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Is gastroscopy necessary before bariatric surgery?

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Abstract

Obesity is the abnormal accumulation of fat or adipose tissue in the body. It has become a serious health problem in the world in the last 50 years and is considered a pandemic. Body mass index is a widely used classification. Thus, obese individuals can be easily classified and standardized. Obesity is the second cause of preventable deaths after smoking. Obesity significantly increases mortality and morbidity. We thought of preparing a publication about routine procedures for the preoperative evaluation of obesity. The question that we asked as bariatric and metabolic surgeons but which was not exactly answered in the literature was "Is esophagogastroduodenoscopy (EGD) necessary before bariatric surgery?" We found different answers in our literature review. The European Association of Endoscopic Surgery guidelines recommend EGD for all bariatric procedures. They strongly recommend it for Roux-en-Y gastric bypass (RYGB). As a result of a recent study by the members of the British Obesity & Metabolic Surgery Society, preoperative EGD is routinely recommended for patients undergoing sleeve gastrectomy, even if they are asymptomatic, but not recommended for RYGB. It is recommended for symptomatic patients scheduled for RYGB. According to the International Sleeve Gastrectomy Expert Panel Consensus Statement, preoperative EGD is definitely recommended for patients scheduled for sleeve gastrectomy, but its routine use for RYGB is controversial. However, a different view is that the American Society for Gastrointestinal Endoscopy recommends endoscopy only for symptomatic patients scheduled for bariatric surgery. In the literature, the primary goal of EGD recommended for sleeve gastrectomy has been interpreted as determining esophagitis caused by gastroesophageal reflux. In the light of the literature, it is stated that this procedure is not necessary in America, while it is routinely recommended in the European continent. Considering medicolegal cases that may occur in the future, we are in favor of performing EGD before bariatric surgery. In conclusion, EGD before bariatric surgery is insurance for both patients and physicians. There is a need for larger and prospective studies to reach more precise conclusions on the subject.

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Core tip: The European Association of Endoscopic Surgery guidelines recommend esophagogastroduodenoscopy (EGD) for all bariatric procedures. They strongly recommend it for Roux-en-Y gastric bypass (RYGB). The British Obesity & Metabolic Surgery Society recommends routine perioperative EGD for sleeve gastrectomy (SG), even if patients are asymptomatic, but not for RYGB. It is recommended for symptomatic patients scheduled for RYGB. According to the International Sleeve Gastrectomy Expert Panel Consensus Statement, preoperative EGD is definitely recommended for SG, but its routine use for RYGB is controversial. The American Gastrointestinal Endoscopy Association recommends that endoscopy be performed only on symptomatic patients scheduled for bariatric surgery.

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INTRODUCTION

Obesity is the accumulation of excess fat in the body. It is defined by body mass index (BMI). BMI is calculated by dividing body weight in kilograms by the square of height in meters. It is an easy and practical method. Obesity is a serious global public health problem and is considered a pandemic. It is the second most common preventable cause of death after smoking[1-5].

According to the data of the World Health Organization, it is predicted that in 2030, approximately 60% of the world's population will be affected by and 1.1 billion people will be obese[6]. It has been reported that the prevalence of obesity in Turkey has increased in parallel with that in other European countries and has reached high rates of 37% of overweight individuals and 36% of obese individuals[1]. Obesity causes more than 700 billion dollars of health expenditure globally every year.

Studies such as waist-to-hip ratio, skinfold thickness, bioelectrical impedance analysis, computed tomography, magnetic resonance imaging, dual energy radiographic absorptiometry, and air densitometry are used to define obesity[2,4,7-9].

The etiology of obesity is multifactorial. Genetic and environmental factors are diverse.

Obesity is a disease that is difficult to treat. It is necessary to follow step by step the treatment algorithm. The first step includes healthy eating and lifestyle changes. Exercise is added to the first step treatment in second-line therapy. Behavioral changes are added to the third-line treatment. In the fourth-line treatment, additional drug therapy is added to these. Surgical treatment remains the only option for patients who fail despite all these treatments.

