Gastroesophageal Reflux Disease

Diagnosis/Condition:	GERD, no esophagitis
Discipline:	ND
ICD-10 Codes:	K21.9
Origination Date:	2003
Review/Revised Date:	04/2024
Next Review Date:	04/2026

Generally, gastroesophageal reflux disease (GERD) is defined as "a condition that develops when the reflux of stomach contents causes troublesome symptoms and/or complications" and can include symptoms or mucosal damage produced by the abnormal reflux of gastric contents into the esophagus.[1,2] The cardinal symptoms associated with GERD are heartburn and regurgitation. However, complications from GERD can arise even in patients who lack these typical symptoms. GERD is experienced on a weekly basis by nearly 15-20% of the U.S. population.[3]

Generally speaking, the symptoms of GERD are due to tissue injury related to the chronic exposure of the esophagus to stomach contents particularly those of low pH (acidic) and with the possibility of laxity of the lower esophageal sphincter (LES). Reflux esophagitis describes a subset of patients with symptoms of GERD who also have endoscopic or histopathologic evidence of esophageal inflammation, which should warrant a referral. Many patients with symptoms of GERD do not have esophagitis; such patients have been referred to as having nonerosive reflux disease (NERD).[4]

Pathophysiology

GERD develops when the stomach contents are refluxed up into the esophagus and the esophageal mucosa degenerates and/or becomes chronically inflamed. The degree of inflammation depends on the frequency of reflux, the acidic concentration of the refluxed material, the length of time of exposure to the reflux material and local mucosal protective functions such as mucous and bicarbonate secretion and cellular integrity that provide intrinsic resistance to acid-induced damage. Of note, there is a poor correlation between the severity of symptoms and the pathophysiological findings in the esophagus.[1]

Reflux can occur when the LES loses its tone or becomes overwhelmed by too much intraabdominal pressure (such as from obesity, ascites, pregnancy, tight clothes). The LES is under hormonal, neurological and muscular control and is supported in its role by the acute *angle of His,* and the disparity between intrathoracic and intra-abdominal pressures. As inflammation of the esophagus increases, the esophagus becomes less able to exclude and eliminate the refluxed material leading to further reflux, inflammation, and dysfunction. Obesity, pregnancy, hiatal hernias, anxiety can predispose to developing reflux symptoms.[5]

Subjective Findings and History

A well-taken history is essential in establishing a diagnosis of GERD.

Classic symptoms include:

- Chest pain [substernal or epigastric], "heartburn" [pyrosis], regurgitation, nausea, reflux of gastric contents [waterbrash, sourbrash], recurrent pain extending to the mid-back, arms and neck with recumbency or postprandially.
- Dysphagia, belching, coughing [nocturnal] and shortness of breath unrelated to exercise.
- Initially, the symptoms of GERD are worse after eating large meals, bending over and on lying down, or exacerbated by emotional stress.[6] Eating meals may relieve the symptoms, but they return within about 30-90 minutes after meals.
- Symptoms are usually worsened by drinking coffee or caffeine-rich beverages and alleviated by using antacids.
- Chronic pharyngitis or sinusitis.

Diagnostic signs may include:

- Chronic cough.
- Bronchospasm.
- Odynophagia (may indicate an esophageal ulcer).
- Asthma.
- Recurrent sore throat or laryngitis.
- Dental enamel loss.
- Subglottic stenosis.
- Globus sensation ("lump in the throat").
- Chest pain.

ALARM SIGNS:
Dysphagia, odynophagia, gastrointestinal bleeding, anemia, weight loss, and recurrent vomiting. Onset past age 50 (males in this age group are at additional risk for Barrett's esophagus and esophageal adenocarcinoma).

Objective Findings

It is neither necessary nor practical to initiate a diagnostic evaluation in every patient with heartburn. The following assessments are to be considered when symptoms are severe or there is no resolution after appropriate conservative treatment.

