

# Chronic Abdominal Pain

“It Still Hurts”

# Reassurance

- I absolutely believe that you have pain
- I care that you have pain
- I will do a few screening tests to be sure
- It is very unlikely there is a serious illness.....in the presence of
  - No unexplained alarm symptoms
  - Normal physical exam
  - Normal growth and development
  - Normal lab tests and imaging studies
- Infuse levity

# The Challenge

- I challenge you
  - To not let these symptoms control your life
  - To not allow them to cause you to miss school or other activities
  - To not be afraid when you have symptoms (ok to be upset or annoyed)

# The Education

- Recurrent abdominal pain in children is common (25%)
- Stress makes it worse
- Be alert for life situations that trigger the pain
- Parents - firmly encourage the child to move on, to not obsess/hover, and do not allow the pain to become an excuse.

# Alarm features

## History suggestive of organic etiology

- Age < 5 years
- Fever, wt loss, joint symptoms, oral ulcers
- Emesis, esp bile- or blood stained
- Awakens from sleep
- Localized away from the umbilicus
- Referred to back, shoulders, groin, leg
- Dysuria, hematuria, or flank pain
- Chronic med use: NSAIDs, Lithium, other psychotropics etc
- Compelling family hx: IBD, PUD, celiac, GB dz

# Alarm features

Physical exam suggesting of organic etiology

- Growth deceleration, delayed puberty
- Jaundice, pallor
- Rebound, guarding, organomegaly, "fullness",
- Perianal disease (tags, fissures, fistulae)
- Guaiac positive, gross blood in stool

# Alarm features

Laboratory studies suggesting of organic etiology

- CBC: anemia (macro- or microcytosis), leukocytosis, thrombocytosis.
- ESR and/or CRP elevation
- Hypoalbuminemia
- CMP: glucose, aminotransferases, bilirubin, alk phos,
- Hematuria

# Initial "Screening" Studies

## Chronic abdominal pain

- CBC with diff
- UA and culture
- Aminotransferases (consider CMP, amylase, lipase, lead level, TSH)
- TTG and serum IgA (don't get anti-gliadin ab)
- ESR, (consider CRP)
- Stool O&P and guaiac (consider stool H. Pylori antigen)
- Abdominal xray, +/- abdominal US

# Empiric Trials

- Dietary (dairy, fructose, fatty foods, spicy cheetos, more fruits, green vegetables, whole grains)
- Fiber supplements, rx of constipation
- Pharmacotherapy
  - Acid suppression
  - Antibiotics and probiotics
  - Miralax et al
  - Peppermint oil
  - Anticholinergics, antidepressants, serotonergic agents

# Dairy Restriction

## Empiric Trials

- Lactose vs protein intolerance
- Bacterial fermentation of malabsorbed sugar produces hydrogen, carbon dioxide and fatty acids.
- Abdominal cramping, bloating/distension, diarrhea and flatulence
- Common in blacks, native Americans, Italians; uncommon in Scandinavia and northwestern Europe.

# Dairy Restriction Empiric Trials

- History poor predictor of lactose intolerance
- Breath H<sup>2</sup> testing
- Disaccharidase determination by biopsy
- Dairy elimination (all dairy) always worth a try. *"milk can do anything to anybody"*

# Fructose (and sorbitol) intolerance

## Empiric trials

- Commonly malabsorbed
- Fruits, fruit juices, and honey
- Apples and pears
- Excessive ingestion associated with pain (and bloating, diarrhea) in susceptible individuals
- Sorbitol (polyalcohol sugar) commonly found in 'sugar free' products

# Treat Constipation

## Empiric Trials

- Fiber – 1 gm per year of age + 5 gm/day (Benefiber, Fiberchoice, etc)
- Miralax, glycolax
- Lactulose, Kristalose
- Milk of magnesia, Mineral Oil

*The new food pyramid suggests 5 to 8 servings of fruits (except bananas) and green/yellow vegetable serving per day*

# Acid Suppression

## Empiric Trials

- Caveats/Issues
  - Insurance coverage, therapeutic interference
  - OTC vs Rx
  - Antacid vs H<sup>2</sup> blocker vs PPI
  - Compliance, forms: compounded by pharmacy, dissolving tablet, powder, and capsules
  - Pepcid chewable, Zantac® 25 EFFERdose® Tablets, Prevacid Solutabs, and Zegerid are generally accepted
- “They responded – what now?” Stop, wean, retreated, extend evaluation?

