

# Upper Digestive Endoscopy Prior to Bariatric Surgery in Morbidly Obese Patients - A Retrospective Analysis

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## Abstract

Obesity has become one of the world's major public health problems. It is now accepted that bariatric surgery is a far better option than nonsurgical treatments for morbid obese patients. Routine upper gastrointestinal (GI) endoscopy as a complementary method for evaluation of bariatric patient's status prior to surgery is still a matter of debate.

**Aim** of the study was to evaluate the importance of routine upper GI endoscopy before bariatric surgery.

**Material and methods:** A clinical retrospective study was carried out on a series of 77 patients referred for bariatric surgery between 2012 and 2015 in our surgical unit. We reviewed the medical records of all patients, endoscopy diagnosis, histopathological reports on gastric endoscopic biopsies and the colonisation with *H. pylori*.

**Result:** The patients in our study had a median age of 39.25 years and a BMI (body mass index) ranging from 33.3 to 60.5 kg/m<sup>2</sup> (median of 44.66 kg/m<sup>2</sup>). Upper GI endoscopy was performed in all patients before bariatric surgery, regardless of upper gastrointestinal symptomatology. Chronic gastritis was found on upper GI endoscopy prior to bariatric surgery in 36.3% of cases and *Helicobacter pylori* infection was identified in 26% of cases. 6.5% of the patients were diagnosed with hiatal hernia, a hyperplastic gastric polyp, an intragastric pancreatic tissue ectopy and a case of gastric cancer were also detected.

**Conclusion:** Although preoperative endoscopy rarely diagnose pathological conditions that may change the surgical approach, we believe that, for a complete work-out of these patients, gastroenterology consultation and upper GI endoscopy should be mandatory prior to bariatric surgery.

**Keywords:** Upper GI endoscopy; Morbid obesity; Bariatric surgery;

Gastric cancer

## Background

Obesity has become one of the world's major health issues due to its endemic progression and associated comorbidities. The International Association for the Study of Obesity reported that approximately 40-50% of men and 25-35% of women in the EU were overweight (defined as a BMI between 25.0 and 29.9 kg/m<sup>2</sup>), and an additional 15-25% of men and 15-25% of women were obese (BMI  $\geq$  30.0 kg/m<sup>2</sup>) [1]. Obesity is strongly associated with hypertension, type 2 diabetes or insulin resistance, dyslipidemia, coronary heart disease, nonalcoholic fatty liver disease (ranging from simple steatosis to steatohepatitis, hepatic cirrhosis and end-stage liver disease), hepatocellular carcinoma and multiple other types of cancer, including colonic and gynecological cancers. This is why the treatment of obesity has become one of the major concerns of health systems in the affected areas, including primarily economically developed countries. To date, bariatric surgery is the only treatment that has shown long-term usefulness. Despite the existing guidelines for the preoperative evaluation of the morbidly obese patients candidates for bariatric surgery, the routine preoperative upper GI endoscopy is still a matter of debate. By analyzing the impact of endoscopic findings on the bariatric surgical management, some authors found that routine preoperative upper endoscopy is not required [2]; however, a study on 212 morbidly obese patients who underwent bariatric procedures showed a high prevalence of gastrointestinal diseases with a significant impact on perioperative management in two thirds of the cases of bariatric patients who underwent preoperative upper GI endoscopy and therefore they recommend routine gastroscopy about 2-4 weeks prior to surgery [3].

## Material and Methods

A clinical prospective study was carried out on a series of 77 patients referred for bariatric surgery between 2012 and 2015 at the IIIrd Surgical Unit, "St Spiridon" Hospital, Iași. We reviewed all medical records focused on BMI, gastrointestinal symptoms, preoperative endoscopy diagnosis, histopathological reports on gastric endoscopic biopsies and the colonisation with *Helicobacter pylori*.

