Acute Abdomen

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Not A Cute Abdomen

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Definition

- Signs and symptoms of abdominal pain a clinical picture that often requires emergency surgery therapy

Workup

1. History
2. Physical Exam
3. Lab / Imaging

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Goals

1. Differential Dx and confirmation.
2. Operation needed?
3. Preparation of patient for OR.

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- A 55-year-old man comes to the emergency department with a history of 6 hr of acute, diffuse abdominal pain. On examination, his heart rate is found to be 115 beats per minute, his blood pressure 95/60, his respiratory rate 22 breaths per minute, and his pulse oximetric results 93% on a 4-L nasal cannula. He has diffuse abdominal rigidity. Plain radiographic studies demonstrate extraluminal free air. Regarding resuscitation of the patient in the emergency department before transfer to the operating room, which of the following statements is/are true.

1. Intravenous administration of antibiotics is the first priority
2. The intravenous access of choice is a Swan-Ganz catheter
3. Two to 3 L of crystalloid should be administered intravenously
4. Endotracheal intubation should be established immediately

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Non-Surgical Causes
66% - of Acute Abdominal Pain

- Endocrine and Metabolic Causes
- Hematologic Causes
- Toxins or Drugs

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Surgical Acute Abdominal Conditions

- Categories
  1. Hemorrhage
  2. Infection
  3. Perforation
  4. Obstruction
  5. Ischemia

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- Which of the following is not a trigger of visceral pain?
  1. Ischemia
  2. Traction
  3. Distention
  4. Heat
  5. Inflammation

Abdominal Organs are insensate to:
Heat
Cutting
Electrical Stimulation

History

Pain

- Onset
- Character
- Location
- Duration
- Radiation
- Chronology

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History

Abdominal Pain Visceral

- Visceral – vague – poorly localized (bowel or solid organ pain)
  - Foregut - epigastrium
  - Midgut - periumbilical
  - Hindgut – hypogastrium

