

Chapter 12

Preoperative Endoscopy



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12.1 Introduction

Bariatric surgery remains the most effective sustained weight loss option for patients with obesity and the number of procedures performed has significantly increased over the years. The main current surgical techniques are sleeve gastrectomy, Roux-en-Y gastric bypass (RYGB), biliopancreatic diversion/duodenal switch, and single anastomosis duodeno-ileostomy with sleeve.

A preoperative evaluation is important for surgical treatment success. A complete evaluation of the cardiovascular, pulmonary, metabolic, and gastrointestinal systems is recommended, as well as follow-up with a nutritionist and psychologist. Abdominal ultrasound exam can be used to assess for biliary tract pathology, liver steatosis, fibrosis, and presence of nonalcoholic steatohepatitis [1].

The role of routine preoperative esophagogastroduodenoscopy (EGD) before primary weight loss surgery remains controversial [2].

Many bariatric surgery centers routinely perform EGD prior to bariatric surgery to potentially identify and treat lesions that may affect the surgery or even cancel the procedure entirely, mainly for the following reasons:

- The symptomatic evaluation has limited value for the diagnosis of gastroesophageal reflux disease (GERD) [3].
- Obesity represents a risk factor for several GI diseases that can be detected by EGD [4].

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- The presence of severe esophagitis or Barrett’s esophagus should be considered a contraindication for sleeve gastrectomy due the high risk of postoperative GERD [5–7].
- The EGD should rule out malignancy of the stomach before gastric bypass, as the remnant stomach will no longer be accessible to endoscopic surveillance [8, 9].

12.2 Role of Esophagogastroduodenoscopy Prior to Bariatric and Metabolic Surgery Procedures

While some surgeons perform routine preoperative endoscopy, others recommend it when the stomach or duodenum will be excluded, such as after RYGB or duodenal switch/biliopancreatic diversion, or in the presence of clinical symptoms [10, 11]. The preoperative EGD can identify patients with asymptomatic anatomic findings that may result in an alteration of the surgical approach or delay in surgery [12, 13].

The European Association for Endoscopic Surgery recommends that all patients should undergo EGD before bariatric surgery and especially before RYGB [14]. The Society of American Gastrointestinal and Endoscopic Surgeons recommends that EGD may be used if suspicion of gastric pathology exists [15]. The American Society of Metabolic and Bariatric Surgery (ASMBS) recommends that all clinically significant gastrointestinal symptoms should be evaluated prior to bariatric surgery with imaging studies, upper gastrointestinal series, or EGD [16]. The American Society for Gastrointestinal Endoscopy (ASGE) suggests that the decision to perform preoperative endoscopy should be individualized in patients scheduled to bariatric surgery after a thorough discussion with the surgeon, taking into consideration the type of bariatric procedure performed [17].

12.2.1 Abnormal Findings

The main abnormal findings that cause delay or cancellation of surgical treatment for obesity are arteriovenous malformation, Barrett’s esophagus, bezoar, cancer, duodenal diverticulum, duodenal ulcer, duodenitis (severe), esophageal diverticulum, esophageal dysmotility, esophageal stricture, esophageal varices, esophagitis (Los Angeles Grade C/D), gastric polyps, gastric varices, gastritis (severe), hiatal hernia (HH) >2 cm, mass lesion, ulcer, and submucosal lesion [18].

In 2020, Chang et al. [19] published a retrospective study of 613 patients with the aim of determining the frequency of abnormal findings in routine preoperative endoscopy before bariatric surgery. Most patients had pre-endoscopy clinical symptoms (61.3%). The most frequent abnormal findings included esophagitis (26.5%), hiatal hernia (27.1%), gastric ulcer (4.9%), and biopsy-proven Barrett’s esophagus (4.6%). The patients with preoperative symptoms were more likely to have

abnormal findings on endoscopy. Of the total cohort, 18.4% had changed their planned operation after endoscopy results (Table 12.1).

Wiltberger et al. [20] showed alterations in 76% of preoperative EGDs. The main findings were gastric or duodenal ulcers (53%)—mostly superficial and all deep ulcers were related to *H. pylori* infection; erosive esophagitis (23%)—mostly Los Angeles grade A; hiatal hernia (21%) usually small in size; gastric polyps (8%); and gastric adenocarcinoma (1%).

In a systematic review and meta-analysis, Bennett et al. [21] showed the abnormal findings in routine preoperative endoscopy before bariatric surgery. The main endoscopic alterations were gastritis (37.6%), hiatal hernia (21.1%), and esophagitis (14.4%). *H. pylori* was present in 36.2% (biopsied if suspicious) and 20.2% (routine biopsies) of cases. The proportion of EGDs resulting in a change of surgical approach was 7.8%. Changes in medical management were seen in 27.5%, but after eliminating *H. pylori* eradication, this was found to be only 2.5% (Table 12.2).

