

HEARTBURN: UPDATE ON THERAPY

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March 7, 2024



A Member of Trinity Health

Disclosures

- None financial
- Employee of St. Joseph's Hospital
- Surgical Director of The Heartburn Center at SJH
- Fellowship-trained minimally invasive general surgeon



Heartburn Update: Objectives

1. Review anatomy and etiology of heartburn and reflux
2. Discuss the role of hiatal hernia
3. Review pharmaceutical, endoscopic, and surgical therapies for GERD



Gastroesophageal Reflux Disease

Definition

- GERD is the condition in which the reflux of gastric contents into the esophagus results in symptoms and/or complications.
- GERD is objectively defined by the presence of
 - characteristic mucosal injury seen at endoscopy +/-
 - abnormal esophageal acid exposure demonstrated on a reflux monitoring study



Gastroesophageal Reflux Disease

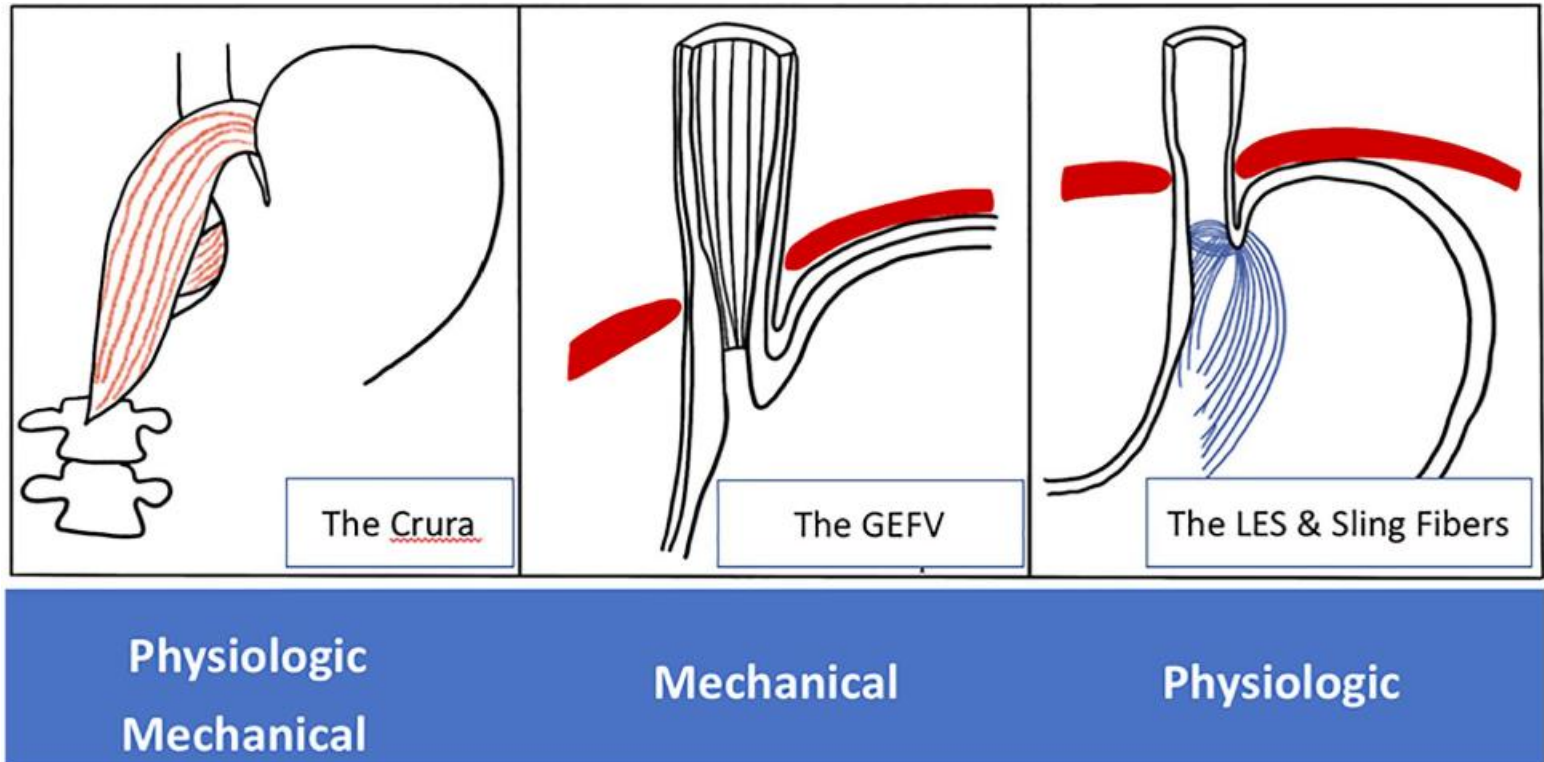
Definition does not include

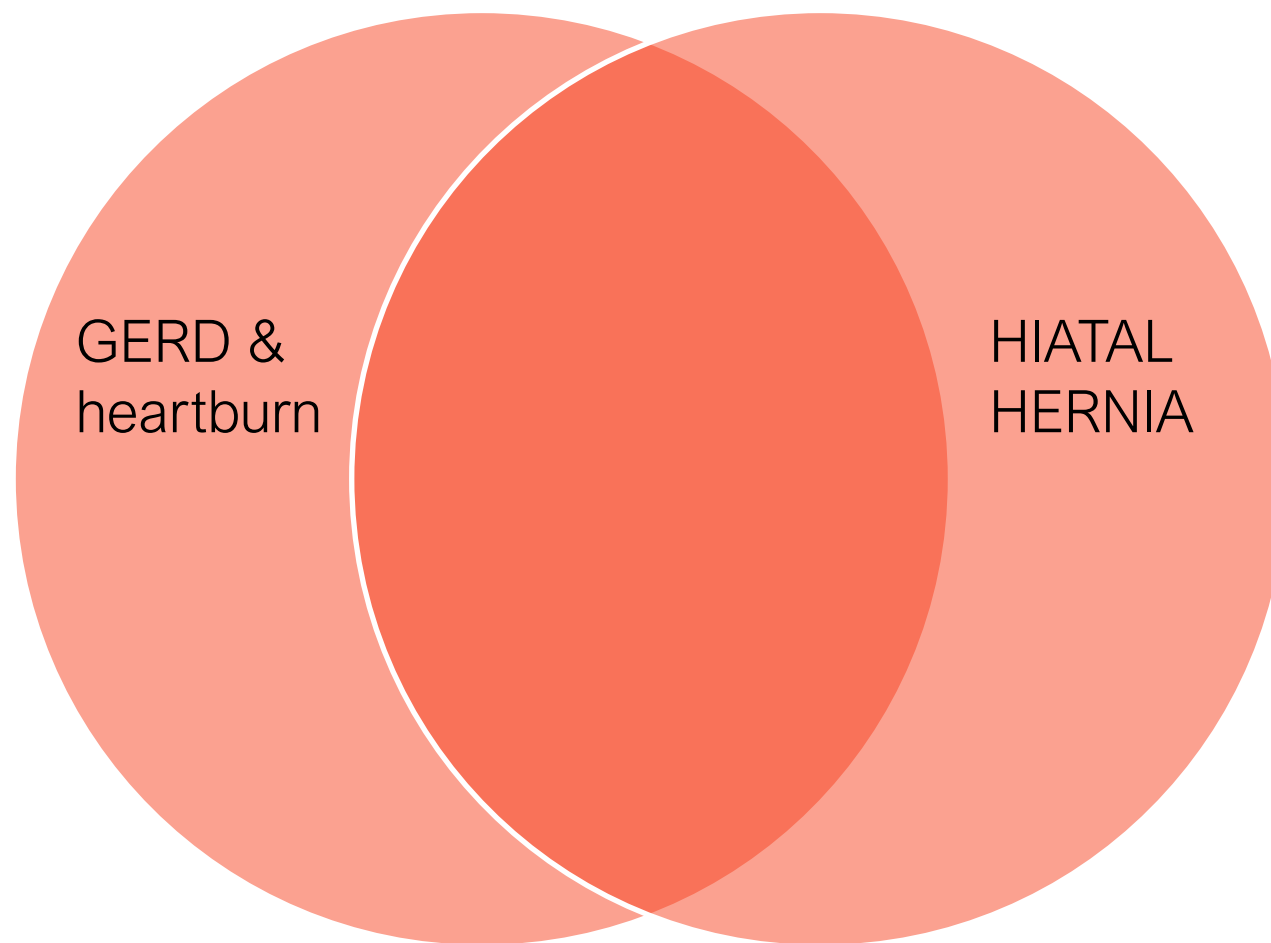
- Functional heartburn
- Esophageal hypersensitivity



