STUDIO PRE-OPERATORIO

L'importanza di una Endoscopia mirata

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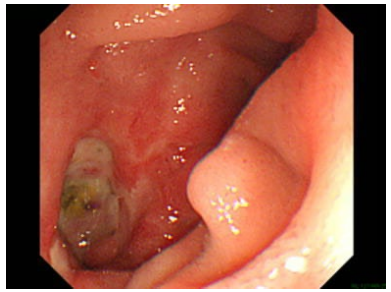
Disclosure

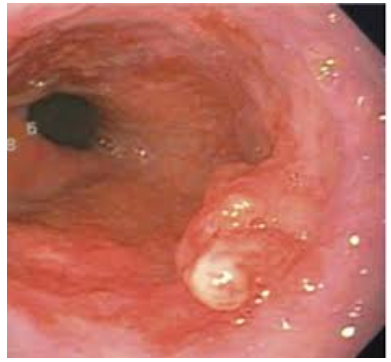
I have no conflict of interest to disclose for this lecture

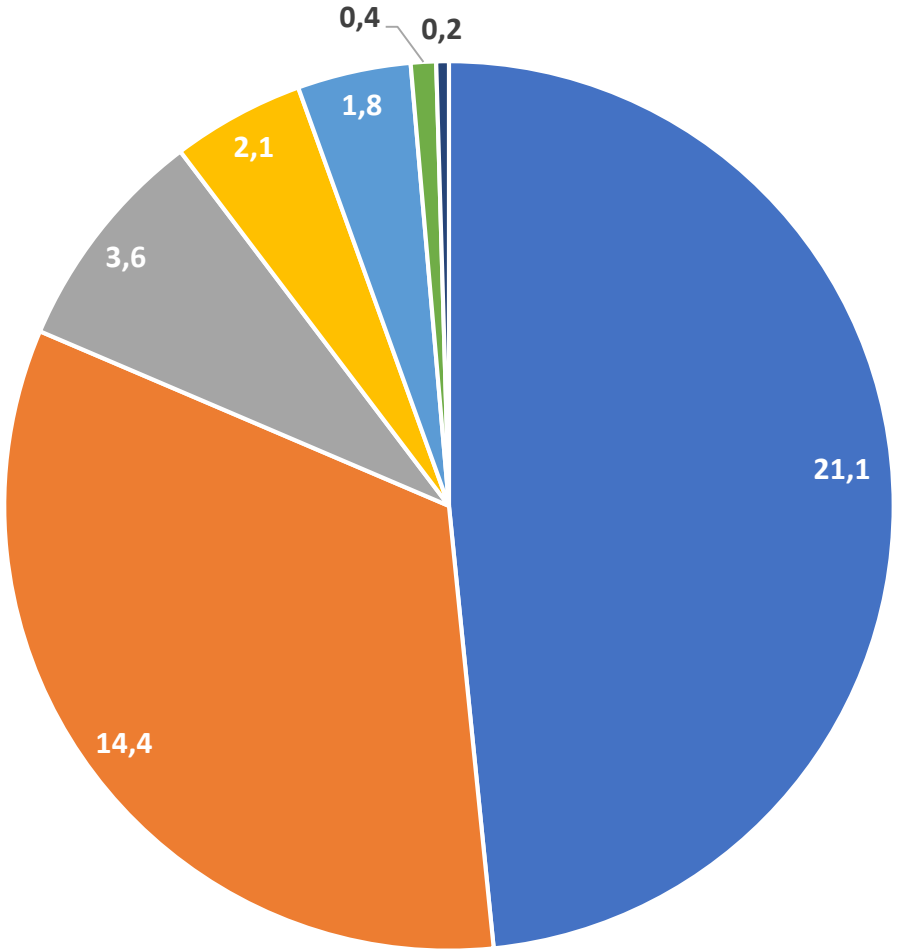
Pre-Op Endoscopy - Background

- The rationale for performing an EGD before bariatric surgery is to detect and/or treat lesions that might potentially affect the type of surgery performed, cause complications in the immediate postoperative period, or result in symptoms after surgery
- However, the need for EGD before bariatric surgery is controversial.

