“My stomach hurts….”

The mysterious complaint of abdominal pain in the adult—where do you go from here?

Abdominal Pain in the Adult

• Most common cause for hospital admission in the U.S.
• Wide range of diagnoses—from benign to life-threatening
• History and PE are often key to determining cause of pain

Abdominal Pain in the Adult

• History taking—important information for making diagnostic decisions
• General assessment techniques and tips
• Specific abdominal complaints
  – GERD
  – Irritable Bowel Syndrome (IBS)
  – Cholecystitis, cholelithiasis
  – Constipation
  – Diverticular disease
  – Colon cancer
• Common medications used in the treatment/management of abdominal conditions—discussed with each condition

History (HPI)

• Take a careful history, with attention to details about the symptoms (use OLDCART mnemonic). Up to 70% of the information needed to make a diagnosis comes from the HPI alone
• A top priority for the patient with abdominal pain is determining whether the patient has an emergent or non-emergent condition
• Fever, tachycardia and hypotension are critical assessment parameters that signal emergent need for treatment
• The relationship of pain to vomiting can help as well (vomiting without nausea, color and odor of emesis)

HPI – OLDCART mnemonic

• Onset—When did it start? How did it start? Has it changed over time? If any injury—exactly how did the injury occur (mechanism of injury)?
• Location—Where exactly are the symptoms experienced? Has the symptom moved? Can a specific location be identified, or is the problem more generalized?
• Duration—Are the symptoms constant, fluctuating, getting better, getting worse?
• Characteristics—How are the symptoms experienced? (dull ache, sharp pain, heat, electric shock?)
• Aggravating factors—What makes the symptoms worse?
• Relieving factors—What makes the symptoms better?
• Treatment—What have you done so far to try to help the problem?
HPI

- Ask about all medications as well as supplements the patient takes, paying attention to GI irritant agents.
- Does he or she work in an environment where there are toxins or caustic substances?
- Ask about past illnesses and family history. Be sure to specifically ask about a cardiac history—remember, your gut won’t kill you (most of the time) but your heart will, and if you miss this diagnosis you won’t be a happy NP camper down the road.

HPI – Older adult

- Symptoms may not be as predictable — there may be only low-grade fever, pain that is not described as severe (“not too bad”) — even in the face of significant abdominal pathology. The older adult may find it difficult to describe and locate pain.
- The older adult often has significant comorbidities and takes many medications which may mask symptoms.
- Include family members and possibly friends in the interview process to obtain a clearer picture of what might be going on. They may note changes in the individual that the patient him or herself is not aware of.

PE

- Note what the patient is doing and looks like when you talk with him/her. Facial expression (grimacing, frowning, “pinched” look) and body language (fidgety, very still, bent over, pacing) tell you quite a bit.
- Include a full exam—not just a focused abdominal exam.
  - Skin color, conjunctiva, diaphoresis, heart rate and rhythm, lung sounds, thyroid.
- Follow the pattern you learned in school: look, listen, feel. Percussion of the flanks and back (use a fist against your flattened hand) are useful but percussion of the abdomen is not as helpful.

PE

- Look at the surface of the abdomen for previous surgical scars, discolorations, masses, bulges, pulsations, distension, see if the surface seems asymmetric.
- Listen in all areas as well as over the aorta and renal arteries. If you hear a bruit—don’t move forward with the exam. It doesn’t happen often, but if it is an aneurysm you don’t want to risk rupture. (Do ask if the patient has ever been diagnosed with this!)
- Lightly palpate—and begin at the farthest area from the pain. If the patient pulls into a fetal position with light palpation, they won’t tolerate you palpating any deeper.

