

DPR: History and Physical Exam of the Gastrointestinal System Part II

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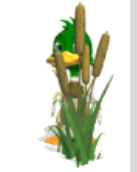
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Session Objectives

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- Describe an appropriate history taking and physical exam for a patient presenting with a complaint of abdominal pain or constipation
- Correlate special abdominal examination techniques with common etiologies for abdominal pain
- Describe clinical features for common etiologies for abdominal pain or constipation
- Correlate the clinical presentation, subjective and objective findings with common etiologies for constipation
- Develop a differential diagnosis and treatment plan for a patient presenting with complaint of constipation



History of Present Illness



HPI – Acute Abdominal Pain

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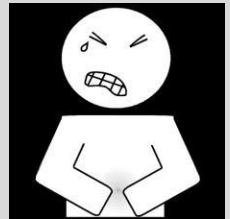
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- Onset
 - Sudden “like a light switching on” – perforated ulcer, renal stone, ruptured ectopic pregnancy, torsion of ovary or testis, ruptured aneurysms
 - Less sudden – most other causes
 - Previous episode - ulcer disease, diverticulitis, gallstone colic, Mittelschmerz
- Palliation/Provocation
 - Relieved by antacids – peptic ulcer disease
 - Relieved by lying very still – peritonitis



HPI – Acute Abdominal Pain

- Quality
 - Acute waves of sharp constricting pain – renal or biliary colic
 - Waves of dull pain with vomiting – intestinal obstruction
 - Colicky pain that becomes steady – appendicitis, strangulated intestinal obstruction, mesenteric ischemia
 - Sharp, constant pain, worsened by movement – peritonitis
 - Tearing pain – dissecting aneurysm
 - Dull ache – appendicitis, diverticulitis, pyelonephritis

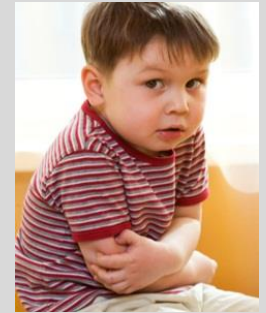


HPI – Acute Abdominal Pain

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- Radiation/Region
 - Right scapula – gallbladder pain
 - Left shoulder – ruptured spleen, pancreatitis
 - Pubis or vagina – renal pain
 - Back – ruptured aortic aneurysm
- Severity
 - Severe – perforated viscus, kidney stone, peritonitis, pancreatitis
 - Pain out of proportion to physical findings – mesenteric ischemia



HPI – Acute Abdominal Pain

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- Timing:
 - Gradual – Diverticulitis, cholecystitis
 - Paroxysmal – Intestinal obstruction, renal or biliary colic
 - Persistent / Stable - Pancreatitis



HPI – Acute Abdominal Pain

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- Associated symptoms
 - Vomiting precedes pain and is followed by diarrhea - gastroenteritis
 - Delayed vomiting, absent bowel movement and flatus – acute intestinal obstruction; the delay increases with a lower site of obstruction
 - Severe vomiting precedes intense epigastric, left chest or shoulder pain – emetic perforation of the intra-abdominal esophagus



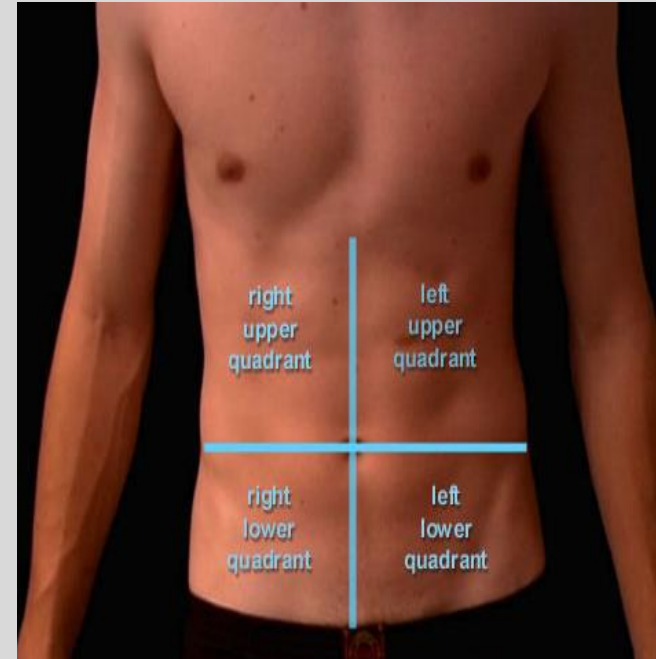
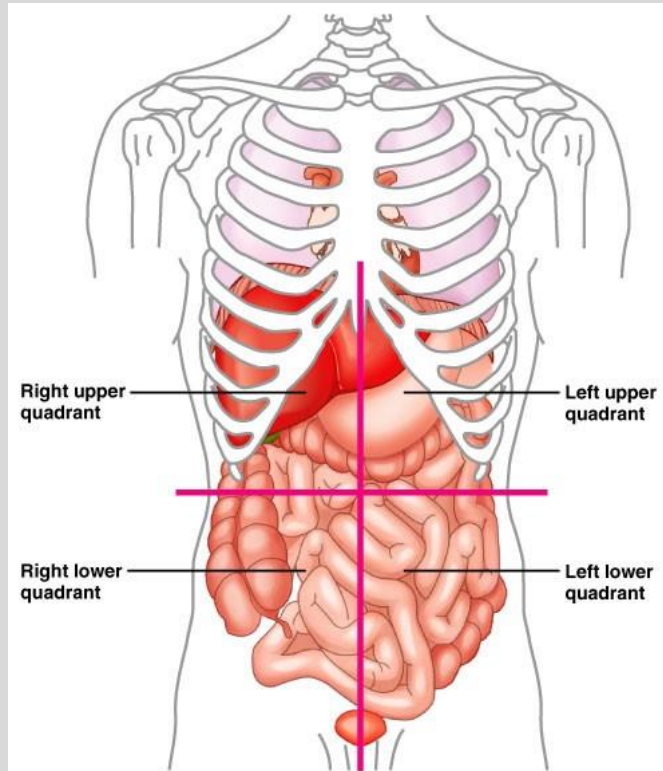
Anatomic Considerations