  - Points with Palm of Hand

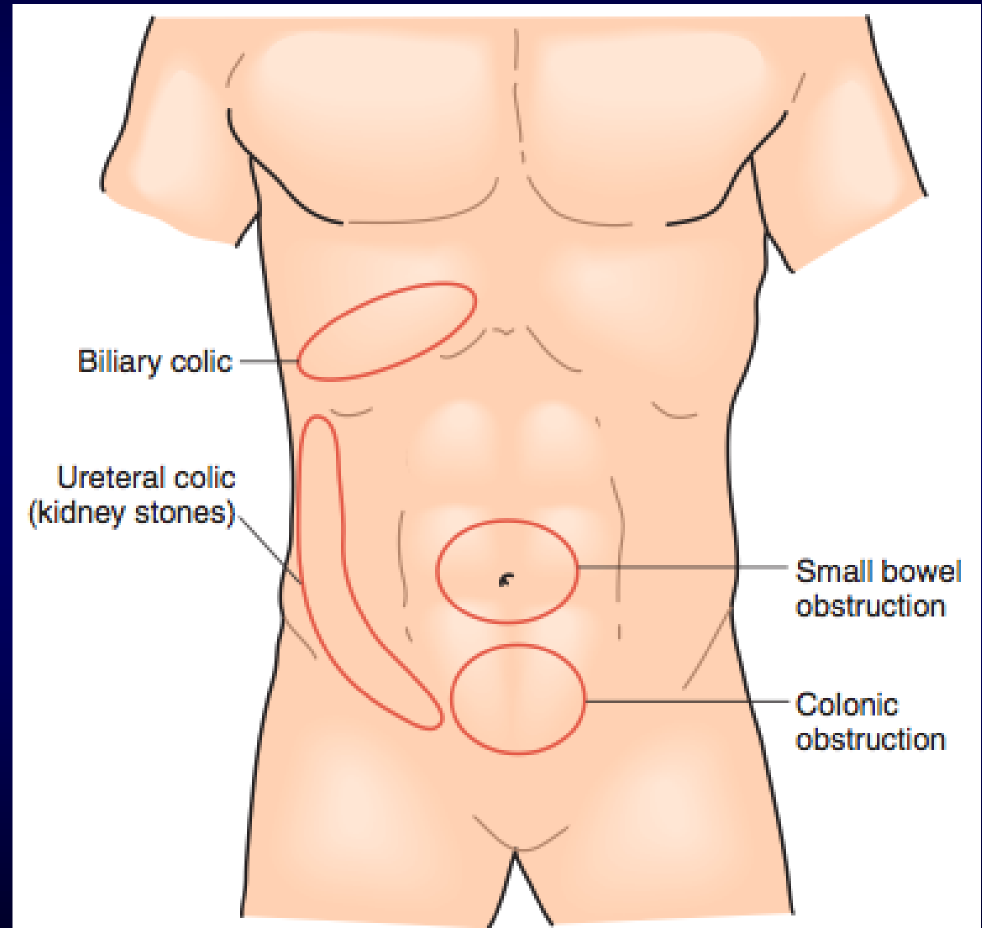

Figure 45-3 Character of pain: colicky, crampy, intermittent pain.

History

Abdominal Pain
Parietal / Somatic

- Parietal – sharp, better localized
  - from segmental nerve - points with finger.

Perforated ulcer

Ureteral colic (may be constant)

Ruptured aortic aneurysm

Figure 45-4 Character of pain: sudden, severe pain.

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History

Abdominal Pain - Referred

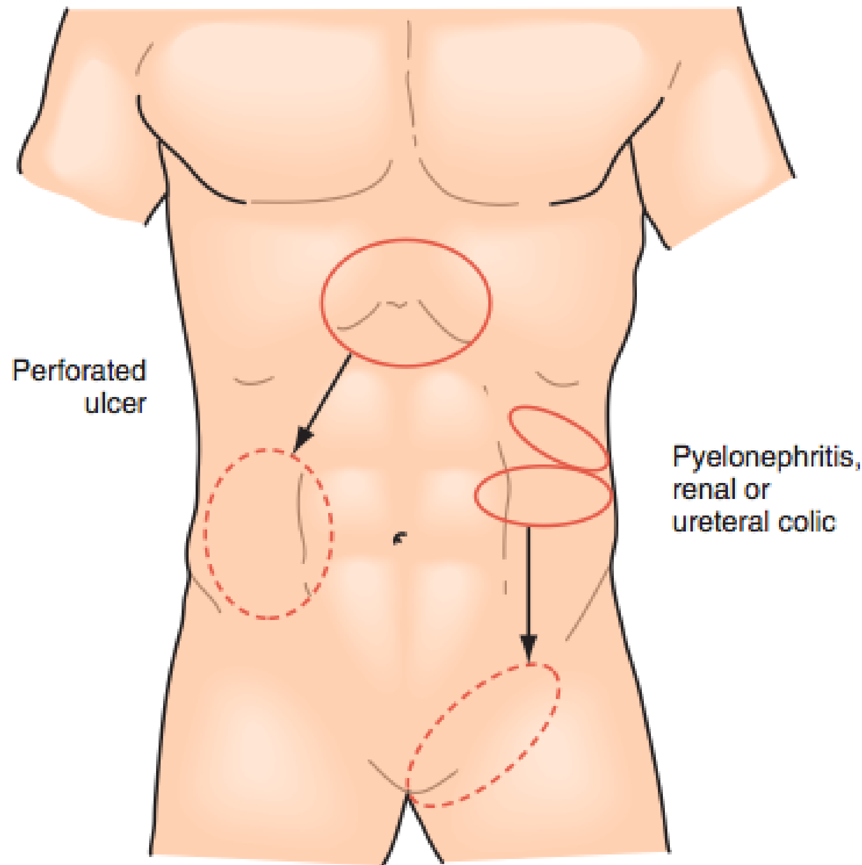

Figure 45-5 Referred pain. *Solid circles* are primary or most intense sites of pain.

