Advanced Assessment in Clinical Practice:
Abdominal Assessment

I. Assessment of the abdomen

A. Basic anatomy and physiology

1. Esophagus
2. Stomach
3. Small intestines
4. Large intestines
5. Liver
    - Hepatic artery
    - Portal vein
    - Hepatic veins
    - Metabolizes CHO, fats and proteins.
    - Stores vitamins, minerals, and iron.
    - Detoxifies harmful substances.
    - Produces antibodies.
    - Makes hormones, prothrombin, fibrinogen and protein.
6. Gallbladder
7. Pancreas
8. Spleen
9. Kidneys
10. Bladder

B. Areas of the abdomen

Right upper quadrant Liver and gallbladder Pylorus Duodenum Head of the pancreas Right adrenal gland Portion of the right kidney Hepatic flexure of the colon Portions of the ascending and transverse colon	Left upper quadrant Left lobe of the liver Spleen Stomach Body of the pancreas Left adrenal gland Portion of the left kidney Splenic flexure of the colon Portions of the transverse and descending colon
Right lower quadrant Lower pole of the right kidney Cecum and appendix Portion of the ascending colon Bladder if distended Ovary and salpinx Uterus if enlarged Right spermatic cord Right ureter	Left lower quadrant Lower pole of the left kidney Sigmoid colon Portion of the descending colon Bladder if distended Ovary and salpinx Uterus if enlarged Left spermatic cord Left ureter

C. Assessment parameters

1. Bowel sounds

Hyperactive	Indicates gastroenteritis, early obstruction and hunger.
High pitched	Indicates early obstruction or anoxia.
Hypoactive	Indicates peritonitis, ileus or late obstruction.
Absent	Seen very rarely. When absent, usually ileus or obstruction.

2. Vascular sounds
   - Aorta
   - Right and left renal artery
   - Right and left iliac artery
   - Right and left femoral artery

3. Constipation
4. Diarrhea
5. Striae
6. Hernias

Reducible	Abdominal contents can be pushed back in.
Non-reducible	Abdominal contents obstructed and strangulated.

D. Palpation of the abdomen

1. Overview
2. Light to moderate palpation
3. Deep palpation
4. Masses may be felt; however, many structures may feel like masses. These include:
   - Uterus
   - Kidney
   - Fecal mass
   - Aorta
   - Bladder
5. Liver palpation and percussion.
6. Spleen palpation and percussion.

Splenic enlargement	Pain or discomfort in left upper quadrant.
Splenic rupture	Intense, LUQ pain radiating to the left shoulder. The radiation of the pain is known as Kehr's sign.

7. Kidneys
8. Asses for ascites using a fluid wave test.

E. Percussion of the abdomen

1. Used to detect fluid, air or masses.

2. Percuss the entire abdomen first.

3. Tympany: Higher pitch. Hear over air filled organs such as the intestines and stomach.

4. Hyperresonance: Slightly less of a pitch than tympany. Hear over the base of the left lung.

5. Resonance: Moderate pitch. Hear over lung tissue and sometimes over the abdomen.

6. Dullness: Short in sound. High pitched with little resonance. Hear over organs or masses. May hear it over a distended bladder.

F. Inspection of surface characteristics of the abdomen

1. Technique

2. Venous network

3. Scars

G. Contour, movement, and symmetry of the abdomen

1. Flat or concave contour with smooth and even movements with respirations.

2. Marked pulsations: Possible aortic aneurysm.

3. Surface movement or rippling: Possible obstruction.

4. Lower distention of the abdomen: Ovarian tumor, pregnancy, uterine fibroid, distended bladder.

5. Upper distention of the abdomen: Cancer, pancreatic cyst, gastric dilation.

6. Asymmetry of the abdomen: Hernia, tumor, bowel obstruction, enlarged organ.

H. Pain assessment in abdominal conditions

1. Common complaint.

2. Clues to the diagnosis of abdominal pain

- Patients with a pathological cause to their pain will not want to eat.
- Ask the patient to point to the pain. If they point to a specific area, the higher the likelihood of pathology.
- Apley rule: The farther from the umbilicus, the greater the chance the pain is organic in nature.
- During palpation, patients with a pathological cause to their pain will keep their eyes open.

3. Abdominal pain and relationship to food

- Gastric ulcers: Food frequently aggravates the pain.
- Duodenal ulcers: Eating initially decreases the pain. Pain then occurs 2-4 hours after a meal.