Most common pre-op endoscopy findings in obese







Hitala Hernia Esophagitis Gastric ulcer Barrett Duodenal ulcer Gastric cancer Esophageal K

Bennett S et al. Surg Obes Rel Dis 2016;12:1116-1125 (48 studies, 61,421 patients)

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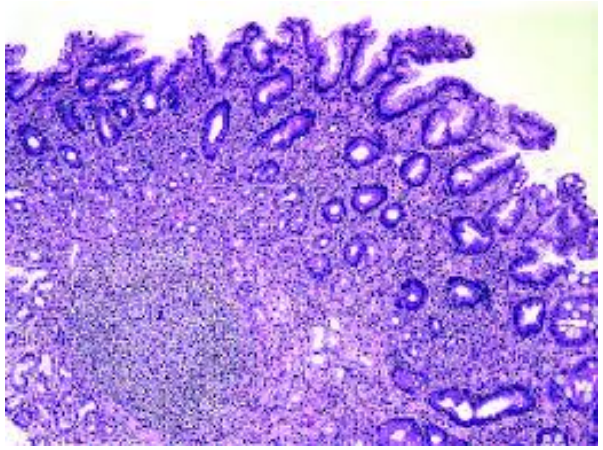
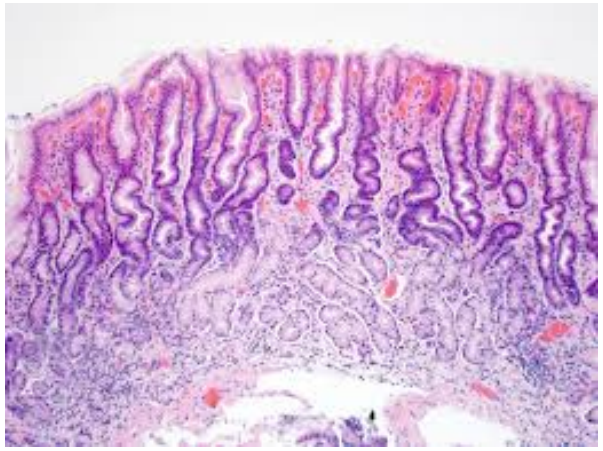
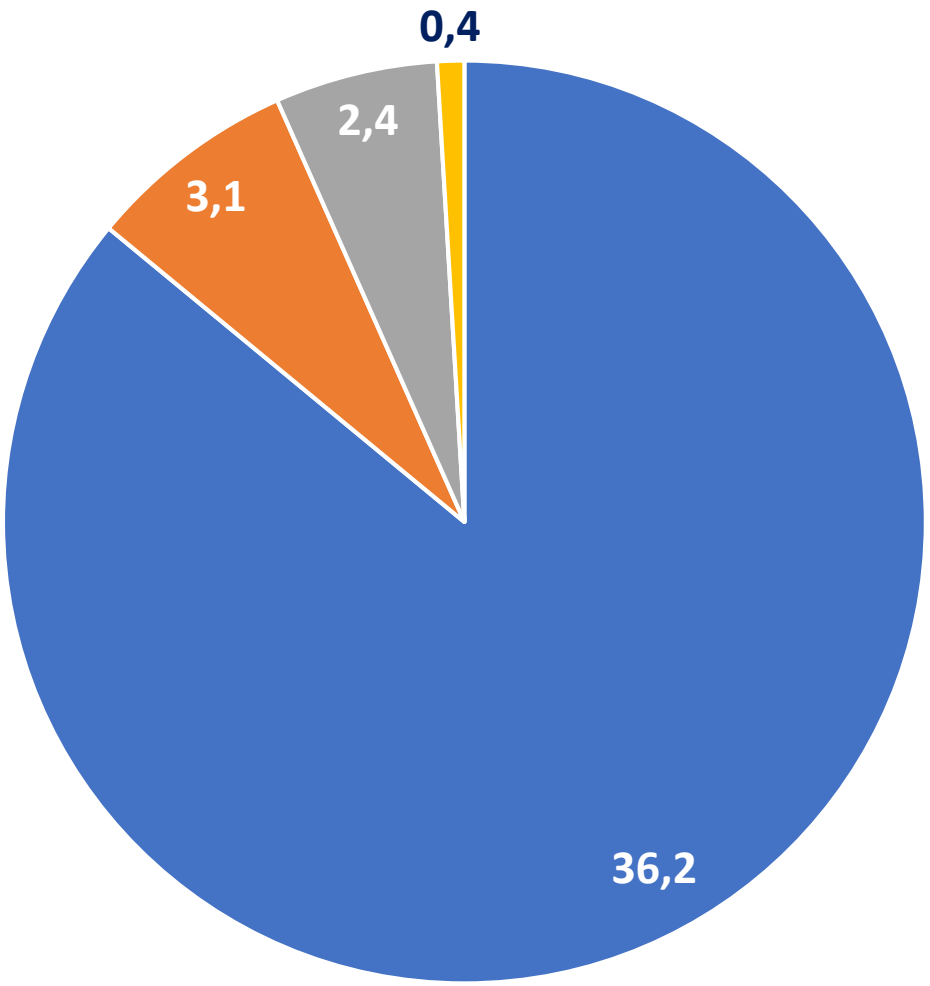
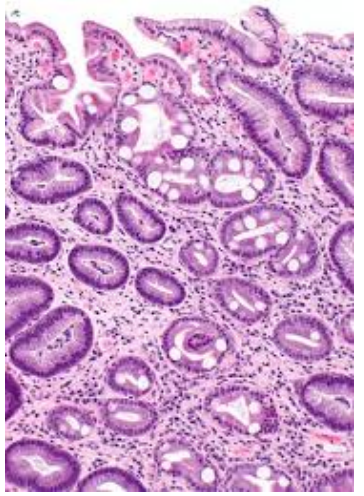
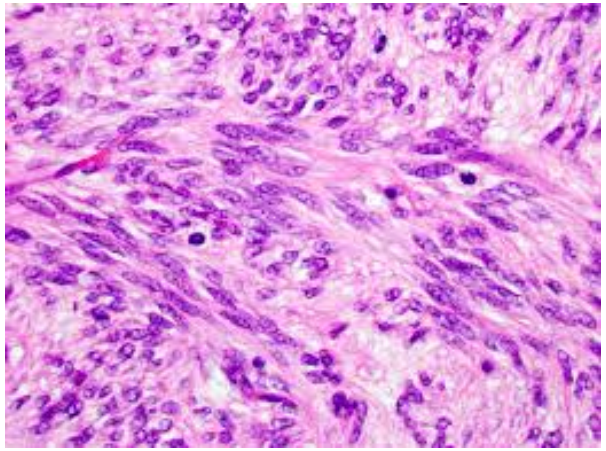
Most common pre-op pathology findings in obese











