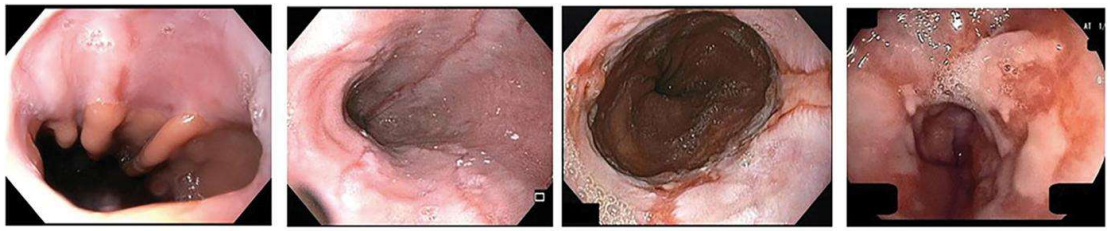
# Types of GERD

- **Erosive esophagitis**
- **True nonerosive reflux disease (NERD)**
- **Reflux hypersensitivity or functional heartburn**



**LA-A**
≥1 mucosal break, ≤5 mm, does not extend between mucosal folds

**LA-B**
≥1 mucosal break, >5 mm, does not extend between mucosal folds

**LA-C**
≥1 mucosal break, extends between mucosal folds, involves <75% of circumference

**LA-D**
≥1 mucosal break, involves >75% of circumference

# Diagnosis

- Endoscopy- In all patients who fail PPI therapy, an upper endoscopy with biopsies of the esophagus, if not performed in the last one year.
- Esophageal impedance pH testing — Patients who fail twice daily PPI therapy should also undergo esophageal pH monitoring.
- Esophageal manometry — in patients with dysphagia and regurgitation and prior to invasive antireflux therapies to exclude an esophageal motility disorder

**Alarm features** — Alarm features that are suggestive of a gastrointestinal malignancy include:

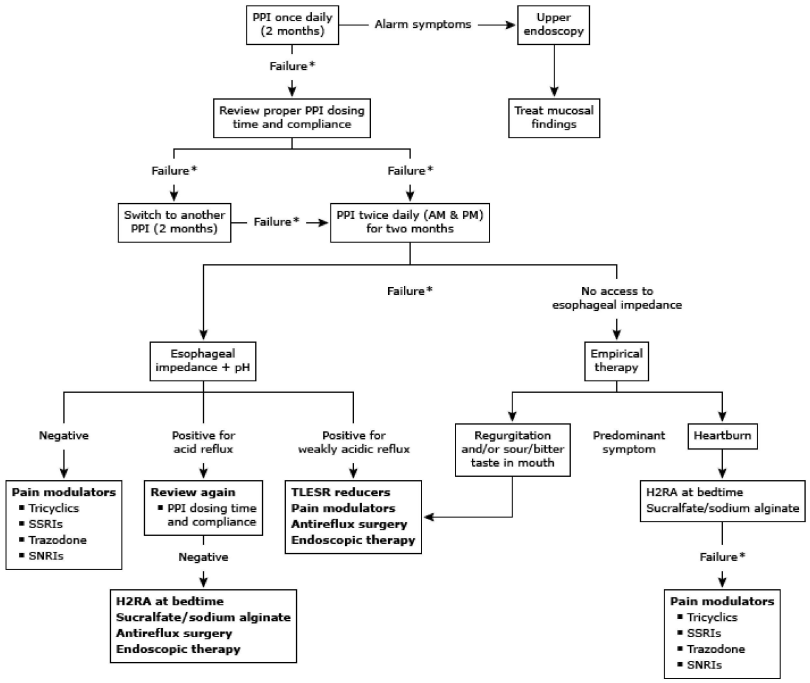
- New onset of dyspepsia in patient ≥60 years
- Evidence of gastrointestinal bleeding (hematemesis, melena, hematochezia, occult blood in stool)
- Iron deficiency anemia
- Anorexia
- Unexplained weight loss
- Dysphagia
- Odynophagia
- Persistent vomiting
- Gastrointestinal cancer in a first-degree relative

**Risk factors for Barrett's esophagus** — Screening for Barrett's esophagus is typically recommended for patients with multiple risk factors (one of which must be duration of GERD of at least 5 to 10 years).

Risk factors for Barrett's esophagus include:

- Duration of GERD of at least 5 to 10 years
- Age 50 years or older
- Male sex
- White individuals
- Hiatal hernia
- Obesity
- Nocturnal reflux
- Tobacco use (past or current)
- First-degree relative with Barrett's esophagus and/or adenocarcinoma

## Management algorithm of GERD patient who failed PPI once daily




Management algorithm of gastroesophageal reflux disease (GERD) patient who failed PPI once daily (complete or partial*).