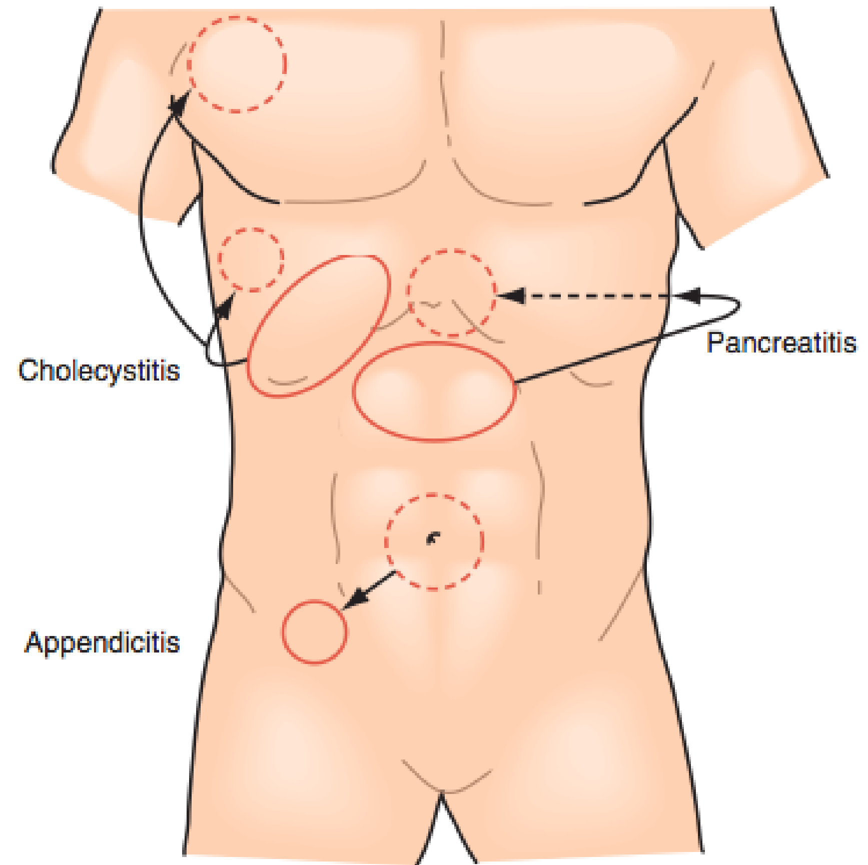

Figure 45-6 Referred pain. *Solid circles* are primary or most intense sites of pain.

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Referred

- **Right Shoulder**
  - Liver
  - Gallbladder
  - Right hemidiaphragm
- **Left Shoulder**
  - Heart
  - Tail of pancreas
  - Spleen
  - Left hemidiaphragm
- **Scrotum and Testicles**
  - Ureter

An 18-year-old male has a 12-hr history of abdominal pain, anorexia, and nonbilious vomiting. The pain has now localized to the right lower quadrant. On examination, he is found to have tenderness over McBurney's point, with involuntary muscle rigidity. Which of the following best explains the localization of pain.

1. Inflammation of the visceral peritoneum produces localizing pain.
2. Pain over McBurney's point is caused by distention of the appendiceal lumen
3. Unmyelinated fibers carry pain signals with thoracic and lumbar spinal nerves
4. Movement of the inflamed parietal peritoneum induces rebound tenderness.