Helicobacter Atrophic gastritis Intetstinal metaplasia GIST

Wang S et al. Obes Surg 2021;31:337-42 (59 studies, 32,789 patients)

Diseases of the Esophagus (2024), **37**, 1–12
https://doi.org/10.1093/dote/doae006

DISEASES OF THE ESOPHAGUS

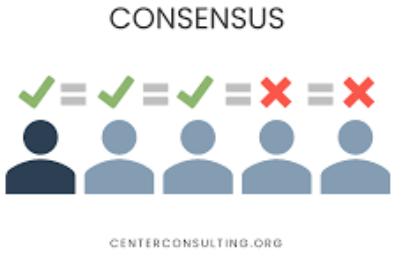
ISDE The International Society for Diseases of the Esophagus

Guideline

Gastro-esophageal diagnostic workup before bariatric surgery or endoscopic treatment for obesity: position statement of the International Society of Diseases of the Esophagus

Pierfrancesco Visaggi,[1,2] Matteo Ghisa,[3] Brigida Barberio,[4] Philip W. Chiu,[5] Ryu Ishihara,[6] Geoffrey P. Kohn,[7,8] Sergey Morozov,[9] Sarah K. Thompson,[10] Ian Wong,[5] Cesare Hassan,[11,12] Edoardo Vincenzo Savarino[4,13]

Statement 1



- Preoperative esophagogastroduodenoscopy should be considered in all patients planning to undergo bariatric surgery.