Location of Abdominal Pain

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Source: Bates' Guide to the Physical Examination and History Taking; 13th Ed. – Chapter 19

Location of Abdominal Pain

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| Location of Pain | Possible causes |
|----------------------|--|
| Right upper quadrant | Cholecystitis, biliary colic, congestive hepatomegaly, hepatitis, hepatic abscess, perforated duodenal ulcer, retrocecal appendicitis (rarely) |
| Left upper quadrant | Gastritis, splenic disorders (abscess, rupture) |
| Right lower quadrant | Appendicitis, cecal diverticulitis, Meckels' diverticulitis, mesenteric adenitis |
| Left lower quadrant | Sigmoid diverticulitis |

Location of Abdominal Pain

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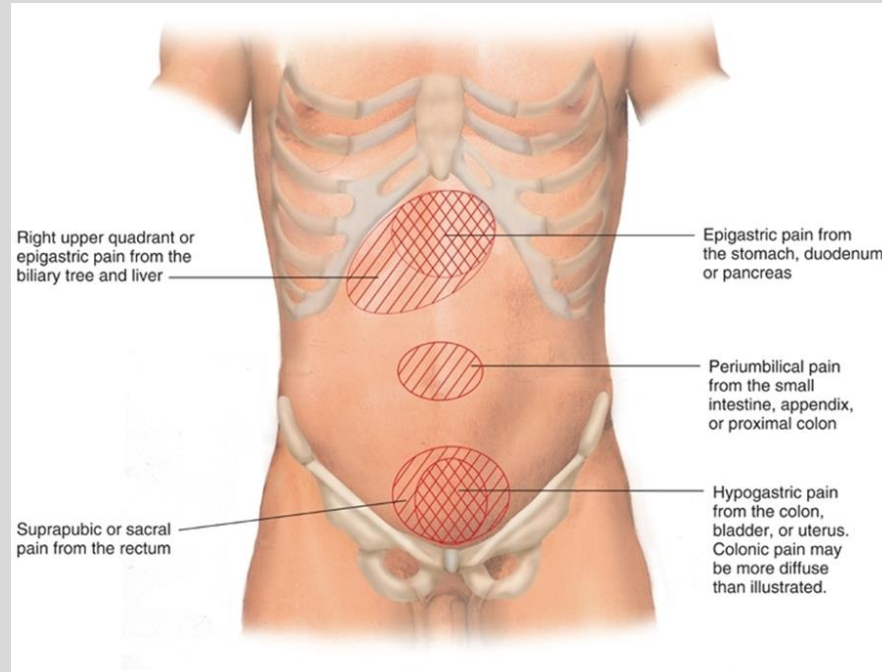
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| Location of Pain | Possible causes |
|------------------------------|--|
| Diffuse | Acute pancreatitis, diabetic ketoacidosis, early appendicitis, gastroenteritis, intestinal obstruction, mesenteric ischemia, peritonitis (any cause), sickle cell crisis, typhoid fever |
| Right or Left upper quadrant | Acute pancreatitis, herpes zoster, lower lobe pneumonia, myocardial ischemia, radiculitis |
| Right or Left lower quadrant | Abdominal abscess, psoas abscess, cystitis, endometriosis, abdominal wall hematoma, incarcerated or strangulated hernia, inflammatory bowel disease, Mittelschmerz, pelvic inflammatory disease, renal stone, ruptured abdominal aortic aneurysm, ruptured ectopic pregnancy, torsion of ovarian cyst, torsion of testes |

Visceral Pain Patterns

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Foregut structures: stomach, duodenum, liver, pancreas

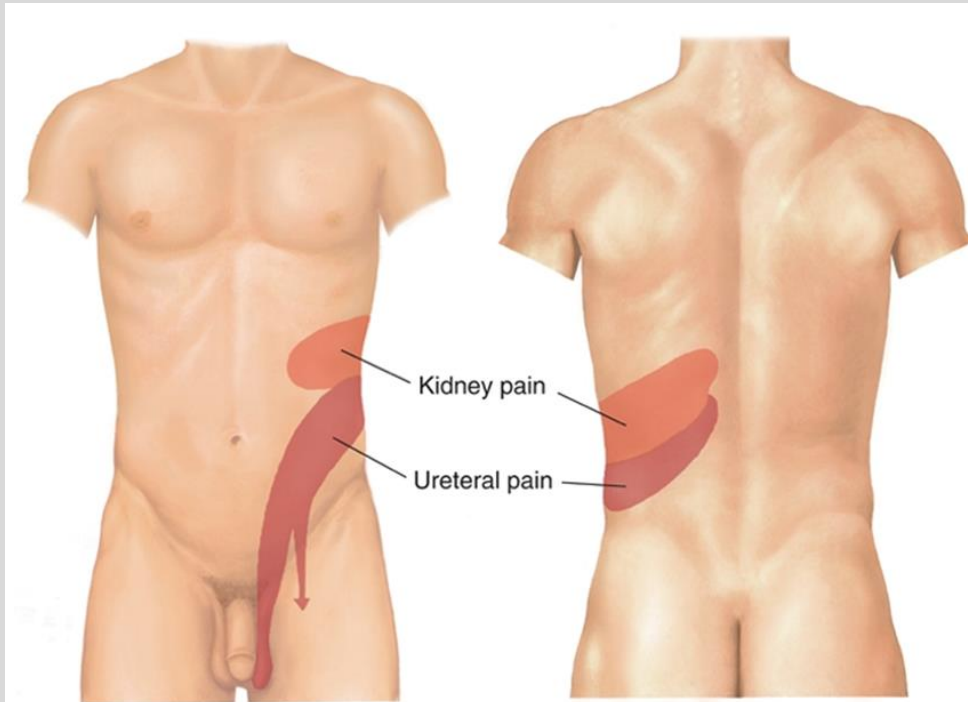
Midgut structures: small bowel, proximal colon, appendix

Hindgut structures: distal colon, genitourinary tract

Renal & Ureteral Pain Patterns

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Disorders of the Urinary Tract