Table 12.1 Pathologic findings in asymptomatic and symptomatic patients in the entire study cohort performed by Chang et al. [19]

	Asymptomatic	%	Symptomatic	%	Total	%	P value
Number of patients	387	61.3	244	38.7	631		
Esophagitis	91	23.5	76	31.1	167	26.5	0.034
Hiatal hernia	89	23.0	82	33.6	171	27.1	0.0035
Gastric ulcer	22	5.7	9	3.7	31	4.9	NS
Duodenal ulcer	1	0.3	1	0.4	2	0.3	NS
Barrett's	16	4.1	13	5.3	29	4.6	NS
Duodenal mass	3	0.8	1	0.4	0.4	0.6	NS
<i>Helicobacter pylori</i>	33	8.5	21	8.6	54	8.6	NS
Total number of abnormal findings	255	65.9	203	83.2	458	72.6	<0.00001

Table 12.2 Abnormal findings in routine preoperative endoscopy before bariatric surgery in the meta-analysis performed by Bennett et al. [21]

Pathology	%	Number of studies reporting	Number of patients (total)
Gastritis	37.6	31	7.598
Hiatal hernia	21.1	39	9.723
Esophagitis	14.4	37	9.129
Bulbitis/duodenitis	5.2	20	5.974
Gastric ulcer	3.6	25	6.356
Barrett's esophagus	2.1	19	5.802
Gastric intestinal metaplasia	2.2	5	1.126
Duodenal ulcer	1.8	16	3.547
Gastric cancer	0.4	12	3.586
Esophageal cancer	0.2	5	1.278
HP (biopsied if suspicious)	36.2	8	1.652
HP (routine biopsies)	20.2	23	5.650

Table 12.3 Abnormal findings in routine preoperative endoscopy before bariatric surgery in the meta-analysis performed by Parkish et al. [18]

EGD findings	Number of patients (N = 4511)	%
Gastritis	1562	34.6
Hiatal hernia	889	19.7
<i>Helicobacter pylori</i>	888	19.7
Esophagitis (all grades)	786	17
Duodenitis	226	5
Gastric ulcer	97	2
Duodenal ulcer	14	0.3
Barrett's esophagus	45	0.1
Carcinoma	4	0.08

In a systematic review and meta-analysis performed by Parikh et al. [18], the patients were grouped based on EGD findings: Group 1—findings that did not significantly change management; Group 2—findings that delayed, altered, or canceled surgery. Overall, 92.4% ($n = 6.112$) of the patients had a normal EGD or findings that did not change clinical management (group 1) and 7.6% ($n = 504$) had findings that delayed or altered surgery (group 2) (Table 12.3).

A position statement by IFSO showed that abnormal EGD findings are likely to be found in at least 55.5% of patients prior to bariatric surgery. The most common abnormal findings were gastritis, hiatal hernia, and esophagitis. Conditions that would lead to modification or delay of surgery were less commonly found, with 16.5% findings that led to modification or delay of the planned procedure and 0.2% that had surgery cancelled [22].

12.2.2 Testing and Treatment of *H. pylori*

There are conflicting data for preoperative testing and treatment of *H. pylori* related to surgical outcomes.

Marginal ulceration after RYGB is diagnosed in 1% to 16% of patients and preoperative *H. pylori* infection is twice as common among the patients who had marginal ulceration (32%) as among those who had not (12%) ($p = 0.02$) [23]. Patients tested for *H. pylori* have a lower incidence of postoperative marginal ulcers ($n = 5$, 2.4%) than patients who do not undergo this screening ($n = 354$, 6.8%, $P < 0.05$) [24].

The incidence of postoperative perforation is higher in patients who do not undergo screening/treatment for *H. pylori* (5% vs. 0%; $P = 0.09$) [25]. Although most studies show the benefit of *H. pylori* screening and treatment in patients who will undergo RYGB, Papisavas et al. [26] did not show an association between *H. pylori* infection and marginal or gastric ulcers. The evidence is unclear regarding the benefit of *H. pylori* eradication prior to sleeve gastrectomy [27].

ASGE suggests that testing and eradication of *H. pylori* before bariatric surgery should be individualized [17] and the European Association for Endoscopic Surgery (EAES) concluded that no recommendation can be made for an ordinary routine *H. pylori* eradication or no eradication prior to bariatric surgery on the basis of available evidence [28].

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