Conditional Recommendation – Low Quality Evidence (Agree=90%)

Statement 1

- In a meta-analysis on 594 patients, an association has been demonstrated between obesity and reflux esophagitis (OR=2.23, 95%CI:1.6 - 3.1, P=0.000), erosive gastritis, gastric and duodenal ulcers (OR=1.40, 95% CI:1.14–1.7, P=0.001)[1]
- In another meta-analysis, the pooled adjusted OR of esophageal adenocarcinoma for BMI of 25 or greater was 2.02 (95% CI:1.5–2.7; P=0.001), with a trend toward a dose–response relationship [2]
- A meta-analysis on 13,434 patients undergoing endoscopy prior to bariatric surgery, found a prevalence of Barrett's esophagus of 0.9% (95% CI:0.7%–1.3%; P<0.001)[3]

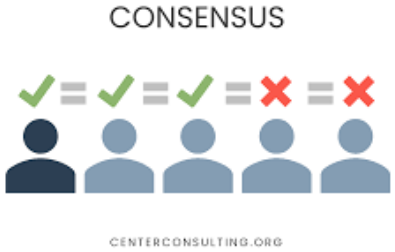
1.Kim HJ, et al J Gastroenterol Hepatol 2007;22(4):477–81.
2.Hampel H, et al. Ann Intern Med 2005;143(3):199–211.
3.Qumseya B, et al. Endoscopy 2020;52(7):537–47.

Statement 1

- A change in surgical management of candidates for bariatric surgery following EGDS has been reported in the range of 3.9% (95% CI: 3%–4.8%) to 20.6% (95% CI: 14.5%–28.2%)
- The proportion of medical management changes ranged from 0% to 70.2% in single studies and was mainly due to Helicobacter pylori (HP) eradication (76.4%) and medical therapy for gastritis or GERD (23.5%)

Bennett S, et al. Surg Obes Relat Dis2016;12(5):1116–25.

Statement 2



- Identification and subsequent repair of HH larger than 2 cm may improve outcomes in patients undergoing bariatric procedures.
- *Conditional Recommendation—Low Quality Evidence.*

Statement 2

- HH may be present in nearly 40% of morbidly obese patients [1]
- A recent meta-analysis investigated the effects of concomitant LSG and HHR in patients with GERD. From the pooled analysis of 18 randomized (n=1) and nonrandomized (n=17) studies including 937 patients, the authors found that concomitant LSG and HHR had a positive effect on weight loss, erosive esophagitis (OR=0.12), and improvement of GERD symptoms (OR=020). [2]
- In addition, the OR for remission of GERD symptoms was significantly higher in patients undergoing LSG+HHR compared to LSG without HHR (OR=2.97; 95%CI: 1.8–4.9, P<0.0001).

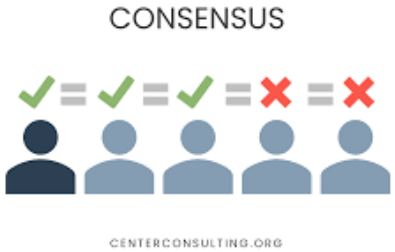
1. Che F, et al. Surg Obes Relat Dis 2013;9(6):920–4.
2. Chen W, et al. Obes Surg 2021;31(9):3905–18.

Statement 2

- In contrast, another meta-analysis on 838 patients found that although HHR significantly prolonged the procedure time of LSG, there was no differences in terms of GERD improvement in patients undergoing HHR+LSG or LSG alone.[1]
- In a RCT, 100 obese patients with HH who were scheduled for bariatric surgery were randomized to LSG with crural repair or LSG alone. The authors found that LSG with or without HHR had comparable outcomes in terms of postoperative reflux symptoms.[2]
- Evidence on a possible superiority of LSG+HHR compared to LSG alone is contradictory. Further randomized studies are needed to increase the quality of available evidence. However, current evidence suggests the need of identifying a HH and treating it accordingly.

1. Małczak P, et al. Pol Przegl Chir 2021;93(5):1–6.
2. Snyder B, Surg Obes Relat Dis 2016;12(9):1681–8.

Statement 7



- No recommendation can be made on the screening for Helicobacter pylori infection in patients planning bariatric procedures based on currently available evidence.
- *Agree:81.8%. No recommendation*

Statement 7

- Prevalence estimates of HP infection in obese patients undergoing bariatric procedures are heterogeneous, with meta-analytic studies showing prevalence rates ranging from 0.13% to 49%. Similarly, the impact of HP infection on surgical outcomes is unclear.][1]
- In a meta-analysis on 255,435 patients undergoing bariatric procedures, HP infection was associated with a 10-fold increase in marginal ulcers formation following RYGB compared to HP-negative patients. However, the rates of bleeding, leak, hospital length of stay was the same [2]
- Another meta-analysis found that there was no difference in the incidence of post operative complications in HP-positive patients undergoing pre-operative HP eradication therapy compared to HP-negative patients [1]

1. Smelt HJM, et al. Surg Obes Relat Dis 2018;14(10):1645–57.
2. Mocanu V, et al.Obes Surg 2018;28(2):567–73.

Impact of pre-op Endoscopy

The need for EGD before bariatric surgery is controversial.