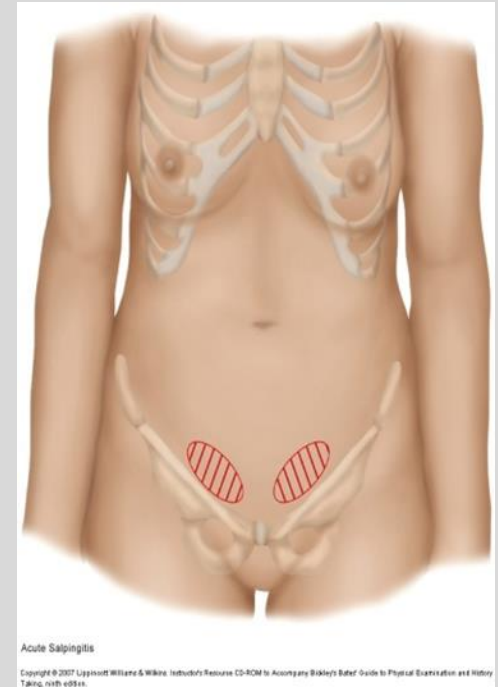
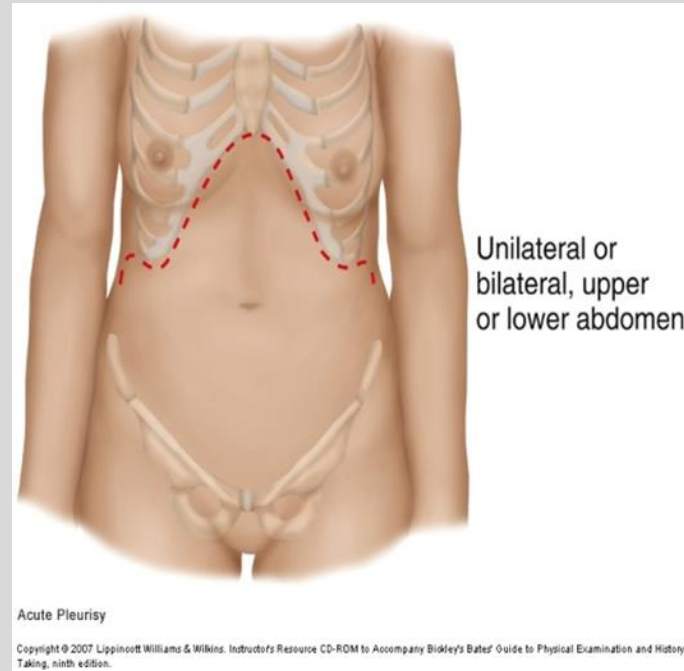
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Extra-Abdominal Referred Pain

- Heart
- Lungs
- Diaphragm
- Pelvic organs

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Abdominal Exam Special Tests

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Examination Techniques



Order of Abdominal Exam

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1st - Inspect



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graph TD; A[1st - Inspect] --> B[2nd - Auscultate]; B --> C[3rd - Percuss]; C --> D[4th - Palpate]; D --> E[5th - Special Tests];
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2nd - Auscultate

3rd - Percuss

4th - Palpate

5th - Special Tests

Special Examination Techniques

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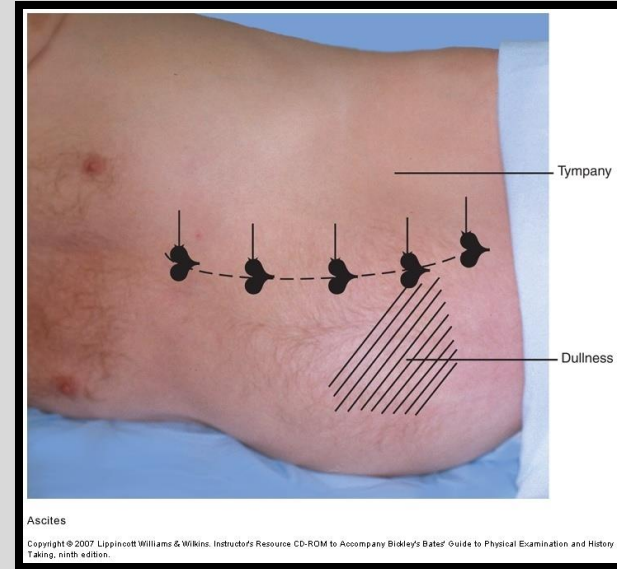
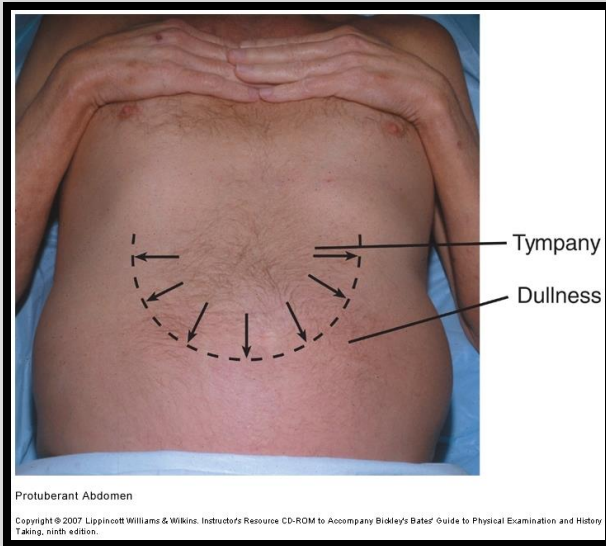
- Assessment for presence of ascites
- Lloyd's Sign or Costovertebral Angle Tenderness
- Murphy's Sign
- McBurney's Point
- Rebound Tenderness
- Referred Rebound Tenderness
- Rovsing's Sign
- Obturator Sign
- Psoas Sign



