Abdominal Assessment

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Order of Exam is Critical!

1. Inspection
2. Auscultation
3. Percussion
4. Palpation

Inspection

1. Skin Characteristics and Color
   - Note any jaundice, redness or cyanosis
   - Note any bruising, scars, straie, rashes or lesions
2. Symmetry
   - Should be evenly rounded
   - Umbilicus should be centrally located
   - Note any distention or bulges
3. Inspect Abdominal Muscles as patient raises their head:
   - Masses
   - Hernia
   - Separation of Muscles

Auscultation

- Diaphragm of stethoscope to listen for:
  Bowel Sounds
- Bell the stethoscope to listen for:
  Bruits

Auscultation

- Auscultate before palpation and percussion
- Listen for bowel sounds:
  - normal is usually 5-35/minute
  - hypoactive less than 3-5/minute
  - hyperactive greater than 34 per minute
  - no bowel sounds-after 2-5 minutes in all 4 quadrants
- Listen for bruits (use bell side of stethoscope)

Percussion

Assess for tympany and dullness

Assess organ size-liver

Assess for ascites

Percussion

Solid Objects: Dull Sound

Air-filled: Tympanic

Hollow: Resonant

Palpation

Palpating for masses, organ size, tenderness

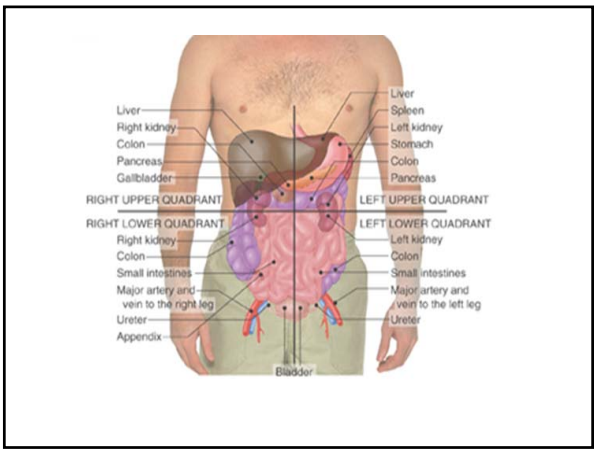
Rebound Tenderness: occurs when peritoneum becomes inflamed

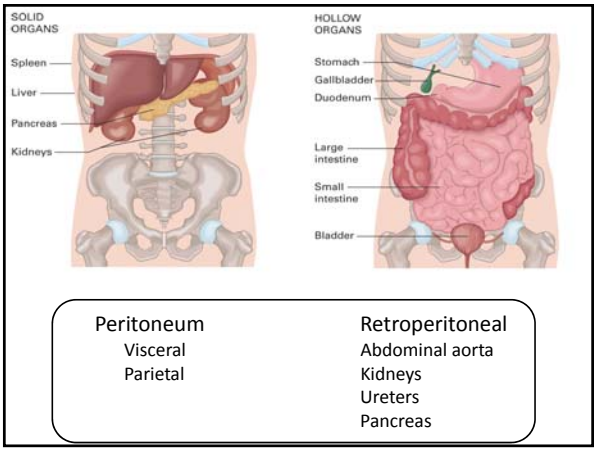
- Press area far away from the tender area and release suddenly. Pain will occur in the area of the disease.

Palpation

DO NOT PALPATE A PULSATING MIDLINE ABDOMINAL AREA!

Also be cautious with a distended spleen in the LUQ





Peritoneum	Retroperitoneal
Visceral	Abdominal aorta
Parietal	Kidneys
	Ureters
	Pancreas

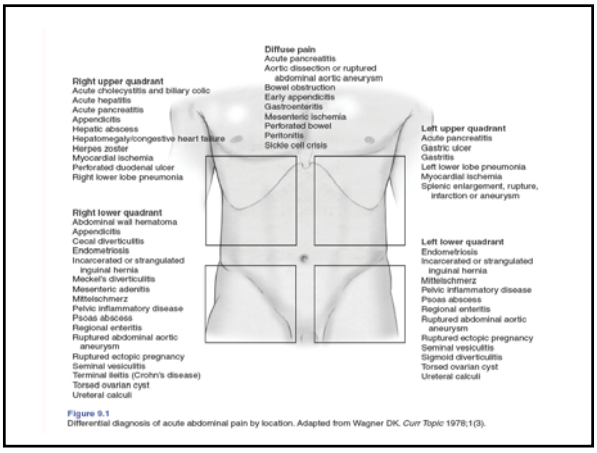


Figure 9.1
Differential diagnosis of acute abdominal pain by location. Adapted from Wagner DK. *Curr Topic* 1978;1(3).