A retrospective study design
January 2012 to July 2020

Total of 461 patients who underwent EGD before bariatric surgery

The EGD findings were classified into four groups

Group 1: Normal

Group 2: Abnormal findings did not require a change in surgical plan

Group 3: Abnormal findings require a change or delay in surgical management

Group 4: Contraindications

Demographic data

Mean age was 35.1 ± 11.2 years

Mean BMI was 47.7 ± 8.7 kg/m²

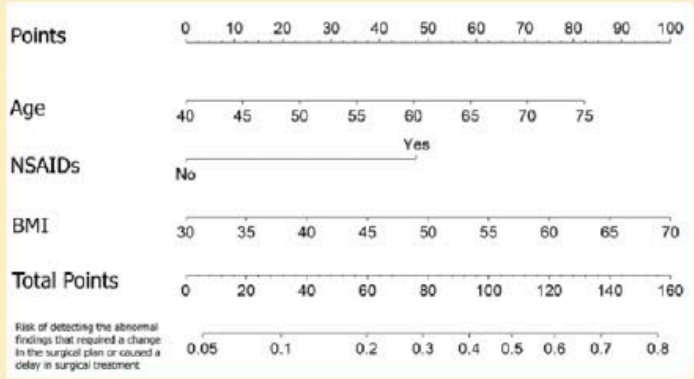
The prevalence of endoscopic findings

42.5% 35.6% 21.9% 0%

Male gender **NSAID use**

Significantly associated

Abnormal endoscopic findings that required a change in the surgical plan or caused a delay in surgical treatment.



A nomogram for the patients age ≥ 40 years old

Conclusions

A high prevalence of abnormal endoscopic findings in preoperative EGD evaluations in Thai bariatric patients.

Preoperative EGD should be considered in all patients undergoing bariatric surgery to find the UGI abnormalities that might require a change in the surgical decision plan.

Sawathanon S et al. Surgical Endoscopy (2023) 37:2202–2208

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A survey on pre-op Endoscopy

- A retrospective chart review of 885 patients who underwent primary bariatric surgery
- One or more abnormal EGD findings were observed in 83.2% of patients
- More than half of our patients (54.7%) presented with history of heartburn, reflux, or GERD.
- EGD findings demonstrated a hernia in 43.1% of patients [(Type I: 40.6%; Type II: 0.5%; Type III: 2.1%)].
- Among patients who were biopsied, other findings included gastritis (32.4%), esophagitis (8.0%), eosinophilic esophagitis (4.7%), or duodenitis (2.7%)

Chen J et al. Surgical Endoscopy (2023) 37:3127–3135

A survey on pre-op Endoscopy

- Among patients who were biopsied, other findings included gastritis (32.4%), esophagitis (8.0%), eosinophilic esophagitis (4.7%),or duodenitis (2.7%).
- We found ulcers in 6.7% of patients. Pathology was consistent with H. pylori in 9.8% of biopsies taken and consistent with BE in 2.7%.
- Following routine p-EGD, 11.2% of patients were placed on PPI and 8.3% were recommended to stop NSAIDs.

Chen J et al. Surgical Endoscopy (2023) 37:3127–3135

Gastric sleeve & Barrett

Risk of De Novo Barrett's Esophagus (BE) Post Sleeve Gastrectomy (SG): A Systematic Review and Meta-analysis of Studies with Long Term Follow up

- 19 studies with 2046 patients
- Mean → 2 to 11.4 years
- Pooled rate of de novo BE → 5.6%

	Pre SG	Post SG
Reflux Symptoms	14.6%	48%
Erosive Esophagitis	7.7%	33.4%
Hiatal Hernia	14.8%	32.1%
PPI Use	13.5%	54.6%

