PHYSICAL DIAGNOSIS OF THE ABDOMEN
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CASE 1: A 48-year-old woman with abdominal cramping, vomiting, and no bowel movement for 2 days. Does this patient have intestinal obstruction (blockage of intestine)?

INSPECTION

AUSCULTATION

PERCUSSION

PALPATION

Different order from any other regional examination because abdominal pressure changes bowel sounds. (Everything else is inspection, percussion, palpation and auscultation.)

INSPECTION:
Regions of abdomen
4 quadrants: right upper, right lower, left upper, left lower
9 regions: epigastric, umbilical, hypogastric/ suprapubic, right and left hypochondriac, right and left lumbar, right and left inguinal.

What lives where?

Scars:
Explain every scar: surgery or injury
External scar may mean internal scarring (adhesions) – which can cause intestinal obstruction
Striae (stretch marks): weight changes, pregnancy. Cushing’s disease (endocrine disease) causes persistent purple striae

Colors:
Bluish at umbilicus: Cullen’s sign (bleeding in peritoneum)
Bruises on flanks: Grey Turner’s sign (retroperitoneal bleeding – e.g. from inflamed pancreas)
Jaundice: yellow skin – usually due to liver disease or biliary tract obstruction
Prominent veins: may be due to portal vein obstruction or inferior vena cava obstruction. Portal veins and systemic veins connect in 3 locations; umbilicus is one.

Peristalsis: usually abnormal if visible (unless emaciated) – think obstruction

Distention: (opposite of distended abdomen is scaphoid -- concave -- in thin adults)
Entire abdomen: (6 f’s: fat, flatus, feces, fluid, fetus, fatal cancer): may be sign of obstruction
Lower half: pregnancy, full bladder, ovarian tumor, uterine fibroids (common benign growths)

Hernia:
Umbilical: protrudes
Incisional: at old scar
Diastasis recti: not a true hernia – separation of rectus abdominis muscles; obvious if you tighten abdominal muscles (lift head or sit up).
AUSCULTATION

Time to think of patient’s comfort. Is your stethoscope arm? Are your hands warm? Are your fingernails short? Has the patient emptied his/her bladder?

Pillow under patient’s head; knees bent may help relax abdominal muscles.

Diaphragm of stethoscope to listen to gut sounds

**Normal**: gurgling, 5 to 35 per minute

**Borborygmi**: Loud, easily audible – normal

**High pitched**, tinkling: Obstruction

**Decreased sounds**: (none for a minute) – decreased gut activity: after abdominal surgery; abdominal infection (peritonitis) or injury.

**Absent Sounds**: No sounds for 5 minutes. Bad.

Bell of stethoscope: listen for **bruits**:

- Aortic
- Renal artery
- Iliac/ femoral

Liver bruit or friction rub rare; seen with liver cancer.

**CASE 2**: A 58-year-old alcoholic man with a distended abdomen. **Does he have liver disease?** How bad is it?

What causes distention (remember?)

Some findings with liver disease: jaundice (yellow skin – bilirubin), enlarged or shrunken liver, fluid in peritoneum (ascites: ah-SY-teez), spider angiomas (visible spider-like blood vessels in skin).

PERCUSSION:

What it finds: liver size, spleen, masses, fluid.

**Notes**: Tympany: most of abdomen; higher pitch (air in gut)

- Resonance: lung; lower pitch, hollow

- Dullness: flat, no echoes, liver, spleen, fluid in peritoneum (ascites)

To percuss **liver**:

- Percuss down right mидclavicular line from lung to dullness; mark top of liver.
- Percuss up right mидclavicular line from tympany to dullness; mark bottom of liver

Measure: normal is 6 to 12cm (usually 8 to 12cm)

Reliability to assess liver volume is limited.
To percuss spleen:
   Percuss in left anterior axillary line, just above lowest rib
   Have patient take a deep breath and percuss again; dullness may be a sign
   of enlarged spleen (splenomegaly: splen-oh-MEG-uh-lee)

To percuss for fluid (ascites):
   1. **Shifting dullness**:
      Percuss down lumbar area closest to you; mark point where note turns dull
      Turn patient onto side toward you and percuss down again. Higher dull area suggests fluid in
      peritoneum (ascites).
   2. **Puddle sign** (rarely done):
      Patient on hands and knees
      Percuss for dull area around umbilicus (lowest point)

**PALPATION**:
Use palpation to assess:
   Liver, spleen and kidneys for enlargement, consistency and masses
   Masses (including full bladder, pregnant uterus, etc.)
   Tenderness
   Spasm of abdominal muscles
      Guarding=spasm when you push; sign of tenderness or inflammation
      Rigidity=board-like spasm all the time; sign of bad things like perforated
      intestine, dead intestine from lack of circulation (infection), or diffuse
      infection (peritonitis: pair-i-ton-EYE-tis)
   Oversensitivity of skin=cutaneous hyperesthesia: sign of inflammation of underlying structure