Abdominal Pain History (PQRSTAAA)

P-Place/Location
Q-Quality
R- Radiates
S- Severity
T- Timing
A- Alleviating Factors
A- Aggravating Factors
A- Associated Symptoms

Additional GI History

1. Bowel Movements-pattern, size, hard, soft
2. Ingestion of toxins/foreign objects (magnets)
3. Trauma
4. Dietary History
5. PMH
6. Sexual History
7. Family History
8. **Travel History**
9. Social/Psychiatric History- potential stressors
10. Contact History

Types of Abdominal Pain

1. Visceral
2. Somatic
3. Referred Pain

Visceral Pain

- Intermittent, cramp-like pain
- Caused by edema or obstruction
- Difficult to localize
- Usually accompanied by diaphoresis, nausea and vomiting
- Examples: early appy, pancreatitis, chole, bowel obstruction or kidney stone

Somatic Pain

- Sharp, severe and constant
- It's starts and doesn't stop until you intervene
- Caused by blood, bacteria or chemicals that leak into the abdominal cavity and cause peritonitis
- Student will lie very still, as movement causes pain, may keep legs flexed with knees to chest
- May have rebound tenderness
- Examples: late stage or ruptured appy, ruptured spleen, traumatic injury or perforated ulcer

Referred Pain

Pain that originates in one area but manifests itself in another

Examples:

- Gallbladder pain radiates to shoulder and mid back
- Spleen radiates to left shoulder area

Abdominal Pain

- Most common medical cause: gastroenteritis
- Most common surgical cause: appendicitis
- Acute surgical abdomen: pain come before vomiting
- Medical Conditions: vomiting starts first

Causes of Abdominal Pain 2-18 yo

Gastroenteritis	UTI/Pyelonephritis
Constipation	Toxin Ingestion
Intestinal Obstruction	Food Poisoning
Testicular Torsion	Trauma
Respiratory Illness-PNA	Appendicitis
Pancreatitis	Cholecystitis
Mesenteric Adenitis	HSP-Henoch-Schnolein Purpura
Sickle Cell	

Causes of Abdominal Pain in Adolescents

Trauma	Toxin Ingestion
Dysmenorrhea	Food Poisoning
Ectopic Pregnancy	PID
Testicular Torsion	Gastroenteritis
Constipation	Ovarian Cysts/Torsion
UTI/Pyelonephritis	Intestinal Obstruction
Appendicitis	Pancreatitis
Cholecystitis	Ureteral Colic

Causes of Abdominal Pain from Outside the Abdomen

Systemic

DKA
Alcoholic Ketoacidosis
Uremia
Sickle Cell
SLE (lupus)
Vasculitis
Hyperthyroidism

Toxic

Methanol Poisoning
Heavy Metal Toxicity
Scorpion Bite
Black Widow Bite

GU

Testicular Torsion
Renal Colic

Thoracic

MI
Angina
Pneumonia
Pulmonary Embolism
Herniated Thoracic Disk

Abdominal Wall

Muscle Spasm
Hematoma
Herpes Zoster

Infectious

Strep Throat
Mononucleosis
Rocky Mountain Spotted Fever

Red Flags of Abdominal Pain

1. Bilious Vomiting
2. Bloody Stools or Emesis
3. Night Time Waking with Abdominal Pain
4. Hemodynamic Instability
5. Weight Loss
6. History of Intra-abdominal Surgery
7. Marked abdominal distention with diffuse tympany
8. Abdominal Trauma

Gastroenteritis

Inflammation of GI tract caused by an infection

Viral infections, (mostly rotavirus):75-90% of infectious diarrhea cases

Rotavirus	Enteric adenovirus
Norovirus	Astrovirus

Bacterial Cases:10-20%

o Salmonella	Shigella
o Campylobacter	Yersinia
o Ecoli	Cdiff

Parasites: 5%

o Giardia	Cryptosporidium

Gastroenteritis

Sx: Diarrhea
Abdominal Pain or Cramping
Nausea and Vomiting
Fever
Clammy skin

Sx of Dehydration:
Extreme thirst
Urine-dark, small amounts
Dry skin and mouth
Sunken eyes/cheeks

Gastroenteritis

Dx: Clinical Picture/History
Stool Culture for prolonged diarrhea

Tx: Fluid Replacement

Prevention:
Wash your hands!!!
Food Safety
Bottled water when traveling

Johnny is a 10 yo student who enters the clinic complaining of "belly pain". He has already had lunch, but he didn't really feel like eating. He points to his umbilicus and rates the pain as a 6. His temperature is 99.9 po. How would you proceed?