Percussion for Ascites: Shifting dullness

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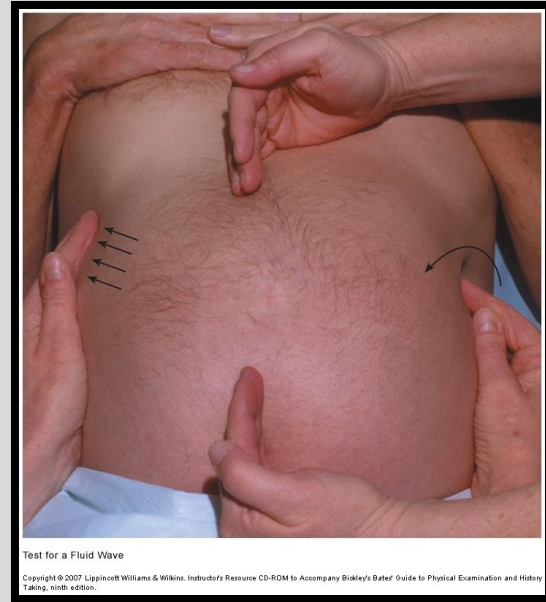


Palpate for Fluid Wave

- An assistant places his/her hands in the midline as shown and applies downward force
- Examiner places his/her hands at flanks
- Examiner applies sudden medial tap with one hand and monitors for fluid wave with opposite hand

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Lloyd's Sign or CVA Tenderness

- Tap between T10 - T12 bilaterally
 - Strike the CVA with the ulnar surface of the fist
- **-OR-**
- Place the ball of one hand on the CVA.
- Strike the CVA with the fist's ulnar surface of the other hand

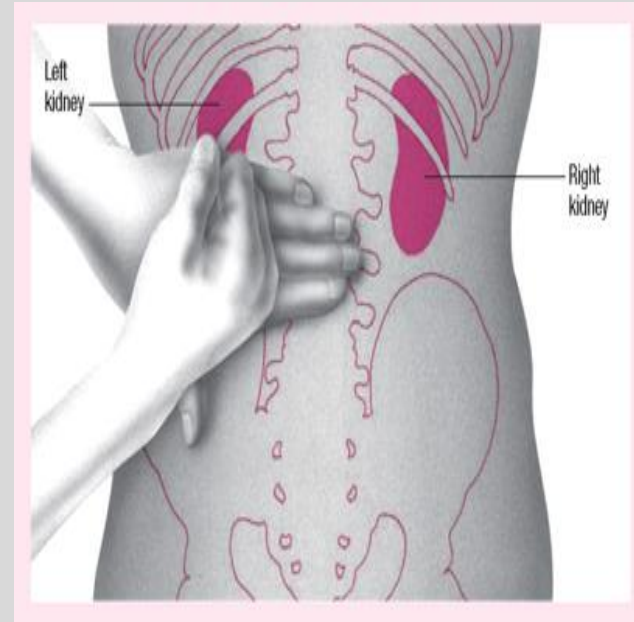


Lloyd's Sign or CVA Tenderness

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- When positive, inquire about:
 - Other signs and symptoms
 - Voiding habits
 - Additional personal or family history
genitourinary or
renovascular disorders



Lloyd's Sign or CVA Tenderness

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| Medical Causes | Clinical Manifestations |
|------------------------|---|
| Nephrolithiasis | Waves of waxing and waning flank pain that may radiate |
| Perirenal abscess | Severe unilateral flank pain, dysuria, persistent high fever, chills, erythema of the skin; a palpable abdominal mass may be present |
| Pyelonephritis (acute) | Persistent high fever, chills, flank pain, dysuria, hematuria, nocturia, urinary frequency and urgency, tenesmus, anorexia, nausea and vomiting |
| Renal artery occlusion | Flank pain |

Murphy's Sign

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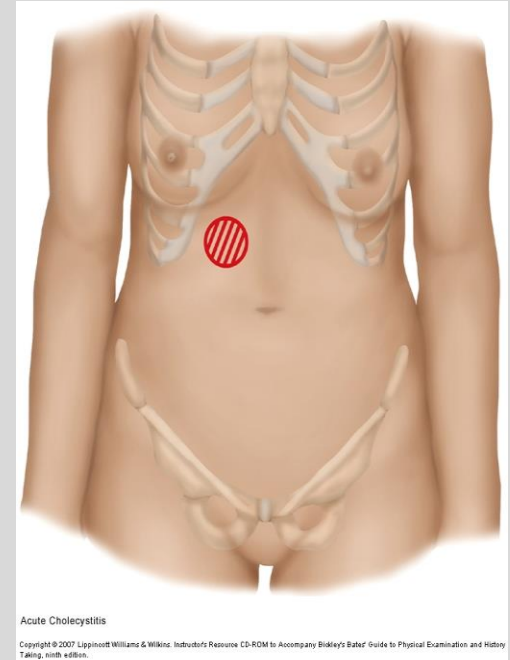
- Hook the left thumb or fingers from right hand in the right upper quadrant.
- Then ask patient to breathe deeply during palpation
- A sharp increase in tenderness with a sudden stop of inspiratory effort constitutes a positive test
- A positive finding is suggestive of acute cholecystitis



Acute Cholecystitis

- Usually related to gallstone disease
- RUQ pain syndrome, gradual, steady
- Pain may radiate to right shoulder or back
- Fever, leukocytosis, nausea, vomiting, anorexia
- History of fatty food ingestion
- Murphy's sign positive
- Rebound may also be present due to peritoneal inflammation

Source: Bates' Guide to the Physical Examination and History Taking; 13th Ed. – Chapter 19



McBurney's Point

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- McBurney's point is located $\frac{1}{3}$ from the ASIS and $\frac{2}{3}$ from the umbilicus in the right lower quadrant
- Pain at this point is suggestive of acute appendicitis

