

Abdomen System

Inspection

- Ensure the patient is viewed in the horizontal plane
 - Check for surface characteristics such as color (i.e. jaundice, bruising, or inflammation), venous patterns, striae, scarring (ensure to note the location as well), contour (i.e. flat, rounded, or scaphoid), and motion
 - Visualize specific landmarks such as the xiphoid process, costal margin, umbilicus, and the anterior superior iliac spine

Auscultation

- ***Auscultation must occur prior to percussion or palpation!***
 - Auscultate for bowel sounds with the diaphragm of the stethoscope
 - They vary considerably, so to determine the complete absence of bowel sounds you must **listen for at least 5 minutes**
 - Borborygmi are loud and prolonged gurgling sounds
 - Bowel sounds become increased with gastroenteritis, early intestinal obstruction, or hunger and they become decreased with peritonitis or paralytic ileus
 - Video Link:
 - <https://www.youtube.com/watch?v=HNkP2CKT3t4>
 - Auscultate the abdominal vasculature
 - Using the bell of the stethoscope auscultate for bruits in the aortic, renal, iliac, and femoral arteries
 - Could also auscultate for friction rubs over the liver and spleen (these are associated with respiration)
 - Video Link:
 - https://www.youtube.com/watch?v=F1_iV8BQQm4

Percussion

- Used to assess the size and density of intraabdominal organs and to detect the presence of fluid, air, and masses.
- Initially, percuss all of the quadrants for an overall evaluation of tympany and dullness
 - Tympany is the sound created by air filled viscera (i.e. stomach and the intestines) and dullness is the sound created by solid or fluid filled structures
 - Video Link:
 - <https://www.youtube.com/watch?v=g7DiUnuOzcc>
- Specific percussion can be used to check for abnormalities in the liver, spleen, and kidneys
 - Liver span percussion
 - To determine the liver span, percuss from an area of resonance on the chest in the right midclavicular line to a change to dullness that indicates the upper border of the liver, then percuss upward from an area of tympany in the right lower quadrant in the midclavicular line until you reach a change to dullness that indicates the lower border of the liver
 - Another examination technique is to percuss out only the lower border of the liver, which should lie 2-3 cm below the costal margin
 - Video Link:
 - <https://www.youtube.com/watch?v=D0G7353qfYw>

- Spleen percussion
 - Begin in the posterior to midaxillary line on the left side in a resonant lung field and dullness should occur from the 6th to the 10th rib
 - Difficult to assess due to colon air and/or flank dullness
 - Video Link:
 - <https://www.youtube.com/watch?v=fAWTNvoLZs>
- Kidney percussion
 - While having the patient seated, place the palm of your hand over the right costovertebral angle and strike it with your other hand, repeat on the opposite side, and normally there is no pain
 - This percussion technique assesses for pain or discomfort and **not** kidney size
 - Video Link:
 - <https://www.youtube.com/watch?v=sNNIhg1v2s8>

Palpation

- Used to assess solid organs, masses, tissue texture changes, muscle spasm, fluid, and areas of tenderness
 - If your hands are warm and the patient is relaxed (i.e. knees slightly flexed) palpation can very easily and effectively occur
- Light and deep palpation
 - Start lightly with the palmar surface of your hand and initially avoid areas of pain and work towards them
 - Gradually palpate deeper as you try to assess deeper structures
 - Ensure that you palpate during the entire respiratory cycle since several organs move with respiration
 - Video Link:
 - <https://www.youtube.com/watch?v=inAjKzaopj0>
- Liver palpation
 - The size of the liver or at least the lower border should be roughly identified via percussion
 - Place your left hand under the patient at the 11th and 12th rib on the right while pressing upward to elevate the liver, use your right hand to palpate where you know the liver edge to be in the midclavicular line, and once the liver edge is palpated move medially and laterally to assess liver contour
 - The liver is normally not easily palpable
 - Video Link:
 - <https://www.youtube.com/watch?v=lnMJRyDjOFQ>
 - <https://www.youtube.com/watch?v=dISrj7CuTE4>
- Spleen palpation
 - Reach across the patient with your left hand and place it beneath the patient of the left costovertebral angle, press upward to lift the spleen anteriorly, and have the patient take a deep breath while you are feeling for the spleen with the right hand below the costal margin
 - Normally the spleen is **not** felt in healthy adults
 - Video Link:
 - <https://www.youtube.com/watch?v=d5XABa0tTyg>
- Kidney palpation
 - Reach across the patient with your left hand under their flank, place your right hand under the costal margin, lift the flank while the patient inhales, press deeply with your right hand, and repeat on the opposite side
 - An alternative capture technique can also be used
 - Video Link:
 - https://www.youtube.com/watch?v=b_IINTReCnc