1. Complete your assessment including an examination of the throat
2. Send him back to class
3. Call his parent/guardian
4. Instruct parent/guardian of need for further eval with PCP

A. 2,3,4
B. 1,2
C. 1,3,4
D 1, 3

Inflammation of the appendix
Cause: no clear
Can be seen at any age, more common 10-30 yo
Sx: anorexia
abdominal pain-starts dull umbilical pain, then becomes sharp gravitating to RLQ
abdominal tenderness (+ McBurney's sign)
fever
vomiting
may take 4-48 hours to develop

Advanced Assessment for Appendicitis

Rovsing Sign-pain in RLQ on left side palpation

Psoas Sign- pain in RLQ when right hip hyperextended

Obturator Sign- pain in RLQ on internal rotation of flexed right thigh

Appendicitis

Dx:

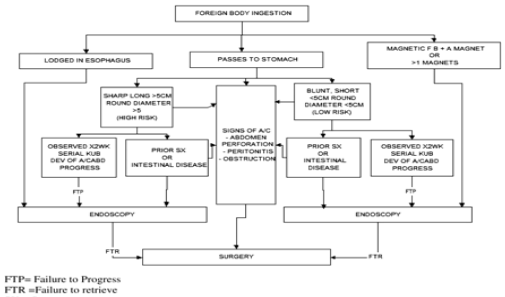
- Clinical Picture
- Lab Work- elevated WBC, U/A to r/o UTI
- Imaging: US or CT Scan

Treatment:

- Appendectomy

Which is the most worrisome? If a student ingests:

1. One Magnet
2. One Metallic Object
3. Two Magnets
4. Two Metallic Objects



FTP= Failure to Progress
FTR =Failure to retrieve
SX = Surgery

Magnet Ingestion

- Critical to determine how many magnets the student swallowed
- Single Magnet: low risk
- Two or more Magnets or a Magnet ingestion along with a metal object: is at risk for bowel necrosis, obstruction and perforation

Magnet Ingestion

- Time is important- complications can occur within 12 hours-immediate referral to ER
- Even if student admits to only ingesting one magnet, MD should get Xrays (two views) to verify. Two views are needed as the magnets could be stuck behind one another.

Magnet Ingestion

Dx: Self Disclosure
Clinical Picture/History
X-ray (two views)

Sx: May not have symptoms for 12-36 hours
Nausea, Vomiting, Abdominal Pain

Tx: Depends on Sx, as well as size, shape and # of magnets and/or other metallic objects ingested

Abdominal Trauma

Two types of trauma

- Blunt-MVA, Falls, Assaults
- Penetrating: Stab wounds, GSW

There are grading systems for the severity of the injury to the spleen, liver and kidneys.

Abdominal Trauma

Dx:

- Clinical Picture/History
- CBC, Metabolic Panel
- Imaging Studies

Incarcerated Hernia

- Portion of the intestines protrudes through the weakness in abdominal muscles
- Inguinal Hernia- occurs in the groin area

Sx of Hernia:

- Bulge in abdomen, groin or scrotum
- The area is usually painless

Sx of Incarcerated Hernia:

- Severe Pain
- Nausea, Vomiting
- No bowel movement

Incarcerated Hernia

Dx: Clinical Picture/History

Tx: Manual Reduction by MD
Surgical Repair

Concern: Incarcerated hernia puts child at increased risk for Strangulated hernia-which causes tissue/bowel death and is a surgical emergency

GERD Gastroesophageal Reflux Disease

Reflux of the stomach contents back up into the esophagus

Sx: Heartburn, Cough (nocturnal)

Dx: Clinical Picture/History
UGI
Endoscopy

Tx: Dietary
Medications
Lifestyle changes

Crohns

Chronic inflammation of the colon

Sx: Abdominal Pain
Diarrhea
Weight Loss

Tx: Medications-
- Aminosalicylates
- Corticosteriods
- Antibiotics
- Biologics
- Drugs that suppress the immune system

Nutrition Support
Surgery

Difference	Crohn's	Ulcerative Colitis
Location	May occur anywhere along GI tract	Usually only occurs in large intestine
Inflammation	May occur in patches	Continuous throughout large intestine
Pain	RLQ	LLQ
Appearance	Ulcers in digestive track are deep am my extend into all layers of bowel wall	Ulcers do not extend beyond inner lining
Bleeding	Not common	common

Kidney Trauma

Generally protected by back muscles and ribs

Two types of trauma to kidney
- a. blunt- car accident, sports injury
- b. penetrating – GSW, Stabbing

Sx:
- Hard to detect, may see discoloration in abdomen or on back where kidney is located
- Pain in abdomen or flank
- Hematuria

Kidney Trauma

Dx: Clinical Picture/History
Blood work
Urinalysis
US, CT Scan, IVP

Tx: Varies, depends on: condition of pt, severity of injury, presence of other injuries
Bed rest and serial urines
Surgical Intervention

