

## Gastroesophageal Reflux Disease: The Burning Belly, Review of GERD and Dyspepsia

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Dr. Domagalski practices family medicine in Menomonee Falls, WI. He provides outpatient and inpatient services. Colon cancer screening, GERD, and inflammatory bowel disease are his specialty topics. Dr. Domagalski believes that access to endoscopy through primary care is an important trend.

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## Learning Objectives

1. Distinguish between gastroesophageal reflux, dyspepsia, and GERD in patients who present with typical and atypical symptoms.
2. Screen for Barrett esophagus or Helicobacter pylori infection, in accordance with current clinical guidelines.
3. Order endoscopy, as indicated, per current clinical guidelines.
4. Coordinate surgical referral for patients with contraindications to PPI therapy or when symptoms remain poorly controlled despite lifestyle changes and maximal PPI doses.
5. Develop collaborative treatment plans for patients with GERD or dyspepsia to include lifestyle modifications and effective medication use, and ensure patient compliance with treatment.

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## Audience Engagement System

The diagram illustrates the Audience Engagement System workflow:

- Step 1:** A mobile app dashboard with various icons. A red arrow points to the 'CME Activity' icon.
- Step 2:** A screen titled 'CME Activity' showing a list of activities. A red arrow points to 'CME001 Acute Coronary Syndromes: Unchain My Heart'.
- Step 3:** A screen titled 'CME001 Acute Coronary Syndromes: Unchain My Heart' showing details like 'Location: MENOMONEE FALLS, WI', 'Date: Wednesday, Sep 21 10:00 AM', and a 'CME Report/Feedback' section.

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## Size of the Problem

- GERD seen in 18-28% of adults
- 60 million in US report weekly symptoms
- Dyspepsia up to 40% of adults
- Accounts for 40-60 visits per month

Anderson WD, Strayer DL, et al. Common Questions About the Management of Gastroesophageal Reflux Disease. *Amer Fam Phys.* 2015 May 15; 91(10):692-697.  
El-Serag HB, et al. Update on the epidemiology of gastroesophageal reflux disease: a systematic review. *Gut.* Jun 2014; 63(6):871-880.

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## Dyspepsia

- Chronic epigastric pain, bloating, fullness
- Symptom of multiple conditions
- Functional Dyspepsia accounts for 70%

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. *Amer Fam Phys.* 2011 March 1; 83(5): 547-52.

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## Differential Diagnosis

- Functional Dyspepsia ~ 70%
- PUD ~15%
- Reflux Esophagitis ~10%
- Gastric/Esophageal Cancer <2%
- Gastroparesis - Rare
- Pancreatitis - Rare
- Medication Effect

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. *Amer Fam Phys.* 2011 March 1; 83(5): 547-52.

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## Medication Effect

- Metformin
- Antibiotics
- Bisphosphonates
- Steroids
- Iron
- Potassium Chloride
- NSAIDs

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. *Amer Fam Phys.* 2011 March 1; 83(5): 547-52.

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## ROME III Criteria

- One or More of the Following:
  - Postprandial fullness
  - Early satiation
  - Epigastric pain
  - Epigastric burning
- AND no evidence of structural disease
- Criteria met for the last 3 months and onset at least 6 months prior to diagnosis

ROME III Diagnostic Criteria for Functional Gastrointestinal Disorders. [http://romecriteria.org/assets/pdf/19\\_RomeIII\\_apA\\_885-898.pdf](http://romecriteria.org/assets/pdf/19_RomeIII_apA_885-898.pdf).

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## Etiology

- Unclear
- Association with other functional disorders
- Gastric Dysmotility
- Increased Acid secretion

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. *Amer Fam Phys.* 2011 March 1; 83(5): 547-52.

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## Approach to Patient

- Diagnosis of Exclusion
- History and Physical
- Test and Treat vs. Acid Suppression
- Further diagnostic tests

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. Amer Fam Phys. 2011 March 1. 83(5): 547-52.