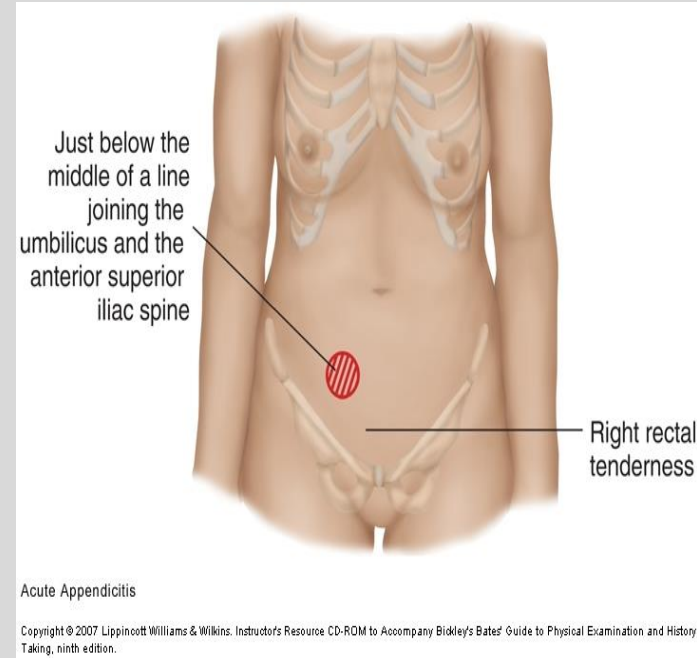


Acute Appendicitis

- McBurney's point tenderness
- RLQ pain, gradual, steady
- Nausea, vomiting, anorexia, fever
- Assess for:
 - Rebound tenderness
 - Referred rebound tenderness
 - Rovsing's sign
 - Psoas sign
 - Obturator sign
 - Cutaneous hyperesthesia

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Peritoneal Pain- Peritonitis

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- Inflammation of peritoneal cavity
- Multiple causes
- Most serious cause is perforation on GI tract
- Causes fluid shift into peritoneal cavity
- Patient looks ill and lies still to minimize discomfort
- Death can occur within days



Rebound Tenderness

- Palpate the abdomen by pressing deeply with pads of fingertips
- After a moment, quickly release the pressure.
- Notice any signs of pain
- Test is positive if there is more pain with releasing the pressure
- Suggestive of peritonitis
- Rebound tenderness elicited in the right lower quadrant is suggestive of appendicitis

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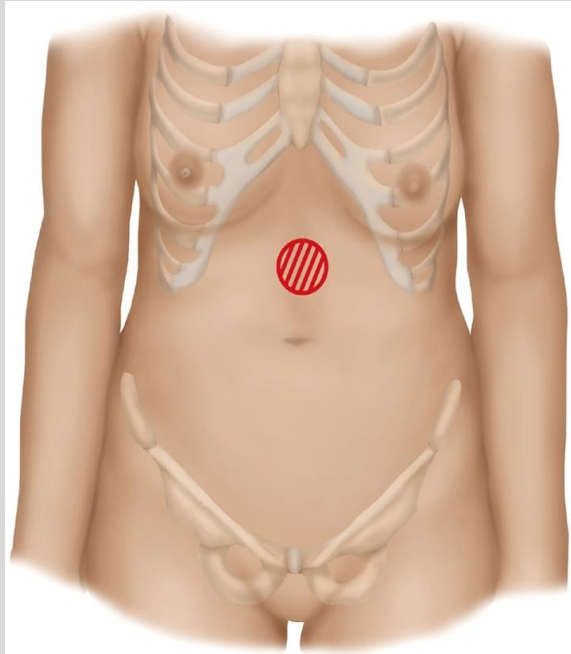
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Acute Pancreatitis

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Acute Pancreatitis

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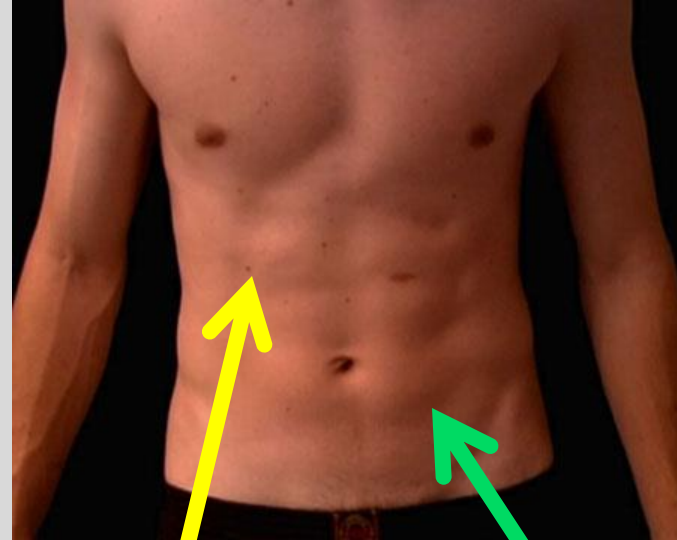
- Rapid onset, severe mid epigastric or upper abdominal pain
- Commonly associated with alcoholism or gallstones
- Nausea, vomiting, fever
- Pain relieved with forward bending
- Pain may radiate around both costal margins to the back

Referred Rebound Tenderness

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- Examiner palpates by pressing deeply any one of the quadrants and quickly releases
- Patient feels pain in another quadrant with release of pressure
- Suggestive of peritonitis



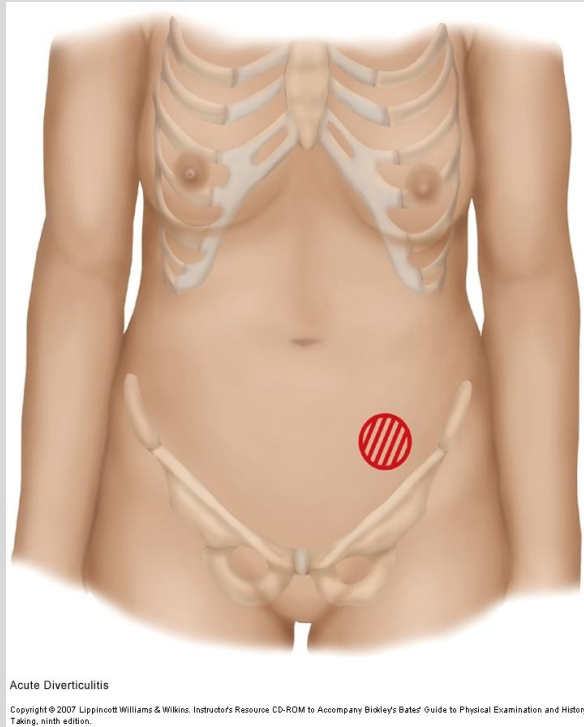
Pain elicited
on rebound

Palpation by
pressing deeply

Acute Diverticulitis

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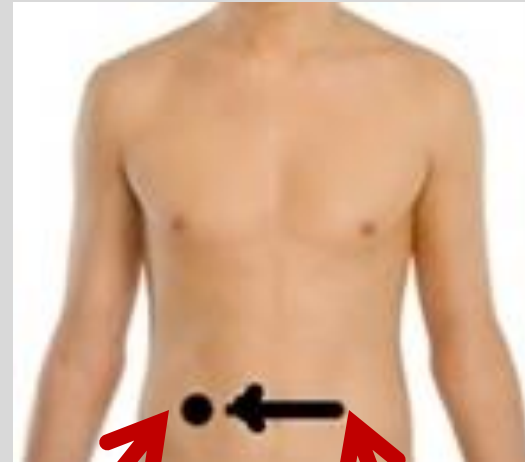
- RLQ or LLQ pain, can be present for several days (usually LLQ)
- Fever and chills common
- Mildly distended abdomen
- Bowel sounds usually absent
- Inflammation and focal necrosis may result in bowel perforation
- Recurrence common
- Palpable tender mass may be present

