

Gastroesophageal reflux disease

Definition

Reflux of gastric juices from stomach into esophagus occurs occasional in normal human beings. When this reflux increases in frequency and volume to cause troublesome symptoms and/or damage to esophageal mucosa it is then regarded as pathological and called gastroesophageal reflux disease (GERD).

Pathophysiology of GERD

Physiologic reflux

This physiologic reflux occurs in healthy individuals and is asymptomatic, occurs post-prandial, during awake hours and in upright position and are short lived.

Due to transient opening of LES

GERD

GERD is a chronic disease caused by a permanently defective LES

A permanently defective sphincter (LES) is defined by one or more of the following characteristics:

- LES with a mean resting pressure of less than 6 mmHg
- overall sphincter length of <2 cm
- Intra-abdominal sphincter length of <1 cm

The LES opens as a result of receptive relaxation during swallowing and with distension of stomach and fundus.

Stomach distends as a result of excessive eating, excessive air swallowing and or delayed gastric emptying. Repeated distension of the stomach will eventually lead to permanent attenuation of the sphincter mechanism and reflux, eventually a hiatal hernia may develop.

With a defective sphincter the normal esophageal clearance is overwhelmed leading to the progressive mucosal injury.

GERD classification

Based on the appearance of the esophageal mucosa on upper endoscopy into the following:

- **Erosive esophagitis** —endoscopically visible breaks in the distal esophageal mucosa.
- **Nonerosive reflux disease** —presence of troublesome symptoms of GERD without visible esophageal mucosal injury

Complications of GERD

Complications occur as result of repetitive exposure injurious fluids

- esophagitis
- esophageal stricture
- Barrett's esophagus (BE)
- Progressive pulmonary fibrosis as a result of repetitive aspirations

Esophagitis

- Los Angeles classification – The Los Angeles classification grades esophagitis severity
 - Grade A – One or more mucosal breaks each ≤ 5 mm in length
 - Grade B – At least one mucosal break > 5 mm long, but not continuous between the tops of adjacent mucosal folds
 - Grade C – At least one mucosal break that is continuous between the tops of adjacent mucosal folds, but which is not circumferential
 - -Grade D – Mucosal break that involves at least three-fourths of the circumference

Stricture

- Intramural fibrosis causing luminal stricture, or fibrotic mucosal ring termed a "Schatzki ring,

Barrett's esophagus

- represents the end stage of the natural history of GERD
- tubular esophagus epithelium becomes replaced with columnar epithelium with intestinal metaplasia , confirmed with biopsy
- Barrett's may itself complicate with adenocarcinoma, ulceration, or strictures at the squamocolumnar junction,
- The risk of developing adenocarcinoma is risk 40 times that of the general population.

Respiratory complications

- Chronic Laryngitis, Adult onset asthma, Idiopathic pulmonary fibrosis

Symptoms

Symptoms that are indicative of GERD are common in general population, and are not specific for gastroesophageal reflux disease.

Typical symptoms

- Heartburn
- Regurgitation
- Other - Dysphagia , water brash, Globus sensation

Atypical symptoms

These may not be related to esophageal pathology, need a structured and thorough evaluation.

- cough
- hoarseness
- chest pain
- asthma/bronchospasm
- and aspiration

The respiratory symptoms may occur in isolation or in conjunction with typical reflux symptoms

Investigations

Classical symptoms can be started medical treatment before further evaluation

Evaluated to confirm GERD diagnosis, exclude other diagnoses and evaluate complications of GERD.

Test for structural/anatomical abnormalities

- Endoscopy – check for GERD complications and malignancy , allows biopsy
- Barium swallow – assess esophageal anatomy (i.e. areas of narrowing, strictures, rings) and assesse hiatal hernia anatomy. poor sensitivity for assessing reflux

Tests for acid exposure

- 24hr ambulatory pH monitoring: Reflux should also be objectively confirmed by either the presence of ulcerative esophagitis or an *abnormal 24 hour pH* study.

Tests to Detect Functional Abnormalities

- Esophageal high resolution manometry – assess motor function of esophagus and its sphincters
- Esophageal impedance testing – assesses electrical impedance of luminal contents – evaluates GI function and gastroesophageal reflux.

Other investigations are performed based on the symptoms (i.e. ECG and Echocardiogram for chest pain etc.

Management

A stepwise approach to management is employed

Lifestyle and diet modification

- elevate the head of the bed when sleeping
- avoid tight-fitting clothing
- eat small, frequent meals; avoid eating immediately prior to bedtime
- avoid alcohol, coffee, chocolate, and peppermint , which are known to reduce resting LES pressure

Medical therapy

1. Initially mild symptoms of uncomplicated GERD, 12 weeks of simple antacids before diagnostic testing is initiated.
2. persistent symptoms - acid suppression, with (PPI), typically lifelong,

Surgical therapy

Indications for antireflux surgery

- (a) Failure of medical therapy
- (b) Younger patient unwilling to take lifelong medication.
- (c) structurally defective LES, hiatal hernias
- (d) complications or development of complications despite adequate medical therapy , like severe esophagitis , stricture and Barrett's

Type of surgery

- Most commonly performed – Laparoscopic Nissen's Fundoplication – 360 degree wrap
- Partial fundoplication in appropriately selected cases