Pyelonephritis

- Bacterial infection of the kidneys- most commonly Ecoli
- Can be acute of chronic
- Most often caused by the ascent of bacteria from the bladder up the ureters and infect the kidneys
- Conditions that create decrease urine flow increase chance of pyelo- stones, ureteral strictures, abdominal/pelvis masses

Pyelonephritis

Sx:

- Urinary Discomfort-dysuria, urgency, frequency
- Back/Flank pain on affected side
- Fever or chills
- Malaise
- Nausea/Vomiting
- Hematuria
- Foul smelling urine

Pyelonephritis

Dx:

Clinical Picture and Patient History
Urinalysis + bacteria and white cells
Urine Cultures
Blood Cultures
Kidney US or CT Scan

Tx:

Antibiotics X 5-14 days
(Cipro, Levaquin, Bactrim, Septra)

Prevention of UTI/Pyelonephritis

1. Increase fluids, especially water
   (Cranberries contain substances that prevent Ecoli from sticking to the bladder walls)
2. Empty bladder frequently- don't postpone urination
3. Empty bladder before and after sex
4. Proper Hygiene-front to back
5. Take showers instead of baths

Renal Colic

Sx:	Painful Urination
	Hematuria
	Sharp abdominal or flank pain, which may radiate to groin area
	Nausea and vomiting
Dx:	Clinical Picture and History
	Blood and Urine Results
	Ultrasound
TX:	Depends on size and location of stone
	Pain medication
	Hydration
	Lithotripsy
	Surgical Intervention

Ovarian Cysts/Ovarian Torsion

Sx:	Abdominal Pain, Nausea, Vomiting
	Acute onset of pain and colicky in nature
Dx:	Clinical Picture/History
	Ultrasound
Tx:	Laparoscopy

PID –Pelvic Inflammatory Disease

- Infection of the fallopian tubes, uterus or ovaries

Sx: pain and tenderness in lower abdomen
foul smelling or abnormal colored discharge
pain during intercourse
spotting between periods
chills/fever
nausea, vomiting, diarrhea
anorexia
back pain
painful or frequent urination

PID

Dx: Clinical Picture/History
Pelvic Exam
Cultures
US maybe a CT Scan

Tx: Antibiotics
May need surgery I and D for abscesses

Complications: Tubo-ovarian abscess
Infertility
Ectopic pregnancy

Ectopic Pregnancy

Sx: Nausea, Vomiting, Lower abdominal pain, sharp pain on one side, dizziness, weakness, pain in shoulder (referred pain), vaginal bleeding

Dx: Clinical Picture/History
HCG Levels
US

Tx: Surgical -Laparoscopy
Medical- Methotrexate

Joey is a 14 yo who comes into the clinic c/o sudden onset of left testicular pain. On assessment, he describes the pain as a 8 out of 10. He denies any urinary symptoms, denies any trauma. He does have some lower abdominal pain and feels nauseated. What should you do?

a) Allow Joey to rest in the clinic
b) Send him back to class
c) Offer him ice to relieve the discomfort
d) Contact his parent/guardian immediately
e) Refer him to the emergency room
f) Give him Tylenol for the pain

1. A, C, F
2. A, D, E
3. B, C, F
4. A, C, F

Torsion of the Testicle

- Testicle rotates-twists the spermatic cord ➔↓ blood flow to testicle ➔sudden, severe pain and swelling
- Can occur at any age, but more common in 12-16 yo
- Causes: unknown, increased incidence in boys with Bell Clapper Deformity

Torsion of the Testicle

RISK FACTORS:

Previous testicular torsion

Family history of testicular torsion

SYMPTOMS:

Sudden, severe pain in scrotum

Swelling of scrotum

Abdominal pain

Nausea/Vomiting

Testicle that is ↑ or at an unusual angle

Torsion of the Testicle

Dx: Clinical Picture/Exam and History
Urinalysis
Scrotal US

Tx: Emergency Surgery

Complications: Damage or death to testicle
Male Infertility

Torsion of the Testicle

Recognition and Immediate Surgery

is essential!

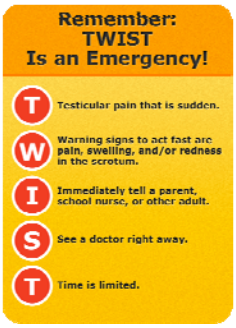
Success rate:

95% if surgery is within 6 hours

20% after 24 hours

Torsion of the Testicle

http://kidshealth.org/teen/sexual_health/guys/torsion.html#



Epididymitis

Inflammation of epididymis

Sx: painful swelling of the epididymis and the associated testicle
fever, chills
groin pain
urinary symptoms

Dx: Clinical Picture/History
US
CBC, Urinalysis and Urine Culture

Tx: Antibiotics
Pain medication