GERD – symptoms or mucosal damage produced by the abnormal reflux of gastric contents into the esophagus

PATHOPHYSIOLOGY:
1. Lower esophageal sphincter
2. Intragastric pressure
3. Poor esophageal clearance
4. Altered esophageal mucosal barrier

TREAT OR TEST?

❖ 20% of patients will reflux barium on UGI (false +)

❖ PPI Precautions:
  o With Clopidogrel
  o Long-term use

❖ UGI or referral for endoscopy for:
  o Non-responders
  o > age 65
  o Red-flag conditions – dysphagia, odynophagia, chest pain, weight loss, anemia, melena, hematochezia, > 1 year of symptoms, bisphosphonates, NSAIDs, low-dose ASA, history of Barrett’s esophagus

NON-CARDIAC CHEST PAIN

❖ Non-cardiac chest pain requires further diagnostics – UGI and/or EGD

MOST COMMON CAUSES:
• Erosive esophagitis
• Odynophagia (including pill odynophagia) (minocycline, erythromycin)
• Esophageal spasm
• Achalasia = insufficient LES relaxation with loss of esophageal peristalsis and esophageal dilation (bird-beak appearance on UGI)
• If normal EGD -> esophageal manometry and 24 hour esophageal pH
DYSPHAGIA/ODYNOPHAGIA:
❖ Dysphagia or odynophagia requires further diagnostics – barium swallow and/or EGD
MOST COMMON CAUSES:
❖ Esophagitis
❖ Esophageal dysmotility
❖ Hiatal hernia
❖ Schatzki’s ring
❖ Achalasia (LES insufficient relaxation with esophageal dilation
❖ Medications (bisphosphonates, tetracyclines)

HELICOBACTER PYLORI
❖ Asymptomatic, but can cause chronic gastritis, PUD, gastric cancer (MALT – Mucosal Associated Lymphoid Tissue)
❖ TESTING:
❖ H pylori antibody IGG – does not reflect acute infection
❖ Urea breath test – reliable
❖ H. pylori fecal antigen – reliable
❖ Testing during EGD – culture, modified Giemsa, rapid urease
❖ TREATING:
❖ What drugs?
❖ How much?
❖ How long?
❖ If active infection detected, treatment and confirmation of eradication required
❖ If eradication unsuccessful, need to change treatment regimen
❖ Treating H. pylori does not improve GERD symptoms, but may prevent PUD and gastric cancer

BARRETT’S ESOPHAGUS
Change in the distal esophageal epithelium – columnar-type mucosa on EGD, metaplasia confirmed on biopsy
❖ Major risk factor for esophageal adenocarcinoma
❖ Risk factors:
❖ Age 40 - 50 or >
❖ Heartburn
❖ Male
❖ Long duration of symptoms (13 years or >)
❖ Increased BMI (visceral adiposity)
❖ Treatment:
❖ EGD surveillance based on grade of dysplasia
❖ PPI therapy aimed at reducing GERD symptoms and dysplasia
❖ Ablation of low-grade or high grade dysplasia
PEPTIC ULCER DISEASE
- Up to 25% of chronic NSAID users will develop PUD. 2-4% will have bleed or perforation
  - Who is at risk?
  - How do you diagnose it?
  - Can patients ever take anti-inflammatories again?
- Consider H pylori treatment and eradication before long-term NSAID therapy
- Enteric-coated ASA and Sucralfate do not prevent gastric or duodenal ulcers

HIATAL HERNIA
- 40-60% of people will develop a hiatal hernia
- Women > men
- 70-80% of people > age 60

PATHOPHYSIOLOGY:
  - Previous injury to area
  - Inherited weakness in surrounding muscles
  - Born with unusually large hiatus
  - Persistent/intense pressure on surrounding muscles

TO REPAIR OR NOT TO REPAIR? (THAT is the question)

DYSPHAGIA
THE OLD REAL ESTATE RULE: LOCATION, LOCATION, LOCATION:
- Oropharyngeal (choking)
- Esophageal (food-sticking)
  - Neuromuscular
  - Webs, rings, diverticulae
  - UES dysfunction/stricture
  - Benign tumors, carcinoma
  - Zenker’s diverticulum
  - Infection – candida, CMV, herpes
  - Carcinoma (tonsillar)
  - Erosive or ulcerative esophagitis
  - Infection
  - Esophageal dysmotility
  - Thyromegaly
  - Esophageal spasm, achalasia
  - Previous radiation
  - Food bolus/dysmotility