Rovsing's Sign

- Palpation of the left lower quadrant produces pain in the right lower quadrant
- Suggestive of appendicitis

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Pain
elicited

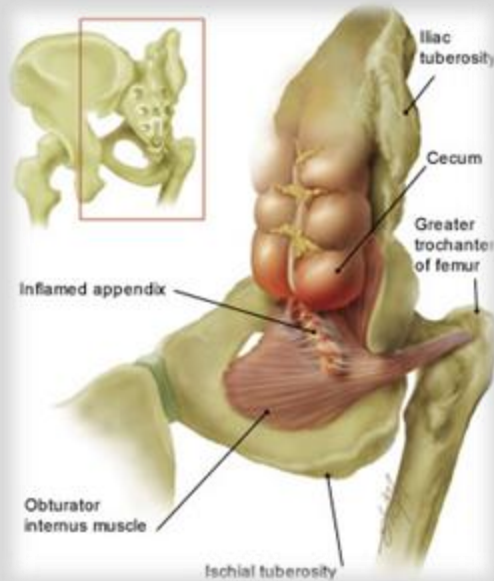
Area palpated

Obturator Sign

- With the patient supine, flex the patient's right thigh at the hip with the knee bent
- Internally rotate at the hip (bring ankle outward)
- Pain elicited in the right lower quadrant is suggestive of peritoneal inflammation and appendicitis



Obturator Sign



- If positive usually indicative of a pelvic appendix
- May occur with right pelvic abscesses
- Inflamed appendix in the pelvis is in contact with the obturator internus muscle

Psoas Sign

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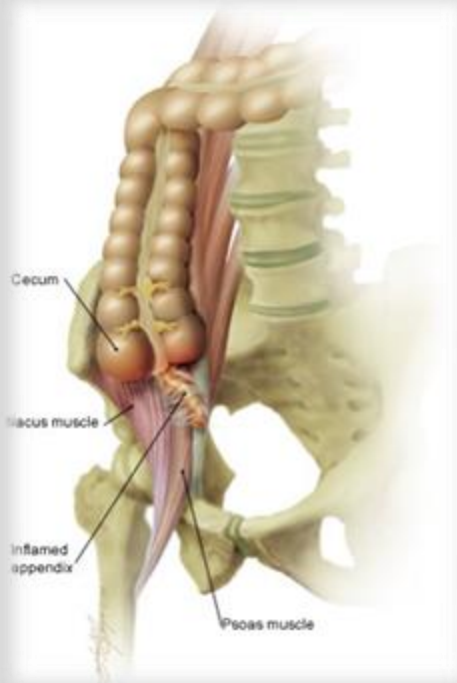
- With the patient supine, place the hand just above right knee, and ask patient to raise the thigh against your resistance

OR

- The patient can turn onto the left side and the examiner extends the patient's right leg at the hip
- An increase in abdominal pain on either maneuver is suggestive of appendicitis



Psoas Sign



- Iliopsoas muscle is retroperitoneal
- If positive indicates appendix is retrocecal in orientation
- Appendix lies over the psoas
- Pain is elicited due to the friction of the psoas against inflamed tissues during the maneuver

To Complete the Physical Exam

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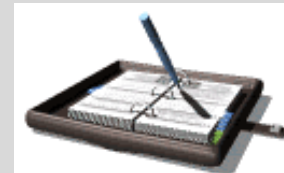


- Rectal examination
 - Pain or intrarectal masses may be evaluated
 - Blood in stool
- Vaginal examination
- Testicular examination
- Evaluate for hernias

Special Tests

Key points to remember...

- Observe from the patient from the right side of the patient
- Explain to the patient what you are doing
- Observe the patient for signs of pain, don't rely solely on verbal cues
- Special tests are used to confirm a diagnosis you are considering from your history and abdominal exam

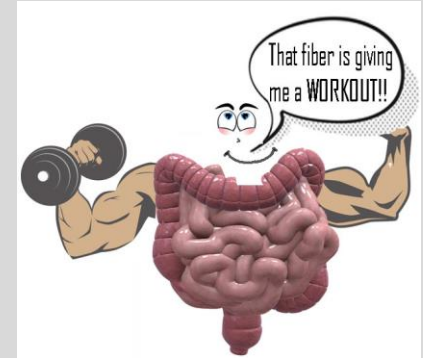


Evaluation of Constipation



Definitions - Constipation

- Physicians:
 - Fewer than 3 bowel movements per week
- Patients:
 - Hard stools
 - Feeling of incomplete evacuation
 - Excessive straining
 - Sense of anorectal blockage during defecation
 - Need for manual maneuvers to defecate



Constipation – Clinical Subgroups

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- Primary colorectal dysfunction:
 - Normal transit constipation (NTC) – Normal anal rectal function and normal stool transit throughout the colon
 - Slow transit constipation (STC) – Normal anal rectal function and prolonged delay in stool transit throughout the colon
 - Defecatory disorders – characterized by impaired rectal evacuation from inadequate rectal propulsive forces and/or increased resistance to evacuation
 - Anismus – high anal resting pressure
 - Dyssynergia – incomplete relaxation or paradoxical contraction of the pelvic floor and external anal sphincters
 - Combination or overlap disorders – (eg STC with defecatory disorders). Possibly associated with irritable bowel syndrome.

