ABDOMINAL PAIN

- Location
- Work-up
- Acute pain syndromes
- Chronic pain syndromes

Epigastric Pain

- PUD
- GERD
- MI
- AAA- abdominal aortic aneurysm
- Pancreatic pain
- Gallbladder and common bile duct obstruction

Right Upper Quadrant Pain

- Acute Cholecystitis and Biliary Colic
- Acute Hepatitis or Abscess
- Hepatomegaly due to CHF
- Perforated Duodenal Ulcer
- Herpes Zoster
- Myocardial Ischemia
- Right Lower Lobe Pneumonia

Left Upper Quadrant Pain

- Acute Pancreatitis
- Gastric ulcer
- Gastritis
- Splenic enlargement, rupture or infarction
- Myocardial ischemia
- Left lower lobe pneumonia

Right lower Quadrant Pain

- Appendicitis
- Regional Enteritis
- Small bowel obstruction
- Leaking Aneurysm
- Ruptured Ectopic Pregnancy
- PID
- Twisted Ovarian Cyst
- Ureteral Calculi
- Hernia

Left Lower Quadrant Pain

- Diverticulitis
- Leaking Aneurysm
- Ruptured Ectopic pregnancy
- PID
- Twisted Ovarian Cyst
- Ureteral Calculi
- Hernia
- Regional Enteritis

Periumbilical Pain

- Disease of transverse colon
- Gastroenteritis
- Small bowel pain
- Appendicitis
- Early bowel obstruction

Diffuse Pain

- Generalized peritonitis
- Acute Pancreatitis
- Sickle Cell Crisis
- Mesenteric Thrombosis
- Gastroenteritis
- Metabolic disturbances
- Dissecting or Rupturing Aneurysm
- Intestinal Obstruction
- Psychogenic illness

Referred Pain

- Pneumonia (lower lobes)
- Inferior myocardial infarction
- Pulmonary infarction

TYPES OF ABDOMINAL PAIN

- Visceral
  - originates in abdominal organs covered by peritoneum
- Colic
  - crampy pain
- Parietal
  - from irritation of parietal peritoneum
- Referred
  - produced by pathology in one location felt at another location

ORGANIC VERSUS FUNCTIONAL PAIN

HISTORY	ORGANIC	FUNCTIONAL
Pain character	Acute, persistent pain increasing in intensity	Less likely to change
Pain localization	Sharply localized	Various locations
Pain in relation to sleep	Awakens at night	No affect
Pain in relation to umbilicus	Further away	At umbilicus
Associated symptoms	Fever, anorexia, vomiting, wt loss, anemia, elevated ESR	Headache, dizziness, multiple system com-plaints
Psychological stress	None reported	Present

WORK-UP OF ABDOMINAL PAIN

HISTORY

- Onset
- Qualitative description
- Intensity
- Frequency
- Location - Does it go anywhere (referred)?
- Duration
- Aggravating and relieving factors

WORK-UP

PHYSICAL EXAMINATION

- Inspection
- Auscultation
- Percussion
- Palpation
- Guarding - rebound tenderness
- Rectal exam
- Pelvic exam

WORK-UP

LABORATORY TESTS

- U/A
- CBC
- Additional depending on rule outs
  - amylase, lipase, LFT's

WORK-UP

DIAGNOSTIC STUDIES

- Plain X-rays (flat plate)
- Contrast studies - barium (upper and lower GI series)
- Ultrasound
- CT scanning
- Endoscopy
- Sigmoidoscopy, colonoscopy

Common Acute Pain Syndromes

- Appendicitis
- Acute diverticulitis
- Cholecystitis
- Pancreatitis
- Perforation of an ulcer
- Intestinal obstruction
- Ruptured AAA
- Pelvic disorders

APPENDICITIS

- Inflammatory disease of wall of appendix
- Diagnosis based on history and physical
- Classic sequence of symptoms
  - abdominal pain (begins epigastrium or periumbilical area, anorexia, nausea or vomiting
  - followed by pain over appendix and low grade fever

