

ED Evaluation of Abdominal Pain

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“It’s the damned belly that gives
man his worst troubles”
-Homer

Epidemiology

- One of the most common presenting complaints: 4-8% of adult ED visits.
- Admission rates of 18-42% in adults, much higher rates in the elderly
- In 42% of patients etiology is unknown.

Diagnosis

- “Abdominal pain of unknown etiology”

“Beauty cannot disguise
nor music melt,
A pain undiagnosable
but felt”

-AM Lindbergh

Immediate Life Threat

- Abdominal aortic aneurysms
- Splenic rupture
- Ectopic pregnancy
- Myocardial infarction

Extra Abdominal Causes of Abdominal Pain

- Systemic
 - ◆ DKA
 - ◆ AKA
 - ◆ Uremia
 - ◆ Sickle cell disease
 - ◆ SLE
 - ◆ Vasculitis
 - ◆ Glaucoma
 - ◆ Hyperthyroidism
- Toxic
 - ◆ Methanol
 - ◆ Heavy metals
 - ◆ Scorpion bites
 - ◆ Lactrodectus bite
- Thoracic
 - ◆ Acute coronary syn
 - ◆ Pneumonia
 - ◆ PE
 - ◆ Thoracic disc disease

Extra Abdominal Causes of Abdominal Pain

- Genitourinary
 - ◆ Testicular torsion
 - ◆ Renal colic
- Infectious
 - ◆ Strep pharyngitis
 - ◆ Rocky Mtn. Spotted Fever
 - ◆ Mononucleosis
- Abdominal Wall Pain
 - ◆ Herpes zoster
 - ◆ Muscle hematoma
 - ◆ Muscle spasm

Disease Spectrum by Age

Diagnosis	Age < 50	Age ≥ 50
■ Cholecystitis	6%	21%
■ Nonspecific	40%	16%
■ Appendicitis	32%	15%
■ Bowel obst	2%	12%
■ Pancreatitis	2%	7%
■ Diverticular disease	<0.1%	6%
■ Cancer	<0.1%	4%
■ Hernia	<0.1%	3%
■ Vascular	<0.1%	2%

History

- Quality of Pain
- Onset
- Severity
- Associated symptoms

History (continued)

- Gyn history-Sexual activity, LMP, contraception, gravida/para status.
- Recurrence of symptoms
- PMH-Surgeries, Chronic illnesses, Risk factors
- Medications

The importance of positioning



Physical Exam

- Location of Tenderness
 - ◆ Original study of McBurney's point tenderness had n=10
 - ◆ 80% of patients with appendicitis have tenderness to palpation in the RLQ
- Guarding
 - ◆ Involuntary guarding (rigidity) greatly increases the likelihood of surgical disease
 - ◆ Voluntary guarding not predictive

Physical Exam

- Vitals signs
 - ◆ Temperature variable sens. and spec. for intra-abdominal infection
 - ◆ Majority of elderly patients with acute cholecystitis and appendicitis are afebrile.

Physical Exam

- General appearance
 - ◆ 'You can observe a lot just by watching'
-Yogi Berra

Physical Exam

- Peritoneal Signs
 - ◆ Cough test is 80-95% sensitive for surgically proven peritonitis
 - ◆ 'Heel drop' was 93% sensitive for appendicitis
 - ◆ Less sensitive in the elderly

Physical Exam

- Specific PE signs
 - ◆ Murphy's-
 - Useful in diagnosing cholecystitis and biliary colic
 - Sensitivity of 97% and negative predictive value of 93% for cholecystitis.
 - Specificity of <50% for cholecystitis
 - ◆ Psoas
 - Sensitive and specific for psoas muscle abscess
 - Appendicitis -95% spec, 16% sens in one small study



Physical Exam

- Rosving's
- Obturator
- Boas sign

Carnett's sign

- Carnett's
 - ◆ 95% accuracy in distinguishing abdominal wall pain from visceral pain



Pelvic Examination

- Valuable in all women with abdominal pain
 - ◆ Fitz-Hugh-Curtis
 - ◆ PID vs. appendicitis
 - ◆ Appendicitis may cause CMT (30% of cases)
 - ◆ Appendicitis may cause hematuria (20-30% of cases)
 - ◆ >95% of women with PID will have pus at the cervical os.

Rectal Examination

- Greatest value is in detection of heme + stools
- Routine use in the evaluation of abdominal pain is unsupported in the literature
 - ◆ Literature is scant
 - ◆ Rectal provided no additional information in the patient with appendicitis
 - ◆ Useful in diagnosis of prostatitis, perirectal abscess, stool impactions, foreign body and GI bleed.

Serial Exams

- Useful in a subset of patients
- May be done on an outpatient basis depending on individual patient

Diagnostic Studies

- Adjuncts to history and physical
- Most overused:
 - ◆ CBC, electrolytes, LFT's, radiographs
- Most underused
 - ◆ bHCG, UA, EKG

Laboratory Evaluation

- Amylase
 - ◆ Neither sensitive nor specific for pancreatitis
 - ◆ May be elevated in alcoholics without pancreatitis
 - ◆ May be normal in recurrent pancreatitis
- Lipase
 - ◆ Most useful test for acute pancreatitis

Laboratory Evaluation

- CBC
 - ◆ Most commonly ordered test in abdominal pain
 - ◆ 10-60% of patients with appendicitis initially had a normal WBC
 - ◆ Rarely changes management, often does not add to information gathered from H & P

