The Abdominal Exam
Dr. Gary Mumaugh – Western Physical Assessment

Clinical Skills
- Demonstrate the ability to properly position the patient
- Demonstrate techniques for inspection of the abdomen
- Demonstrate techniques for auscultation of the abdomen
- Demonstrate technique for percussion of the abdomen.
- Demonstrate techniques for both gentle and deep palpation of the abdomen.
- Demonstrate techniques to elicit signs of peritoneal irritation
- Demonstrate techniques for palpating hepatomegaly or splenomegaly.
- Demonstrate technique for palpation of the abdominal aortic pulsations.
- Demonstrate technique for testing for shifting dullness.
- Demonstrate technique for testing for the presence of a fluid wave.

History Taking Problems of the Abdomen and GI Tract
- How is the patient’s appetite?
- Any symptoms of the following?
  - Heartburn
    - burning sensation in the epigastric area radiating into the throat
    - Often associated with regurgitation
  - Excessive gas or flatus
    - Needing to belch or pass gas
    - Patient’s state they often feel bloated
  - Abdominal fullness or early satiety
  - Anorexia – lack of appetite
- Regurgitation
  - The reflux of food and stomach acid back into the mouth
  - Brine-like taste
History Taking Problems of the Abdomen and GI Tract

- Vomiting or retching
  - Retching is the spasmodic movement of the chest and diaphragm like vomiting, but no stomach contents are passed
  - Ask about the amount of vomit
  - Ask about the type of vomit
    - Food, green or yellow colored bile, mucus, blood, coffee ground emesis

- Qualify the patient’s pain
  - Visceral pain
    - When hollow organs (stomach, colon) forcefully contract or become distended
    - Solid organs (liver, spleen) can also generate this type of pain when they swell against their capsules
    - Visceral pain is usually gnawing, cramping, or aching and is often difficult to localize
  - Parietal pain
    - When there is inflammation from the hollow or solid organs that affects the parietal peritoneum
    - Parietal pain is more severe and is usually easily localized (appendicitis)
  - Referred pain
    - Originates at different sites but shares innervation from the same spinal level

![Diagram of Abdominal Pain Locations]

- DIFFUSE ABDOMINAL PAIN
  - Acute pancreatitis
  - Diabetic ketoacidosis
  - Early appendicitis
  - Gastroenteritis
  - Intestinal obstruction
  - Mesenteric ischemia
  - Peritonitis (any cause)
  - Sickle cell crisis
  - Spontaneous peritonitis
  - Typhoid fever

- RIGHT OR LEFT UPPER QUADRANT PAIN
  - Acute pancreatitis
  - Cholecystitis and biliary colic
  - Congestive hepatomegaly
  - Hepatitis or hepatic abscess
  - Perforated duodenal ulcer
  - Retroperitoneal appendicitis (rarely)
  - Lower lobe pneumonia
  - Myocardial ischemia
  - Radiculitis

- LEFT UPPER QUADRANT PAIN
  - Gastritis
  - Splenic disorders (abscess, rupture)

- RIGHT OR LEFT LOWER QUADRANT PAIN
  - Appendicitis
  - Cecal diverticulitis
  - Meckel's diverticulitis
  - Mesenteric adenitis
  - Sigmoid diverticulitis

- LEFT LOWER QUADRANT PAIN
  - Abdominal or psoas abscess
  - Abdominal wall hematoma
  - Cystitis
  - Endometriosis
  - Incarcerated or strangulated hernia
  - Inflammatory bowel disease
  - Mittelschmerz
  - Pelvic inflammatory disease
  - Renal stone
  - Ruptured abdominal aortic aneurysm
  - Ruptured ectopic pregnancy
  - Torsion of ovarian cyst or testis
History Taking Problems of the Abdomen and GI Tract

- Ask patients to describe the pain in their own words
- Ask patient’s to point to their area of pain
- Ask about the severity of pain (Borg Scale)
- Ask what brings on the pain (timing)
- Ask patients how often they have the pain (frequency)
- Ask how long the pain lasts (duration)
- Ask if the pain goes anywhere else (radiation)
- Ask if anything aggravates or relieves the pain
- Ask about any symptoms associated with the pain
- Ask the patient about bowel movements
  - Frequency of bowel movements
  - Consistency of bowel movements (diarrhea vs. constipation)
  - Any pain with bowel movements
  - Any blood (hematochezia) or black, tarry stools (melana) with the bowel movement
  - Ask about stool color (white or gray can indicate liver or gallbladder)
  - Look for associated signs such as jaundice or icteric sclerae
**Referred Pain**

![Diagram of the abdomen and referred pain areas]