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## AES Question

Which of the following do NOT require prompt referral for EGD?:

- A. 58 yo male with new onset dyspepsia
- B. 49 yo female with dyspepsia and >10% wt loss
- C. 52 yo male with iron deficient anemia
- D. 54 yo with chronic dyspepsia > 6 months

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. Amer Fam Phys. 2011 March 1. 83(5): 547-52.

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## Dyspepsia Diagnostics

- EGD indicated for Alarm Features
  - >55 years old
  - Bleeding, anemia, >10% wt loss, progressive dysphagia
  - History of cancer or PUD
  - Abdominal mass on exam

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. Amer Fam Phys. 2011 March 1. 83(5): 547-52.

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## Management

- Acid Suppression
- Prokinetics
- Eradication of H. Pylori
- Psychotropics
- Psychological interventions

Lloyd RA, McClellan DA. Update on the Evaluation and Management of Functional Dyspepsia. Amer Fam Phys. 2011 March 1. 83(5): 547-52.

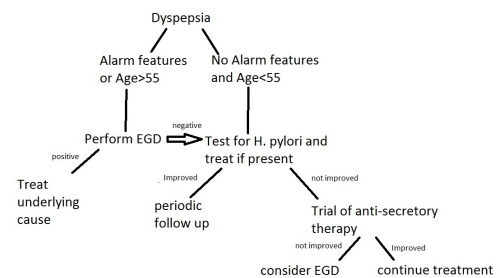
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## H. Pylori Testing

Test	Sensitivity	Specificity
Serum	85%	79%
Breath	95%	98%
Stool	94%	92%

Talley NJ, Vakili N. Guidelines for the Management of Dyspepsia. Amer J of Gastro. 2005; 2324-35.

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## GERD Pathophysiology

- Disruption of Anti-Reflux barrier
- Prolonged or frequent TLESRs ~90%
- Persistently hypotensive LES - more severe
- EE vs NERD vs functional heartburn

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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## Non-GERD Causes

- Achlasia or Esophageal Dismotility
- EOE
- Reflux-like Dyspepsia
- Gastroparesis

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53

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## Symptoms

- Classic
  - Heartburn, sour taste, odynophagia
- Atypical
  - Asthma,\* chronic cough, hoarseness
- Silent

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## AES Question

With regard to GERD Management, which of the following is true?

- A. Broadly advocating lifestyle modification has shown effective reduction in all patients
- B. A trial of H2 antagonists prior to PPIs has shown to be cost effective
- C. All PPIs offer similar relief for patients with NERD
- D. There is strong evidence to routinely test for H. pylori

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## Lifestyle Modification

- Targeted better than broad application (SOR B)
- Elevate HOB if symptoms while recumbent
- Avoid reflux-inducing foods if trigger
  - Alcohol, chocolate, mint, fatty foods
- Avoid acidic foods if trigger
  - Citrus, spicy foods, carbonated beverages
- Weight loss for overweight
- Smoking cessation

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## Empiric Treatment

- All PPIs offer similar relief > H2 blockers
- Esomeprazole slightly superior for EE
- Starting with PPI may be more cost effective

Andersen WD, Strayer SM, et al. Common Questions About the Management of Gastroesophageal Reflux Disease. Amer Fam Phys. 2015 May 15; 91(10): 692-97.

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### AES Question

What percentage of patients fail either partially or completely to PPIs?