DIAGNOSIS

- Physical examination
  - low grade fever
  - McBurney's point
  - rebound, guarding, +psoas sign
- CBC, HCG
  - WBC range from 10,000-16,000

SURGERY

DIVERTICULITIS

- Results from stagnation of fecal material in single diverticulum leading to pressure necrosis of mucosa and inflammation
- Clinical presentation
  - most pts have h/o diverticula
  - mild to moderate, colicky to steady, aching abdominal pain - usually LLQ
  - may have fever and leukocytosis

PHYSICAL EXAMINATION
- With obstruction bowel sounds hyperactive
- Tenderness over affected section of bowel

DIAGNOSIS
- Often made on clinical grounds
- CBC - will not always see leukocytosis

MANAGEMENT
- Spontaneous resolution common with low-grade fever, mild leukocytosis, and minimal abdominal pain
- Treat at home with limited physical activity, reducing fluid intake, and oral antibiotics (bactrim DS bid or cipro 500mg bid & flagyl 500 mg tid for 7-14 days)
- Treatment is usually stopped when asymptomatic
- Patients who present acutely ill with possible signs of systemic peritonititis,, sepsis, and hypovolemia need admission

CHOLECYSTITIS

- Results from obstruction of cystic or common bile duct by large gallstones
- Colicky pain with progression to constant pain in RUQ that may radiate to R scapula
- Physical findings
  - tender to palpation or percussion RUQ
  - may have palpable gallbladder

DIAGNOSIS

- CBC, LFTs (bilirubin, alkaline phosphatase), serum pancreatic enzymes
- Plain abdominal films demonstrate biliary air hepatomegaly, and maybe gallstones
- Ultrasound - considered accurate about 95%

MANAGEMENT

- Admission

PANCREATITIS

- History of cholelithiasis or ETOH abuse
- Pain steady and boring, unrelieved by position change - LUQ with radiation to back - nausea and vomiting, diaphoretic
- Physical findings;
  - acutely ill with abdominal distention, ↓ BS
  - diffuse rebound
  - upper abd may show muscle rigidity

- Diagnostic studies
  - CBC
  - Ultrasound
  - Serum amylase and lipase
    - amylase rises 2-12 hours after onset and returns to normal in 2-3 days
    - lipase is elevated several days after attack

Management

- Admission

PEPTIC ULCER PERFORATION

- Life-threatening complication of peptic ulcer disease - more common with duodenal than gastric
- Predisposing factors
  - *Helicobacter pylori* infections
  - NSAIDs
  - hypersecretory states

- Sudden onset of severe intense, steady epigasric pain with radiation to sides, back, or right shoulder
- Past h/o burning, gnawing pain worse with empty stomach
- Physical findings
  - epigastric tenderness
  - rebound tenderness
  - abdominal muscle rigidity
- Diagnostic studies
  - upright or lateral decubitis X-ray shows air under the diaphragm or peritoneal cavity

REFER - SURGICAL EMERGENCY

SMALL BOWEL OBSTRUCTION

- Distention results in decreased absorption and increased secretions leading to further distention and fluid and electrolyte imbalance
- Number of causes
- Sudden onset of crampy pain usually in umbilical area of epigastrium - vomiting occurs early with small bowel and late with large bowel

- Physical findings
  - hyperactive, high-pitched BS
  - fecal mass may be palpable
  - abdominal distention
  - empty rectum on digital exam
- Diagnosis
  - CBC
  - serum amylase
  - stool for occult blood
  - type and crossmatch
  - abdominal X-ray
- Management
  - Hospitalization

RUPTURED AORTIC ANEURYSM

- AAA is abnormal dilation of abdominal aorta forming aneurysm that may rupture and cause exsanguination into peritoneum
- More frequent in elderly
- Sudden onset of excrutiating pain may be felt in chest or abdomen and may radiate to legs and back