You gonna assess my what?
PE
• Think about what ‘lives’ in the area you are assessing:
  – RUQ: gallbladder, pulmonary issues, renal colic, colitis, liver, stomach and esophagus
  – LUQ: pancreatic problems, renal, CV conditions, stomach and esophagus
  – LLQ: colitis, diverticulitis, IBD, IBS, GYN issues, renal
  – RLQ: appendicitis, renal, GYN issues, colitis
  – Epigastric: gallbladder, CV conditions, pancreas, stomach and esophagus, liver
  – Periumbilical: CV conditions, colitis, appendicitis, stomach and esophagus
  – Suprapubic: bladder, colon, renal and GYN conditions

Diagnostic testing
• Lab values:
  – CBC, CMP (which includes hepatic profile), Urinalysis, amylase, lipase, ESR, hemoccult testing, urine pregnancy if female of childbearing age or if other testing is anticipated as proactive measure
• Other testing:
  – Chest film, ultrasound, plain films of abdomen, CT scan (with/without contrast—IV and oral), possibly angiography (mesenteric ischemia), GI series (small bowel), endoscopy. May order a fractional excretion HIDA scan of gallbladder also—used to identify a slow or non-emptying gallbladder without stones
  – May eventually need exploratory surgery (laparoscopy) if no clear origin identified for the pain

Specific Abdominal Complaints
¢ GERD
¢ Cholecystitis, cholelithiasis
¢ Irritable Bowel Syndrome (IBS)
¢ Constipation
¢ Diverticular disease
¢ Colon cancer

GERD
• Reflux of acidic gastric contents up into the esophagus. Can reach as high as the cervical esophagus and cause aspiration
  – Heartburn, regurgitation, acid brash, substernal chest pain
  – Symptoms worsened after large and/or fatty meals, lying down, bending (+ intra-abdominal pressure)
• Many if not most patients with GERD demonstrate a hiatal hernia as well
• Good foods give bad results: symptoms may be exacerbated by eating chocolate, tomato-based foods, alcohol, peppermint, caffeine, citrus, onions, garlic, carbonated beverages
Heartburn? What's that?

GERD

- In HPI, ask about onset, duration, progression of symptoms. Is heartburn aggravated by meals. Is it helped with sitting up, antacids. Does the patient smoke?
- If symptoms have been present for 5 or more years, there is a greater risk for development of Barrett’s esophagus – a precancerous condition due to chronic irritation of the esophagus
- Diagnosis may be reasonably made based on the specific history and symptoms. But if alarm symptoms are present (anemia, weight loss, hematemesis, difficulty with or painful swallowing, age over 50 yrs) the patient needs to have an EGD performed

Barrett’s esophagus

GERD

- EGD is the gold standard for diagnosis of GERD. If Barrett’s esophagus is thought to exist, biopsies may be taken of the area for confirmation
- Treatment is targeted toward symptom relief with both behavioral changes and medication use
  - Weight loss
  - Smaller, more frequent, less fatty meals
  - Do not lie down for at least 3 hours after eating
  - Decrease carbonated drinks and caffeine
  - Smoking cessation
  - Stop or decrease alcohol intake
  - Elevate the HOB with blocks or bricks to raise it 3 to 5 inches
  - Medications
  - Possibly surgery (Nissen fundoplication)

GERD - Medications

- Antacids
  - Tums, Maalox, Mylanta, etc.
- H2 blockers
  - Tagamet, Pepcid, Zantac, etc.
- PPIs
  - Omeprazole (Prilosec), lansoprazole (Prevacid), pantoprazole (Protonix), rabeprazole (Aciphex), esomeprazole (Nexium)
  - Omeprazole/bicarbonate combo (Zegerid)
  - Dexlansoprazole (Dexilant) – super PPI
- Gastric protective agents
  - Sucralfate (Carafate)
- Gastric stimulant medications if severe
  - Metoclopramide (Reglan)

Cholecystitis/cholelithiasis

- Cholecystitis – inflammation, infection; cholelithiasis – presence of stones
- Typically presents with nausea, severe RUQ pain (colicky) that may radiate to the back between shoulders. Pain occurs usually 1-3 hours after eating—particularly a high-fat meal. Pain may last for several hours and the patient may report aching or soreness for several days. Often has multiple episodes
- Remember the “F’s” : female, forty/fifty, flatulent, ‘fluffy’ (we won’t say fat…) and family history
- Often has accompanying symptoms of heartburn
- Gallstones often form during pregnancy but may not cause symptoms until after delivery
**Cholecystitis/cholelithiasis**