- A. 10%
- B. 20%
- C. 30%
- D. 50%

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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### Reasons PPIs Fail

- Noncompliance
- Inadequate dosing
- Taking medication incorrectly
- Non-adherence to lifestyle modifications
- Increased volume reflux

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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### Risk Factors for Refractory Disease

- Increased BMI
- Sliding hiatal hernia
- Esophageal hypersensitivity
- Ineffective Esophageal Peristalsis
- Ultrastructural and functional change in esophageal epithelium

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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### Treating Refractory Disease

- Double PPI
- Extended Release PPIs
- Alternate PPI
- Add night time H2RA as needed
- Prokinetics

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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### Evaluating Refractory Disease

- Evaluate Noncompliance
- Structural Evaluation
- Functional Evaluation

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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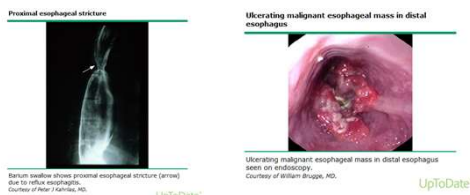
### Noncompliance

- Not Always the patient
  - Minimal time educating
  - Excessive medical jargon or unclear instructions
- Health Coaching
- Shared Decision-Making
- Close the loop

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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## Structural Evaluation



Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53. Reproduced with permission from: Saltzman JR, Gibson MK. Diagnosing and Staging of Esophageal Cancer. In: UpToDate, Basow DS (Ed), UpToDate, Waltham, MA. (Accessed on [May 30, 2015].) Copyright © 2015 UpToDate, Inc. For more information visit www.uptodate.com.

## AES Question

When is it appropriate and cost effective to screen for Barrett Esophagus?

- A. 32 yo African American non-smoker with new diagnosis
- B. 51 yo Caucasian male smoker with GERD symptoms for 7 years
- C. 46 yo Caucasian female nonsmoker with GERD for 4 years
- D. All patients with > 1 year of PPI use

Anderson WD, Strayer SM, et al. Common Questions About the Management of Gastroesophageal Reflux Disease. Amer Fam Phys. 2015 May 15; 91(10): 692-97.

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## Functional Evaluation

- Manometry
- Ambulatory pH / Impedance monitoring
- EndoFLIP
- Gastric Scintigraphy

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53

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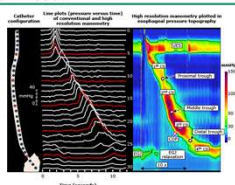
## High Resolution Manometry

- Evaluate for motor disorders / Peristalsis
- Closely spaced pressure sensors
- Chicago Classification for severity

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### Conventional manometry and high resolution manometry with esophageal pressure topography



Manometry quantifies intraluminal esophageal and LES pressure during swallowing to detect abnormalities of peristalsis and sphincter relaxation. Conventional manometry achieved this with relatively few pressure sensors (and dots) in submucosa on the left and mid ports in the center canal. Hence data from conventional manometry can only be accurately displayed as pressure versus time plots as in the center panel with large gaps in the esophageal lumen pressure recording time. High resolution manometry fits these gaps with a multitude of closely spaced pressure sensors (blue dots in the schematic on the left and whole lines in the center panel, respectively). High resolution manometry can be displayed as a "dense plot" in esophageal pressure topography as in the right panel with pressure plotted as a continuous, topographic surface between the distal esophageal sensors and depicting the pressure magnitude by color. When overlaid in pressure topographic, stereoscopic features of the topographic architecture of the peristaltic contractions become evident, labeled as the LES, proximal, mid, and distal contractile segments and the proximal, middle, and distal pressure troughs. The 4th contractile segment is the LES. The onset of the swallow, timed by upper esophageal relaxation, is indicated by the vertical dotted line. LES: upper esophageal sphincter; CUP: contractile upper part; ECU: esophageal contractile unit; CD: contractile segment 1; red line: LES lower esophageal sphincter.

UpToDate

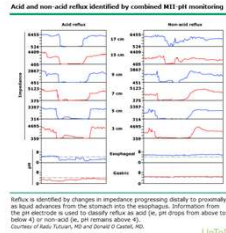
## pH monitoring

- Catheter based (24 hrs)
- Wireless (48 hrs+)
- May evaluate on and off PPI

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## Impedence Monitoring

- Detects Retrograde bolus movement
- Usually combined with pH probe
  - Increases diagnostic yield by 17%



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## EndoFLIP

- Cylindrical bag placed in distal esophagus
- Detects increased distension in EGJ
- Evaluation for large volume reflux
- Helpful for assessment of need for surgery

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53

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## AES Question

Which of the following is true regarding anti-reflux surgery?