- Physical findings
  - appears shocky
  - VS reflect impending shock
  - deficit or difference in femoral pulses
- Diagnosis
  - CT or MRI
  - ECG, cardiac enzymes

SURGICAL EMERGENCY

PELVIC PAIN

- Ectopic pregnancy
- PID
- UTI
- Ovarian cysts

CHRONIC PAIN SYNDROMES

- Irritable bowel syndrome
- Chronic pancreatitis
- Diverticulosis
- Gastroesophageal reflux disease (GERD)
- Inflammatory bowel disease
- Duodenal ulcer
- Gastric ulcer

IRRITABLE BOWEL SYNDROME

- GI condition classified as functional as no identifiable structural or biochemical abnormalities
- Affects 14%-24% of females and 5%-19% of males
- Onset in late adolescence to early adulthood
- Rare to see onset > 50 yrs old

SYMPTOMS

- Pain described as nonradiating, intermittent, crampy located lower abdomen
- Usually worse 1-2 hrs after meals
- Exacerbated by stress
- Relieved by BM
- Does not interrupt sleep
  - critical to diagnosis of IBS

DIAGNOSIS

ROME DIAGNOSTIC CRITERIA

- **3 month minimum of following symptoms in continuous or recurrent pattern**

Abdominal pain or discomfort relieved by BM & associated with either:

Change in frequency of stools

and/or

Change in consistency of stools

Two or more of following symptoms on 25% of occasions/days:

Altered stool frequency

>3 BMs daily or <3BMs/week

Altered stool form

Lumpy/hard or loose/watery

Altered stool passage

Straining, urgency, or feeling of incomplete evacuation

Passage of mucus

Feeling of bloating or abdominal distention

DIAGNOSTIC TESTS

- Limited - R/O organic disease
- CBC with diff
- ESR
- Electrolytes
- BUN, creatinine
- TSH
- Stool for occult blood and O & P
- Flexible sigmoidoscopy

MANAGEMENT

- Goals of management
  - exclude presence of underlying organic disease
  - provide support, support, & reassurance
- Dietary modification
- Pharmacotherapy
- Alternative therapies

Physician consultation is indicated if initial treatment of IBS fails, if organic disease is suspected, and/or if the patient who presents with a change in bowel habits is over 50

CHRONIC PANCREATITIS

- Alcohol major cause
- Malnutrition - outside US
- Patients >40 yrs with pancreatic dysfunction must be evaluated for pancreatic cancer
- Dysfunction between 20 to 40 yrs old R/O cystic fibrosis
- 50% of pts with chronic pancreatitis die within 25 yrs of diagnosis

SYMPTOMS

- Pain - may be absent or severe, recurrent or constant
- Usually abdominal, sometimes referred upper back, anterior chest, flank
- Wt loss, diarrhea, oily stools
- N, V, or abdominal distention less reported

DIAGNOSIS

- CBC
- Serum amylase (present during acuteattacks)
- Serum lipase
- Serum bilirubin
- Serum glucose
- Serum alkaline phosphatase
- Stool for fecal fat
- CT scan

MANAGEMENT

- Should be comanaged with a specialist
- Pancreatic dysfunction
  - diabetes
  - steatorrhea & diarrhea
  - enzyme replacement

DIVERTICULOSIS

- Uncomplicated disease, either asymptomatic or symptomatic
- Considered a deficiency disease of 20th century Western civilization
- Rare in first 4 decades - occurs in later years
- Incidence - 50% to 65% by 80 years

SYMPTOMS

- 80% - 85% remain symptomless - found by diagnostic study for other reason
- Irregular defecation, intermittent abdominal pain, bloating, or excessive flatulence
- Change in stool - flattened or ribbonlike
- Recurrent bouts of steady or crampy pain
- May mimic IBS except older age