- For PE – assess RUQ.
  - Murphy's sign: pain and arrested inspiration occurs when your fingers press the border of the ribs (right) during deep inspiration
- Check CBC, LFTs. Order ultrasound. If negative for stones, order HIDA scan with EF
- If there are stones or a low ejection fraction (which means a slow-emptying or sluggish gallbladder), refer to surgeon.
- Most medications reportedly used for dissolving gallstones are ineffective
- If the patient does not wish to have surgery, they can follow a low-fat diet, use PPIs with some benefit, lose weight. These measures are often helpful but not curative

**Irritable Bowel Syndrome - IBS**

- Chronic, 'benign' disorder that is characterized by abdominal cramping and pain, bloating, and change in bowel habits that cannot be attributed to other causes
- Condition of exclusion: you need to exclude other pathology in making this diagnosis
- IBS patients may be constipation-predominant, diarrhea-predominant, or ‘alternators’
- 70% of IBS patients are women (ratio is 3:1)
- Location and intensity of pain is variable but pain that is progressive, interferes with sleep, is associated with anorexia or weight loss is not part of IBS—you must look for another cause

**IBS**

- Most cases present before age 45—usually in the late teens or in the 20's initially. A first episode occurring after age 45 is very uncommon/unlikely
- IBS patients miss 3X more work days than other persons
- IBS accounts for 28% to 30% of referrals to gastroenterologists
- Patients with IBS report a significantly lower quality of life than others in their age bracket
- Condition is never cured; symptom management is the focus
- Increased stress may factor in to the exacerbation of symptoms

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*Figure 39-24 Resected gallbladder containing mixed gallstones.*

*(From Kissane JM, ed: Anderson's pathology, ed 9, St Louis, 1990, Mosby.)*

*I'm not fat, I'm fluffy—really……*

*Stress? Do I look stressed?*
IBS

• ROME II criteria (used in diagnosing IBS)
  – Presence for at least 12 weeks, not necessarily consecutive, in the preceding 12 months of abdominal pain or discomfort that cannot be explained by structural or biochemical abnormalities and has at least 2 of the following: pain relieved with defecation, onset associated with a change in the frequency of stool, onset associated with a change in stool consistency
• Ask about alarm symptoms:
  – GI bleeding/blood in stool, anemia, anorexia or weight loss, fever, dehydration from diarrhea, severe constipation, family history of GI cancer/IBD/celiac disease, onset of symptoms after age 50

IBS – Symptom management - Rx

• Pain: primary meds used are antispasmodics
  – Hyoscyamine (Levsin) - anticholinergic
  – Dicyclomine (Bentyl)-anticholinergic
  – Barbtrate-anticholinergic (Donnatal)
  – Benzodiazepine-anticholinergic (Librax) – C IV drug

• Diarrhea
  – Loperamide (Imodium) - opioid
  – Diphenoxylate HCL/atropine (Lomotil) - opioid+anticholinergic, C V drug
  – Bismuth subsalicylate (Pepto-Bismol and Kaopectate)
  – Fiber supplements such as Citrucel and Benefiber

• Constipation
  – Stool softeners daily (2 to 4)
  – Miralax (polyethylene glycol)
  – Pericolace (OTC)
• Regular exercise may be helpful
• Stress reduction
• Follow up is important – emphasize to patient that it may take a while and different combinations of medications to help manage the problem and not to give up.
• An interesting tidbit: occasionally, if no other medications have worked, we may try SSRI such as sertraline at a low dose in these patients (25 mg)—seems to decrease the gut hypersensitivity.
• As patients age, their symptoms may decrease in frequency and severity, or they become better able to anticipate and manage them

Constipation

• It is a symptom—not a disease, so the patient should be evaluated for underlying causes and treated appropriately
• Defined as diminished frequency of stool, incomplete evacuation, or hard stools
• A VERY common complaint: more than $800 million is spent annually on laxatives in the US
• Can be due to colon inertia (slower than normal movement of contents) and motility problems or can be secondary: endocrine and metabolic disorders, neurologic conditions, colon conditions (stricture, tumor, proctitis, rectal fissure, severe hemorrhoids) and medications
  – Anticholinergics, agents to treat Parkinson’s Disease, calcium channel blockers, diuretics, overuse of antacids, others