4. Quality and onset of abdominal pain

Burning pain	• Peptic ulcer disease
Cramping pain	• Biliary colic • Gastroenteritis
Colic pain	• Appendicitis with impacted feces • Renal calculi
Aching	• Appendix irritation
Knifelike	• Pancreatitis
Gradual onset	• Infection
Sudden onset	• Duodenal ulcer • Acute pancreatitis • Obstruction • Perforation

5. Pain related to anatomic areas on the abdomen

Right Upper Quadrant

Duodenal ulcer
Hepatitis
Hepatomegaly
Pneumonia
Cholecystitis

Periumbilical

Intestinal obstruction
Acute pancreatitis
Early appendicitis
Mesenteric thrombosis
Aortic aneurysm
Diverticulitis

Left Upper Quadrant

Ruptured spleen
Gastric ulcer
Aortic aneurysm
Perforated colon
Pneumonia

Right Lower Quadrant

Appendicitis
Salpingitis
Ovarian cyst
Ruptured ectopic pregnancy
Kidney stone
Strangulated hernia
Meckel diverticulitis
Ileitis
Perforated cecum

Left Lower Quadrant

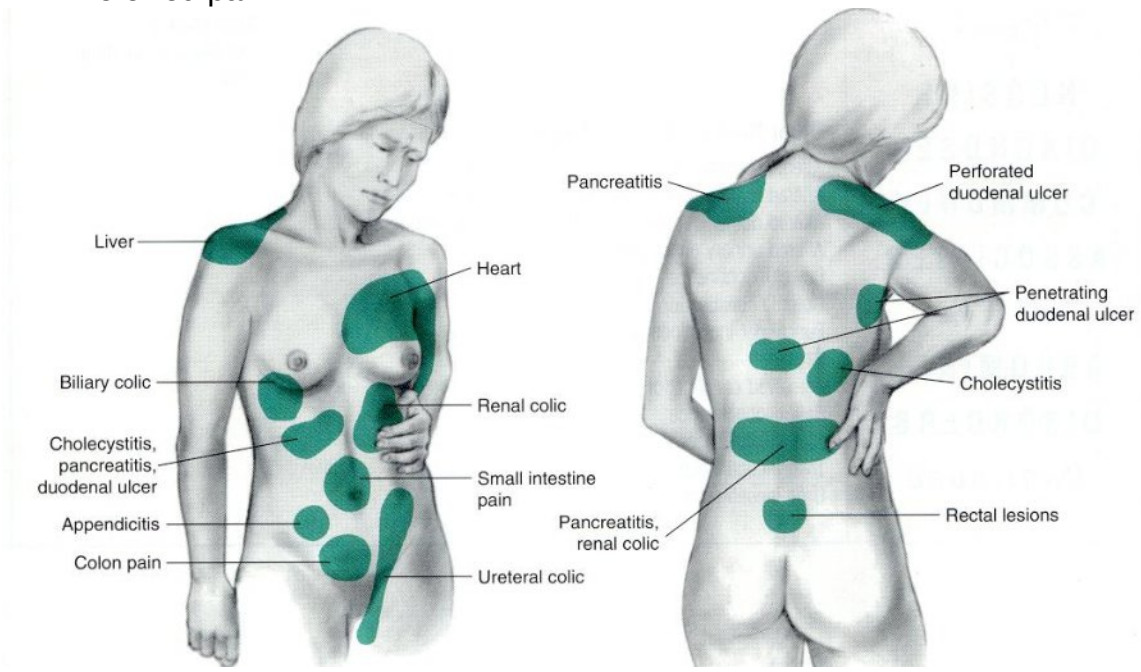
Sigmoid diverticulitis
Salpingitis
Ovarian cyst
Ruptured ectopic pregnancy
Kidney stone
Strangulated hernia
Perforated colon
Ileitis
Ulcerative colitis

6. Signs associated with abdominal pathology

Rebound tenderness	• Press down somewhere on the abdomen. • When released, pain at the site of the pathology.
McBurney's point	• Pain localizes to the right lower quadrant. • Positive in appendicitis. • If generalized pain, think peritonitis.
Rovsing's sign	• Palpation of the left lower quadrant intensifies pain in the right lower quadrant. • Positive in appendicitis.
Positive heel jar test	• Stand with knees straight. Then rise up on toes, relax, and allow heels to hit the floor. • Action causes pain if positive and pathology present.

Iliopsoas muscle test	• Place hand on the right thigh, raise the leg from the hip and get RLQ pain. • See in appendicitis.
Other signs	• Tenderness and guarding. • Absent bowel sounds. • Abdominal pain on walking.
Obturator muscle test	• Flex the right leg at the hip and knee and rotate the leg laterally and medially. • Produces pain in the hypogastric region. • Indicates ruptured appendix or pelvic abscess.
Cullen sign Grey Turner sign	• Ecchymosis around the umbilicus. • Ecchymosis of the flank area. • Indicates bleeding into the retroperitoneal space. • See in hemorrhagic pancreatitis, ectopic pregnancy and trauma.
Kehr's sign	• Abdominal pain radiating to the left shoulder. • Indicates spleen injury, renal calculi and ectopic pregnancy.

7. Referred pain



I. Physiologic changes in the geriatric population

1. Decreased motility of the gastrointestinal tract.
2. Decreased digestive enzymes.
3. More sensitive to carcinogens.
4. Liver function decreases.
5. Pancreas stays active although tissues often develop a decreased sensitivity to insulin.
6. Increased incidence of gallstones.
7. Decreased glomerular filtration rate due to decrease in blood flow. Leads to renal insufficiency and the inability to concentrate urine.
8. Nocturia more common.
9. Abdomen is less firm.
10. Ovarian function ceases.
11. Menstrual periods cease.
12. Estrogen levels
13. Pubic hair
14. Sexual activity slows.
15. Ligaments and connective tissue weaken.
16. Muscle mass and strength decrease.