DIAGNOSIS

- CBC
- Stool for occult blood
- Barium enema

MANAGEMENT

- Increased fiber intake - 35 g/day
- Increase fiber intake gradually
- Avoid
  - popcorn
  - corn
  - nuts
  - seeds

GASTROESOPHAGEAL REFLUX DISEASE

- Movement of gastric contents from stomach to esophagus
- May produce S & S within esophagus, pharynx, larynx, respiratory tract
- Most prevalent condition affecting GI tract
- About 15% of adults use antacid > 1x/wk

SYMPTOMS

- Heartburn - most common (severity of does not correlate with extent of tissue damage)
- Burning, gnawing in mid-epigastrium worsens with recumbency
- Water brash (appearance of salty-tasting fluid in mouth because stimulate saliva secretion)
- Occurs after eating may be relieved with antacids (occurs within 1 hr of eating - usually large meal of day)

- Dysphagia & odynophagia predictive of severe disease
- Chest pain - may mimic angina
- Foods that may precipitate heartburn
  - high fat or sugar
  - chocolate, coffee, & onions
  - citrus, tomato-based, spicy
- Cigarette smoking and alcohol
- Aspirin, NSAIDS, potassium, pills

DIAGNOSIS

- History of heartburn without other symptoms of serious disease
- Empiric trial of medication without testing
- Testing for those who do have persistent or unresponsive heartburn or signs of tissue injury
- CBC, *H. pylori* antibody
- Barium swallow
- Endoscopy for severe or atypical symptoms

MANAGEMENT

- Lifestyle changes
  - smoking cessation
  - reduce ETOH consumption
  - reduce dietary fat
  - decreased meal size
  - weight reduction
  - elevate head of bed 6 inches

- elimination of medications that are mucosal irritants or that lower esophageal pressure
- avoidance of chocolate, peppermint, coffee, tea, cola beverages, tomato juice, citrus fruit juices
- avoidance of supine position for 2 hours after meal
- avoidance of tight fitting clothes

MEDICATIONS

- Antacids with lifestyle changes may be sufficient
- H-histamine receptor antagonists in divided doses
  - approximately 48% of pts with esophagitis will heal on this regimen
  - tid dosing more effective for symptom relief and healing
  - long-term use is appropriate

•Proton pump inhibitors - prilosec & prevacid
- once a day dosing
- compared with H🖹RA have greater efficacy relieving symptoms & healing
- treat moderate to severe for 8 wks
- may continue with maintenance to prevent relapse

MAINTENANCE THERAPY

- High relapse rate - 50% within 2 months, 82% within 6 months without maintenance
- If symptoms return after treatment need maintenance
- Full dose H🖹RA for most patients with nonerosive GERD
- Proton pump inhibitors for severe or complicated

INFLAMMATORY BOWEL DISEASE

- Chronic inflammatory condition involving intestinal tract with periods of remission and exacerbation
- Two types
  - Ulcerative colitis (UC)
  - Crohn's disease

ULCERATIVE COLITIS

- Chronic inflammation of colonic mucosa
- Inflammation diffuse & continuous beginning in rectum
- May involve entire colon or only rectum (proctitis)
- Inflammation is continuous

CROHN'S DISEASE

- Chronic inflammation of all layers on intestinal tract
- Can involve any portion from mouth to anus
- 30%-40% small intestine (ileitis)
- 40%-45% small & large intestine (ileocolitis)
- 15%-25% colon (Crohn's colitis)
- Inflammation can be patchy

- Annual incidence of UC & Crohn's similar in both age of onset & worldwide distribution
- About 20% more men have UC
- About 20% more women have Crohn's
- Peak age of onset - between 15 & 25 yrs

SYMPTOMS

- Both have similar presentations
- Abdominal pain may be only complaint and may have been intermittent for years
- Abdominal pain and diarrhea present in most pts
- Pain diffuse or localized to RLQ-LLQ
- Cramping sensation - intermittent or constant