# Antibiotics and Probiotics

## Empiric Trials

- Metronidazole
  - Small bowel bacterial overgrowth
  - Undetected parasites
- Probiotics
  - *Lactobacillus GG* (Culturelle)
  - *Saccharomyces boulardii* Iyo (Florastor)
  - *Bifidobacterium*
  - (WHO) "...live microorganisms, which, when administered in adequate amounts, confer a health benefit on the host".

# Peppermint Oil

## Empiric trials

- Your grandmother knew this
- Relaxes intestinal smooth muscle
- Meta-analysis of 5 randomized, double-blinded, placebo-controlled trials in adults (DATA) supported efficacy in IBS
- 1 trial in pediatric IBS supported efficacy
- Enteric-coated (Colpermin) to reduce nausea and heartburn adverse effects
- 187 mg peppermint oil capsules (30-45 kg 1 tid, >45 kg 2 tid)

# Anticholinergics

- Hyoscyamine (Levsin, Levsin SL, Levbid, NuLev)
- Dicyclomine (Bentyl)
- Smooth muscle relaxants that block muscarinic effects of acetylcholine in the GI tract
- Commonly prescribed, best on a prn basis because of side effects – *“take this when you must avoid symptoms”*
- No data

# Serotonergic agents

5-HT<sub>3</sub> and 5-HT<sub>4</sub> receptors play a role in the pathophysiology of IBS

- 5-HT<sub>3</sub> receptor antagonists
  - Ondansetron (*Zofran*), granisetron (*Kytril*)
    - Consider if overwhelming nausea with pain
  - Alosetron (*Lotronex*)
    - Women-diarrhea dominant IBS (fecal urgency)
    - Ischemic colitis, restricted/controlled use
- 5-HT<sub>4</sub> receptor agonists
  - Tegaserod (*Zelnorm*)
    - Constipation dominant IBS
    - Heart attack and stroke, restricted/controlled access

# Constipation

Common things are common

- Xrays often interpreted to show excessive stool
- History often consistent with infrequent or prolonged defecation (often not)
- Usually functional
- Dietary counselling always worthwhile
- Empiric trials (Benefiber/Miralax etc)

# Celiac Disease

## Don't Overlook

- Classic presentation (diarrhea, steatorrhea, anemia, distension and wt loss) vs nonspecific digestive complaints
- 1:300 Americans (N European)
- Down syndrome and JODM
- Tissue transglutaminase antibody (sensitivity and specificity ~ 95%)
- 3% of celiacs have selective IgA def.
- Dx confirmed by small bowel bx

# Parasites

Don't overlook

- *Giardia*
- *Cryptosporidium*
- *Dientameba fragilis*
- Pinworms?
- *Blastocystis hominis*, *Endolimax nana*