Clinical Gastroenterology and Hepatology

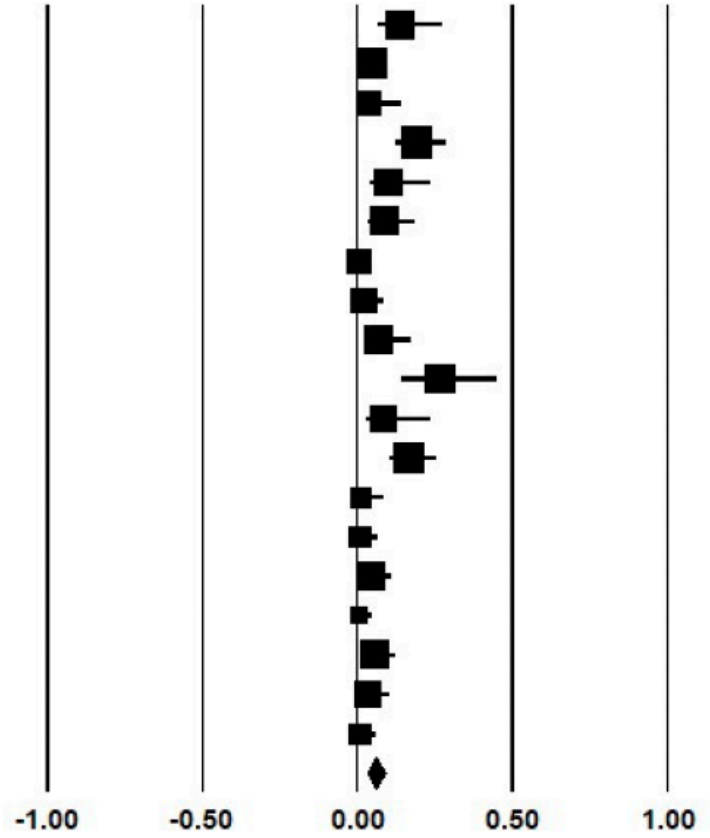
Chandan S et al. Clin Gastro Hepatol 2024, pub ahead of print

Gastric sleeve & Barrett

Post Op De Novo Barrett's Esophagus

Study name	Event rate	Lower limit	Upper limit	Z-Value	*P*-Value	Total	Relative weight	Relative weight
Felsenreich 2018	0.136	0.063	0.272	-4.202	.000	6 / 44	6.19	
Braghetto 2019	0.048	0.026	0.087	-9.228	.000	10 / 209	6.79	
Csendes 2019	0.038	0.009	0.139	-4.493	.000	2 / 53	4.66	
Sebastianelli 2019	0.189	0.121	0.283	-5.411	.000	17 / 90	7.04	
Dimbezel 2020	0.100	0.038	0.238	-4.169	.000	4 / 40	5.70	
Lallemand 2020	0.085	0.036	0.188	-5.090	.000	5 / 59	6.03	
Matar 2020	0.008	0.002	0.030	-6.846	.000	2 / 260	4.71	
Al Sabah 2021	0.022	0.005	0.083	-5.325	.000	2 / 92	4.69	
Elkassem 2021	0.069	0.026	0.170	-5.023	.000	4 / 58	5.75	
Migaczewski 2021	0.267	0.139	0.450	-2.450	.014	8 / 30	6.33	
Znamirowski 2021	0.086	0.028	0.234	-3.920	.000	3 / 35	5.28	
Genco 2021	0.168	0.106	0.257	-5.825	.000	16 / 95	7.02	
Benvenga 2022	0.013	0.002	0.085	-4.316	.000	1 / 78	3.39	
Ferrer 2022	0.010	0.001	0.064	-4.622	.000	1 / 105	3.40	
Salminen 2022	0.044	0.017	0.111	-6.022	.000	4 / 91	5.79	
Coupaye 2023	0.003	0.000	0.047	-4.079	.000	1 / 162	2.19	
Kermansaravi 2023	0.057	0.026	0.121	-6.668	.000	6 / 105	6.29	
Wolnerhanssen 2023	0.036	0.012	0.106	-5.583	.000	3 / 83	5.36	
Yadavalli 2024	0.009	0.001	0.060	-4.707	.000	1 / 114	3.40	
	0.056	0.035	0.088	-11.377	.000			

Event rate and 95% CI



How reliable is pre-sleeve endoscopy to characterize pathological features?