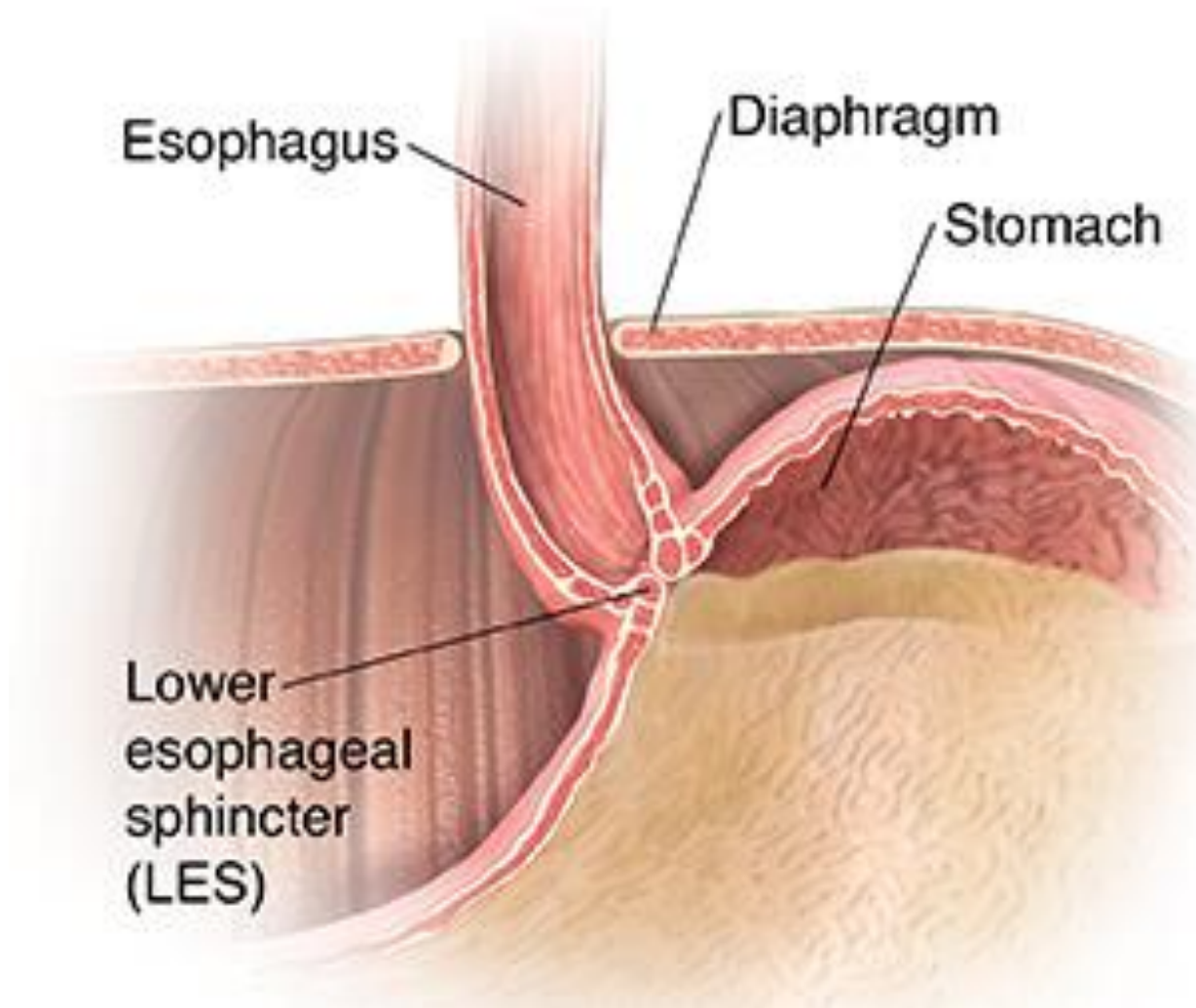
Pathophysiology

- Poorly functioning esophagogastric junction
- Impaired esophageal clearance
- Changes to esophagus mucosal integrity
- Reflux esophagitis – cytokines and chemokines trigger inflammation cascade
- Other contributors: decreased saliva, delayed gastric emptying.

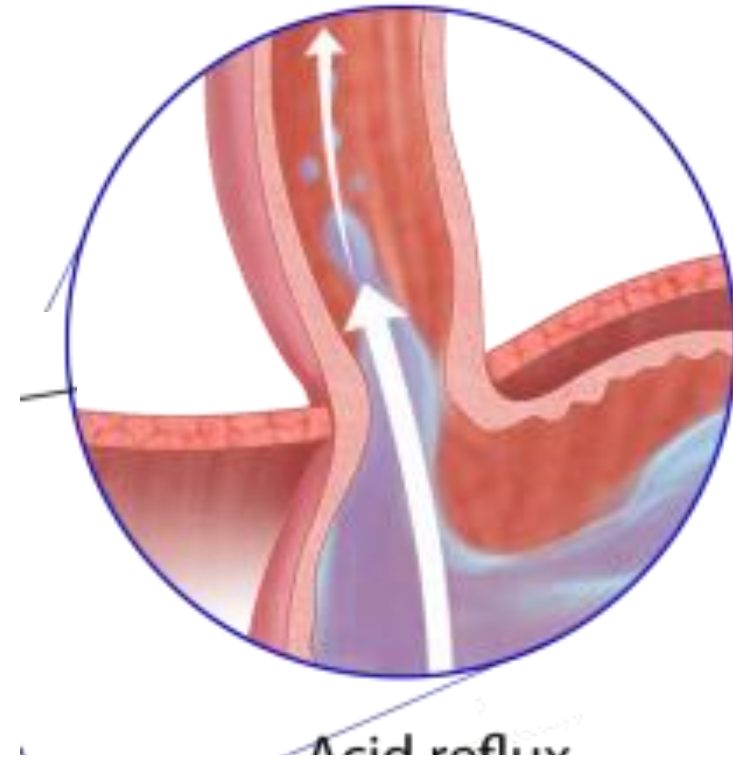
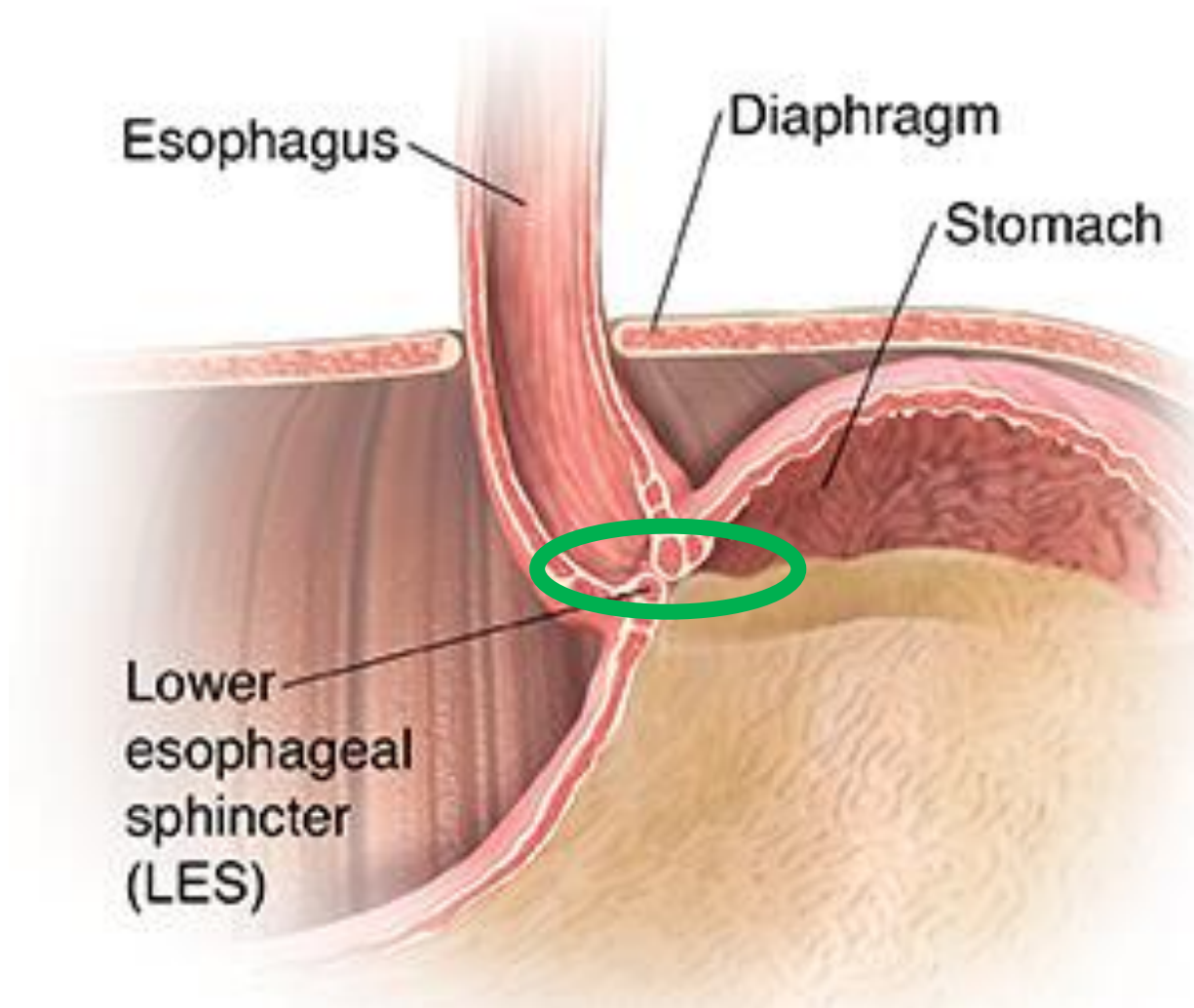