Peritonitis

- Inflammation of peritoneum from any cause
- Recognized on physical exam by severe tenderness to palpation
- With or without rebound tenderness & guarding.
- Patient holds still
- Attempts to avoid movement and jostling
- Often hold hips flexed

History

Sudden Excruciating Pain

- Intestinal perforation
- Arterial Embolization with Ischemia
- Occasionally Biliary Colic

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History

Vomiting

- In medical conditions –
  - – Vomiting often preceeds pain
- In Surgical conditions -
  - – Pain often preceeds vomiting

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Past Medical History

Medications

- NSAIDS
  - Increased risk for upper gi inflammation and perforation
- Steroids
  - Block protective gastric mucous production by chief cells
  - Blunt inflammatory response – perforation without peritonitis
- Narcotics
  - Mask pain
  - Constipate – increase risk of obstruction
  - Sphincter of Oddi??

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Gynecologic History

Last Menstrual Period

Sexually Active

Physical Exam

- Inspect –
  - Distention = unhappy bowel
  - Scars – correlate with history??
- Auscultate
  - Quiet – ileus
  - Hyperactive – enteritis and early ischemic bowel
- Palpate
- Percuss??

Physical Exam

Guarding

- Firm / gentle pressure away from site of maximal pain while patient takes a deep breath.
- Voluntary – abdominal wall relaxes
- Involuntary – No relaxation
  - Indicates true peritonitis

Physical Exam

- Obturator sign –
  - Flexion and external rotation of the thigh cause pain –
  - pelvic abscess or inflammatory mass in pelvis
- Psoas sign –
  - Pain on passive extension of right leg
  - Retrocecal Appendicitis
- Rovsing’s sign –
  - Pain at McBurney’s point on compression of left abdomen
  - Acute Appendicitis
- Fothergill’s sign
  - Palpable abdominal wall mass that does not cross midline and remains palpable with rectus is contracted
  - Rectus muscle hematoma

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Labs

- Hemoglobin - bleeding
- WBC with differential – left shift (increased neutrophils)
- Electrolytes, blood urea nitrogen, creatinine (dehydrated?)
- Urinalysis – UTI / kidney stones.
- Urine human chorionic gonadotropin - Ectopic
- Amylase, lipase – do not exclude pancreatitis.

Labs

- Total and direct bilirubin
  - choledocholithisis, liver disease
- Alkaline phosphatase
  - choledocholithiasis, liver disease
- Serum aminotransferase
  - liver disease
- Serum lactate levels
  - misleading – use as a warning sign
- Stool for ova and parasites
  - not often
- Clostridium difficile culture and toxin assay
  - Cdiff, Toxic colitis

Imaging

- Upright Chest – detect as little as 1 ml of free air
- Lateral decubitus – may detect 5-10 ml of free air

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Imaging

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by Radiological Society of North America

Treatment Decision

- Surgical illness - To OR
- Unsure – Serial Exams
- Medical illness – Medical treatment

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Pregnancy

- Appendicitis 1:1500 pregnancies
  - Fetal loss with early appendectomy: 3-5%
  - Fetal loss with perforation ~20%
- Surgery for Biliary disease 1-6: 10,000
  - Plan for OR in 2nd trimester - or
  - Postpartum
- Gallstone Pancreatitis
  - Fetal loss: 60%
  - No rapid response to hydration, bowel rest, analgesia – to surgery

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Pregnancy

- Bowel obstruction 1-2:4000
  - Adhesions 66%
  - Volvulus 25%
- Bowel obstruction most often occurs in times of rapid uterine growth
  - 16-20 weeks
  - 32-36 weeks

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Critically Ill & Immunocompromised

- Have lower threshold for Mini-lap or bedside laparoscopy
- May not manifest with as severe symptoms
- EBV, CMV, peritoneal tuberculosis, fungal infections

Morbidly Obese

- Findings of overt peritonitis – late and grave.
- Abdominal sepsis may be associated with malaise, shoulder pain, hiccups, shortness of breath

Summary

- Be systematic and thorough
- Identify:
  - To OR
  - Medical – treat
  - Watch and wait – still deciding
- Prepare patients for OR

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