## Results

The patients in our study had a median age of 39.25 years ranging from 22 to 63 years old, and a BMI ranging from 33.3 to 60.5 kg/m<sup>2</sup> (median of 44.66 kg/m<sup>2</sup>). Our patients were offered to bariatric surgery under conditions of failing weight loss or inadequate losing weight after nutritional therapy. The chosen bariatric procedure for all of them was sleeve gastrectomy. In terms of symptomatology, most patients had postprandial mild epigastric pain (43%) and dyspepsia-perceived as postprandial abdominal fullness (39% of cases) with

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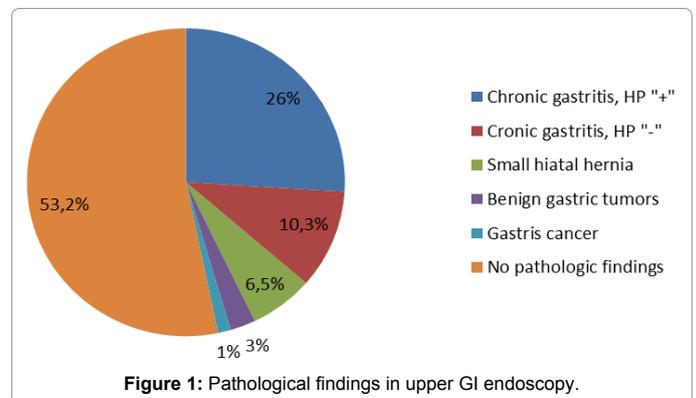
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38% of these patients having confounding symptoms; 18% of the patients complained of postprandial regurgitation of whom 22% also complained of postprandial abdominal fullness and mild epigastric pain. Upper GI endoscopy was performed routinely before bariatric surgery; there were noted different pathological aspects: chronic gastritis in 36.36% of cases and *Helicobacter pylori* infection in 26% of cases. 6.5% of the patients were diagnosed with small hiatal hernia, a hyperplastic gastric polyp, a case of pancreatic ectopic tissue into the mucosa of the stomach and a case of gastric cancer were also detected (Figure 1). The patient diagnosed with gastric cancer did not present any other complaints besides the described common symptoms and a slight recent weight loss attributed to nutritional regimen. The most important change in terms of treatment management regarded the patient with gastric cancer to whom bariatric surgery was contraindicated and consequently underwent complete oncologic evaluation and afterwards, total gastrectomy with Roux-en-Y esophagojejunal anastomosis. Surgical intervention was delayed only for the patient with pancreatic tissue ectopy who required additional preoperative investigations to rule out other pathologic findings; regarding patients diagnosed with small hiatal hernia on GI endoscopy prior to bariatric surgery, there were mild changes in surgical technique, consisting in additional recalibration of the hiatal orifice. As seen in our results, digestive symptoms seem not to be consistent with the observed changes on endoscopy (Table I). The patients diagnosed with *H. pylori* infection received sequential therapy with 5 days of pantoprazole and amoxicillin followed by 5 days of pantoprazole, clarithromycin, and metronidazole.

**Discussion**

While the role of upper GI endoscopy in the management of postoperative complications of bariatric surgery is well known and established [4], the usefulness of preoperative routine upper GI endoscopy – regardless of gastrointestinal symptomatology - remains controversial. The patient symptoms and endoscopic findings are not always correlated in morbidly obese patients. Agreeing with other authors [5] and having our study as support, we believe that the presence of gastrointestinal symptoms in morbid obese patients may be a misleading marker to indicate endoscopy prior to bariatric surgery. On a study of 69 consecutive diagnostic upper GI endoscopies in morbidly obese patients before bariatric procedures, 80% of the patients with pathological findings were asymptomatic, authors concluding that every morbidly obese patient should undergo endoscopy before bariatric surgery [6]. There are many other authors suggesting that preoperative endoscopy should be performed to all patients prior to bariatric surgery because it is useful in detecting both lesions and inflammation and the prevalence of gastrointestinal diseases with a significant impact on perioperative management is high