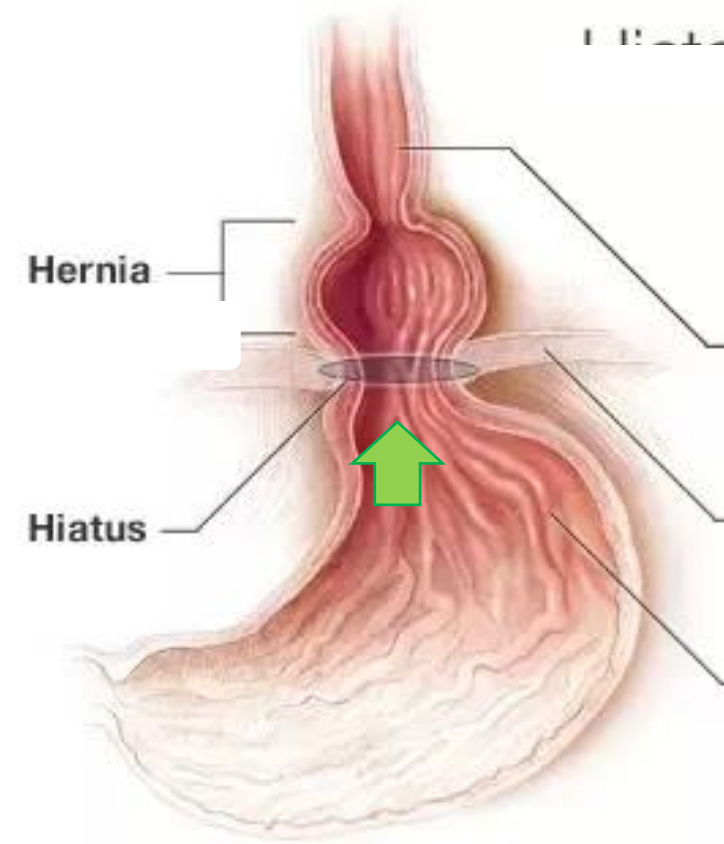
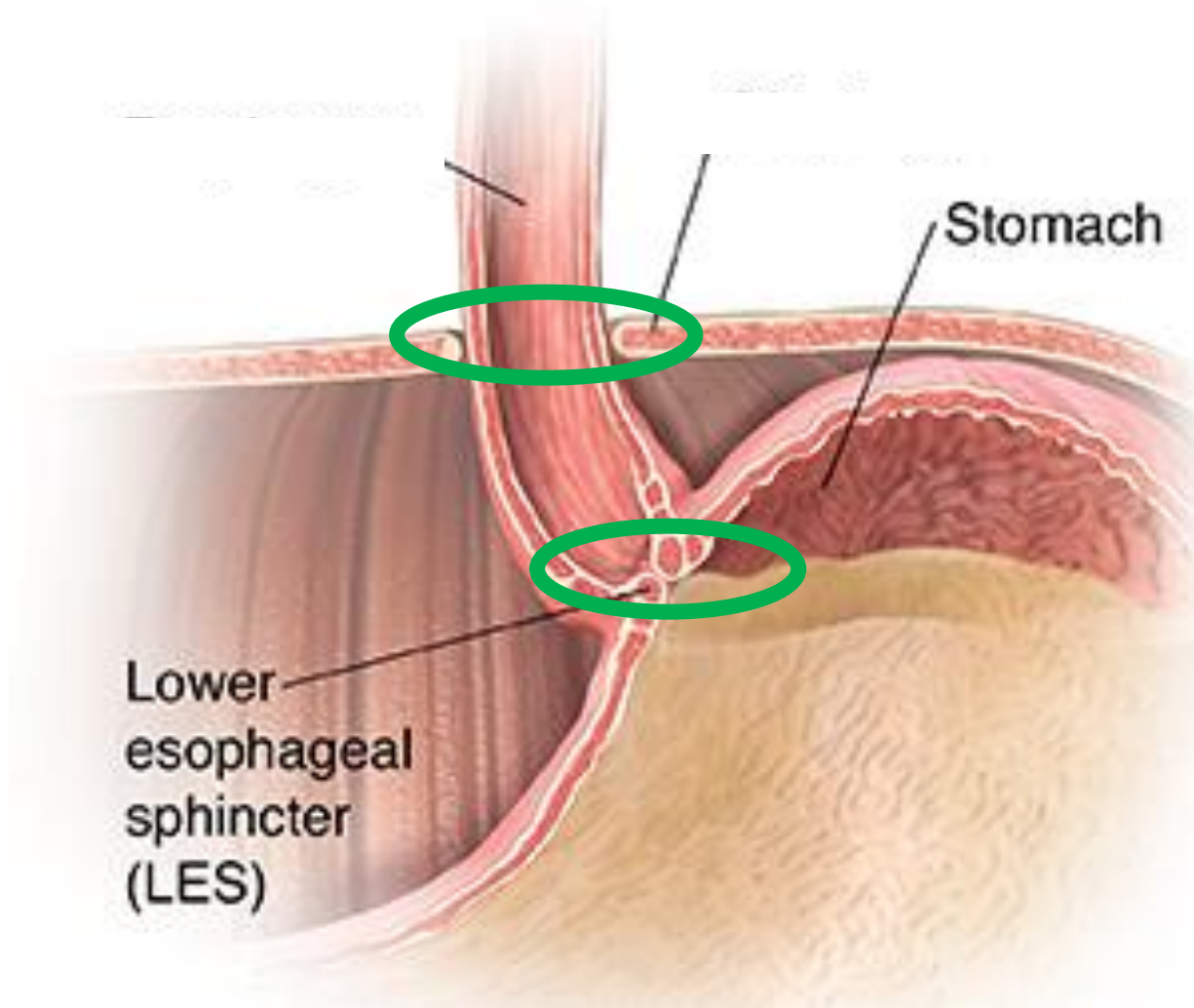
- GERD Mechanism



- GERD Mechanism



- GERD Mechanism



Symptoms

Most Common:

- Heartburn
- Regurgitation
- Chest pain

Alarm Symptoms:

- Dysphagia
- Weight loss
- Bleeding
- Vomiting
- Anemia



Differential Diagnoses

- Rumination
- Achalasia
- Eosinophilic esophagitis (EoE)
- Reflux hypersensitivity
- Functional disease
- Cardiac or pulmonary disease
- Paraesophageal hernia



Extraesophageal symptoms

- Hoarseness
- Throat clearing
- Chronic cough
- Dysphonia
- Sinusitis
- Dental erosions
- Laryngitis
- Pharyngitis
- Pulmonary fibrosis
- Asthma exacerbation
- Broad differential
- Multidisciplinary team essential



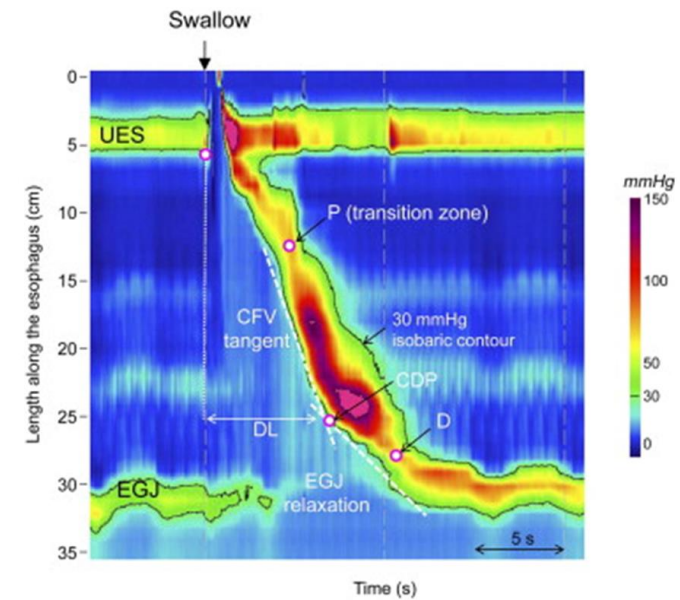
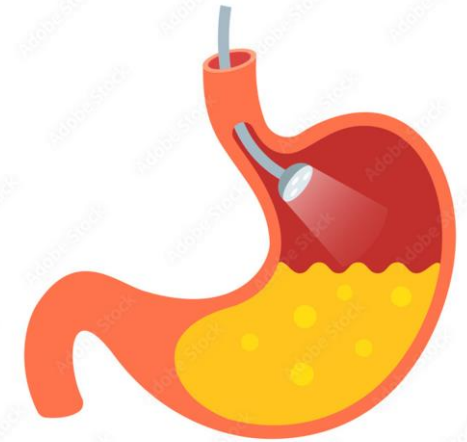
Diagnosis

- No gold standard
- Symptoms + endoscopy + testing
- Trial PPI therapy?
 - Sensitivity 78% and specificity 54% (compared to endoscopy and pH testing)¹



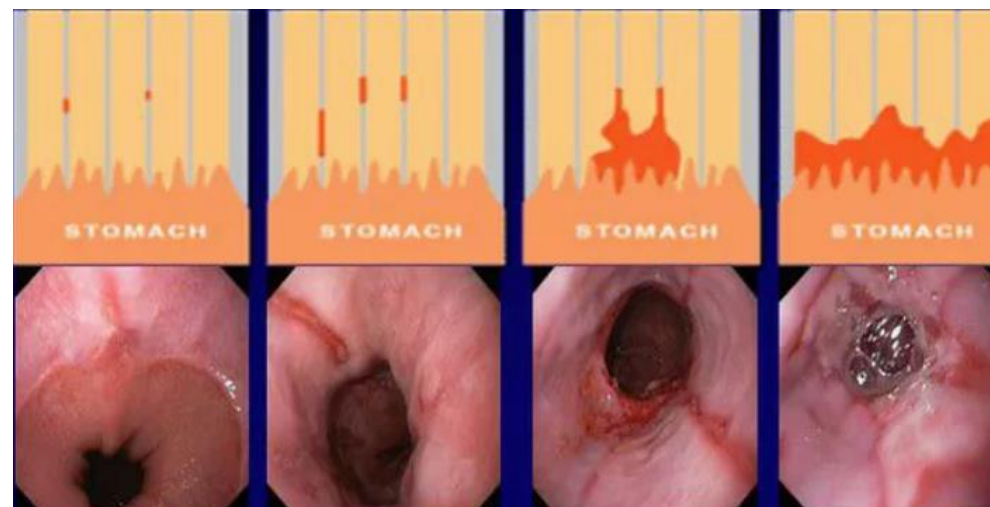
Testing

- Endoscopy
- Barium radiograph
- Esophageal manometry
- Ambulatory reflux monitoring



Endoscopy

- Diagnostic if erosive esophagitis or Barrett's esophagitis seen
- LA classification B-D
- Ability to biopsy
- Identify other pathology
- Gastritis, h pylori, eosinophilic esophagitis, duodenitis, gastric carcinoma, hiatal hernia, paraesophageal hernia, esophageal diverticulae



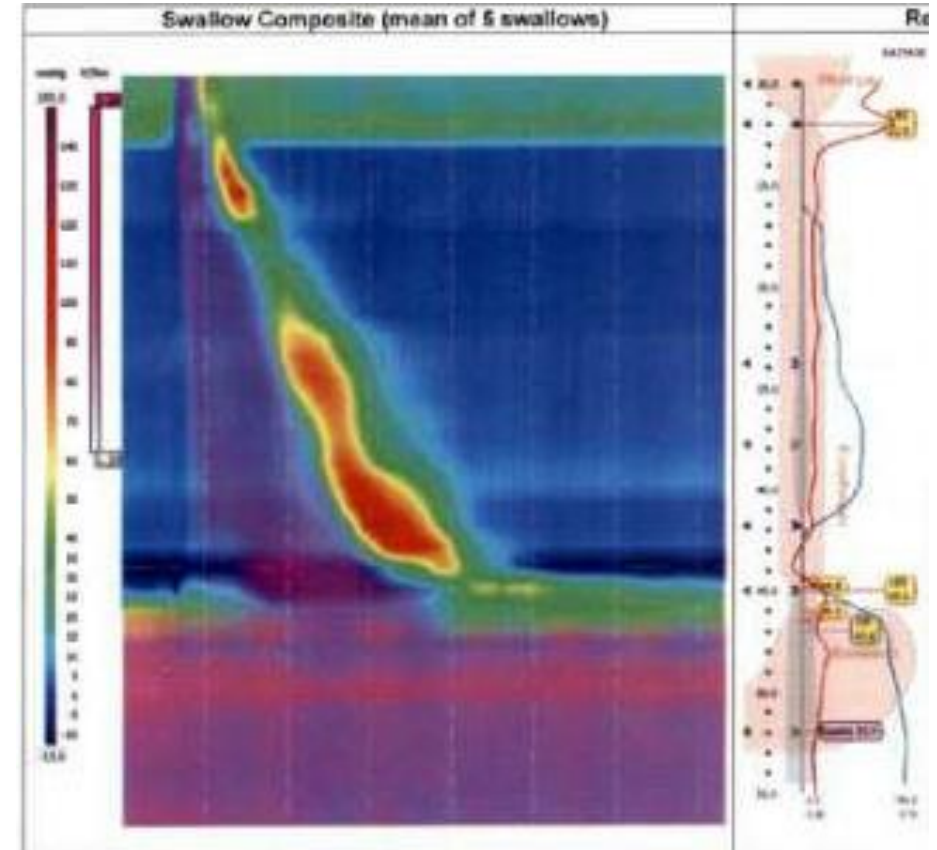
Barium Radiograph

- Not a diagnostic test
- Can rule in or out other pathology
 - Dysmotility
 - Hiatal hernia
 - Esophageal diverticulae