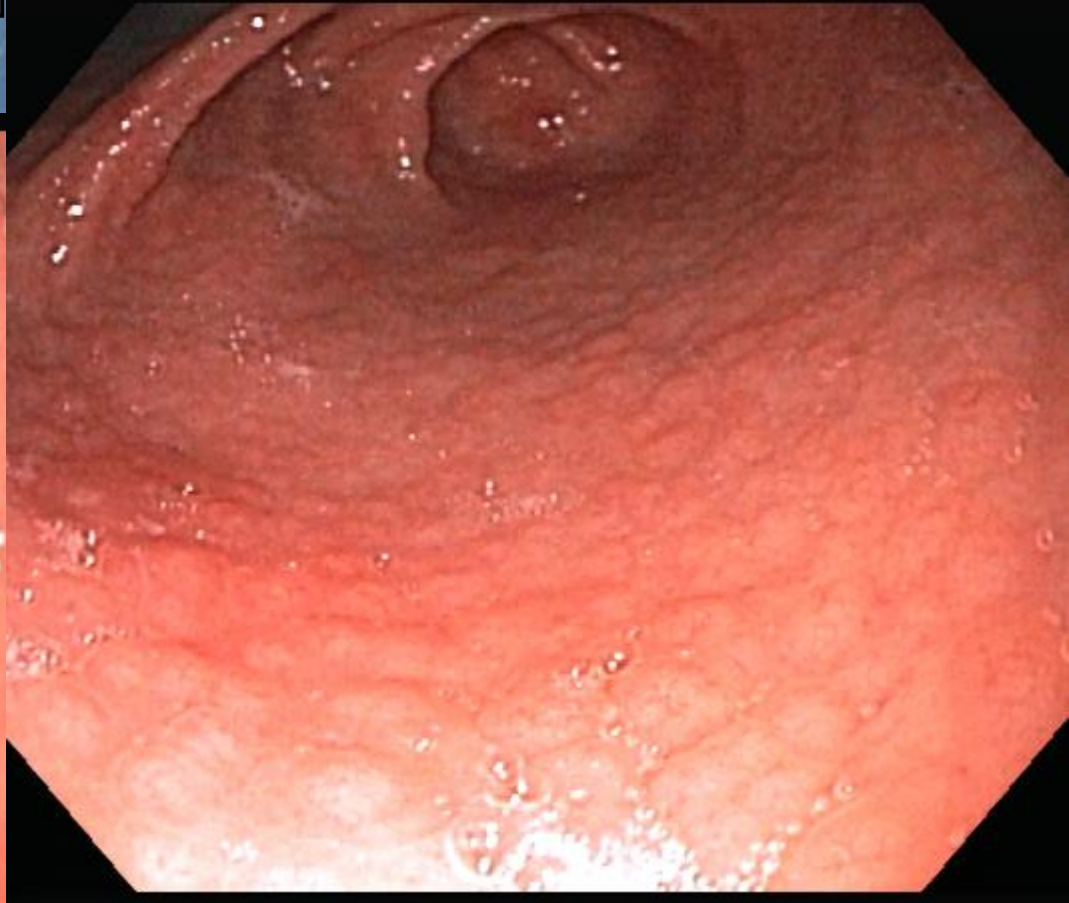