PPI: proton pump inhibitor; SSRIs: selective serotonin reuptake inhibitors; SNRIs: serotonin-norepinephrine reuptake inhibitors; TLESR: transient lower esophageal sphincter relaxation; H2RA: histamine 2 receptor antagonist.

* Partial or incomplete relief of symptoms.

*Original figure modified for this publication. Hershcovici T, Fass R. An algorithm for diagnosis and treatment of refractory GERD. Best Pract Res Clin Gastroenterol 2010; 24:923. Illustration used with the permission of Elsevier Inc. All rights reserved.*

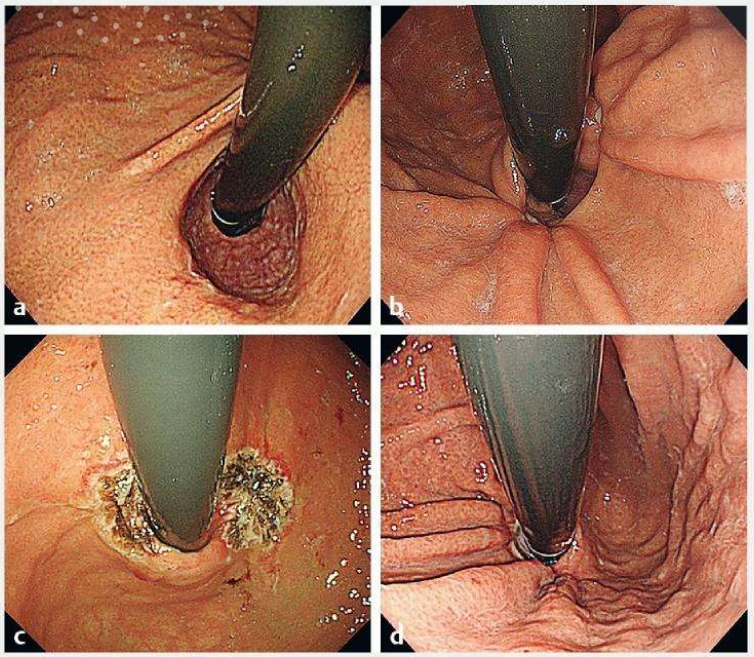
# Patients with impedance-pH results Residual acid reflux

- Alginates
- H2 receptor antagonists
- Reflux inhibitors

**Individualized plan for lifestyle changes to manage reflux-like symptoms**

| Healthy eating | Night-time behaviors | Exercise | Medications |
|---|---|---|---|
| ☐ Add in fruits or vegetables at each meal (avoid citrus).<br>☐ Use plant-based fats over animal fats.<br>☐ Opt for whole grains such as whole wheat, brown rice, oats, teff, millet, quinoa.<br>☐ Swap out animal proteins for plant-based options, eg, lentils, pulses, seeds, nuts, and legumes.<br>☐ Serve smaller portion sizes to help you reduce meal volume.<br>☐ Use smaller plates and utensils to feel satisfied with smaller amounts.<br>☐ Choose water or tea over high-sugar drinks.<br>☐ Eliminate carbonated beverages and caffeine if they trigger symptoms.<br>☐ Enjoy small desserts a few days in a week or substitute with fruit to finish a meal.<br>☐ Limit alcohol.<br>☐ Schedule meals to avoid grazing. | ☐ Finish eating approximately 3 hours before lying down.<br>☐ Wear loose clothing to reduce pressure around the belly.<br>☐ Practice deep breathing or other stress reduction techniques before sleep.<br>☐ Avoid alcohol before bed.<br>☐ Elevate head of bed when sleeping, ideally using a wedge pillow or by adjusting mattress or head of bed.<br>☐ Lie on left side to minimize reflux. | ☐ Accumulate 20 to 30 minutes of physical activity on most days of the week such as walking, swimming, dancing, exercise classes, or cleaning.<br>☐ Add in 2 days of strength and flexibility training such as weight training, yoga, Pilates, etc.<br>☐ Incorporate activity into lifestyle. If you track steps, aim for >7000 to 10,000 steps on most days (5 to 8 km). | ☐ _____<br>☐ _____<br>☐ _____<br>☐ _____<br>☐ _____ |

# Anti-reflux procedures




- **Anti-reflux surgery**
- **Endoscopic procedures –** Stretta/ ARMA