- Cross-sectional study examined 102 patients who underwent vertical sleeve gastrectomy from January 2023 to November 2023.
- The negative predictive value of preoperative esophago-gastroduodenoscopy for detecting H. pylori infection, gastritis, metaplasia and atrophy were 95 %, 79 %, 93 %, and 98 %, respectively.
- Moderate gastritis and focal metaplasia were significantly underdiagnosed preoperatively ($p < 0.001$).
- H. pylori infection and focal metaplasia were significantly more prevalent in females after surgery ($p < 0.001$).
- H. pylori infection and gastritis were positively correlated with increased postoperative gastroesophageal reflux disease symptoms ($p < 0.001$).

Heyat M et al. Ann Diagn Pathol 2024:152319

Frequency of Clinically Significant Findings in the Surgical Pathology Specimen Following Laparoscopic Sleeve Gastrectomy and Concordance with Preoperative Endoscopy

- Three hundred seventy-three patients had preoperative endoscopy and surgical pathology results available.
- 20/373 (5.4%) patients had potentially significant postoperative pathology, including intestinal metaplasia, autoimmune metaplastic atrophic gastritis (AMAG), gastrointestinal stromal tumors, and/or gastric cancer.
- The overall incidence of AMAG in the entire cohort was 2.3%. Preoperative gastric biopsies (to include gastric body) identified AMAG in nearly 1/2 of patients.
- Patients with clinically significant postoperative pathology results had a median [interquartile range] of 3 [3–5] tissue blocks examined as compared to 3 [1–3] for the remainder of the cohort ($p < 0.001$).
- We recommend wider sampling in preoperative endoscopy (body and antrum)

Owen CK et al. Obes Surg 2024; 34:1442–1448

Pre-Op EGDS – High cost for low yield

- 31 retrospective observational studies (EGD=13,837)
- Meta-analysis found 3.9% of EGDs resulted in a change in operative management
- This proportion decreased to 0.3% after sensitivity analysis, as detection of hiatal hernia comprised 85.7% of findings that changed operative management.
- Half of the 7.5% of cases that resulted in surgical delay involved endoscopic detection of H. pylori.
- Gastric pathology was detected in a significantly greater proportion of symptomatic patients (65.0%) than in asymptomatic patients (34.1%; P<0.001).

Gretchen E et al. J Clin Gastroenterol 2020;54:398–404)

Pre-Op EGDS – High cost for low yield

TABLE 2. Absolute Value [% of Total EGDs (n = 13,837)] of Operative Change or Delay by Abnormality

Absolute Value and Corresponding Percentage of Total EGDs [n = 13,837] of Operative Delay or Change by Abnormality	Operative Delay [n (%)]	Operative Change [n (%)]
Hiatal hernia	0	694 (5)
Esophagitis	170 (1.2)	17 (0.12)
Gastritis	299 (2.2)	0
Duodenitis	77 (0.6)	0
Gastric ulcer	139 (1.0)	5 (0.04)
Gastric polyp	19 (0.14)	1 (<0.01)
Duodenal polyp	1 (<0.01)	0
Barrett's esophagus	10 (0.07)	7 (0.05)
Cancer	0	12 (0.09)

EGD indicates esophagogastroduodenoscopy.

Gretchen E et al. J Clin Gastroenterol 2020;54:398–404)

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Pre-Op EGDS – High cost for low yield

- The cost of routine EGD to identify any abnormality that led to a change in type of bariatric operation was $281,230 and $766,352 when controversial findings were included versus excluded, respectively.
- Cost of routine EGD to identify a malignancy was $2,554,506
- Estimated cost of EGD was $2215
- Estimated cost including histology SSN is 140€
- Cost included in bariatric package ± 230 €

Gretchen E et al. J Clin Gastroenterol 2020;54:398–404)

Take home messages

- The performance of an upper endoscopy in a patient with reflux symptoms, dysphagia, and/or dyspepsia has been covered in multiple guidelines and is equally relevant in the preoperative patient
- RYGB and DS/BPD render the distal stomach and/or duodenum inaccessible by a standard upper endoscope, the threshold for performing a preoperative endoscopic evaluation of the upper-GI tract is lower than for other surgeries
- The relative low cost and possible legal implication warrant the EGD in all patients before bariatric procedures


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