Source: American Gastroenterological Association Medical Position Statement on Constipation. Gastroenterology 2020; DOI:<https://doi.org/10.1053/gast.2000.20390>



Approach to Patient with Constipation

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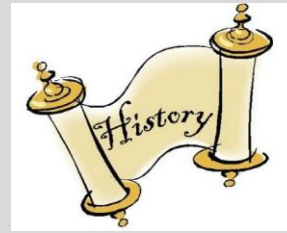
- Clear understanding of patient's complaint of constipation
 - Obtain specifics
- Determine if secondary causes are likely
- Consider metabolic and structural evaluation
- If appropriate – therapeutic trial of fiber +/- laxative or biofeedback therapy
- If inadequate response to therapeutic trial
 - Consider – Anorectal manometry, rectal balloon expulsion, defecography, barium enema or other testing



Source: American Gastroenterological Association Medical Position Statement on Constipation. Gastroenterology 2020; DOI:<https://doi.org/10.1053/gast.2000.20390>

History

- Which feature is most distressing to the patient such as infrequency, straining, hard stools, unsatisfied defecation or symptoms unrelated to bowel habits or defecation (eg: bloating, pain, malaise)
- Need for perineal or vaginal pressure to allow stools to be passed or direct digital evacuation is required
 - Note: Evacuatory disorders do not respond well to laxative programs



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- How often does the patient feel the need to have a bowel movement and whether he or she feels a sense of incomplete evacuation
- What laxatives are being used? How often and what dosage? Suppositories, enemas?
- How often are the bowels moved and what is the consistency of the stools?

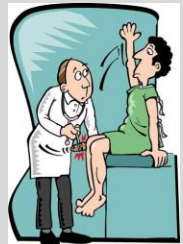
Physical

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- Include abdominal and rectal examination
- Check for signs of anemia, weight loss, abdominal masses, liver enlargement or palpable colon
- Inspect perineum for hemorrhoid, skin tags, fissures, rectal prolapse or warts
- Ask patient to strain and check for leakage of stool and descent of the perineum
- Test for anal wink reflex and pelvic floor dysfunction
- Digital rectal exam – determine sphincter tone, assess rectal walls
- Evaluate for presence of rectocele

Source: American Gastroenterological Association Medical Position Statement on Constipation. Gastroenterology 2020; DOI:<https://doi.org/10.1053/gast.2000.20390>



Causes of New Constipation in Hospitalized Patient

- Drugs and supplements (ie opioids, calcium channel blockers, anti-histamines, iron supplements, NSAIDs)
- Reduced physical activity
- Bedridden for length of time more than 2 weeks
- Post- surgical
- Dietary change
- Low fiber diet
- Dehydration
- Electrolyte disturbances
- Paraneoplastic syndrome
- Fecal impaction
- Intestinal obstruction
- Pseudo obstruction (Ogilvie syndrome)



Source: Lee LA, Shieh E. Constipation. Principles and Practice of Hospital Medicine, 2017 - Chapter

Clinical Features and Clinical Correlation

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- Colon cancer - New onset constipation in older patient, hematochezia, iron deficiency anemia, positive fecal occult test, weight loss of more than 10 pounds
 - Irritable bowel syndrome – abdominal bloating and cramping
 - Pelvic floor dysfunction – prolonged straining, digital evacuation, lack of pelvic lift during a digital rectal exam (DRE)
 - Sacral nerve pathology – lack of anal wink
 - Fecal impaction – leakage of stool on DRE
 - Anal fissure – pain on DRE
- Source: K.Sadler, F. Arnold, Spencer D. Chronic Constipation in Adults. American Family Physician, 2022;106(3):299-306



Differential Diagnosis for Constipation

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- Abdominal hernias
- Psychological disorders
- Endocrine disorders
 - Neuropathy
- Infectious disease
 - Sepsis
- Neoplasm
- Neuro-degenerative disorders
- Rheumatological disorders
- Gastrointestinal disorders



- Source: K.Sadler, F. Arnold, Spencer D. Chronic Constipation in Adults. American Family Physician, 2022;106(3):299-306

Indications for Endoscopic Evaluation

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- Age older than 50 years with no previous colorectal cancer
- Before surgery for constipation
- Change in stool caliber
- Heme-positive stools
- Iron deficiency anemia
- Obstructive symptoms
- Recent onset of constipation
- Rectal Bleeding
- Rectal prolapse
- Weight loss



Source: American Gastroenterological Association Medical Position Statement on Constipation. Gastroenterology 2020; DOI:<https://doi.org/10.1053/gast.2000.20390>

Constipation – Case 3



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62-year-old female presents to your office complaining of constipation with onset about 9 months ago that has been worsening over the past 3 to 4 months. She reports has 1 to 2 bowel movements per week, strains to defecate, produces hard stools and feels she does not completely evacuate. The patient has tried increasing fiber and fluid in her diet, eats prunes, drinks prune juice, and nothing has been helpful. She states patient is unable to produce stools without using laxatives. Denies nausea, vomiting, diarrhea, hematochezia, abdominal pain, abdominal bloating, changes to the form of her stools, fever, chills, fatigue or weight changes.

Constipation – Case 3



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- PMH: HTN, Hypothyroidism, Hyperlipidemia
- PSH: Appendectomy, Cholecystectomy
- Allergies: Denies
- Meds:
 - Enalapril
 - Levothyroxine
 - Atorvastatin
 - Vitamin D3
- Social Hx: Denies tobacco, alcohol or recreational drug use, 1 – 2 cups coffee/day , Married, sexually active with husband, Pediatrician, eats usually a healthy diet
- Family Hx: Father & Mother A&W, no siblings, 2 daughters A&W
- HCM: UTD

Constipation – Case 3



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- Constitutional: No fever, chills, night sweats, fatigue, weight changes
- Eyes: No eye irritation or pain
- Cardio: No CP, palpitations or peripheral edema
- Resp: No SOB, cough
- GI: No N/V/D, hematochezia, melena, regurgitation
- Musc. No joint stiffness, pain or swelling
- Neuro: No tremors, paralysis
- Skin: No rash or discoloration, dryness
- Psych: No anxiety or depression