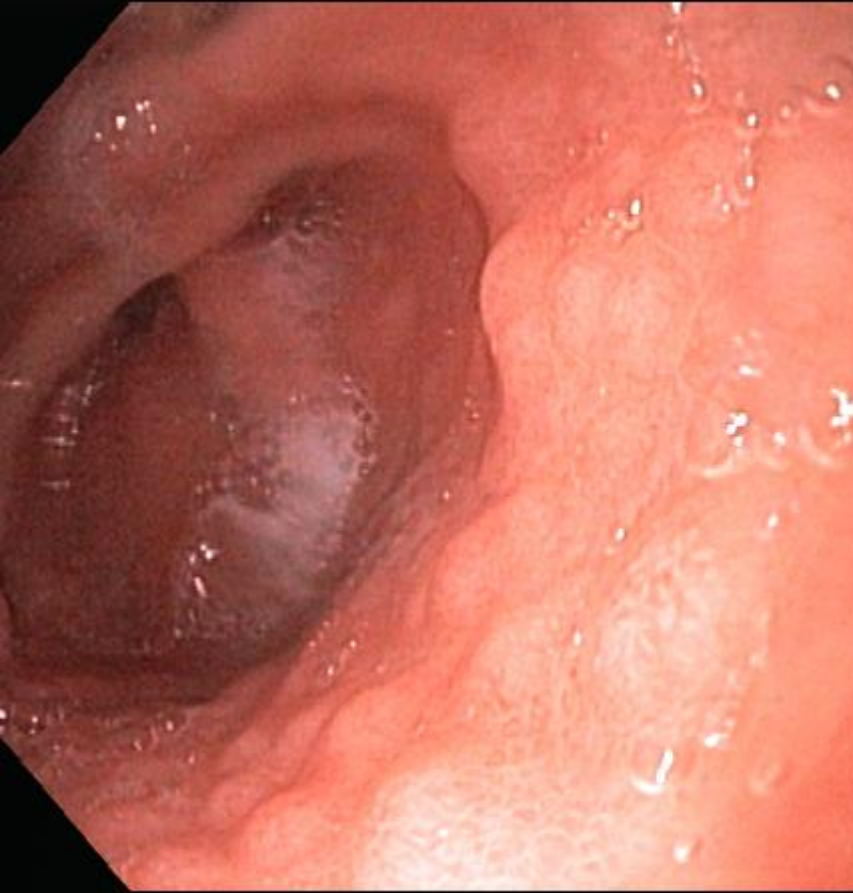
# Helicobacter Pylori