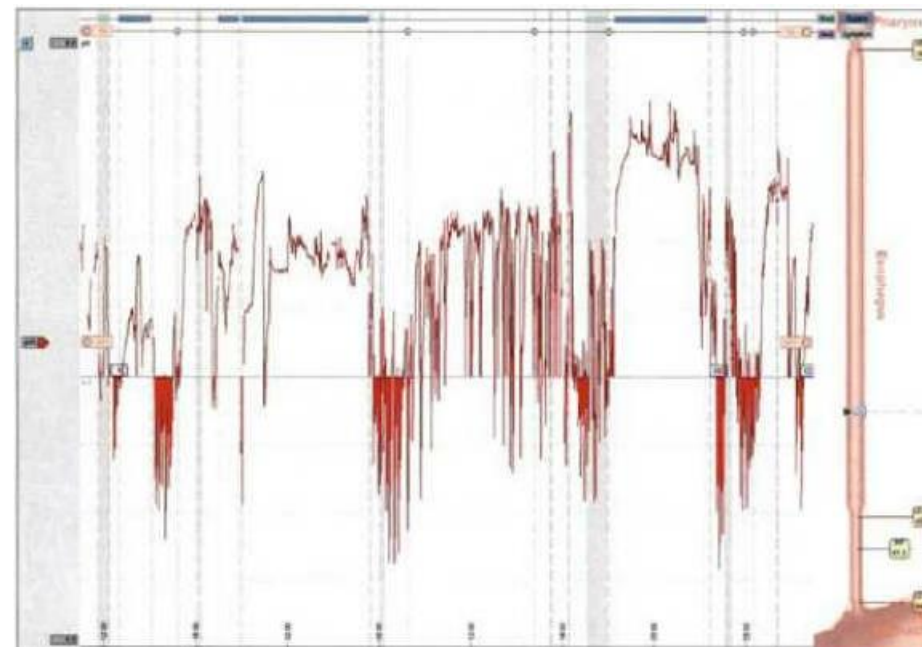
Esophageal Manometry

- Not a diagnostic test for GERD
- Standard vs high resolution
- Chicago classification 4.0
- Assists in diagnosis of achalasia
- Helps establish diagnosis in patients not responsive to PPI with normal pH study or noncardiac chest pain



Ambulatory pH testing

- Wireless vs probe
- While taking PPIs or off PPIs
- pH vs impedance-pH
- Establishes correlation with symptoms



REFLUX MONITORING SUMMARY

Acid Exposure Summary	Total	Normal
Acid exposure time (%)	18.0	<4.9
Longest reflux (min)	27.4	<16.0
DeMeester Score	50.2	<14.7

Symptom Association Summary	Heartburn
Number of occurrences	6
Symptom index for reflux (SI)	66.7
Symptom association prob. (SAP)*	97.2



Management

- Lifestyle changes
- Pharmacotherapy
- Endoscopic therapy
- Surgical procedures

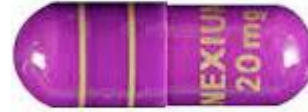


Lifestyle changes

- Tailor to the patient's symptoms and presentation!
- Weight loss
- Smoking cessation
- Avoid trigger foods
- Bedtime: bed incline, wait after dinner, sleep on left side



Pharmacotherapy - PPI



Superior to H2RA For healing erosive esophagitis and maintenance of healing

If no EE or Barrett's and symptoms resolve, attempt to discontinue, allow on-demand dosing

Maintenance therapy at lowest effective dose for others

Indefinite maintenance therapy in LA class C or D esophagitis

Dosing:

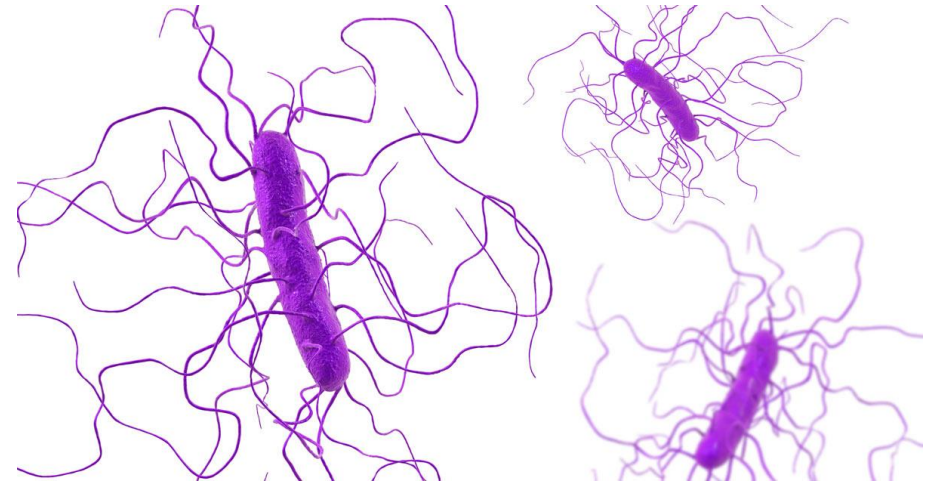
- 30 minutes prior to meals (breakfast if qd, breakfast and dinner if BID)
- Ok to trial switching PPI but not more than once
- Controversy around abrupt discontinuation



Pharmacotherapy - PPI

Concerns

- *C.difficile*-associated disease
- Dementia
- Chronic kidney disease
- Calcium and magnesium malabsorption
- Community acquired pneumonia



Pharmacotherapy - PPI

SIZE² of the concern

- *C.difficile*-associated disease: PPI use increases risk by 2.9% (H2RA 2% increase)
- Dementia: related to Vb12 deficiency? One study shows 44% increased risk among the elderly taking PPIs
- Chronic kidney disease: PPI use associated with 1.45 fold greater chance
- Calcium and magnesium malabsorption – 35% increase in risk of hip fracture if PPI use >2 years in postmenopausal women. Reversible if PPI is stopped
- Community acquired pneumonia: increased odds ratios in recently-started PPI, not long term use



Pharmacotherapy – H2RA

Less effective for healing and maintaining healing of erosive esophagitis

More effective than placebo

Role in stepping off PPIs

Possible role in nighttime adjunct dosage with PPIs

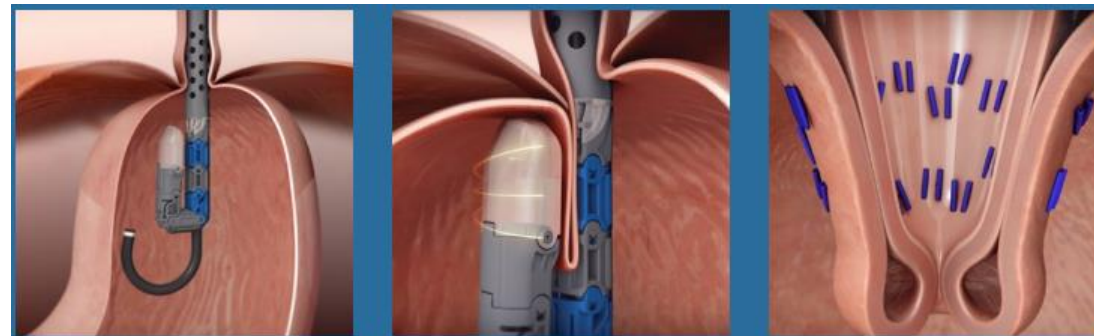


Endoscopic Therapies

Stretta



Transoral Incisionless Fundoplication (TIF)
c-TIF (concomitant laparoscopic hiatal hernia repair)



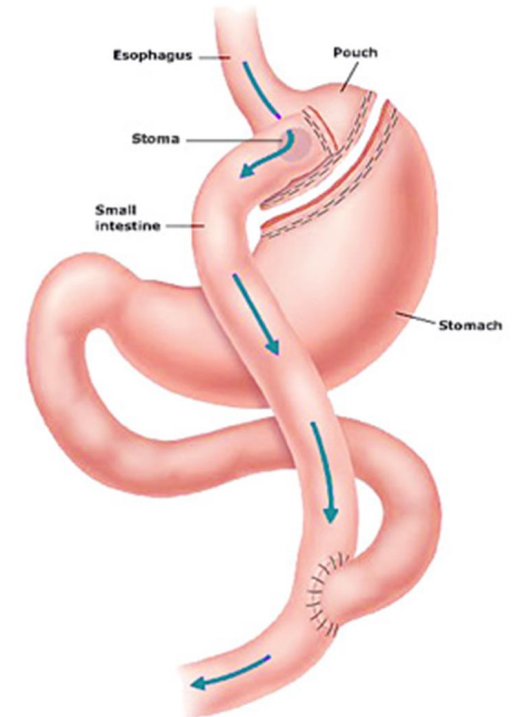
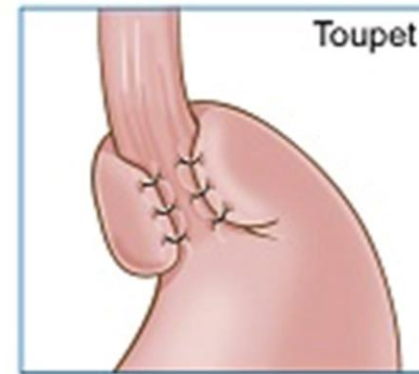
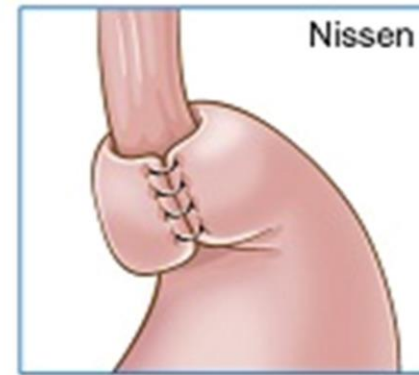
Surgical Therapies

