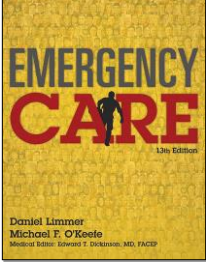


# Emergency Care

THIRTEENTH EDITION



**CHAPTER 22**

Abdominal Emergencies

Daniel Limmer  
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Medical Editor: Edward T. D'Onofrio, MD, FACP

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## Topics

- [Abdominal Anatomy and Physiology](#)
- [Abdominal Pain or Discomfort](#)
- [Abdominal Conditions](#)
- [Assessment and Care of Abdominal Pain or Discomfort](#)

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## Abdominal Anatomy and Physiology

- Abdomen contains many organs, from several different body systems.
- Can cause confusion when determining the cause of abdominal emergencies
- Thorough patient assessment key.
- Specific diagnosis may not be necessary; treatment is the same for most conditions.

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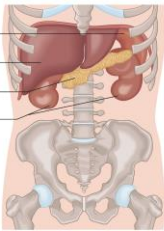
## Abdominal Anatomy and Physiology

- Abdomen
  - Region between diaphragm and pelvis
  - Contains many organs and organ systems that provide the following functions:
    - Digestive
    - Reproductive
    - Endocrine
    - Regulatory

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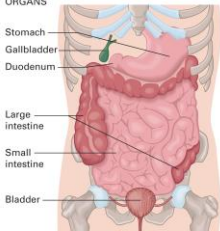
## Organs of the Abdomen

**SOLID ORGANS**



Spleen  
Liver  
Pancreas  
Kidneys

**HOLLOW ORGANS**



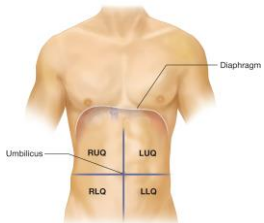
Stomach  
Gallbladder  
Duodenum  
Large intestine  
Small intestine  
Bladder

The structures and organs of the abdomen.

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## Abdominal Anatomy and Physiology

- Abdomen divided into "quadrants"
  - RUQ, LUQ, RLQ, LLQ
  - Epigastric region



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## Abdominal Anatomy and Physiology

- Organs of the abdomen
  - Peritoneum
    - Thin membrane lining the abdominal cavity and covering each organ
  - Parietal peritoneum attached to the abdominal wall
  - Visceral peritoneum covers each organ.

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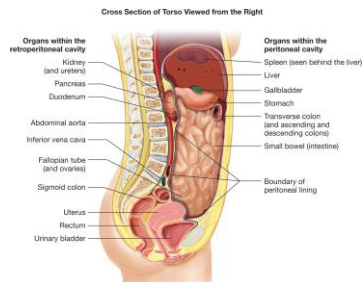
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## Abdominal Anatomy and Physiology

- Organs of the abdomen
  - Most enclosed within parietal peritoneum
  - A few lie in extraperitoneal space (outside the peritoneum).
    - Kidneys, pancreas, part of aorta lie in retroperitoneal space, behind peritoneum.
    - Bladder and part of rectum lie inferior to peritoneum.

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## Peritoneal and Extraperitoneal Space



The peritoneum and extraperitoneal (including retroperitoneal) space.

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## Abdominal Pain or Discomfort

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## Abdominal Pain or Discomfort

- Visceral pain
  - Originates from the organs within the abdomen
  - Fewer nerve endings allow for only diffuse sensations of pain.
  - Frequently described as "dull" or "achy"
  - Colic (intermittent pain) may result from distention and/or contraction of hollow organs.
  - Persistent or constant pain often originates from solid organs.

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## Abdominal Pain or Discomfort

- Parietal pain
  - Originates from the parietal peritoneum
  - Many nerve endings allow for specific, efficient sensations of pain.
  - Frequently described as "sharp"
  - Pain is often severe, constant, and localized to a specific area.

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## Abdominal Pain or Discomfort

- Tearing pain
  - Most common type of abdominal pain
  - Originates in the aorta
  - Separation of layers of this large blood vessel caused by aneurysm
  - Retroperitoneal location of aorta causes pain to be referred to back.

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## Abdominal Pain or Discomfort

- Referred pain
  - Perception of pain in skin or muscles at distant locations
    - Abdomen has many nerves from different parts of the nervous system.
    - Nerve pathways overlap as they return to the spinal cord.
    - Pain sensation is transmitted from one system to another.

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## Abdominal Conditions

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## Appendicitis

- Infection of appendix
- Signs and symptoms
  - Nausea and sometimes vomiting
  - Pain often initially referred to umbilical region, followed by persistent RLQ pain
  - Rupture of appendix
    - Sudden, severe increase in pain
    - Contents releasing into abdomen causes severe peritonitis.