Laboratory Evaluation

- Urinalysis
 - ◆ Useful, but interpret with caution
 - ◆ 20-30% of patients with appendicitis have hematuria
 - ◆ Up to 30% of patients with ruptured AAA have hematuria

Plain Films

- Retrospective review of 1,000 patients
 - ◆ 68% non-specific
 - ◆ 23% normal
 - ◆ 10% abnormal
- Useful for:
 - ◆ Foreign body (90% sensitivity)
 - ◆ Bowel obstruction (43% sensitivity)
 - ◆ Perforated viscus

Ultrasound

- RUQ pain
- Lower abdominal pain in the pregnant female
 - ◆ Transabdominal if bHCG > 5000
 - ◆ Transvaginal if bHCG >2000 but <5000
- Abdominal aortic aneurysms

CT scanning

- “CT is a dark and lonely place where ED patients go to die”
- Spiral CT of the abdomen provides high sens. and specificity for intra-abdominal disease
- Women with abdominal pain and suspected appendicitis are routinely scanned
- Useful in special circumstances
 - ◆ Immunocompromised
 - ◆ Altered LOC
 - ◆ High surgical risk

Analgesia in Abdominal Pain

- OK to use analgesia in abdominal pain
- Many studies support this
- Discuss with consultants
- Use in small doses, short-acting agents
- Fentanyl 0.07-1.4 μ g/kg with airway monitoring, low dose morphine or hydromorphone.

Electrocardiogram

- Useful in patients who are:
 - ◆ Over 40 years of age
 - ◆ Unexplained epigastric pain
 - ◆ Non-tender abdomen

The Elderly Patient

- Likelihood of mortality increase with age
 - ◆ Age > 80 mortality is 7%
 - ◆ In patients > age 70 10% of those with abd. pain have a underlying vascular event (mesenteric ischemia, MI, AAA)
- Accuracy of diagnosis decreases with age
 - ◆ Age > 80 diagnostic accuracy in ED < 30%
 - ◆ Most geriatric patients with abd. pain should have surgical evaluation in the ED

The Patient with HIV

- High incidence of drug induced pancreatitis, AIDS related cholangiopathy, enterocolitis.
 - ◆ Drug induced pancreatitis in the HIV patient is fulminant in 10% of case
 - ◆ Abdominal pain related to immunocompromise in 65% of cases in one study
 - ◆ Consider CMV, lymphoma, atypical mycobacterium enteritis, crypto, sclerosing cholangitis

Women of Childbearing Age

- 1/3 of women of childbearing age with appendicitis are initially misdiagnosed
- 13% of female patients presenting with lower abd. pain are pregnant
- Tubal ligation does not exclude pregnancy
- Patients in their second trimester may have tenderness in RUQ with appendicitis

Case #1

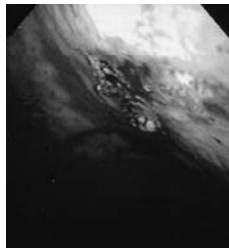
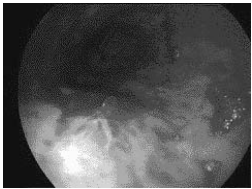
- A 37 yo male with a history of recurrent abdominal pain...



Case #2

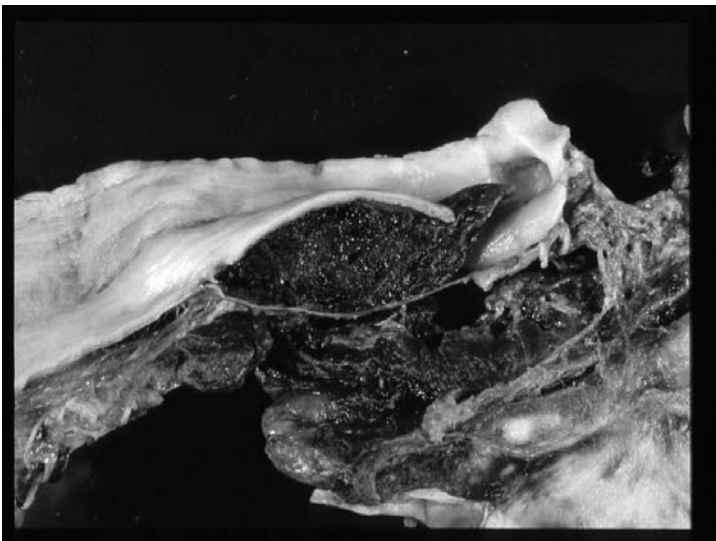
- A 26 yo male without significant PMH presents complaining of 'not feeling right' ...

Dieulafoy lesions



Case #3

- A 23 yo male presents to the ED after a syncopal episode and states that he has had days of LLQ pain...





Case #4

- You are asked to ‘medically clear’ a patient for admission to the psych floor. He is complaining of abdominal pain...

Acute Intermittent Porphyria



Things you don't want to say in court

- ‘They were only constipated’ (bowel ischemia, volvulus, infection)
- ‘Wish I'd thought of that’ (mesenteric ischemia, AAA, MI)
- ‘Looked like a kidney stone to me’ (AAA)
- ‘I wished I'd called the surgeon’ (40% of geriatric patients presenting to ED with abdominal pain require surgery)

Things you don't want to say in court

- ‘She said there was no way she could be pregnant’
- ‘It sure looked like PID’ (1/3 of women with appendicitis are initially misdiagnosed as PID or UTI)
- ‘I thought it was gastroenteritis’
- ‘The CBC was normal’