WHAT ISN’T GOING DOWN?
- Solids: Liquids
  - Stricture
  - Motility
  - Mass
  - Achalasia
  - Food bolus
  - Nutcracker esophagus

HOW DO YOU DIAGNOSE IT?
- EGD if food bolus (unable to swallow saliva)
- Barium swallow or EGD if esophageal dysphagia
- Video swallowing study if oropharyngeal dysphagia
ODYNOPHAGIA - painful swallowing

Causes:
- Caustic ingestion
- Ulcerative esophagitis
- Medications - tetracyclines, bisphosphonates most common
- Infection – candida, herpes, CMV (esp. immunocompromised patients)
- Esophageal spasm, achalasia, Nutcracker esophagus

Diagnosis: EGD or Barium swallow

Treatment:
- Stop offending agent
- Acid suppression
- Treat infection
- Mucosal healing – Carafate or antacid liquids
- Promotility or antispasmodics if indicated

❖ Globus sensation of throat – lump in throat not related to swallowing. Described as lump, tightness, choking, something caught in throat. May need anti-anxiety or antidepressant.

FUNCTIONAL (NON-ACID) DYSPEPSIA

Postprandial pain, belching, no or minimal GERD symptoms, with normal testing

- Ulcer-like dyspepsia– upper abdominal pain
- Dysmotility-like dyspepsia – nausea and vomiting, bloating, early satiety
- Non-specific dyspepsia – combination symptoms

CAUSES (DIAGNOSTICS AIMED AT):
- Hypersensitivity to gastric distention
- Delayed gastric emptying
- H. Pylori
- Concurrent IBS symptoms

RED FLAGS:
- Age > 55 years old
- Bleeding, anemia
- Early satiety or unexplained weight loss
- Dysphagia or odynophagia
- Persistent vomiting
- Family or personal history of GI malignancy
- Lymphadenopathy, abdominal mass

❖ TREATMENT:
- Try acid suppression
- Treat H. pylori if present
- Treat gastroparesis if present
- Food diary – eliminate offending foods
- Consider tricyclic antidepressants
NAUSEA AND VOMITING

THE MATERIAL TELLS A STORY

TREATMENT:
- Address emetic centers
- Promotility agents (if no obstruction)
  - Reglan (Metoclopramide) – cautions: tardive dyskinesia, seizure disorder; SSRIs
  - Domperidone – more resistant at blood-brain barrier, therapeutic effects similar to Reglan
- Treat other causes

CYCLICAL VOMITING SYNDROME – WHAT AND WHY?

DIARRHEA

Increased stool frequency or increased stool fluidity (> 200 Gm. Per day)
- Acute – 5-7 to 14 days
- Persistent - > 14 days
- Chronic - > 30 days

PATHOPHYSIOLOGY:
- Secretory diarrhea – PROFUSE, WATERY, NON-BLOODY
  - Enterotoxin producing infection – (c-diff, giardia, cholera, parasites and viruses also)
  - Neuroendocrine tumors – produce VIP, calcitonin
  - Exogenous agents – medications, poisons
  - Post-cholecystectomy (bile salt) diarrhea
- Osmotic diarrhea – WATERY, NOT AS PROFUSE
  - Magnesium, sulfate, phosphates, Lactulose, Polyethylene Glycol Electrolyte Solution
  - Lactose intolerance
  - Celiac disease tTG (IgA), Endomysial antibody (IgA), total IgA
  - Pancreatic insufficiency
  - Small bowel bacterial overgrowth
  - Short gut
- Inflammatory diarrhea – GROSS OR OCCULT BLOOD
  - Inflammatory bowel diseases
  - Microscopic colitis
  - Ischemic colitis
  - Diverticulitis
  - Radiation colitis/proctitis
  - Neoplasia - colon cancer, lymphoma
- Dysmotility diarrhea – SOME MUCUS
  - Irritable bowel syndrome
  - Endocrine dysfunction – hyperthyroidism, Addison’s disease, carcinoid, etc.
  - Medications – antibiotics, Metformin. PPIs, antiarrhythmics, etc.
  - Partial bowel obstruction (obstructive series, CT scan)
- Red flags: hematochezia/rectal bleeding; fever, weight loss, pain, anemia, chronic diarrhea undiagnosed; family or personal history of colon polyps, colon cancer, IBD or celiac disease.