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## Peritonitis

- Irritation of peritoneum, usually caused by foreign material in peritoneal space
- Parietal peritoneum is sensitive, especially to acidic substances.
- Irritation causes involuntary contraction of abdominal muscles.
- Signs and symptoms
  - Abdominal pain and rigidity

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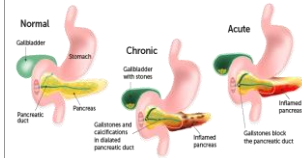
## Cholecystitis/Gallstones

- Inflammation of the gallbladder
- Often caused by blockage of its outlet by gall stones (cholecystolithiasis)
- Symptoms often worsened by ingestion of fatty foods
- Signs and symptoms
  - Severe RUQ or epigastric pain
  - Pain often referred to shoulder

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## Pancreatitis

- Inflammation of the pancreas
- Common in patients with chronic alcohol abuse
- Signs and symptoms
  - Epigastric pain
  - Often referred to back and/or shoulder



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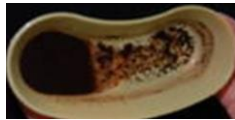
## Gastrointestinal (GI) Bleeding

- Hemorrhage within the lumen of the GI tract
- May be minor to severe
- Blood eventually exits (mouth or rectum)
- Often painless
- Gastric ulcers (holes in GI system from highly acidic gastric juices) can cause severe pain and peritonitis.

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## Gastrointestinal (GI) Bleeding

- Signs and symptoms
  - Dark-colored stool (maroon to black), often "tarry"
  - Frank blood from rectum (hemorrhoid)
  - Vomiting "coffee-ground" appearing blood
  - Vomiting of frank blood
  - Pain can be absent to severe.



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## Abdominal Aortic Aneurysm

- Ballooning or weakening of inner wall of the aorta
- Tears and separates from outer layers (dissection)
- Weakened vessel bulges, may continue to grow
- May eventually rupture

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## Abdominal Aortic Aneurysm

- Signs and symptoms
  - Progressive (often sharp or tearing) abdominal pain
  - Frequently radiates to back (lumbar)
  - Palpable abdominal mass, possibly pulsating
  - Possible inequality in pedal pulses

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## Abdominal Aortic Aneurysm

- Signs and symptoms
  - Sudden, severe increase in pain may indicate rupture.
    - High aortic pressure causes rapid internal bleeding.
    - Sudden progression of shock
    - Likely exsanguination (fatal hemorrhage)

## Hernia

- Hole in the muscle layer of abdominal wall, allowing tissue or parts of organs (commonly intestines) to protrude up against skin
- May be precipitated by heavy lifting
- May cause strangulation of tissue or bowel obstruction
- May require surgical repair

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## Hernia

- Signs and symptoms
  - Sudden onset of abdominal pain, often following exertion
  - Palpable mass or lump on abdominal wall or crease of groin (inguinal hernia)



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## Renal Colic

- Severe flank pain caused by kidney stones traveling down the ureter
- Signs and symptoms
  - Severe, cramping, intermittent pain in flank or back
  - Frequently referred to groin
  - Nausea, vomiting

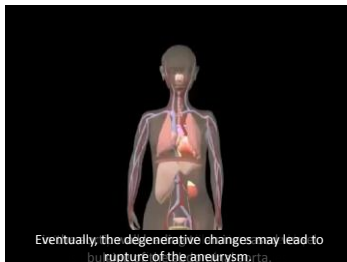
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## Cardiac Involvement

- Pain from myocardial infarction may be felt as abdominal discomfort.
  - Epigastric pain
  - Indigestion or digestive discomfort
- Always consider the possibility of a cardiac emergency as a cause of abdominal symptoms.

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## Abdominal Aortic Aneurysm Animation



Click on the screenshot to view an animation on the subject of abdominal aortic aneurysm.

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## Assessment and Care of Abdominal Pain or Discomfort

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## Assessment and Care of Abdominal Pain or Discomfort

- Many potential causes of abdominal pain
- Role of EMT is not to diagnose.
- Focus efforts
  - Perform thorough secondary assessment.
  - Identify serious or life-threatening conditions.

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## Scene Size-Up

- Protect yourself from bloodborne pathogens.
- Be aware of odors.
- Determine if patient's condition is medical, trauma, or both.

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## Primary Assessment

- General impression
- ABC's
- Level of consciousness
- Consider application of supplemental oxygen to any hypoxic abdominal pain patient or in any situation where an oxygen saturation is deemed to be inaccurate

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## History of the Present Illness

- Onset
  - "When did it begin? What were you doing?"
- Provocation/palliation
  - "What makes it better or worse? Movement? Position?"
- Quality
  - Describe the sensation in your abdomen."

