The Abdominal Exam

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Today’s Outline

• Review anatomy of the abdomen
• Discuss general considerations to effectively examine the abdomen
• Review the clinical skills necessary to examine the abdomen
• Demonstrate clinical skills necessary to examine the abdomen
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.
Clinical Skills

- 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.
Abdominal Anatomy

- Liver
- Spleen
- Gallbladder
- Greater omentum
- Large intestine
- Small intestine
- Parietal peritoneum
Abdominal Anatomy

Normal aorta

Aorta with large abdominal aneurysm
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
History Taking Problems of the Abdomen and GI Tract

• Reguritation
  – The reflux of food and stomach acid back into the mouth
  – Brine-like taste

• 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
History Taking Problems of the Abdomen and GI Tract

• 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
History Taking Problems of the Abdomen and GI Tract

- Qualify the patient’s pain
  - 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
Quadrants of Abdomen and d/d of Abdominal Pains

- **Right**
  - Gallstones
  - Stomach Ulcer
  - Pancreatitis
  - Kidney stones
  - Urine Infection
  - Constipation
  - Lumbar hernia
  - Appendicitis
  - Constipation
  - Pelvic Pain (Gynae)
  - Groin Pain (Inguinal Hernia)

- **Left**
  - Stomach Ulcer
  - Heartburn/ Indigestion
  - Pancreatitis, Gallstones
  - Epigastric hernia
  - Stomach Ulcer
  - Duodenal Ulcer
  - Bilary Colic
  - Pancreatitis
  - Kidney Stones
  - Diverticular Disease
  - Constipation
  - Inflammatory bowel disease
  - Urine infection
  - Appendicitis
  - Diverticular disease
  - Inflammatory bowel
  - Pelvic pain (Gynae)
  - Groin Pain
  - Inguinal Hernia
Referred Pain

- Esophagus
- Stomach
- Liver and Gallbladder
- Pylorus
- Colon
- Left and Right Kidneys
- Ureter
- Perforated Duodenal Ulcer (Diaphragmatic Irritation)
- Biliary Colic
- Acute Pancreatitis and Renal Colic
- Uterine and Rectal Pain
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
History Taking Problems of the Abdomen and GI Tract

• 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
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
History Taking Problems of the Abdomen and Urinary Tract

- 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
General Considerations

- 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
General Considerations

- 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

1. LOOK - INSPECTION
2. LISTEN - AUSCULTATION
3. PERCUSS
4. PALPATE
**Inspection**

- Look For:
  - Scars
  - Striae
  - Dilated Veins
  - Contour
  - Symmetry
  - Peristalsis/Pulsations
  - Rashes
Inspection

- Striae
- Veins
Inspection

• Contour:
  – Flat
  – Scaphoid
  – Rounded
  – Protuberant
Inspection

- Asymmetry due to an umbilical hernia
- Caput Medusa
• Caput Medusa
  – distended and engorged paraumbilical veins
  – usually due to portal hypertension
Inspection

• 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
Auscultation

- 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

- Bowel sounds
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
Auscultation

• 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
Auscultation

- Bruits with only a systolic component may be normal
- Bruits with systolic and diastolic components suggests turbulent blood flow (blockage)
Auscultation

- **Bruit**
  - 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
Percussion

- 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)
Liver Span

- Mid-clavicular line
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
Gentle (Light) Palpation

• 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

• Gentle: One-handed
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.
Palpation

- Deep: Two-handed
Peritoneal Signs
Peritoneal Signs

Rebound Tenderness
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
Rebound Tenderness
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
Psoas Sign

Psoas Sign
Obturator Sign

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- Iliac tuberosity
- Cecum
- Greater trochanter of femur
- Inflamed appendix
- Obturator internus muscle
- Ischial tuberosity
McBurney Point
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
Palpation of the Liver

• Alternate method
  – Stand by the patients 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 Liver

• Standard Method

• Alternate Method
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 Spleen
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
Palpation of the Aorta

- Normal aorta
- Aorta with large abdominal aneurysm
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
Shifting Dullness
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
- Fluid Wave
CVA Tenderness

- Tenderness in the costovertebral 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
CVA Tenderness

Left kidney

Right kidney
Abdominal Exam