**History Taking Problems of the Abdomen and GI Tract**
- Ask about prior medical problems related to the abdomen
  - Hepatitis, cirrhosis, pancreatitis, gall bladder
- Ask about prior abdominal surgery
- Ask about foreign travel and occupational hazards
- Ask about use of tobacco, alcohol, illegal drugs and medication history
- Ask about hereditary disorders affecting the abdomen in the family history
- History Taking Problems of the Abdomen and Urinary Tract
  - Ask about frequency of urination and urgency
    - Feeling like one needs to urinate but very little is passed
  - Ask about urinary pain
    - Urethral burning or aching in the suprapubic area
  - Ask about the color and smell of urine
    - Odors, hematuria
  - Ask about difficulty starting to urinate
    - Common in men
  - Ask about leakage of urine and SUI
    - Common in women
  - Ask about back pain at the costovertebral angle (kidney) and the lower back pain in med (referred from prostate)
  - In men, ask about symptoms in the penis and scrotum
General Considerations
- It may be helpful to have the patient empty their bladder before examining their abdomen.
- The patient should be draped in a manner that allows visualization from above the xiphoid process to the pubic symphysis.
- A quiet room is beneficial for optimal auscultation and percussion.
- Watch the patient’s face for signs of discomfort.
- Proper lighting is necessary for inspection.
- Be kind and warm your hands and stethoscope before touching the patient.
- Approach the patient from their right side.
- Ask the patient to point to areas of pain or discomfort… palpate those areas last.
- Quick movements may startle the patient.
- Conversation may distract an anxious patient.
- It may be beneficial to place the patient’s hand under yours to palpate until they are comfortable with your touch.
- Use proper terminology to describe findings in specific locations:
  - LUQ, LLQ, RUQ, RLQ, epigastric, periumbilical, suprapubic (hypogastric).
- Keep in mind: chest, pelvic, genital and rectal problems can manifest with abdominal symptoms.

Proper Positioning
- Patient should be supine.
- Having the patient flex the knees and hips may allow the abdominal muscles to relax.
- Give them a pillow or blanket to rest their head upon, and possibly one for under their knees.
- When the abdominal muscles are relaxed, the small of the back is flat against the table (you cannot pass your hand under the patient).
- The patient’s arms should be at their side or crossed on their chest – Let them choose.

Sequence of Exams
- LOOK - INSPECTION
- LISTEN - AUSCULTATION
- PERCUSS
- PALPATE

Inspection
- Look For:
  - Scars
  - Striae
  - Dilated Veins
  - Contour
  - Symmetry
  - Peristalsis/Pulsations
  - Rashes
<table>
<thead>
<tr>
<th>Striae</th>
<th>Veins</th>
<th>Caput Medusa</th>
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**Inspection**
- **Contour:**
  - Flat
  - Scaphoid
  - Rounded
  - Protuberant
- Asymmetry due to an umbilical hernia
- Caput Medusa
  - Distended and engorged paraumbilical veins
  - Usually due to portal hypertension
- Peristalsis
  - Movement of the bowels seen through the skin overlying the abdomen (tangential viewing)
  - Could be normal in a thin walled abdomen
  - Usually signifies bowel dilatation upstream from an obstruction
- Pulsations
  - Visible movement of the skin in the epigastric area as blood passes through the vessel (aorta)
  - Normal in thinner patients especially children
  - Concerning for AAA in older patients.

**Auscultation**
- Always auscultate before palpating or percussing the abdomen
  - Place the diaphragm over the abdomen to hear bowel sounds (borborygmi) which are long gurgles
  - These sounds are transmitted across the abdomen so it is not necessary to listen at several places
  - The normal frequency of sound is 5-34 sounds per minute
- Place the diaphragm over the aorta, iliac and femoral arteries to assess for bruits
  - Vascular sounds resembling murmurs
- Place the diaphragm over the liver or spleen to listen for friction rub
Auscultation
- Listen in all Four quadrants with the DIAPHRAGM
- Describe sounds:
  - Frequency
    - Normal
    - Hyperactive
    - Hypoactive
    - Absent
  - Character
    - Rushes
    - Tinkles

Auscultation
- Performed before percussion and palpation to avoid altering frequency and character of the sounds
- Absence of bowel sounds can only be determined after listening for at least 2 minutes or more
- Borborygmi
  - From the Greek to rumble
- Tinkles
  - High pitched ‘drips’ heard in dilated bowels with air-fluid levels
- Rushes
  - High pitched sounds of fluid flowing through bowels with an obstruction
- Bruits
  - Best heard with BELL
  - There are seven areas to listen at

Percussion
- Percuss in all four quadrants
- Categorize your findings as tympanic or dull
- Normally all quadrants should be predominantly tympanic with scattered areas of mild dullness from fluid and feces
- Dullness signifies an abdominal mass
  - Tumor, uterus (pregnant), hepatomegaly, splenomegaly, FOS
- Plexor (hammer)
- Utilized for approximating liver span, fluid levels, intestinal obstruction, masses and organomegaly