## Consider

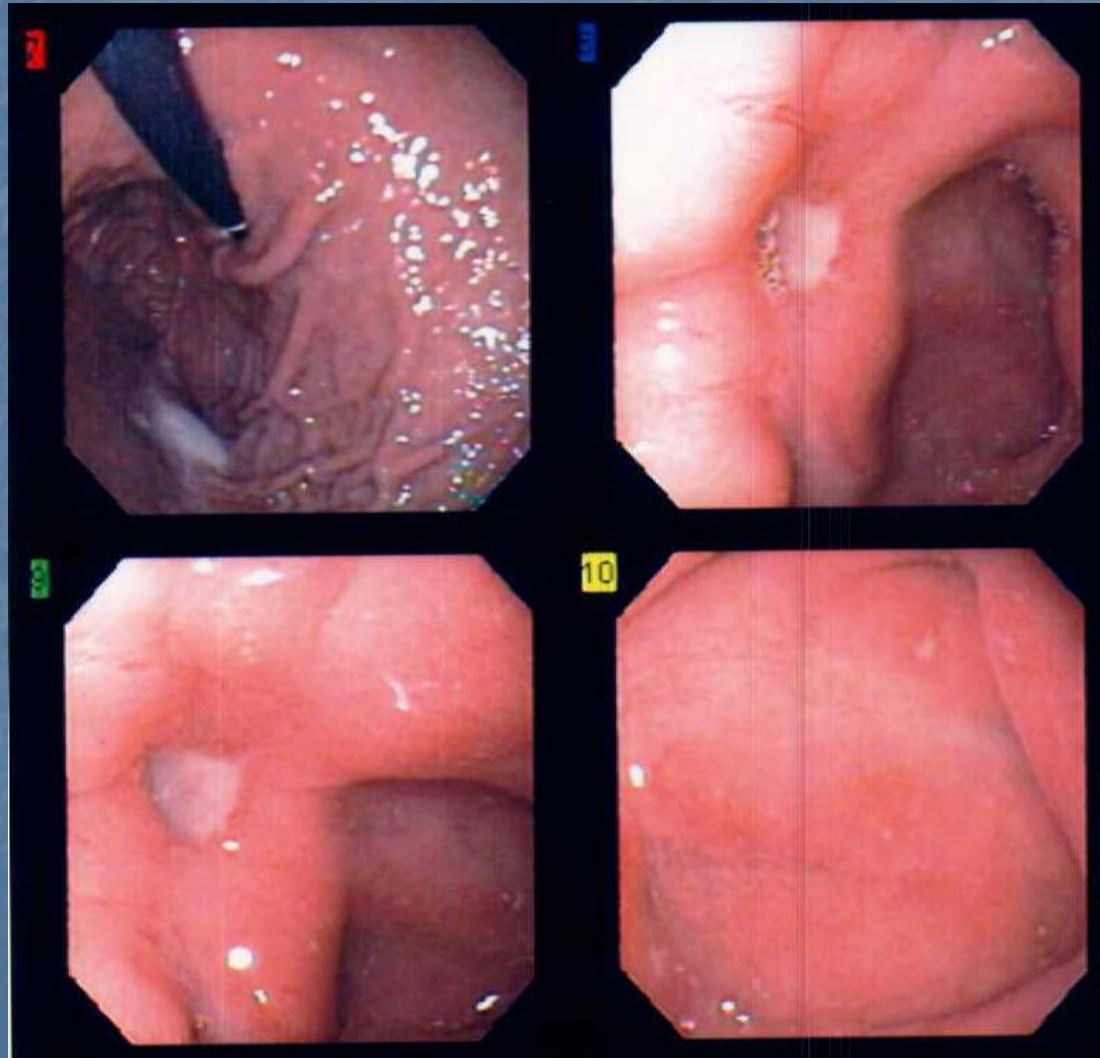
- H. Pylori antibody in blood
- Stool H. Pylori antigen
- 13C-urea breath test
- Endoscopy and bx is gold standard
- Elimination of H. Pylori does not necessarily resolve symptoms
- Standard Rx is Amox, Biaxin, and PPI but resistance is becoming common
- Associated with DU even in children