[7-9]. The controversy occurs with other studies on large serial cases, claiming that while abnormalities on preoperative GI endoscopy are often found in patients undergoing bariatric surgery evaluation, rarely do the findings change surgical management [10]. A large European retrospective study on 412 patients undergoing bariatric surgery does not support the performance of routine preoperative GI endoscopy prior to gastric by-pass by comparing the required resources for this investigation and the influence of the findings on the operative plan [11]. Withal, the only study in literature considering also the estimative general cost for a patient undergoing upper GI endoscopy with biopsy under conscious sedation in an ambulatory surgery center concluded that due to rarely changes in surgical management related to endoscopic findings, alternative methods for screening for common GI conditions should be considered in appropriate patients [12]. What do the guidelines say? According to American Society for Metabolic and Bariatric Surgery (ASMBS) guidelines, clinically significant gastrointestinal symptoms should be evaluated before bariatric surgery with imaging studies, upper gastrointestinal series, or endoscopy and routine screening for the presence of *Helicobacter pylori* before bariatric surgery may be considered in high-prevalence areas [13]. The evidence-based guidelines of the European Association for Endoscopic Surgery concluded that upper gastrointestinal endoscopy or upper GI series is advisable for all bariatric procedures, but is strongly recommended for gastric bypass patients [14]. Concerning *Helicobacter pylori* infection, bariatric patients are affected in 23 to 70% of cases [15,16]. The preoperative management of positive *H. pylori* morbidly obese patients is also a matter of debate. In a retrospective study of 560 patients who underwent laparoscopic Roux-en-Y gastric bypass (LRYGB), the incidence of postoperative marginal ulcers was higher (6.8%) in patients who did not benefit of *Helicobacter pylori* screening and treatment prior to bariatric surgery comparing to the incidence of these complications (2.4%) in patients who were treated for *H. pylori* infection before surgery [17]. A more



**Table I:** Digestive symptoms and endoscopic findings in bariatric patients.

Postprandial symptoms	Dyspepsia-abdominal fullness	Epigastric pain	Dyspepsia and epigastric pain	Regurgitations	Regurgitations, dyspepsia and pain	No symptoms	Number of patients
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Number of patients	6 (7.79)	9 (11.68)	24 (31.16)	10 (12.98)	4 (5.19)	24 (31.16)	77 (100)
Endoscopy findings: Chronic gastritis, HP "+"	4 (20)	2 (10)	7 (35)	2 (10)	0 (0)	5 (25)	20 (100)
Endoscopy findings: Chronic gastritis, HP "-"	1 (12.5)	2 (25)	3 (37.5)	0 (0)	1 (12.5)	1 (12.5)	8 (100)
Endoscopy findings: small hiatal hernia	0 (0)	0 (0)	1 (20)	1 (20)	2 (40)	1 (20)	5 (100)
Endoscopy findings: benign tumors	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	2 (100)
Endoscopy findings: gastric cancer	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)
No pathological findings on endoscopy	0 (0)	5 (12.19)	13 (31.70)	7 (17.07)	0 (0)	16 (39.02)	41 (100)

recent study showed the opposite, pointing out that there is no effect of *H. pylori* infection on the rates of marginal ulcer or stomal stenosis in patients undergoing LRYGB [18]. Discussing sleeve gastrectomy as an alternative procedure in bariatric surgery, a study on 184 bariatric patients concluded that *Helicobacter pylori* infection seems not to influence postoperative outcome of patients benefiting of laparoscopic sleeve gastrectomy [19]. Because in our group of patients there were no postoperative complications, we can say that *Helicobacter pylori* infection did not affect in any way the immediate postoperative evolution of patients undergoing sleeve gastrectomy.

Obesity is an important risk factor for multiple types of cancer, such as gynecological, renal and digestive malignancies (gallbladder, pancreas, esophagus, stomach and colon) [20-23].

Although obesity favors malignancy in different sites, this is the first case of gastric cancer reported in literature as diagnosed by upper GY endoscopy during the preoperative evaluation for patients undergoing bariatric surgery.

## Conclusion

Although preoperative endoscopy rarely diagnose pathological conditions that may change the surgical approach, we believe that, for a complete work-out of these patients, gastroenterology consultation and upper GI endoscopy should be mandatory prior to bariatric surgery.

## Conflict of interest

Authors have no conflict of interest to disclose.

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