- Tenesmus & fecal incontinence
- Stools loose and/or watery - may have blood
- Rectal bleeding common with colitis
- Other complaints
  - fatigue
  - weight loss
  - anorexia
  - fever, chills
  - nausea, vomiting
  - joint pains
  - mouth sores

PHYSICAL EXAMINATION

- May be in no distress to acutely ill
- Oral apthous ulcers
- Tender lower abdomen
- Hyperactive bowel sounds
- Stool for occult blood may be +
- Perianal lesions
- Need to look for fistulas & abscesses

DIAGNOSIS

- CBC
- Stool for culture, ova & parasites, *C. difficile*
- Stool for occult blood
- Flexible sigmoidoscopy - useful to determine source of bright red blood
- Colonoscopy with biopsy
- Endoscopy may show “skip” areas
- May be difficult to distinguish one from other

MANAGEMENT

- Should be comanaged with GI
- 5-aminosalicylic acid products
- Corticosteroids
- Immunosuppressives
- Surgery

DUODENAL ULCERS

- Incidence increasing secondary to increasing use of NSAIDs, *H. pylori* infections
- Imbalance both in amount of acid-pepsin production delivered form stomach to duodenum and ability of lining to protect self

RISK FACTORS

- Stress
- Cigarette smoking
- COPD
- Alcohol
- Chronic ASA & NSAID use

GENETIC FACTORS

- Zollinger-Ellison syndrome
- First degree relatives with disease
- Blood group O
- Elevated levels of pepsinogen I
- Presence of HLA-B5 antigen
- Decreased RBC acetylcholinesterase

INCIDENCE

- About 16 million individuals will have during lifetime
- More common than gastric ulcers
- Peak incidence; 5th decade for men, 6th decade for women
- 75%-80% recurrence rate within 1yr of diagnosis without maintenance therapy
- >90% of duodenal ulcers caused by *H.pylori*

SYMPTOMS

- Epigastric pain
- Sharp, burning, aching, gnawing pain occurring 1 - 3 hrs after meals or in middle of night
- Pain relieved with antacids or food
- Symptoms recurrent lasting few days to months
- Weight gain not uncommon

DIAGNOSIS

- CBC
- Serum for *H. pylori*
- Stool for occult blood

MANAGEMENT

- 2 week trial of antiulcer med - d/c NSAIDs
- If *H. pylori* present - treat
- If no *H. pylori* & symptoms do not resolve after 2 wks refer to GI for endoscopy
- Antiulcer meds
  - H RA; associated with 75%-90% healing over 4-6week period followed by 1 yr maintenance
  - inhibits P-450 pathway; drug interactions

MANAGEMENT (CONT)

- Proton pump inhibitors
  - daily dosing
  - documented improved efficacy over H-RA blockers
- Prostagladin therapy - misoprostol
  - use with individuals who cannot d/c NSAIDs

GASTRIC ULCERS

- *H. pylori* identified in 65% to 75% of patients with non-NSAID use
- 5% - 25% of patients taking ASA/NSAID develop gastric ulcers (inhibits synthesis of prostaglandin which is critical for mucosal defense)
- Malignancy cause of

OTHER RISK FACTORS

- Caffeine/coffee
- Alcohol
- Smoking
- First-degree relative with gastric ulcer

SYMPTOMS

- Pain similar to duodenal but may be increased by food
- Location - LUQ radiating to back
- Bloating, belching, nausea, vomiting, weight loss
- NSAID-induced ulcers usually painless - discovered secondary to melena or iron deficiency anemia

DIAGNOSIS

- CBC
- Serum for *H. pylori*
- Carbon-labeled breath test
- Stool for occult blood
- Endoscopy

MANAGEMENT

- Treat *H.pylori* if present
- Proton pump inhibitors shown to be superior to H-RA
- Need to use proton pump inhibitor for up to 8 wks
- Do not need maintenance if infection eradicated and NSAIDs d/c'd
- Consider misoprostol if cannot d/c NSAID