# Helicobacter Pylori

## Nodular gastritis



# Duodenal ulcer



# Crohn's disease

Don't forget insidious presentation

- Pain may be subtle, child may function
- Linear growth failure, wt gain deceleration
- Anemia, guaiac +, thrombocytosis, hypoalbuminemia, ESR, CRP
- RLQ fullness and tenderness
- Perianal disease (30-50%)

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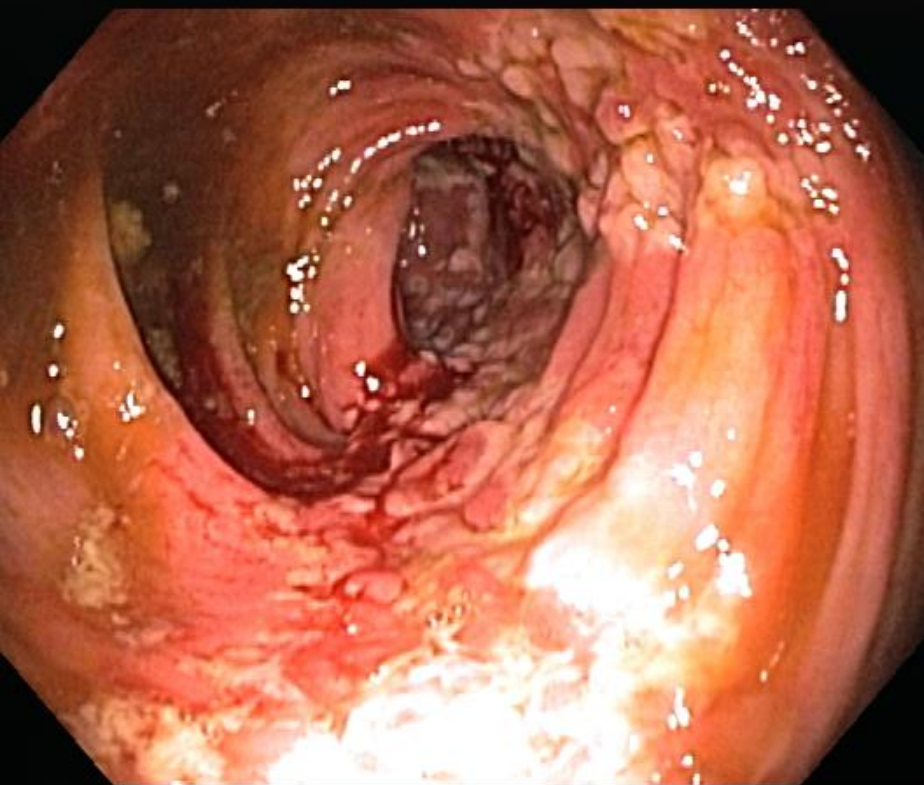
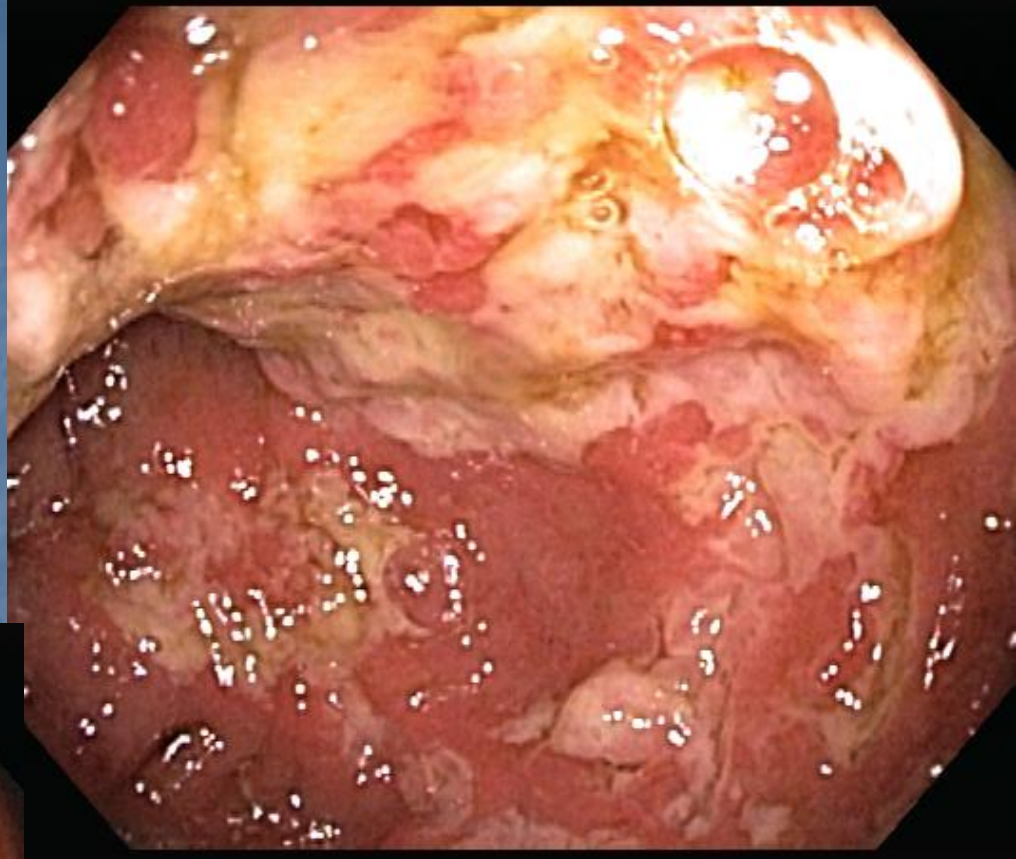