STOOL TESTING WHAT AND WHEN?
C-DIFF

RECTAL BLEEDING
- DIAGNOSTIC CLUES:
  - Hemorrhoids
  - Anal fissures
  - Diverticular bleed
  - Distal polyps rarely bleed
  - Ischemic colitis
  - Proctitis/proctosigmoiditis
  - Rectal ulcers
  - Rectal prolapse
  - Radiation proctitis
  - Malignancy
  - Inflammatory

- No diagnostics required initially if:
  - Documented hemorrhoids or fissures
  - < 40 years old
  - No risk factors for colon cancer or IBD
  - No anemia
  - Normal colonoscopy or sigmoidoscopy within 1-2 years
  - Responds to treatment and does not reoccur

- Red flags:
  - Age > 40
  - Iron-deficiency anemia
  - Family or personal history of colon cancer or polyps
  - Personal or family history of familial associated cancers (gyn, polyposis, Gardner’s syndrome)
  - Concurrent change in bowel habits or abdominal pain

CONSTIPATION

Rome III Criteria:

THINK OF:

<table>
<thead>
<tr>
<th>Demographics:</th>
<th>Medications:</th>
<th>Illnesses:</th>
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<tbody>
<tr>
<td>female</td>
<td>Ca channel blockers</td>
<td>Thyroid</td>
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<tr>
<td>advanced age</td>
<td>Opioids</td>
<td>DM</td>
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<tr>
<td>non-white ethnicity</td>
<td>Iron supplements</td>
<td>Hypokalemia</td>
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<tr>
<td>low levels of income and education</td>
<td>Anticholinergics</td>
<td>Hypercalcemia</td>
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<tr>
<td>Diet</td>
<td>NSAIDs</td>
<td>Pregnancy</td>
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<tr>
<td>Physical activity</td>
<td>Chemo (vinca deriv.)</td>
<td>Panhypopituitarism</td>
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<td></td>
<td>Antidepressants</td>
<td>Neuromuscular disorders</td>
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<td></td>
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<td>Spinal cord injury</td>
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</tbody>
</table>
TYPES OF CONSTIPATION:

Normal transit constipation:
- incomplete evacuation
- misperception of constipation
- occasional pain

Slow-transit constipation:
- infrequent stools
- lack of urge to defecate
- malaise, fatigue
- poor response to fiber + lax
- prevalent in young women

Defecatory dysfunction:
- Straining
- Incomplete evacuation
- Manual maneuvers

Diagnostics:
- Obstructive series rather than abdominal flat plate
- Colonic transit time (< 72 hours) – Sitzmarker study
- Colonoscopy, barium enema or CT colonography
- Defecogram and or anal manometry

Treatment:
- Fibers:
  - Osmotic laxatives
  - Stimulant laxatives
  - Stool softeners and emollients
  - Prokinetics
  - Other

Abdominal Pain

<table>
<thead>
<tr>
<th>Acute (constant) pain</th>
<th>Chronic or recurrent pain</th>
<th>Chronic constant pain</th>
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<tbody>
<tr>
<td>Appendicitis</td>
<td>Peptic ulcer disease</td>
<td>Malignancy</td>
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<td>Acute cholecystitis</td>
<td>Gallstones</td>
<td>Abscess</td>
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<td>Acute pancreatitis</td>
<td>Chronic Pancreatitis</td>
<td>Chronic pancreatitis</td>
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<tr>
<td>Acute diverticulitis</td>
<td>Inflammatory bowel disease</td>
<td>Psychiatric</td>
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<td>Perforated duodenal ulcer</td>
<td>Abdominal neoplasms</td>
<td>Unexplained pain</td>
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<td>Small bowel obstruction</td>
<td>Mesenteric ischemia</td>
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<td>Acute mesenteric ischemia</td>
<td>Pelvic inflammatory disease</td>
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<td>Abdominal aortic aneurysm</td>
<td>Abdominal adhesions</td>
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<td>Ovarian cysts</td>
<td>Intestinal obstruction(hernia, volvulus)</td>
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<td>Ectopic pregnancy</td>
<td>Irritable bowel syndrome</td>
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<td>Peptic ulcer disease</td>
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<td>Biliary dyskinesia</td>
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<tr>
<td>Gastroenteritis</td>
<td>Functional abdominal pain syndrome</td>
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READING LIST