Liver Span
- Percuss downward from the chest in the mid-clavicular line until you detect the top edge of the liver dullness
- Then percuss upward from the abdomen in the same line until you detect the bottom edge of liver dullness
- Measure the distance between these two points (normal is 6-12 centimeters)
**Splenic Dullness**
- Percuss the lower costal inter-space in the left anterior axillary line
- Ask the patient to take a deep breath and hold it while you percuss again
- This area is normally tympanic
- Dullness suggests splenic enlargement

**Palpation**
- Palpation is described as gentle (light) and deep
- Listen to the patient’s verbal responses
- But also look at their face for visible signs of distress
- Feel for abnormalities as you press on the abdomen
- Keep your fingers together when you palpate
- Lift your hand completely off the skin before moving it to another location to palpate
- Used to assess for superficial masses, areas of tenderness and guarding
- Using one hand, lightly press with your fingers in all quadrants of the abdomen
- Again, ticklish or anxious patients may do better when you use their hand to palpate these areas first

**Palpation**
- Guarding
  - Voluntary: Patient tenses up their abdominal muscle in anticipation of pain
  - Involuntary: Patient’s abdominal muscles are already tensed as a reflex to peritoneal irritation
- To help differentiate the form of guarding, utilize techniques to relax the patient
  - Proper positioning
  - Jaw open and mouth breathe
  - Palpate during the patient’s exhalation
Deep Palpation
- Used to assess for masses and also for areas of deeper tenderness
- Also utilized for the rebound tenderness test
- Place one hand on the abdomen and using the other hand, press it slowly, but firmly, deeper
  - Apply the pressure with the top hand
  - Feel for masses with the bottom hand.
- Deep: Two-handed

Peritoneal Signs
- Peritoneal Irritation
- Increased pain suggests peritoneal irritation:
  - Rebound Tenderness
    - Warn the patient what you are doing
    - Press slowly and deeply into the abdomen
    - Quickly remove the hand
    - Increased pain (rebound pain) signifies peritoneal irritation
  - Cough Reflex
    - Ask the patient to cough
    - Identify the area of maximal pain felt while coughing

Peritoneal Irritation
- Increased pain suggests appendicitis
  - Psoas Sign
    - Place your hand above the patient’s right knee
    - Ask them to flex the hip against your resistance
  - Obturator Sign
    - Raise the patient’s right leg with the knee flexed
    - Rotate the leg internally at the hip
  - Tenderness at McBurney’s Point
    - Approximately two thirds of the distance from the umbilicus to the right anterior superior iliac spine
**Palpation of the Liver**

- Standard Method:
  - Place your left hand on the patient’s posterior lower ribs and push ventrally
  - Place your extended fingers below the right costal margin and press superiorly
  - Ask the patient to take a deep breath
    - You may need to ask them to consciously use their abdominal muscles when they inhale
  - You may feel the liver edge press against your fingers or slide underneath them

- Alternate method
  - Stand by the patient’s chest
  - “Hook” your fingers underneath the right costal margin and press superiorly
  - Ask the patient to inhale deeply
  - You may feel the liver edge against the tips of your fingers

- A normal liver may be slightly tender, but not painful

**Palpation of the Spleen**

- Stand at the patient’s right
- Reach across the patient and use your left hand to lift the lower rib cage and flank
- Press down just below the left costal margin with your right hand
- Ask the patient to inhale deeply (with their abdominal muscles)
- Repeat this process with the patient laying on their right side with knees and hips flexed a bit
- The spleen is NOT normally palpable in most individuals
Palpation of the Aorta
- Press down deeply in the area above the umbilicus with your two hands straddling the midline
- The aortic pulsation is palpated in most individuals
- Approximate the width of the pulsating vessel with your two hands (older adults)
- Greater than 3cm width is suspicious for AAA

Shifting Dullness
- Tests for peritoneal fluid (ascites)
- In the supine position, percuss the patient’s abdomen
- Outline the areas of tympany and dullness
- Have the patient roll onto their side
- Percuss the abdomen again
- Dullness in areas of previous tympany suggests excess peritoneal fluid
**Fluid Wave**
- Ask an assistant or have the patient press the edges of both hands down on the midline of the abdomen (This helps stop the wave transmission through fat)
- Tap sharply on one flank with the fingertips of one hand
- With the palm of your other hand, feel for the transmission of the fluid wave on the other flank
- Wave transmission suggests ascites

![Diagram of fluid wave examination]

**CVA Tenderness**
- Tenderness in the costoverebral angle area may indicate inflammation or infection of a kidney
- Simple palpation in this area may elicit the tenderness
- Alternately, place one hand flat on the CVA area with the palm on the patient’s skin, and strike it with the ulnar surface of your fist to make a dull thump
- Sharp pain suggests kidney inflammation

![Diagram of CVA tenderness examination]