Fundoplication

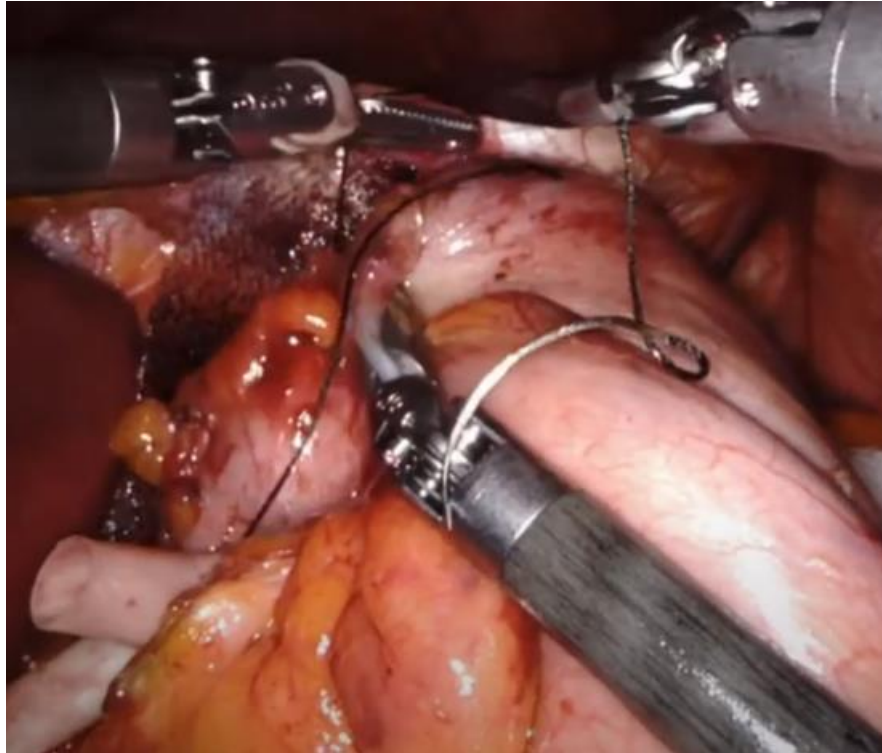
Hiatal hernia repair

Magnetic sphincter augmentation

Roux-en-Y gastric bypass



Fundoplication



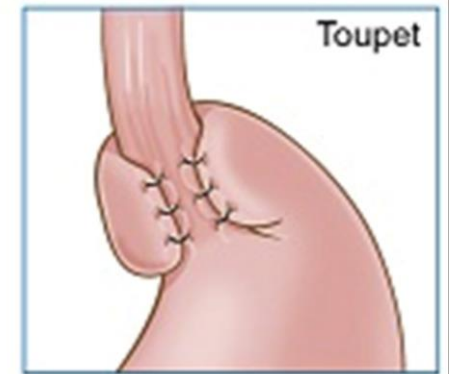
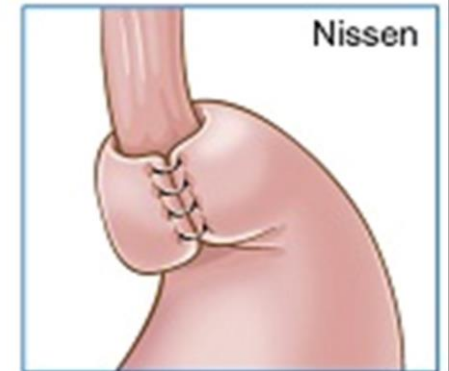
Screenshots courtesy of Caitlin Houghton MD



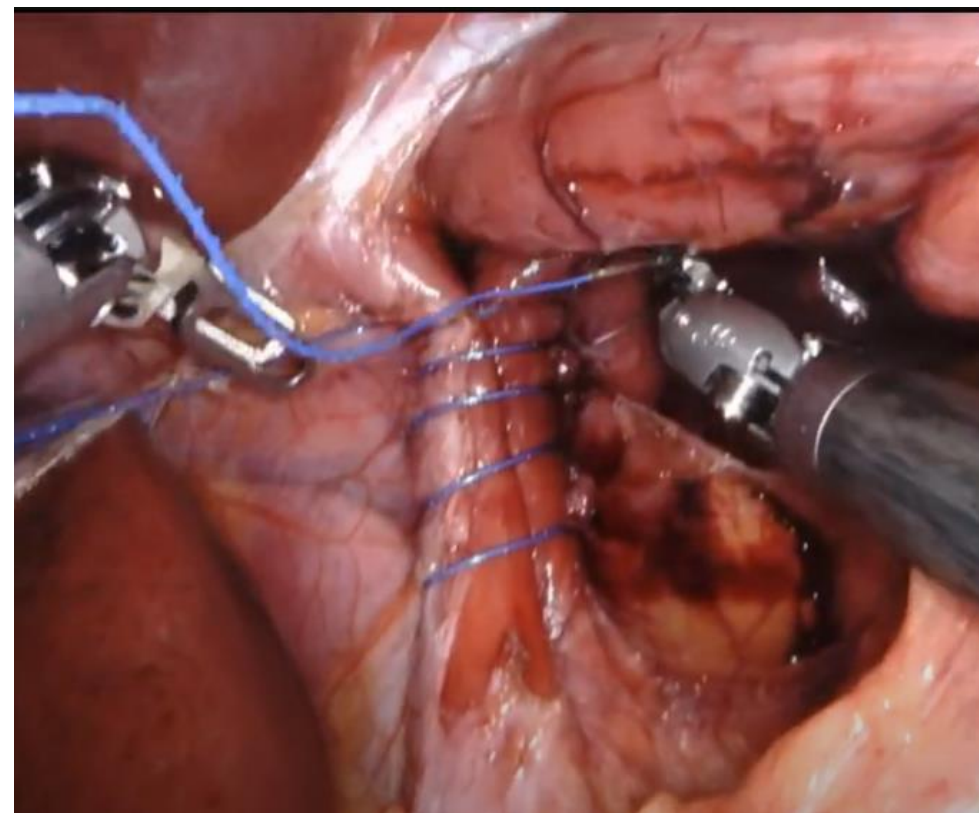
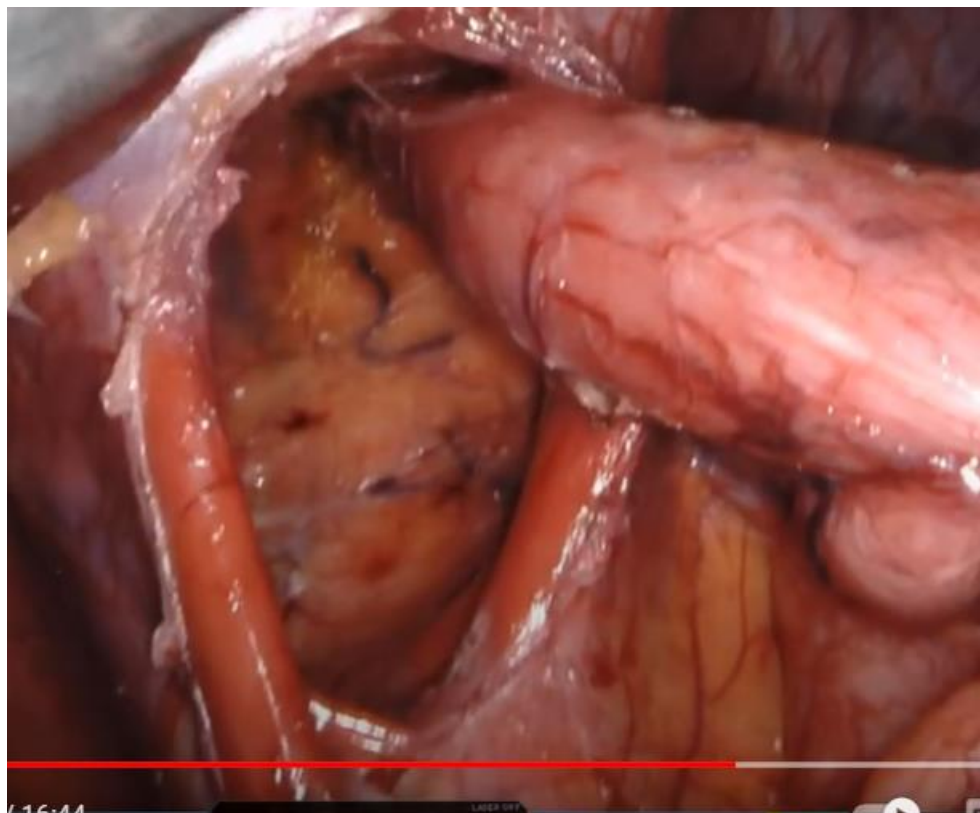
Fundoplication – The Data