• Often the patient will present with bloating, cramping or aching abdominal pain or discomfort, and they will tell you they go to the bathroom for a BM twice a week or even less.
• Living in a college town, we get a lot of young women with this complaint—and one of the questions we ask is whether, when they get the ‘call’ to have a BM—they answer it or put it off. Most people don’t want to have a BM in a toilet outside their own home so they dampen the signal and if it is dampened frequently enough and over a period of time, the signal becomes weaker and easier to ignore.
Ok, so I'm constipated. You said NOT to poop in the house so I held it……

**Constipation**
- Ask what the patient means by constipation: frequency, hard stools, a feeling of fullness and infrequent stools, etc.
- Ask how long the problem has been going on.
- *Acute constipation is more often associated with a disease process.*
- Ask about associated symptoms and alarm symptoms:
  - Abdominal pain
  - Nausea, vomiting
  - Rectal bleeding/rectal pain
  - Fever
  - Weight loss

**Constipation**
- With the PE, don’t forget all the systems, including the thyroid. (Hypothyroidism = constipation)
- Need to perform a rectal exam and check stool for blood
- May need to perform a focused neurologic exam
- Diagnostic testing: same as for IBS
- Management: (see IBS – agents for constipation)
  - Treat underlying disorders if present
  - May need to change medications the patient is taking
  - Diet should include fruits, fluids
  - Regular exercise may also help
  - Answer the ‘call’ when it comes; may need to retrain self
  - Be patient: most patients who have had constipation for quite a while take 6 to 8 weeks to become more regulated with consistent effort

**Diverticular disease/Diverticulitis**
- Definitions:
  - Diverticulum: individual herniation or sac-like outpouching of mucosa through the layers of the colon wall. Diverticula/diverticuli: multiple sacs
  - Diverticulosis: asymptomatic diverticular disease
  - Diverticulitis: inflammation/infection of diverticulum/diverticula.
- Facts
  - Uncommon under age 40 but not impossible. Posed that 50% of patients age 50 have them, 60% of patients age 60, 70% for age 70 and so on.
  - More than 1/3 of the total US population is affected by age 60 with diverticular disease
  - More common in developed countries
  - Occurs equally between men and women
  - Most common cause of lower GI bleeding

**Diverticular disease/diverticulitis**
- Occurs most often in LLQ (sigmoid colon) but can occur throughout.
- No identified cause, but increased intraluminal pressure (straining at stool r/t constipation) in the colon leads to mucosal herniation through weakened areas in bowel wall.
- LLQ pain, constipation, diarrhea, fever, rectal bleeding/blood in stool, nausea and abdominal distension are common symptoms
- Since this is a disease condition of older individuals, the presentation may vary and symptoms may be vague.
- Diverticula are often an incidental finding during diagnostic testing (CT scan, colonoscopy, barium studies) for other problems

Figure 38-14 Diverticular disease. In diverticular disease, the outpouches (diverticula) appear as small openings from the mucosal surface of the opened bowel.


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Diverticular disease/diverticulitis

- Acute diverticulitis
  - LLQ pain is the most common symptom. May be able to palpate a mass if the patient is able to tolerate the exam. Check CBC, rectal exam may be needed (check stool for blood—common finding), and a flat plate of the abdomen can reveal additional information. Ultrasound may also be helpful in diagnosis.
  - If diverticulitis is suspected after the interview and PE, begin antibiotic therapy:
    - Metronidazole (Flagyl) - 250 to 500 mg tid AND
    - Ciprofloxacin (Cipro) - 250 to 500 mg bid OR
    - Doxycycline 100 mg bid OR
    - Levaquin 500 mg qd OR
    - Septra/Bactrim DS bid
  - Most often the patient will improve within 72 hours of beginning antibiotics, but if not—emphasize to the patient that it may require hospitalization and IV antibiotics. Continue medications for 10-14 days.

- Diagnostics: in this case, you may not order a diagnostic test until after treatment for acute diverticulitis since there is a greater risk of perforation of the diverticula.
  - Colonoscopy
  - BE
  - CT scan

- Recurrence of diverticulitis
  - Give the patient a standing prescription for medication so that if the symptoms recur, the patient can begin on antibiotic therapy immediately. Encourage the patient to notify you if they begin antibiotics, however, so that if the condition does not improve, you can initiate more aggressive measures for treatment.
  - Up to 1/3 of all patients will have recurrence.
  - May require partial colectomy: multiple episodes within 2 yrs or severe diverticulitis with complications.