- For patients with contraindications to PPIs or poor control despite max therapy
- Fundoplication is 1st line regardless of BMI
- PPI Non-responders do well with surgery
- <5% back on PPIs at 10 years post op

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## Fundoplication

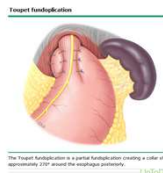
- Create per esophageal ring around GEJ
- LOTUS trial
  - Lower rates of heartburn/reflux at 5 yrs
- Complications
  - Dysphagia - Early vs Late
  - Gas Bloat Syndrome
  - Return of symptoms at 10 yrs - 10%

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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## Partial Fundoplication

- Anterior
  - Less dysphagia and bloating
  - Similar heartburn scores/patient satisfaction
- Toupet (posterior)
  - Less dysphagia
  - Similar response rates
  - Surgery of choice BMI<40



Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53. Reproduced with permission from: Schwartzberg SD. Surgical management of gastroesophageal reflux in adults. In: UpToDate, Basow DS (Ed), UpToDate, Waltham, MA. (Accessed on [May 30, 2015].) Copyright © 2015 UpToDate, Inc. For more information visit www.uptodate.com.

## Gastric Bypass

- Preferred anti-reflux surgery for BMI>40
- BOLD
  - RGB 56%
  - Banding 46%
  - Sleeve 41%
- Lower post op complications

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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## Treatment Gap

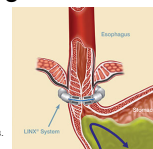
- 40% Fail aggressive medical therapy
  - 5% undergo fundoplication
- Fear of complications or treatment failure
- Alternative treatment
  - LINX
  - EndoStim
  - Stretta
  - Medigus

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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## LINX

- Small ring of magnetic beads
- Augment LES function
- Allows preserved belching/vomiting
- Reduced PPI use at 4 wks
- 100% improved QOL at 4 yrs
  - 80% cessation of PPI use



Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53. Permission granted for reproduction by <http://www.linxfurto.com>. Accessed on May 30, 2015.

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## EndoStim

- Implantable Electrical Stimulator
- Increases resting pressure of LES
- 91% off PPI at 6 months
- Reduced nocturnal heartburn symptoms

Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.

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## Stretta

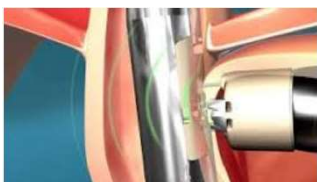
- Radiofrequency to remodel EGJ and LES
- 32 clinical trials and meta-analysis
- Allows future interventions if needed



Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53. Permission granted for reproduction from <http://www.stretta-therapy.com>. Accessed on May 30, 2015.

## Medigus

- Endoscopic partial fundoplication
- Endoscopic surgical stapler
- 64% reduction in GERD patient scores
- Still in clinical trials



Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53. Permission granted for reproduction from <http://www.medigus.com>. Accessed on May 30, 2015.

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## Practice Recommendations

- There is no significant difference in equivalent doses of PPIs for nonerosive GERD. (SORT: A)
- Anti-reflux surgery should be reserved if there are contraindications to PPIs or PPI therapy is insufficient to control symptoms. (SORT: C)
- H. pylori should be tested and treated for dyspepsia, but not GERD alone. (SORT: C)

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## Q & A

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## Contact Information

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## References

1. Subramanian CR, Triadafilopoulos. Refractory Gastroesophageal Reflux Disease. Gastroenterology Report 3. 2014 Sep 30; 41-53.
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**When services performed in conjunction with:**

**Office Visit** 992xx \*

**Nutritional Therapy** 97802-97804

\*Time-based selection documentation criteria:

- Face-to-face time
- Greater than 50% spent counseling/coordinates care

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## Associated Session

- Gastroesophageal Reflux Disease: PBL

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