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# Crohn's Disease



# Congenital malformations

- Malrotation (delayed diagnosis)
- GI tract duplications (ileum)
- Meckel's diverticulum

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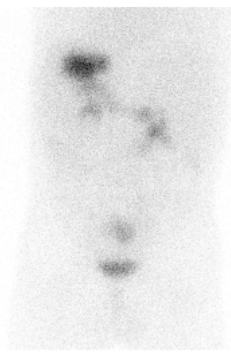
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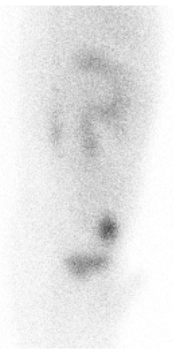
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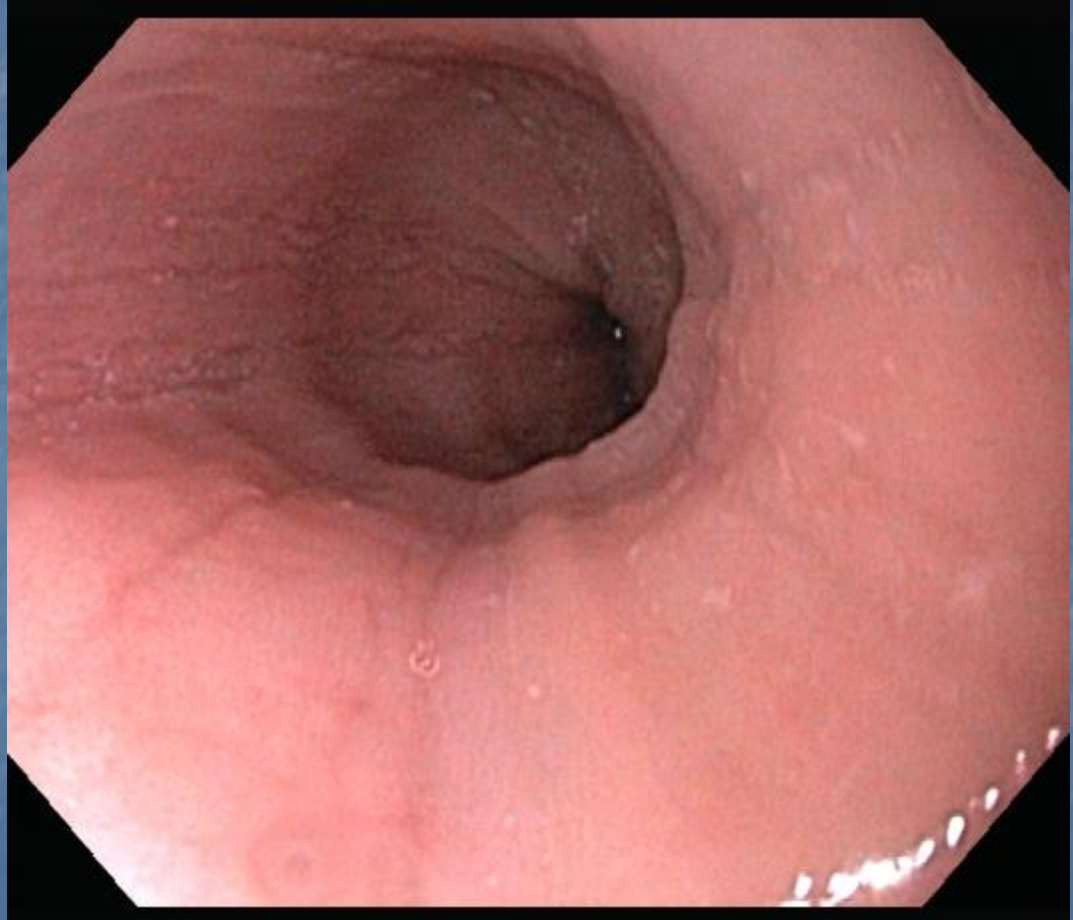
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# Eosinophilic Esophagitis

- Pain, nausea, vomiting, dysphagia, food impactions, growth failure, strictures
- Hx of allergies, eczema, asthma
- Peripheral eosinophilia
- Endoscopic findings
  - Panesophagitis
  - Furrowing, rings, 'white specks'
- Treatment – elimination diets, topical steroids, antihistamines,

# Eosinophilic Esophagitis



# Biliary dyskinesia

## Hypokinetic gallbladder

- Postprandial epigastric (RUQ) colicky pain
- Worse with fatty foods
- Normal US (no stones)
- Nuclear medicine hepatobiliary scan with calculation of gallbladder ejection fraction following CCK injection. (>35% is normal)
- Treatment is cholecystectomy
- Landmines – relapse following surgery, celiac disease

# Urological disorders

- Ureteropelvic junction obstruction (UPJ)
  - 70% of older children present with abdominal pain
  - Referred to groin or flank
  - May be paroxysmal
  - Palpable mass
  - Hematuria
  - Ultrasound
- Nephrolithiasis ("kidney stones')

# Imaging Studies

## Chronic abdominal pain

- Abdominal xray
- Ultrasound abdominal/pelvic
- Upper GI with small bowel followthrough
- CT abdomen with and without oral and IV contrast
- NM hepatobiliary scan with EF
- NM Meckel's scan

# Endoscopy

- EGD (esophagogastroduodenscopy) with bx and disaccharidase determination
- Colonoscopy with biopsy
- Capsule endoscopy

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