ED Evaluation of Abdominal Pain

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“I’m 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”

Immediate Life Threat

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

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

-AM Lindbergh
Extra Abdominal Causes of Abdominal Pain

- Systemic
  - DKA
  - AKA
  - Uremia
  - Sickle cell disease
  - SLE
  - Vasculitis
  - Glaucoma
  - Hyperthyroidism

- Toxic
  - Methanol
  - Heavy metals
  - Scorpion bites
  - Lactodectus bite

- Thoracic
  - Acute coronary syn
  - Pneumonia
  - PE
  - Thoracic disc disease

- Infectious
  - Strep pharyngitis
  - Rocky Mtn. Spotted Fever
  - Mononucleosis

- Genitourinary
  - Testicular torsion
  - Renal colic

- Abdominal Wall Pain
  - Herpes zoster
  - Muscle hematoma
  - Muscle spasm

Disease Spectrum by Age

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Age &lt; 50</th>
<th>Age &gt; 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholecystitis</td>
<td>6%</td>
<td>21%</td>
</tr>
<tr>
<td>Nonspecific</td>
<td>40%</td>
<td>16%</td>
</tr>
<tr>
<td>Appendicitis</td>
<td>32%</td>
<td>15%</td>
</tr>
<tr>
<td>Bowel obst</td>
<td>2%</td>
<td>12%</td>
</tr>
<tr>
<td>Pancreatitis</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>Diverticular disease</td>
<td>&lt;0.1%</td>
<td>6%</td>
</tr>
<tr>
<td>Cancer</td>
<td>&lt;0.1%</td>
<td>4%</td>
</tr>
<tr>
<td>Hernia</td>
<td>&lt;0.1%</td>
<td>3%</td>
</tr>
<tr>
<td>Vascular</td>
<td>&lt;0.1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

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

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

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

- **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

- **General appearance**
  - ‘You can observe a lot just by watching’
  - Yogi Berra
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 viscous

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 0.07-1.4µcg/kg with airway monitoring, low dose morphine or hydromorphone.

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’