**Technique**:
   Warm hands; one or two hands (pay attention only to lower hand)
   Bent knees to relax abdominal muscles
   Help patient relax: talk; include patient's hand if ticklish
   Examine tender areas last

**Palpation of liver**:
   Stand at supine patient's right side
   Your left hand lifts patients' lower ribcage up from below
   Your right hand is low in patient's abdomen in midclavicular line; fingers point up and in
   Patient takes deep breath
   Inch right hand up toward lower costal margin with each breath
   Liver edge should be palpable (if at all) at lower costal margin; rubbery and smooth
   Measure in finger breadths below right costal margin

**Murphy's sign**: when you push toward the liver at the right costal margin, patient has pain and stops
breathing in: a sign of gall bladder infection (cholecystitis).
Palpation of **spleen**: (generally not palpable)
   - Lift lower ribcage up from below with one hand.
   - Push other hand up and in under ribcage.
   - Patient takes deep breath.
   - Be gentle: hard pressure may push spleen out of reach and could rupture enlarged spleen (e.g. in patient with mononucleosis)

Palpation of **kidneys**: usually not palpable in adults
   - Right is palpable more often than left
   - Deep in flank; moves down with inspiration.

**Percussion of kidneys**: Whack on your hand on patient’s back at waistline, both sides.
   - Tenderness here (at costovertebral angle – CVA) may indicate kidney problems.

Palpation of **aorta**:
   - Just to left of midline pulsatile
   - Use 2 hands, or thumb and fingers of one hand
   - If seems 5cm or wider: evaluate for abdominal aortic aneurysm (AN-your-ism)

**Evidence-Based Note**: Aneurysms require surgery if larger than 5cm. Examination for abdominal aortic aneurysm (AAA) has sensitivity of:
   - 82% if patient’s girth is under 100 cm (40 inches)
   - 100% if patient’s girth is under 100 cm and aneurysm is over 5 cm
   - 52% if patient’s girth is 100 cm or more
   - (Fink HA et al. The accuracy of physical examination to detect abdominal aortic aneurysm. JAMA 2000; 160(6):833-836.)

Palpation for masses:
   - Deep pressure with palmar aspect of fingers
   - Rolling motion

**Normal “masses”**:
   - Feces in sigmoid colon (often slightly tender)
   - Air in cecum
   - Distended bladder
   - Uterus (e.g. pregnant)
   - Aorta
   - Sacral promontory

Case 3: 1 year old boy with one day of fever, nausea, and abdominal pain which is now in the right lower quadrant. **Could he have appendicitis** (infected appendix)?

Natural history of appendicitis:
   - Malaise, nausea
   - General/ periumbilical cramping pain
   - Then: localizes to right lower quadrant
**Palpation for tenderness:**

Tender in **McBurney’s point**: about halfway down a diagonal line from the umbilicus to the anterior iliac spine.

**Guarding**: patient tenses abdominal muscles when you press there.

**Rebound tenderness**: press into abdomen at another location, then suddenly let go. Brief pain at affected (NOT pressed) area is a sign of peritoneal inflammation.

**Cutaneous hyperesthesia**: more painful to touch of sharp object (e.g. broken-off end of tongue blade) over affected area (right lower quadrant).

**Psoas sign**: either:
1. Have supine patient flex hip (raise straight leg) against your resisting hand on thigh.
2. Extend hip (with straight leg) backward while patient lies on other (left) side. Tenderness on either maneuver may be due to inflamed adjacent posteriorly placed (retrocecal) appendix.

**Obturator sign**:
With patient supine, flex right hip and knee, and rotate hip. Pain can be a sign of appendicitis or pelvic abscess.
RECTAL EXAMINATION

WHY: To find rectal carcinoma/ masses; to examine prostate gland in men; to evaluate posterior aspect of uterus in women, to evaluate for tenderness (e.g. appendicitis).

POSITIONS:
1. Patient on left side, curled up in “fetal position”
2. Standing patient, bent at hips, toes pointed in, rest on examining table; or

INSPECTION for:
- Pilonidal cyst
- Perianal abscess (pocket of pus)
- Fissure (*most common cause of rectal bleeding in young people)
- Warts (soft, raised)
- Hemorrhoids

PALPATION: HOW:
- Lots of lubrication
- Take your time
- Ask patient to bear down or imagine a bowel movement (relaxes sphincter)

FOR WHAT:
- Sphincter tone: decrease may be due to neurologic problem or past surgery.
- Masses: rotate finger 360° to seek mass
- In women: cervix (it’s not a mass) is palpable anteriorly
- In men: prostate:
  - Texture: like your nose (normal); indented in center
  - Softer- “boggy”- (like your cheek); could be infection
  - Harder (like a pebble): think cancer
- Warn patients they may feel urge to urinate.

STOOL (feces) on examining glove:
- Blood
- Melena (black-also blood)
- Test for hidden blood (with guaiac/ Hemoccult cards)