Constipation – Case #3

- VS: 110/72, HR 62, RR 14, Temp. 99.3, H 60" W 115 BMI 22.5
- Gen: Appears stated age, well groomed, NAD
- Chest: CTA B/L, no w/r/r
- Heart: S1S2, RRR, no m/r/g
- Lungs: CTA B/L, no w/r/r
- Abd:+BS hypoactive, soft, NTND, no HSM, no palpable masses, no bruits, no dilated veins, no rebound or guarding, no palpable masses
- Ext: No c/c/e, no varicosities, warm, +2 pulses x 4, joints with no synovitis, no swelling or redness



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- Skin: No rash, +good turgor
- Musc: Full range of motion upper and lower extremities
- Neuro: Muscle strength 5/5 x 4, DTR's 2/4 x 4. Gait: normal
- Rectal: No external lesions, good sphincter tone, no rectal masses, +soft stool in rectal vault
- OSE: L1FRS right
- Labs: Guaiac stool negative x 1

Constipation – Case #3



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- 62 yo female
- Constipation x 9 months. Worsening over the past 3-4 months
- 1-2 BM per week. Strains to defecate hard stools. Incomplete defecation.
- Increased fiber and fluid intake not helpful
- Must use laxative to produce stools
- HTN, Hypothyroidism, Hyperlipidemia
- Appendectomy, Cholecystectomy
- PE including rectal exam: Within normal limits, except for L1FRS right
- Lab: Guaiac stool negative x 1

Which of the following is the most likely cause of this patient's symptoms?

1. Chagas disease
2. Hypothyroidism
3. Functional defecation disorder
4. Irritable bowel syndrome
5. Colon cancer



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Chagas disease

- Cause by Trypanosoma cruzi
- Vector - Triatomine bugs
- Major manifestations are Chagas cardiomyopathy and gastrointestinal disease
- Phases/Forms
 - Acute phase – can last 8-12 weeks
 - Chronic phase – begins after the parasitemia falls
 - Indeterminate form – positive antibodies, but initially no signs or symptoms. 20-30 % develop symptoms decades later
- Southern cone of South America, Central America and Mexico



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- Symptoms:
 - Slowly progressive constipation
 - Abdominal bloating
 - Less often - colicky abdominal pain
 - May be unable to pass stools for weeks. May lead to fecalith formation and megacolon
 - Recurrent volvulus
 - Anorexia may develop

Hypothyroidism

- Thyroid gland does not produce sufficient thyroid hormone
- Most common cause is inflammation of the gland
- Other:
 - Congenital
 - Radiation treatment
 - Radioactive iodine treatment
 - Surgical

- Risk Factors:
 - Female
 - Age over 50 years
- Symptoms:
 - Constipation
 - Depression
 - Fatigue, feeling slowed down
 - Joint or muscle pain
 - Thin, brittle hair or fingernails
 - Unintentional weight gain

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Functional Defecation Disorder – Rome IV Criteria

- The patient must satisfy diagnostic criteria for functional constipation
- During repeated attempts to defecate must have at least 2 of the following:
 - Evidence of impaired evacuation, based on balloon expulsion test or imaging
 - Inappropriate contraction of the pelvic floor muscles (ie. Anal sphincter or puborectalis) or less than 20 % relaxation of basal resting sphincter pressure on manometry, imaging or EMG
 - Inadequate propulsive forces assessed by manometry or imaging

Source: Anal Incontinence and Functional Anorectal Disorders.
Williams Gynecology, 2020, 4th edition, Chapter 25



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- Criteria fulfilled for a least 3 months with symptom onset at least 6 months prior to diagnosis
- **Dyssynergic Defecation**
 - Inappropriate contraction of the pelvic floor or less than 20% relaxation of basal resting sphincter pressure with adequate propulsive forces during attempted defecation
- **Inadequate Defecatory Propulsion**
 - Inadequate propulsive forces with or without inappropriate contraction or less than 20% relaxation of the anal sphincter during attempted defecation

Irritable Bowel Syndrome – Rome IV Criteria

- Recurrent abdominal pain, on average, at least one day per week in the last 3 months, associated with 2 or more of the following:
 - Related to defecation
 - Onset associated with a change in frequency of stool
 - Onset associated with a change in form (appearance of stool)
- Criteria fulfilled for a least 3 months with symptom onset at least 6 months prior to diagnosis



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- If constipation type:
 - Patient reports that abnormal bowel movements are usually constipation (Type 1 and 2 in the Bristol stool form scale (BHFS)).
 - Patients have a hard time passing stools
 - Often need to strain
 - Feel cramps with bowel movements
 - Often do not release any stools or only a small amount
- Intensity of symptoms vary on and off

Colon Cancer

- Usually all types start as noncancerous polyps, then progress to cancer
- Risks:
 - Older than 60
 - African American or European descent
 - Diet high in red or processed meats
 - Family or personal cancer history
 - IBD

- Symptoms:
 - Abdominal pain
 - Diarrhea, constipation or other bowel changes
 - Narrow stools
 - Weight loss
 - Hematochezia
 - Anemia without other GI symptoms



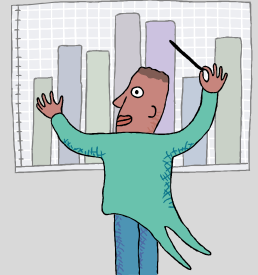
Case 3 – Working Diagnosis



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1. Chagas disease - Unlikely
2. Hypothyroidism - Unlikely
3. Functional defecation disorder – Most likely
4. Irritable bowel syndrome - Maybe
5. Colon cancer - Maybe



Case 3 – The SO → AP

- Differential diagnosis/
Assessment
 - Functional defecation disorder
 - Irritable bowel syndrome
 - Colon cancer
 - Hypothyroidism
 - HTN
 - Hyperlipidemia
 - Somatic dysfunction of the lumbar spine



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- Plan
 - Lab: TSH, FT4, CBC, CMP
 - Increase fluid and fiber intake
 - Guaiac stools x 3
 - GI consult
 - Cont. current medications
 - Behavioral psychologist consult
 - Biofeedback therapy – pelvic floor retraining
 - Education on diet (low salt, low lipids)
 - OMT
 - Follow-up after visit to GI

References

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