- X-rays with or without contrast.
- GerdQ Questionnaire.[7] (https://www.aafp.org/afp/2010/0515/p1278.html)
- Endoscopy with biopsy should be done at presentation for patients with an esophageal GERD syndrome with troublesome dysphagia or to evaluate patients who have not responded to an empirical trial of twice daily Proton pump Inhibitors (PPI) therapy.[8]
- *Heliobacter pylori* testing (and subsequent treatment if conclusive).
- Esophageal intubation for manometry.

- Ambulatory pH monitoring.
- Acid provocation (Bernstein test).

Literature reviews suggest that about two-thirds of patients who have symptoms of GERD but have no visible endoscopic findings (i.e., nonerosive reflux disease) have histologic evidence of esophageal injury.[9]

Differential Diagnosis (DDX)

Gastritis, functional gastrointestinal disorders, esophageal strictures and tumor (adenocarcinoma), esophageal spasms, infectious esophagitis, gastric ulcers, peptic ulcer disease, biliary tract disease, hiatal hernia, lactose intolerance, pancreatitis, Plummer- Vinson Syndrome, coronary artery disease, and esophageal motor disorders. Presence, severity, and duration of symptoms alone do not reliably distinguish among these disorders. Unexplained chest pain should be evaluated with an electrocardiogram (ECG/EKG) and exercise stress test prior to a gastrointestinal evaluation. The remaining elements of the DDX can be evaluated by endoscopy or biliary tract ultrasonography. Referral should be made as warranted to rule out any of these conditions. Children should be treated with specific end points in mind.[10]

Plan

Mind-Body Therapies

- Specific breathing exercises and mind body therapy.[11,12]

Diet/Lifestyle Changes

- Weight loss.[13,14,15]
- Discontinue cigarette smoking.[16,17]
- Eat smaller meals.
- Limit water consumption with meals.
- Avoid bending over or lying down for 2-4 hours after meals.
- Avoid bedtime snacks or meals 3 hours before bedtime.
- Avoid wearing tight clothing, especially at mealtimes.
- Promotion of salivation by chewing gum or oral lozenges.
- For those with nocturnal symptoms, consider head of the bed elevation (6″-8″).[9]
- Avoid foods that specifically affect the individual patient's condition. This can be determined by doing an elimination diet, then challenge with high prevalence foods, based on the patient's history.
- Some foods that may decrease the LES tone-are chocolate, caffeine, fat, spearmint/peppermint, garlic, onions, and more than small amounts of alcohol.
- Eat more fiber-rich foods to facilitate ease of bowel movements to minimize elevations of intra-abdominal pressure.

- Avoid mucosal irritants such as aspirin, alcohol (red wine), caffeine, corticosteroids, black and red pepper, vinegar, nutmeg, cloves, bile salts, spicy food.
- Limit foods that increase stomach acids - dairy products, sodas, orange juice, tomato juice, grapefruit juice, coffee, chocolate, spicy foods, red peppers, niacin, tomato juice, protein-rich and amino acid rich foods.
- Limit the amount of tea consumption.[18]
- Low-carbohydrate diets showed a significant improvement in GERD-related outcomes,[19,20]

Herbal Medicine (Western)

- Deglycyrrhizinated licorice extract (DGL) (*Glycyrrhiza glabra*) – chewed 20 minutes before eating.
- Pyrrolizidine alkaloids (PAs).
- Symphytum, Marshmallow (*Althea officinalis).*
- Slippery Elm *(Ulmus fulva)*.
- Hydrastis or Berberine species.
- Chamomile (*Matricaria recituta*).
- Choline or phosphatidylcholine.
- Iberogast is a combination herbal product that has been shown to treat dyspepsia. [21]
- Myrtus communis and Cydonia oblonga showed marked reduction in GERD symptoms.[22]
- Other known herbs include Clown's mustard, German chamomile, angelica root, caraway, milk thistle, lemon balm, celandine, licorice root and peppermint leaf.

