.0%) individuals, who underwent esophageal manometry.

Conclusions: We recommend performing abdominal sonography and upper GI endoscopy before bariatric surgery as they reveal findings, which influence the therapeutic approach. Upper GI series and esophageal manometry help to define patients not suitable for sleeve gastrectomy. (Surg Obes Relat Dis 2018;■:00–00.) © 2018 American Society for Metabolic and Bariatric Surgery. All rights reserved.

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Obesity is a significant risk factor in the development of a multitude of morbidities. The obese population shows a

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high prevalence of overweight-associated gastrointestinal pathologies, such as gallstones, hiatal hernia, gastroesophageal reflux disease (GERD), peptic ulcer, Barrett's esophagus, and cancer [1–3]. This raises the concern of possible abnormalities, which can affect the therapeutic approach or can cause technical challenges to be encountered if bariatric surgery is to be performed. GERD and hiatal hernias may pose a contraindication for performing sleeve gastrectomy

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(SG) because symptoms of GERD may deteriorate after SG [4]. The new diagnosis of a cancer of the upper gastrointestinal (GI) tract is usually a contraindication for bariatric surgery. Synchronous cholecystectomy also can be discussed if gallstones are present.

However, the preoperative diagnostic workup of the patients, who are to undergo bariatric surgery is not well defined and differs among countries and hospitals. Routine preoperative use of some investigations is also questioned, and thus omitted due to clinical insignificance of the majority of their findings, healthcare costs, and efficiency [5–7]. On the other hand, there are institutions that insist on a thorough preoperative investigation identifying patient safety as their major priority in comparison to cost effectiveness [8,9]. The objective of this study was to identify the pathologies of the endoscopic and radiologic investigations before performing bariatric surgery and to evaluate their impact on the patient management and the type of operation chosen.

Methods

The ethics committee of northwestern Switzerland approved the study. The data of all bariatric patients operated on at our institution are entered in a prospective database, including demographic data, all early morbidity, and follow-up information on weight loss, co-morbidities, and complications. Informed consent was obtained from all individuals in this study as a mandatory part of quality control in our hospital.

Patients

During the study period from January 2007 to January 2017, we performed >1500 bariatric procedures. In the study, we included 1225 patients, who either underwent laparoscopic Roux-en-Y gastric bypass (LRYGB) or laparoscopic SG as a primary bariatric procedure. Additionally, we mentioned 3 patients in whom no bariatric procedure could be performed due to the preoperative examination findings. Patients undergoing gastric banding as primary procedure or revisional operations were excluded from our set of data.

Our multidisciplinary team (endocrinologist, psychiatrist, nutritionist, and bariatric surgeon) assessed the indication for weight reducing and metabolic surgery. The criteria for bariatric surgery changed over the course of the study. Before 2011, we operated on patients with a body mass index (BMI) >40 kg/m² or >35 kg/m² with the presence of at least 1 co-morbidity, who were aged 18 to 65 years, and failed conservative treatment over 2 years. From 2011 to the present, we included patients with a BMI >35 kg/m² and failed conservative treatment over 2 years in BMI <50 kg/m² or 1 year in BMI >50 kg/m².

Preoperative examinations

There are still no guidelines on which preoperative evaluations should be performed before bariatric surgery.

In our clinic, we perform preoperative examinations on the upper GI tract generously because we want to get a picture of the anatomy and possible pathologies before performing surgery and to ensure patient safety. Before surgery, patients underwent a transabdominal sonography, an upper gut endoscopy, and an upper gastrointestinal series. In patients who had undergone these examinations shortly before in an outpatient clinic or another hospital, the examinations were not repeated.

Between 2007 and 2011, we also performed an esophageal manometry in all patients and, thereafter, only in patients scheduled for SG. Additional investigations were performed if the patient showed an individual high-risk profile. If gallstones were detected, magnetic resonance cholangiopancreatography was performed to rule out common bile duct stones. Simultaneous cholecystectomy was performed during surgery if gallstones were present. In patients with severe pathologic reflux, type C and D esophagitis, and big hiatal hernias, an LRYGB was suggested as a better option than SG. SG was suggested in patients with a very high BMI, when upper endoscopy surveillance was indispensable after surgery, in patients with micronutrient deficiency, in patients with Crohn's disease, and in patients with previous extensive abdominal surgery or large incisional hernia.

If *Helicobacter pylori* was detected at endoscopy, eradication therapy was performed before surgery. Findings that caused an additional therapeutic or diagnostic effort or a modification of the planned surgery were classified as minor findings. Pathologic findings, which influence the overall therapeutic concept, were classified as major findings.

The findings of the preoperative evaluation, including transabdominal sonography, upper endoscopy, upper GI series, and esophageal manometry, were analyzed and summarized as primary endpoints. As a secondary endpoint, we investigated the influence of the preoperative examinations on the therapeutic approach.

Statistical analysis

Continuous data were summarized using mean and standard deviation. Categorical variables were summarized using counts and percentages. To compare procedures, we used the Fisher exact test. Influence of examination findings was displayed as number needed to screen (NNS). The NNS is statistically defined as the number of people that need to be screened to detect 1 adverse event. All analyses were performed using R version 2.15.0 [10].

Results

Patient characteristics

In total, 1228 patients were examined in this study. Based on the final bariatric procedure 834 patients were assigned to the LRYGB group and 391 patients to the SG group.

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