

Upper Gastrointestinal Tract

Sandhya Lagoo

Surgical Diseases of the Esophagus

Anatomy

Blood supply
Lymphatic drainage:
Esophageal wall

Physiology and Physiologic Tests

Evaluation of Esophageal function
24- hour pH monitoring
Manometry
Barium Swallow
Endoscopy

Gastroesophageal Reflux Disease

Etiology

Symptoms:

Typical:

Heartburn
Dysphagia
Regurgitation

Atypical:

Chest Pain
Cough
Hoarseness
Asthma

Esophagitis

Barrett's esophagus

Behavioral Modification:

Elevate head of bed
Avoid late meals
Avoid foods that precipitate symptoms

Medical Therapy:

H₂ blockers
Proton Pump Inhibitors

Indications for surgical treatment

1. Depends on objective assessment of the severity and intractability of complications
2. Essential to correlate occurrence of complications with presence of gastroesophageal reflux.
3. Failure of medical management
4. GERD controlled with medications, however patient wishes to stop taking the medications due to cost, quality of life, etc.

Evaluation of Esophageal function

24- hour pH monitoring
Manometry
Barium Swallow

Endoscopy
Solid Phase Gastric Emptying studies in case of symptoms of bloating or vomiting

Types of Anti-Reflux Procedures

Laparoscopic Nissen fundoplication
Laparoscopic Toupet fundoplication
Additional Collis'Gastroplasty for short esophagus
Additional Pyloroplasty for severe delayed gastric emptying

Motility Disorders

Achalasia

Neurogenic basis

Clinical Manifestation:

Dysphagia
Regurgitation of old food
Aspiration
Chest Pain

Evaluation

Upper GI endoscopy to rule out carcinoma
Bird's beak appearance on barium swallow
Aperistalsis on esophageal manometry
Failure of relaxation of the LES

Medical Treatment:

Pneumatic dilatation
Botox Injections
Calcium channel blockers, long acting nitrates

Surgical Treatment:

Heller Esophagomyotomy
With or without nonobstructive antireflux procedure such as Dor or Toupet

Diffuse esophageal spasm

Pain/dysphagia are dominant symptoms
Radiological abnormalities in less than 50% of cases
Diagnosis: manometer-specific abnormal pattern
Treatment: Extended Esophagomyotomy

Esophageal diverticula

Pharyngoesophageal diverticulum (Zenker's Diverticulum)

History

Barium swallow

Surgical options

Cricopharyngeal myotomy with diverticulopexy
Cricopharyngeal myotomy with diverticulectomy
Cricopharyngeal myotomy alone

Epiphrenic diverticulum

Resection of diverticulum and concomitant long esophagomyotomy

Hiatal Hernia:

Type 1: Sliding hiatal hernia

Type 2: Paraesophageal Hernia

Type 3: Combined sliding and paraesophageal hernia

Type 4: Herniation of other abdominal viscera

Paraesophageal hernia:

- Results from "rolling" of stomach into thorax through the esophageal hiatus, while esophagogastric junction keeps its normal position below the diaphragm
- Leads to "upside-down" intraathoracic stomach
- Often combined with a sliding component

Complications:

- Chronic asymptomatic gastrointestinal blood loss
- Gastric volvulus
- Gastric perforation

Principles of repair

- Reduction of herniated stomach
- Crural Closure
- Antireflux procedure (if indicated and if there is good esophageal motility)
- Gastropexy

Surgical Procedure:

Transabdominal Nissen procedure

Transthoracic Belsey Mark IV procedure

Difficult reflux problems

Short esophagus

Undilatable stricture

Peptic Ulcer Disease

Gastric Anatomy

Gross anatomy

- Lt. Vagus comes to lie anteriorly; also supplies liver and biliary tract
- Rt. (posterior) vagus supplies post. Stomach
- Boundaries of antrum
- Lymph node drainage

Microscopic anatomy

- Gastric glands
- Oxyntic glands
- Antral glands.
- Gastric cells
 - Parietal cells.
 - Gastric chief cells
 - Gastrin producing cells

Gastric Physiology

- Gastric acid secretion
- Regulation of acid secretion

Duodenal Ulcer

Epidemiology

- hemorrhage is the most common cause of hospitalization.
- incidence is greater in males.
- most common at 45-65 years
- role of Helicobacter pylori

Pathophysiology

- Environmental factors
- cigarette smoking
- diet
- NSAIDs
- Acid secretion
- Mucosal defences

Diagnosis

Medical Treatment:

- Histamine receptor antagonists
- Anticholinergic drugs
- Proton pump blocker
- Sucralfate
- Prostaglandin analogues
- Antacids
- Eradicate H. pylori (14 day Rx)

Surgical treatment of Duodenal Ulcer

Goals

- treat complications requiring surgery
- heal ulcer and prevent recurrences
- safety and decreased side-effects

Physiological consequences of

- vagotomy
- antrectomy

Indication for surgery:

- Ulcer "intractability"
- Hemorrhage
- Perforation
- Obstruction

Post-gastrectomy syndromes

- dumping
- alkaline reflux gastritis

Stress Ulcers and Gastric Ulcers

Gastric mucosal defense

- Epithelial restitution

- Mucus and HCO_3
- Mucosal blood flow
- Endogenous prostanoids
- Trophic peptides

Benign Gastric Ulcer

Differentiate from CA

Medical Rx of Gastric Ulcer

- Antacids
- H_2 blockers
- Omeprazole
- Anticholinergics
- Sucralfate
- Diet
- NSAIDs
- H.pylori

Surgery for Gastric Ulcer

- Indications for operation
- Type I gastric ulcer
- Type II and III gastric ulcers
- Type IV gastric ulcer
- Operation for bleeding
- Giant gastric ulcer

Indications for Billroth I Gastrectomy,
Billroth II Gastrectomy
Roux-en-Y Gastro-jejunostomy, Vagotomy.