Reflux Esophagitis

**TERMINOLOGY**
- Inflammation of esophageal mucosa due to gastroesophageal (GE) reflux

**IMAGING**
- Irregular ulcerated mucosa of distal esophagus
- Foreshortening of esophagus: Due to muscle spasm
- Inflammatory esophagogastric polyps: Smooth, ovoid elevations
- Hiatal hernia in >95% of patients with stricture
  - Probably is result, not cause, of reflux
- Peptic stricture (1- to 4-cm length): Concentric, smooth, tapered narrowing of distal esophagus

**TOP DIFFERENTIAL DIAGNOSES**
- Scleroderma
- Drug-induced esophagitis
- Infectious esophagitis
- Eosinophilic esophagitis

**PATHOLOGY**
- Lower esophageal sphincter: Decreased tone leads to increased reflux
- Hydrochloric acid and pepsin: Synergistic effect

**CLINICAL ISSUES**
- 15-20% of Americans commonly have heartburn due to reflux; ~30% fail to respond to standard-dose medical therapy
  - Prevalence of GE reflux disease has increased sharply with obesity epidemic
- Symptoms: Heartburn, regurgitation, angina-like pain
  - Dysphagia, odynophagia
- Confirmatory testing: Manometric/ambulatory pH-monitoring techniques
  - Endoscopy, biopsy

(Left) Graphic shows a small type 1 (sliding) hiatal hernia linked with foreshortening of the esophagus, ulceration of the mucosa, and a tapered stricture of distal esophagus. (Right) Spot film from an esophagram shows a small hiatal hernia with gastric folds extending above the diaphragm. The esophagus appears shortened, presumably due to spasm of its longitudinal muscles. A stricture is present at the gastroesophageal (GE) junction, and persistent collections of barium indicate mucosal ulceration.

(Left) Prone film from an esophagram shows a tight stricture just above the GE junction with upstream dilation of the esophagus. The herniated stomach is pulled taut as a result of the foreshortening of the esophagus, a common and important sign of reflux esophagitis. (Right) Endoscopic image of the distal esophagus in the same patient demonstrates pseudomembranes, mucosal ulceration, nodularity, and stricture.
Appendicitis

**TERMINOLOGY**
- Acute appendiceal inflammation due to luminal obstruction and superimposed infection

**IMAGING**
- US is 1st-line imaging tool in children and young women
  - Multiplanar, contrast-enhanced CT has highest sensitivity and specificity (> 90%)
- US: Distended, thick-walled, noncompressible appendix (≥ 7 mm)
  - Sonographic McBurney sign with focal pain over appendix
  - Shadowing, echogenic appendicolith
  - Increased flow within wall of appendix, indicating inflammation
  - Increased echogenicity of inflamed periappendiceal fat
- CT: Abnormal mural enhancement of distended appendix
  - Inflamed mucosa may show hyperenhancement
  - Necrotic wall may show no enhancement
  - Periappendiceal fat stranding
  - Appendicolith may be present (15-40%)
  - ± periappendiceal abscess or phlegmon
- MR is good alternative to CT in pregnant patients and children when US is nondiagnostic

**TOP DIFFERENTIAL DIAGNOSES**
- Mesenteric adenitis and enteritis
- Ileocolitis
- Crohn’s disease
- Gynecologic causes
- Cecal diverticulitis
- Appendiceal tumor
- Cecal carcinoma

**CLINICAL ISSUES**
- Clinical diagnosis is frequently incorrect in children, young women, and elderly adults

(Left) Graphic illustrates some of the characteristic features of acute appendicitis, including the distended, thick-walled, inflamed appendix and inflammatory thickening of the adjacent walls of the cecum and terminal ileum.
(Right) Longitudinal ultrasound demonstrates a distended, thick-walled appendix, 10 mm in diameter with adjacent hyperechoic periappendiceal inflammation of fat, indicative of an inflammatory process and diagnostic for appendicitis.

(Left) This young woman had acute right lower quadrant pain with an equivocal US exam. Axial CT shows inflammation of the fat planes and nodes around a thick-walled appendix. (Right) Coronal reformatted CT in the same patient helps to identify the inflamed appendix and its retrocecal location, a common variant that may make it difficult to visualize the appendix on ultrasound.
(Left) This 61-year-old man had atypical signs and symptoms of right abdominal pain. Axial CT shows the inflamed appendix in an unusually medial position relative to the hepatic flexure of the colon. (Right) Another axial CT section in the same patient shows typical signs of appendicitis, including the thickened, enhancing wall and inflammation of the local fat and nodes.

(Left) Coronal reformatted CT in the same patient helps to identify the inflamed appendix lying medial to the ascending colon. (Right) Coronal CT in the same patient shows the appendix arising from the tip of the cecum. The inflamed portion of the appendix along with the inflamed fat and nodes are at some distance from the cecal tip, accounting for the atypical site of maximum tenderness on exam.

(Left) This woman presented in her 2nd trimester of pregnancy with acute abdominal pain and fever. Following a nondiagnostic US exam, she had an MR study. On these T2 images, the gravid uterus and fetus are evident along with a dilated, thick-walled appendix arising from the cecal tip. (Right) In the same patient, a STIR image (top) and a DWI (bottom) show the edematous, thickened wall of the appendix that also shows restricted diffusion. Acute appendicitis was confirmed at surgery.