Supplements and Nutrients

- Supplemental HCl or apple cider vinegar with meals.
- Probiotics.
- Digestive enzymes.
- D-limonene.
- Mastic gum.
- Glutamine.
- Hydrochloric acid (HCL) treatment.
- Vitamin A.
- Homeopathic remedies as appropriate.
- Melatonin.[23]
- Avoid arginine, carminative herbs, and high dose essential oils.

Pharmaceuticals (Prescription)

- A *"step-up"* or *"step-down"* approach with**;** Antacids, sucralfate, histamine antagonists (H2As), proton pump inhibitors (PPIs),[24] or cholinergic agonists.[25,26] PPIs have been shown to be most effective. Rebound hyperacidity may occur in those who abruptly discontinue these medications, so tapering with alternate bridge therapy over 2-4 weeks is suggested.

Short-term therapy is the goal, with long-term treatment only in special at-risk populations (e.g., Barrett's or severe erosive esophagitis).[27]
- Transient lower esophageal sphincter relaxation inhibitors (Baclofen).
- Augmentation esophageal defense mechanisms by improving esophageal clearance or enhancing epithelial repair (prokinetics).
- Modulation of sensory pathways (hypnotherapy, RPV1 nociceptor antagonists).
- Medications that may decrease the LES tone include nicotine, progesterone (including pregnancy state), calcium-channel blockers, anticholinergics, nitrates, theophylline, opiates, benzodiazepines and barbiturates, meperidine, beta-agonists and alpha-adrenergic antagonists. Use specific guidelines for safe treatment in pregnant women.[28]

Movement and Exercise

- Increase regular physical activity (to enhance peristalsis to improve stomach emptying and improve LES muscle function and tone).

Manual Adjustments/Manipulation

- Spinal and soft tissue manipulation (consider hiatal hernia).

Acupuncture (excluding pharmocoacupture)

- Acupuncture.[29]

Other Therapies

- Electric stimulation.[30]
- Surgery (fundoplication).
- Radiofrequency. [31,32,33]
- Radioablation.

Monitor and treat patients on these treatments for folic acid and vitamin B12 deficiencies, osteopenia and osteoporosis, malabsorption, hypochlorhydria and other nutritional conditions.[34,35,36,37,38] Concern for health consequences due to long term acid suppression are being made more apparent. Chronic acid suppression has been linked to: decreased protein digestion, decreased absorption of iron, B12, and calcium, effects on immune protection. Consider risk-benefit in patients at risk for community-acquired pneumonia (CAP).

Referral Criteria

- **ALARM SIGNS** (see above for definition).
- Bleeding, dysphagia, or a significant change in symptoms while on effective therapy for GERD.

- Suspicion for Barrett's esophagus or esophageal adenocarcinoma (nocturnal reflux symptoms, hiatal hernia, elevated body mass index, tobacco use, and intra-abdominal distribution of fat).

Resources for Clinicians

File TM. Medical Management of Gastroesophageal reflux disease management algorithm. UpToDate. Feb, 2016. http://www.uptodate.com/contents/acute-bronchitis-in-adults

Sandhu DS, Fass R. Current Trends in the Management of Gastroesophageal Reflux Disease. Gut Liver. 2018;12(1):7-16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5753679/

NICE Guidelines for GERD. 2018. https://pathways.nice.org.uk/pathways/dyspepsia-and-gastro-oesophageal-reflux-disease#path=view%3A/pathways/dyspepsia-and-gastro-oesophageal-reflux-disease/dyspepsia-and-gastro-oesophageal-reflux-disease-in-adults.xml&content=view-index. Flowcharts.

Information from the Web site of the University of Wisconsin-Madison Integrative Medicine Program on GERD. http://www.fammed.wisc.edu/integrative/resources/modules/gerd/

Resources for Patients

The National Digestive Diseases Information Clearinghouse (NDDIC) is an information dissemination service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health (NIH), which is part of the U.S. Department of Health and Human Services.

Clinical Pathway Feedback

CHP desires to keep our clinical pathways customarily updated. If you wish to provide additional input, please use the e-mail address listed below and identify which clinical pathway you are referencing. Thank you for taking the time to give us your comments.

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