Surgery is not completely safe and can cause fatal complications. The disadvantages of drug treatments are the high number of undesirable side effects, limited effects, and rapid weight gain when patients stop taking drugs[10,11]. The aim of surgical treatment is to reduce morbidity and mortality due to obesity. Providing long-term permanent weight loss with bariatric surgery reduces the metabolic effects of obesity and increases survival. Bariatric surgery can reduce > 50% of excess weight. Compared to nonsurgical methods, surgery causes more effective and permanent weight loss in the long term. In a study conducted by Çoşkun *et al*[12], it was shown that in obese patients who underwent gastric bypass, it provided a 16.4 kg/m² reduction in BMI in 1 year.

Today, it is generally accepted that bariatric surgery is the most effective and permanent method used in the treatment of obesity. Studies on bariatric surgery have been carried out and clear information and algorithms about which surgical procedure to choose for which patient, postoperative complications and what should be

Table 1 Benefits of gastroscopy before bariatric surgery

Possible finding	Effect
Detection of gastroesophageal reflux disease	Selection of surgical technique
Evaluation of esophagitis	Selection of surgical technique
Evaluation of gastric mucosa (with biopsy result)	Selection of surgical technique
	Selection of stapler to be used
Evaluation of gastric outlet obstruction	Selection of surgical technique
	Prediction of additional procedure
<i>Helicobacter pylori</i> test	Treatment plan
Detection of possible malignancy	Canceling the surgery
Polyp excisions	Postponing the surgery until the pathology result
Detection of alkaline reflux gastritis	Selection of surgical technique
	Treatment planning
Detection of hiatal hernia	Selection of surgical technique
	Prediction of additional procedure

considered when dealing with them, and postoperative diet and follow-up issues have been created by various centers. However, this is not the case for preoperative preparation. Routine preoperative examinations are performed in obese patients before each operation.

The main theme of this article is esophagogastroduodenoscopy (EGD), which is part of the gastrointestinal evaluation before bariatric surgery. Our aim is to clarify whether routine EGD examination is necessary before bariatric surgery. In our clinic, we perform routine EGD in all patients before bariatric surgery and colonoscopy in patients who need it.

However, while discussing in the article, we made an independent evaluation in the light of the literature, except for our practice.

IS GASTROSCOPY NECESSARY BEFORE BARIATRIC SURGERY?

Routine preoperative EGD screening is controversial in patients undergoing bariatric surgery. There are surgical societies that recommend and do not recommend routine EGD screening to detect suspected gastric lesions/findings. To begin with, we should state the views of two separate associations.

The European Association of Endoscopic Surgery guidelines recommends EGD for all bariatric procedures, and strongly recommends it for Roux N-Y gastric bypass (RNYGB)[13]. The American Gastrointestinal Endoscopy Association recommends endoscopy only for symptomatic patients scheduled for bariatric surgery[14].

Schigt *et al*[15] stated that the standard preoperative evaluation of EGD in bariatric patients is not indicated because a high number of patients need to be screened to find clinically significant abnormalities. Gómez *et al*[16] identified age > 55 years and gastroesophageal reflux disease as risk factors on endoscopy screening. They concluded that although abnormalities are common in preoperative EGD, they rarely change the surgical treatment technique due to these findings. Due to the poor correlation between patients' complaints and endoscopic findings, routine preoperative endoscopy may be useful in detecting both lesion and inflammation[17-19].

Schlottmann *et al*[20] reported that 29.4% of asymptomatic patients were found to have abnormal findings by EGD.

The rate of conditions such as hiatal hernia, gastritis, or esophagitis detected during preoperative EGD of a patient who will undergo bariatric surgery with or without symptoms is as high as 62%–67%. Preoperative EGD is important before bariatric surgery[21]. Malignant findings are not commonly detected by EGD in patients undergoing bariatric surgery. For example, Wolter *et al*[22] in a study of 801 patients, found that malignancy was observed in 0.5% of all patients. D'Hondt *et al*[23] found two cases of distal adenocarcinoma in the esophagus during preoperative EGD in 371

patients with gastric banding. Praveenraj *et al*[24] did not find malignant lesions during EGD in 613 bariatric patients. However, they reported a case of low-grade gastric-mucosa-associated lymphoid tissue lymphoma after histopathological evaluation of tissue biopsies.