2017 Swedish Patient Registry retrospective, population based cohort study⁴

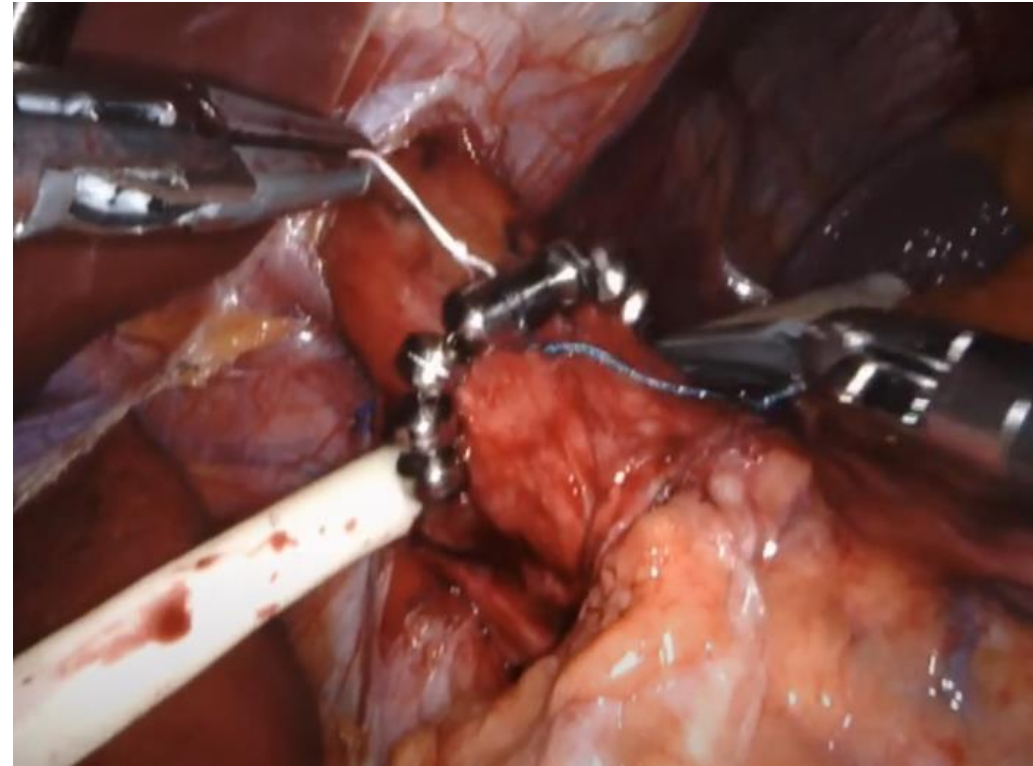
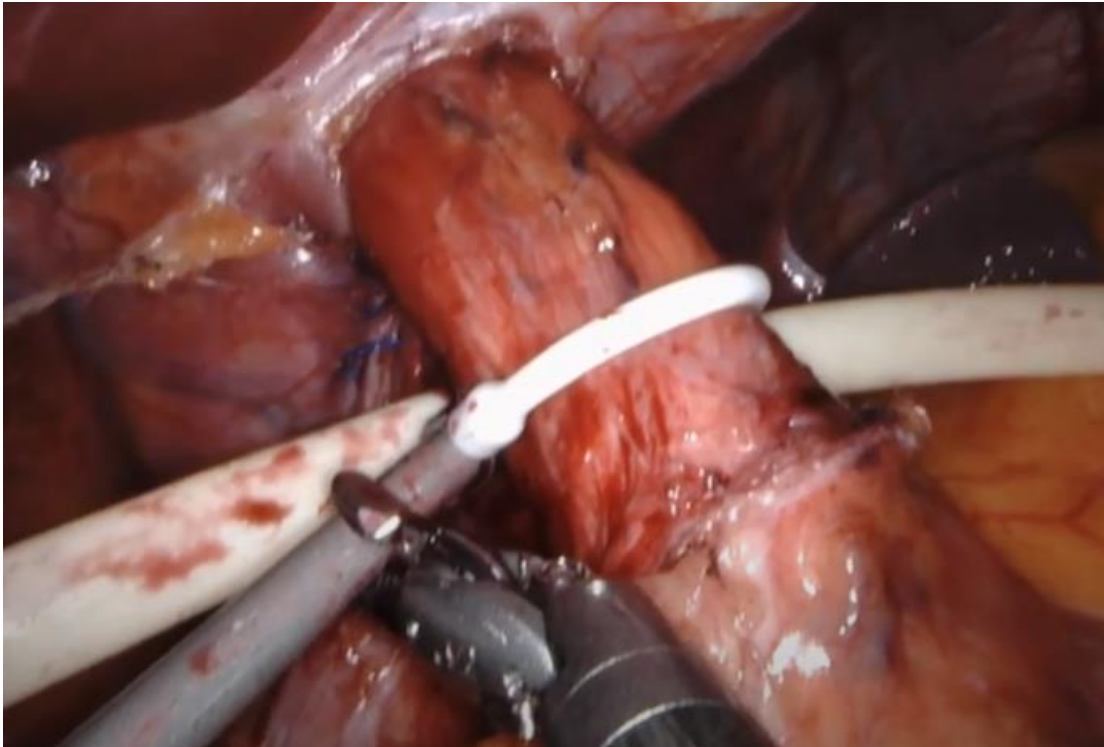
- 2655 patients had laparoscopic anti-reflux surgery
- 5.1 year follow up
- 17.7% (420 patients) with reflux recurrence
- 77 underwent repeat surgery
- 4.1% (109 patients) with complication within 30 days
- 21 patients with dysphagia (0.8%)



Hiatal hernia repair



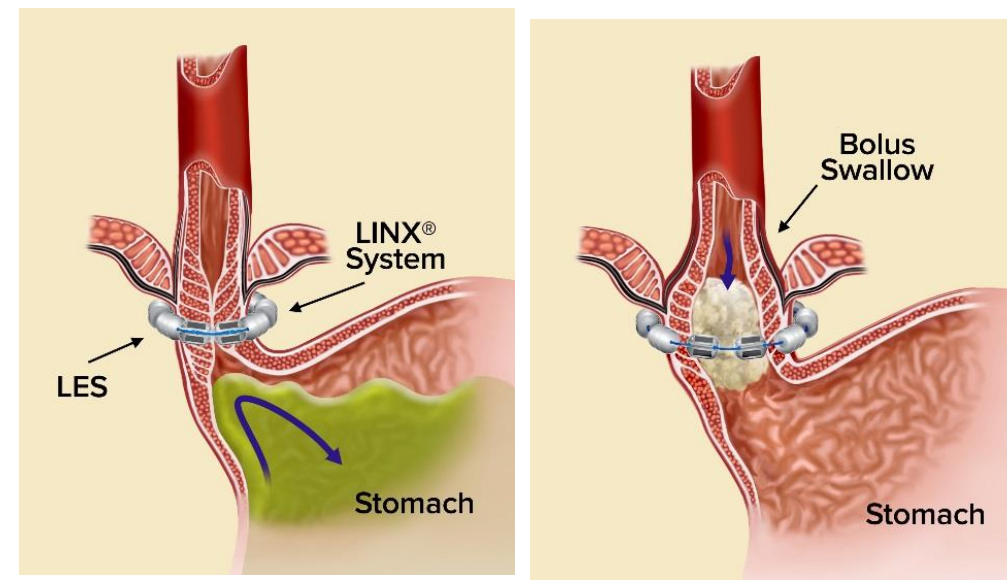
Magnetic Sphincter Augmentation



MSA – The Data

Early pilot⁶: 92% improvement in QOL, decreased PPI, decreased esophageal acid measures. Dysphagia in 11% at 1 year out.