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## History of the Present Illness

- Region/Radiation
  - "Point to its location. Does it radiate or move?"
- Severity
  - "How bad is the pain on a scale of 1-10?"
- Time
  - "Do you have pain all the time? Is it intermittent? Has it changed?"

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## History Specific to Female Patients

- "Where are you in your menstrual cycle?"
- "Is your period late?"
- "Do you have bleeding from the vagina that is not menstrual bleeding?"
- "If you are menstruating, is your flow normal?"

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## History Specific to Female Patients

- "Have you had this pain before?"
- "If so, when did it happen and what was it like?"
- "Is it possible you are pregnant?"
- "Are you using birth control?"

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## Past Medical History

- A: Allergies
- M: Medications
- P: Pertinent past history
- L: Last oral intake
- E: Events leading to emergency

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## Geriatric Note

- Decreased ability to perceive pain
- More serious causes of abdominal pain
- More likely to be life-threatening
- May be complicated by medications

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## Physical Examination of the Abdomen

- Inspection
  - Distention
  - Discoloration
  - Protrusions
- Palpation
  - Use fingertips.
  - Painful area last

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## Physical Examination of the Abdomen

- Palpation
  - Rigidity
  - Pain
  - Guarding



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## Vital Signs

- Baseline, then every 5 minutes
  - Pulse
  - Respirations
  - Blood pressure
  - Skin color, temperature, and condition
  - Pulse oximetry
  - Mental status

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## General Abdominal Distress

- Some will result from digestive system disorders; others could be cardiac or diabetic issues, food poisoning, or flu.
- Assess and care for these patients with appropriate attention to airway.
  - Particularly if patient vomiting
- Always work to calm the patient to reduce anxiety.
- Never give patient anything by mouth.

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## Patient Care

- Maintain airway.
  - Be prepared to suction.
- Administer oxygen to hypoxic patient.
  - Maintain oxygen saturations of 94 percent.
- Place in position of comfort.
  - LLR for airway protection
- Transport to appropriate facility.

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## Think About It

- An 89-year-old female with a history of diabetes, hypertension, and gallstones is complaining of nausea and dizziness about 20 minutes after eating.

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## Think About It

- What are the concerns with this patient?
- Is this an abdominal emergency, a diabetic emergency, or a cardiac emergency?
- How will you know?
- What will your treatment be?

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## Chapter Review

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## Chapter Review

- All complaints of abdominal pain or distress must be treated as serious emergencies requiring transport.

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## Chapter Review

- As an EMT, your responsibility is primarily to assess the patient and report your findings. Field diagnosing the cause of an abdominal complaint is often more difficult and time consuming than diagnosing in the emergency department, where there are many more resources available than in the field.

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## Chapter Review

- Your assessment should include thorough patient history, physical exam, and vital signs.

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## Chapter Review

- Look for signs and symptoms that can signal serious trouble. This includes the sudden onset of tearing pain radiating to the back; vomiting blood or coffee-ground-like material; the presence of black, tarry stools; or signs and symptoms of shock.

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## Chapter Review

- Emergency care will consist of protecting the patient's airway, oxygen as needed, placing the responsive patient in a position of comfort, placing the unresponsive patient or patient with difficulty maintaining an airway in the left lateral recumbent position, and transporting the patient to the hospital.

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## Chapter Review

- Take all appropriate Standard Precautions and carefully clean and disinfect equipment and the ambulance, especially if the patient has vomited or had diarrhea.

## Remember

- Abdominal organs provide a variety of important functions to the body.
- The abdomen can be divided into four quadrants, with reference to the midline and umbilicus.
- Classifications of pain can help identify specific abdominal dysfunctions.

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## Remember

- Assessment and management always take a higher priority than determining the exact cause of abdominal pain.
- Knowledge of the characteristics of specific abdominal disorders can aid differential diagnosis when assessing a patient with abdominal pain.

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## Remember

- Care for a patient with abdominal pain should include treatment of immediate life threats, administration of oxygen, placing patient in a position of comfort, and appropriate transport.

## Questions to Consider

- What are five signs and symptoms of abdominal distress?
- Describe the difference between visceral and parietal pain. Describe a condition that may be responsible for each.

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## Questions to Consider

- What is the emergency care for a patient experiencing abdominal pain or distress?
- Name the four abdominal quadrants. How are the quadrants determined?

## Critical Thinking

- You are called to a patient with abdominal pain. He describes the pain as severe and says it has been "on and off" over the past several days, becoming severe within the last hour.

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## Critical Thinking

- What additional questions would you ask the patient?
- In what position would he likely be most comfortable?