Colon Cancer

- Cancer of the colon and rectum together make up the third most common cause of cancer death in the US for both men and women.
- Colorectal cancer (CRC) is responsible for approximately 9% of all cancer deaths.
- CRC occurs more often in individuals older than age 50 but can occur in individuals much younger than that. Risk increases with age.
- More common in African Americans; rare in children.
- Genetic and environmental factors are implicated in the development of CRC. Family history increases risk. Diets higher in fats, refined carbs, low fiber have been identified as contributing to CRC.

Colon cancer

- Most CRC develops from polyps.
- The larger the polyp, the greater the risk of CRC.
- Pedunculated polyps (looks like a berry on a stem on colonoscopy) are particularly prone to become CRC.
- If there is a history of colon cancer in a first-degree relative, then the individual should initiate colonoscopy screening 10 years before the age that the family member was diagnosed.
- Most CRCs are adenocarcinomas and have a long preinvasive phase. We think that it takes somewhere between 5 to 10 years for a small polyp to grow to a CRC.

Family history? What family?

![Family history](image)

Figure 39-39B Development of cancer of the colon from adenomatous polyps. A. The tumor becomes invasive if it penetrates the muscularis mucosae and enters the submucosal layer. B. Endoscopic image of pedunculated polyp in descending colon.

(Courtesy David Barkman, MD, University of Utah School of Medicine, Department of Gastroenterology, Salt Lake City.)
Colon cancer

- Warning signs – few early warning signs. Most CRCs are found incidentally during screening procedures and most individuals are asymptomatic.
  - Painless rectal bleeding
  - Change in bowel habits (constipation alternating with diarrhea, change in stool calibre to narrow or ribbon-like)
  - Occult blood loss that leads to weakness and fatigue
  - Weight loss and anorexia are late signs
- If there is a suspicion of a colon cancer, check:
  - CBC, LFTs, CEA (nonspecific)
  - Colonoscopy is the gold standard for diagnosis and allows biopsy and polypectomy during the procedure

Colon cancer

- Cancer staging: several commonly used methods
  - Joint Committee Classification, Duke’s, TNM system (tumor, node, metastasis) and National Cancer Institute
  - NCI and Duke’s
    - Stage 0: carcinoma in situ. Involves only the mucosal lining
    - Stage I: extension of cancer to middle layers of colon wall, but no spread to lymph nodes. Also called Dukes’ A
    - Stage II: extension beyond colon wall to nearby tissues around colon or rectum and/or through peritoneum. Dukes’ B
    - Stage III: spread beyond colon into lymph nodes and nearby organs and/or through peritoneum. Dukes’ C
    - Stage IV: spread to nearby lymph nodes and has spread to other parts of body (liver, lungs). Dukes’ D

Colon cancer – your role

- Encourage the patient 50 years or older at every visit to schedule a colonoscopy or do it for them. If the patient is high risk—start earlier and be emphatic!
- Check stools for blood (usually 3 sequential cards obtained) at least annually. If +, refer for colonoscopy
- If the patient has had colonoscopy and had one or more polyps, be sure that he/she has a follow up colonoscopy ---possibly at one year but at least every 3 to 5 years. The gastroenterologist may take the initiative and send the patient a letter when it is time for follow up, but you as the primary care provider should encourage this strongly to your patients

Colon cancer

- Education for patients who have had a polyp include the recommended follow up colonoscopy, recommend a diet low in fat and refined carbs, high in fiber, fruits, vegetables and complex carbohydrates. Studies have shown some benefit with the addition of vitamin E, C and beta carotene. Exercise on a regular basis is also something that should be stressed—even a regular walking program has demonstrated benefit.
- Your encouragement and recommendations are often the most important factors for a patient in making the decision to pursue colonoscopy screening or putting it off for sometime ‘down the road’
- Encourage family members to be screened as well

Questions???
THANK YOU!