2020 comparison with PPI only therapy⁵:
At 1 year, control of regurgitation was achieved in 72 of 75 patients (96%) in the MSA group, but in only 8 of 43 patients treated with PPIs (19%)



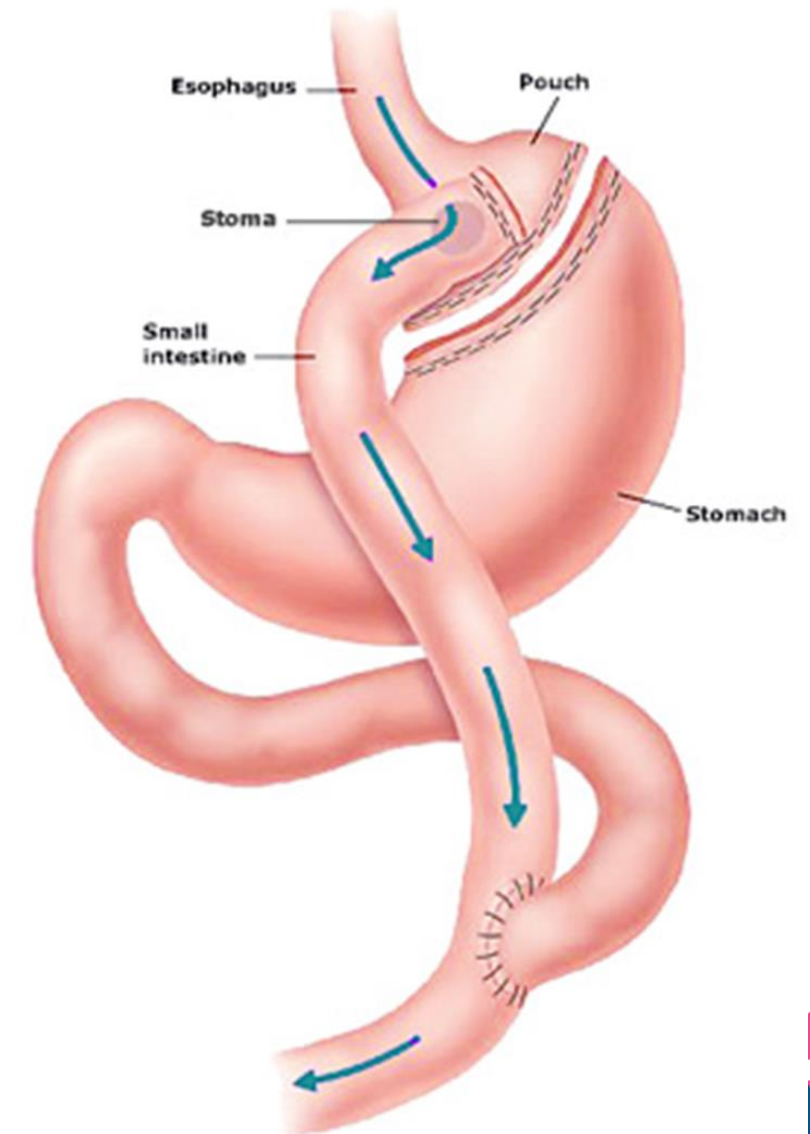
Roux-en-Y Gastric Bypass

Anti reflux

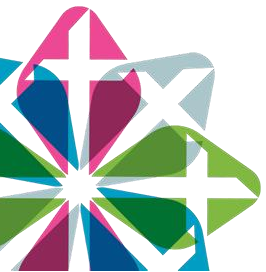
Weight loss

Resolution of comorbidities

Consider the whole patient



The Heartburn Center at St. Joseph's Health is the first dedicated and comprehensive heartburn treatment center in the greater Syracuse region. This center is located at Specialty Services inside the hospital. We help those who have occasional discomfort, experience a more significant array of symptoms and conditions, or those who may need surgery for symptom relief.



The Heartburn Center Team

General Surgery:

Dr. Balasubramaniam Sivakumar

Dr. Beata Belfield

Gastroenterology:

Dr. Borys Buniak

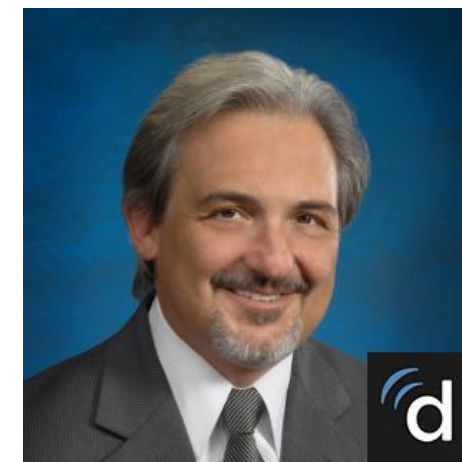
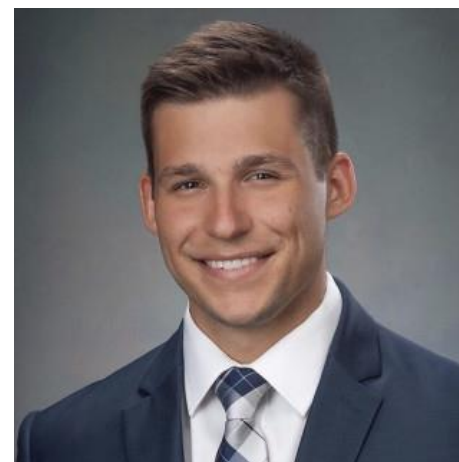
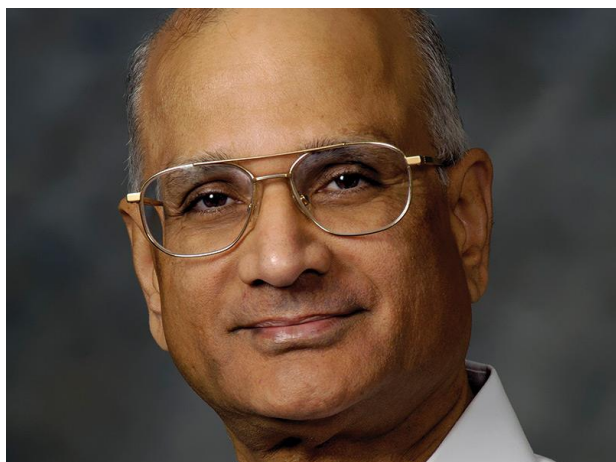
Dr. Nicholas Buniak

Clinical Director:

Leanne Werbeck MBA MS RN

Program Coordinator:

Danielle O'Brien, RN



The logo for St. Joseph's Health, featuring three overlapping Maltese crosses in shades of blue, positioned on the left side of the slide.

Thank You!

References

1. Katz, Philip O. MD, MACG¹; Dunbar, Kerry B. MD, PhD^{2,3}; Schnoll-Sussman, Felice H. MD, FACP¹; Greer, Katarina B. MD, MS, FACP⁴; Yadlapati, Rena MD, MSHS⁵; Spechler, Stuart Jon MD, FACP^{6,7}. ACG Clinical Guideline for the Diagnosis and Management of Gastroesophageal Reflux Disease. *The American Journal of Gastroenterology* 117(1):p 27-56, January 2022. | DOI: 10.14309/ajg.0000000000001538
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