

# Relevance of Endoscopy in Bariatric Procedures

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Gastroenterolog 2023; supplement 1: 15–17

## Highlights

- The obesity is associated with gastrointestinal diseases. The prevalence of upper GI disorders in morbid obesity is significantly high (81.5%).
- The most frequent obesity related disorders are GERD, Hiatus hernia and *Helicobacter pylori*, different grade of esophageal disorders.
- The preoperative preparation performing routine and selective upper endoscopy in of all obese patients preparing for bariatric surgery is implemented in clinical protocols.
- The routine endoscopy is the basis for the choice of MBS surgery and also the bariatric follow-up.
- Endoscopic management of MBS complications is procedure related and reduces all over rate of complications related to MBS. The endoscopic armamentarium is expanding and is providing minimally invasive treatment options for patients with post- bariatric surgery complications.

**Introduction.** The obesity is associated with many gastrointestinal disease conditions, most frequently GERD, Hiatal hernia, *Helicobacter pylori* and esophageal disorders ranged up to 55% and which dictates the implementation of endoscopy in pre-operative protocols in patients who are candidates for MBS (1, 2).

Esophago-gastro-duodenoscopy (EGD) (1, 2, 3) is a procedure that allows for visual inspection of the lumen and provides access for biopsying the esophagus, stomach and duodenum. EGD is an important investigative tool for the diagnosis of diseases of the upper gastrointestinal tract including hiatal hernias (HH), esophageal mucosal injury secondary to gastro-esophageal reflux disease (GERD), Barrett's esophagus (BE),

gastrointestinal stromal tumours (GISTs) and esophageal adenocarcinoma (EAC) (2, 3, 4).

EGD prior to bariatric surgery allows for the diagnosis of concomitant diseases that may preclude bariatric surgery, such as upper gastrointestinal malignancies or varices due to portal hypertension. It may also lead to the diagnosis of diseases that should be treated prior to surgery, such as peptic ulcer disease and helicobacter pylori infection. EGD also allows for the diagnosis of conditions such as GERD-related esophageal mucosal injury including erosive esophagitis, esophageal ulcers, strictures and BE; and anatomical defects such as HH, which may influence the operative procedural choice and change the operative management protocols. In addition, EGD allows for a pre-operative assessment of the distal stomach which becomes inaccessible after OAGB and RYGB. For upmentioned circumstances, there is a justified urgency for the reasons set out above to perform routine EGD prior to any bariatric procedure, independent of symptoms.

Literature search reports abnormal EGD findings in at least 55.5% of patients prior to bariatric surgery. The most common reported are gastritis, HH and esophagitis; clinical conditions leading to modification or delay of are presented less commonly. 16.5% having findings that led to modification or delay of the planned procedure and in 0.2% surgery should be cancelled. 25.3% of asymptomatic patients had abnormal EGD findings. Systematic screening to pathology is supported with MBS varying effect on GERD, bile reflux, BE and malignancy risk (4), and also for the appropriate tailoring the decision regarding EGD according to the procedure planned with EGD. Risk for bile reflux is procedure related and higher in LSG

and OAGB and based on symptoms for banded procedures and RYGB (3, 4, 5).

Data extrapolated from studies based EDS after MBS procedures present a change in the pre-operative pathology detected, and also confirmed an incidence of new pathology regardless of the bariatric procedure performed (4, 5, 6).

Beneficial effects of MBS justify the relatively high and significant incidence of major complications, mandatory approached with multidisciplinary team critical for optimal outcomes. Minimally invasive protocols for complications should be implemented because of the high risk associated with reoperations. Endoscopy is important in both the diagnosis and the management of complications, and also providing therapeutic interventions for many bariatric surgical complications including anastomotic strictures, anastomotic leaks,

choledocholithiasis, sleeve stenosis, weight regain, and eroded bands (4, 5, 6, 7).

### Conclusions are presenting Recommendations of the IFSO Endoscopy in Bariatric Surgery Taskforce

1. Esophago-gastro-duodenoscopy (EGD) should be considered for all patients with upper GI symptoms planning to undergo a MBS due to the frequency of pathology that may alter management.
2. EGD should be considered for patients without upper GI symptoms who are planning to undergo a MBS procedure due to the 25.3% chance of an unexpected finding that may alter management or contra-indicate surgery.
3. EGD should be routinely considered in populations where the community incidence of significant gastric and esophageal pathology is high,

#### Endoscopic management of bariatric complications

Surgery	Complication	Diagnosis	Management options
<b>RYGB</b>	Gastrojejunal anastomotic stricture	Upper GI series; Endoscopy	Endoscopic balloon dilation; Steroid injection; Needle knife radial incisions; Lumen-opposing metal stent
	Gastrogastric fistula	Upper GI series; Endoscopy	Endoscopic suturing; OTSC
	Anastomotic leaks	CT imaging; Upper GI series; Endoscopy	CSEMS; Internal drainage with pigtail stents; OTSC; Endosponge therapy; Endoscopic suturing
	Choledocholithiasis	MRCP; CT imaging; Ultrasound	Overtube-assisted ERCP; Laparoscopic-assisted ERCP; EDGE
	Weight regain	EGD-Dilated gastrojejunostomy	Stoma reduction: Endoscopic suturing; OTSC; Serial APC treatments; Radiofrequency ablation
<b>Sleeve gastrectomy</b>	Staple line leak	CT imaging; Upper GI series; Endoscopy	CSEMS; Internal drainage with pigtail stents; OTSC; Endosponge therapy; Endoscopic suturing
	Sleeve stenosis	Upper GI series; Endoscopy	Radial expanding balloon dilation; Pneumatic balloon dilation
<b>LAGB</b>	Band migration	CT imaging; Endoscopy	Mechanical lithotripter band cutting

RYGB: Roux-en-Y gastric bypass; CSEMS: Covered self-expandable metallic stent; OTSC: Over-the-scope-clip; EDGE: Endoscopic ultrasound-directed transgastric endoscopic retrograde cholangiopancreatography; APC: Argon plasma coagulation; LAGB: Laparoscopic adjustable gastric band.

Adapted from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8776527/>

particularly when the procedure will lead to part of the stomach being inaccessible (for example RYGB and OAGB).

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5. EGD should be undertaken routinely for all patients after MBS at 1 year and then every 2–3 years for patients who have undergone LSG or OAGB to enable early detection of Barrett’s esophagus or upper GI malignancy until more data is available to confirm the incidence of these cancers in practice.
6. EGD should be performed following banded procedures and RYGB on the basis of upper GI symptoms.

In addition, endoscopic management of MBS complications is procedure related and reduces all over rate of complications related to MBS. The endoscopic armamentarium is expanding and is providing minimally invasive treatment options for patients with post-bariatric surgery complications. Post bariatric surgery patients are complex, and these complications are best managed with a multidisciplinary team with experience in this field.

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