Wolter *et al*[22] recommends performing routine endoscopy before bariatric surgery to predict possible malignant lesions. Mihmanli *et al*[25] in their series of 157 cases, reported that one case changed the operation type as a result of preoperative endoscopic examination. Gómez *et al*[16] have changed only 1.7% of surgical operation types in routine bariatric preoperative endoscopy.

The results of histopathological examination of the excised gastric sample can give information about the prevalence of malignant cases, especially after laparoscopic sleeve gastrectomy (LSG). In a meta-analysis of 48 different articles, it was reported that the rate of total surgical procedures ranged from 4% to 7.8%. According to the pathology results of all cases, malignancy was found in 0.4%[26].

Yormaz *et al*[27] studied 232 patients and argued that performing preoperative EGD would decrease postoperative complications. They talked about the importance of EGD findings in surgery selection. They recommended preoperative EGD to only symptomatic patients.

A recent study of Members of the British Obesity & Metabolic Surgery Society found that 10% of clinics dealing with bariatric surgery in the UK considered preoperative EGD to be completely unnecessary, and 31% showed that they included it in their routine preoperative evaluations. Important findings were detected in 23% of the patients scheduled for SG. As a result, the British Obesity & Metabolic Surgery Society recommends EGD routinely in the preoperative period, even if patients undergoing SG are asymptomatic, but not for RNYGB. They recommend RNYGB to planned symptomatic patients[28].

It is important to determine esophagitis with gastroesophageal reflux as the main purpose of EGD recommended for SG. It is estimated that sleeve gastrectomy in such patients worsens the situation and increases the risk of cancer in the long term[29]. Already, according to the International Sleeve Gastrectomy Expert Panel Consensus Statement, severe esophagitis and Barrett esophagus are contraindications for SG[30]. Therefore, preoperative EGD is definitely recommended for patients who are planned to undergo SG. In contrast, routine use of RNYGB is controversial.

Mihmanlı *et al*[25] retrospectively evaluated 157 patients who underwent EGD before bariatric surgery (SG or RNYGB) between March 2013 and March 2015. They obtained abnormal findings in 67% of these patients. Only 17% of these patients were symptomatic cases. EGD findings classified 54% of gastritis, 10% of esophagitis, 17% of hiatal hernia, 5% of gastric ulcer, and 3% of other cases. *Helicobacter pylori* was positive in 62% of the patients.

Mazahreh *et al*[31] prospectively evaluated 219 patients scheduled for LSG, and 1 year later, all individuals were evaluated for the presence of symptomatic gastroesophageal reflux disease, and no significant difference was found between the two groups, so they stated that they did not require routine EGD. Gastric biopsy was performed on 148 patients. Chronic inflammation was found in 65%, inflammatory activity in 32%, and intestinal metaplasia in 2%. While endoscopic findings caused the operation to be delayed in 54% of the patients, it caused the surgical procedure to be changed in one patient due to the heterotopic pancreatic tissue. Mihmanlı *et al*[25] showed that more than half of the obese patients (54%) had a disease that required perioperative treatment (67%) and recommended EGD before bariatric surgery.

While EGD is not routinely recommended before bariatric surgery in the American continent, it is recommended in the European continent. In cases where it is not possible to see the remaining part of the stomach such as mini-gastric bypass, it is useful to make the final evaluation of the stomach.

Performing EGD in a patient with no complaints has negative aspects in terms of time, cost, and any complications that may develop during the procedure. Of course, the advantages of this process are too many to ignore, such as the capture of a premalignant or malignant lesion. It will provide early diagnosis and treatment. It will improve the patient's quality of life.

The cost-benefit analysis of routine EGD in each patient may also be a matter of debate, which naturally will increase the cost of this procedure.

CONCLUSION

EGD before bariatric surgery is an insurance for both patients and physicians. When

endoscopy is used perioperatively, it will be more comfortable to use preoperatively. Unfortunately, a missed case of stomach tumor can incur a great cost. This is also life-threatening. Benefits of gastroscopy before bariatric surgery are summarized in Table 1. Larger and prospective studies are needed to yield more precise results on the subject. Regional, national and international associations should create an algorithm on this issue within a short time. Thus, a worldwide standard should be provided for health care. An end must be found to these long-running discussions.

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