- Aorta palpation
 - Palpate deeply just left of the midline and feel for aortic pulsation
 - Easily felt in very thin individuals
 - Pulsation should be anterior, because lateral suggests the presence of an aneurysm
 - Video Link:
 - https://www.youtube.com/watch?v=jlUzYQ_I-bU
- Ascites
 - An abnormal intraperitoneal accumulation of fluid that is suspected in patients who have protuberant abdomens or flanks that bulge when supine
 - Fluid settles with gravity; therefore, fluid filled areas will be dull on percussion while bowel will rise to the top and will be tympanic on percussion
 - Shifting dullness
 - Percuss the abdomen of the supine patient locating the borders between tympany and dullness. Have the patient lie on his or her side and again percuss for tympany and dullness. In the patient without ascites, the borders will remain relatively constant. With ascites, the border of dullness shifts to the dependent side as the fluid resettles.
 - Fluid wave
 - Ask the patient or an assistant to press the edge of their hand firmly along the midline of the abdomen. Place your hands on each side of the abdomen and strike one side sharply with your fingertips. Feel for the impulse through fluid with your other hand. A fluid wave can *sometimes* be felt in people without ascites.

Special Tests

- Rebound tenderness (Blumberg sign)
 - *Tests for:* peritoneal irritation
 - *How:* with the patient supine, slowly press rigid fingers in an area remote from the pain and rapidly withdraw your hand
 - *Positive sign:* rebound of the compressed structures causes a stabbing pain at the site of peritoneal inflammation (area remote of where compression occurred)
 - Video Link:
 - <https://www.youtube.com/watch?v=YYIoxjiBAV0>
- Iliopsoas muscle test
 - *Tests for:* appendicitis
 - *How:* ask the patient to lie supine and then place your hand over their lower right thigh while the patient flexes the hip against your resistance
 - *Positive sign:* pain upon flexion of the hip against resistance
 - Video Link:
 - <https://www.youtube.com/watch?v=-azrl9gRUMU>
- Murphy's sign
 - *Tests for:* cholecystitis
 - *How:* ask the patient to lie supine, place fingers under the right costal margin while pushing up and in on the liver, and ask patient to inhale while this is occurring
 - *Positive sign:* patient experiences pain and halts inspiration
 - Video Link:
 - <https://www.youtube.com/watch?v=Uk0zQUZphll>

- Obturator muscle test
 - *Tests for:* ruptured appendix or pelvis abscess
 - *How:* with the right leg flexed at the hip and knee, internally and externally rotate the leg
 - *Positive sign:* pain upon internal and external rotation of the leg
 - Video Link:
 - <https://www.youtube.com/watch?v=k6Pzng4VYoE>

Abdominal Signs Table

<i>Name</i>	<i>Description</i>	<i>Indication</i>
Aaron	Pain or distress occurs in the area of the patient's heart or stomach on palpation of McBurney's point	Appendicitis
Balance	Fixed dullness to percussion in left flank and dullness in right flank that disappears on position change	Peritoneal irritation
Blumberg	Rebound tenderness	Peritoneal irritation; Appendicitis
Cullen	Ecchymosis around the umbilicus	Hemoperitoneum; Pancreatitis; Ectopic pregnancy
Dance	Absence of bowel sounds in left lower quadrant	Intussusception
Grey Turner	Ecchymosis of flanks	Hemoperitoneum; Pancreatitis
Kehr	Abdominal pain radiating to left shoulder	Spleen rupture; Renal calculi, Ectopic pregnancy
Markle (Heel Jar)	Patient stands with straightened knees, then raises up on toes, and allows heels to hit floor; alternatively, could occur with patient supine and the heels are struck with a fist	Peritoneal irritation; Appendicitis
McBurney's	Rebound tenderness and sharp pain when McBurney's point is palpated	Appendicitis
Murphy's	Abrupt cessation of inspiration on palpation of gallbladder	Cholecystitis
Rovsing	Right lower quadrant pain intensified by left lower quadrant palpation	Peritoneal irritation; Appendicitis
Romberg-Howship	Pain down medial aspect of the thigh to the knee	Strangulated obturator hernia