Acute Abdomen

UBC General Surgery Academic Half-Day

September 12, 2012
Overview

- Basic Definition and Principles

- Clinical Diagnosis / DDx
  - Characterizing the pain
  - Other history to elicit
  - Ways to remember such a broad differential
  - History & Physical / Labs / Imaging
  - Non-surgical causes of acute abdomen

- Clinical Management

- Decision to Operate

- Atypical presentations
Signs and symptoms of intra-abdominal disease *usually* best treated by surgery.

Proper eval and management requires one to recognize:

1. Does this patient need surgery?
2. Is it emergent, urgent, or can wait?
   In other words, is the patient unstable or stable?

Learn to think in “worst-case” scenario

But remember medical causes of abd pain
Case #1

- 25 yo M
- 4 hour hx lower abd pain
- Climbing up wall with rope as part of work-out
- Pain severe, constant, aggravated by movement
Clinical Diagnosis

- Characterizing the **pain** is the key
- Onset, duration, location, character
- Visceral pain $\rightarrow$ dull & poorly localized
  - i.e. distension, inflammation or ischemia
- Parietal pain $\rightarrow$ sharper, better localized
  - Sharp “RUQ pain” (chol’y), “LLQ pain” (divertic)
- Kidney / ureter $\rightarrow$ flank pain
Case #2

- 83 yo F brought to ED by daughter
- Progressive weakness & functional decline over past 5 days
- Initially vague abdominal complaints
- P/E RLQ tenderness
Case #2
Clinical Diagnosis – Pain

- Location
  - Upper abdomen → PUD, chol’y, pancreatitis
  - Lower abdomen → Divertic, ovary cyst, TOA
  - Mid abdomen → early app’y, SBO

- Migratory pattern
  - Epigastric → Peri-umbil → RLQ = Acute app’y
  - Localized pain → Diffuse = Diffuse peritonitis
Clinical Diagnosis

- “Referred pain”
- Biliary disease → R shoulder or back
- Sub-left diaphragm abscess → L shoulder
- Above diaphragm (lungs) → Neck/shoulder
- Acute onset & unrelenting pain = bad
- Pain which resolves usu. not surgical


Other history

- GI symptoms
  - Nausea, emesis (? bilious or bloody)
  - Constipation, obstipation (last BM or flatus)
  - Diarrhea (? bloody)
  - Both Nausea/Diarrhea present usu. medical
  - Change in sx w eating?
- NSAID use (perf DU)
- Jaundice, acholic stools, dark urine

- Drinking history (pancreas)
- Prior surgeries (adhesions → SBO, ?still have gallbladder & appendix)
- History of hernias
- Urine output (dehydrated)
- Constitutional Sx
  - Fevers/chills
- Sexual history
Case #3

- 78 yo F back in town from stay in Las Vegas
- cc: n/v, generalized abdominal pain, weakness
- p/e: diffuse peritonitis
Clinical Diagnosis

A abrupt, excruciating pain
- Myocardial infarction
- Perforated ulcer
- Ruptured aneurysm

B rapid onset of severe, constant pain
- Acute pancreatitis
- Mesenteric thrombosis, strangulated bowel
- Ectopic pregnancy

Gradual, steady pain
- Acute cholecystitis
- Acute cholangitis
- Acute hepatitis

Intermittent, colicky pain, crescendo with free intervals
- Appendicitis
- Acute salpingitis
- Diverticulitis

- Early pancreatitis (rare)
- Small bowel obstruction
- Inflammatory bowel disease

Source: Gerard M. Doherty: CURRENT Diagnosis & Treatment: Surgery, 13th Edition:
http://www.accessmedicine.com
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Clinical Diagnosis

- Biliary colic
- Perforated duodenal ulcer
- Meckel's diverticulum
- Acute perforative appendicitis
- Ruptured ovarian cyst
- Acute salpingitis
- Perforated gastric ulcer
- Acute pancreatitis
- Acute intestinal obstruction
- Acute diverticulitis
- Torsion of ovary
- Ectopic pregnancy

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Case #4

- 64 M DM, HTN
- Hypotension with LOC at home
- c/o flank pain
Case #4
Case #5

- 72 yo to ED with abrupt onset crampy left abd pain
- 3/7 profuse diarrhea, nausea, emesis, limited po intake
- o/e diffusely tender (not peritoneal); FOB +
- PMHx HTN, cholecystectomy
Think **Broad** categories

- Inflammation
- Obstruction
- Ischemia
- Perforation (any of above can end here)
  - Offended organ becomes distended
  - Lymphatic/venous obstrux due to ↑pressure
  - Arterial pressure exceeded → ischemia
  - Prolonged ischemia → perforation
<table>
<thead>
<tr>
<th>GI tract</th>
<th>Gynecologic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver, spleen &amp; biliary tract</td>
<td>Vascular</td>
</tr>
<tr>
<td>Pancreatitis</td>
<td>Peritoneal</td>
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<tr>
<td>Urinary tract</td>
<td>Retroperitoneal</td>
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<tr>
<td>Organ</td>
<td>Lesion</td>
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<td>------------------</td>
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</tr>
<tr>
<td>Stomach</td>
<td>Gastric Ulcer</td>
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<tr>
<td></td>
<td>Duodenal Ulcer</td>
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<tr>
<td>Biliary Tract</td>
<td>Acute chol’y +/-</td>
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<tr>
<td></td>
<td>choledocholithiasis</td>
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<tr>
<td>Pancreas</td>
<td>Acute, recurrent, or</td>
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<tr>
<td></td>
<td>chronic pancreatitis</td>
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<tr>
<td>Small Intestine</td>
<td>Crohn’s disease</td>
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<td></td>
<td>Meckel’s diverticulum</td>
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<tr>
<td>Large Intestine</td>
<td>Appendicitis</td>
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<tr>
<td></td>
<td>Diverticulitis</td>
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Ischemia / Perforation

- Acute mesenteric ischemia
  - Usually acute occlusion of the SMA from thrombus or embolism

- Chronic mesenteric ischemia
  - Typically smoker, vasculopath with severe atherosclerotic vessel disease

- Ischemic colitis

- Any inflammation, obstructive, or ischemic process can progress to perforation

- Ruptured abdominal aortic aneurysm
## GYN Etiologies

<table>
<thead>
<tr>
<th>Organ</th>
<th>Lesion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovary</td>
<td>Ruptured graafian follicle</td>
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<tr>
<td></td>
<td>Torsion of ovary</td>
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<tr>
<td></td>
<td>Tubo-ovarian abscess (TOA)</td>
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<tr>
<td>Fallopian tube</td>
<td>Ectopic pregnancy</td>
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<tr>
<td></td>
<td>Acute salpingitis</td>
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<tr>
<td></td>
<td>Pyosalpinx</td>
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<tr>
<td>Uterus</td>
<td>Uterine rupture</td>
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<tr>
<td></td>
<td>Endometritis</td>
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</tbody>
</table>
## Labs & Imaging

<table>
<thead>
<tr>
<th>Test</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC w diff</td>
<td>Left shift can be very telling</td>
</tr>
<tr>
<td>BMP</td>
<td>N/V, lytes, acidosis, dehydration</td>
</tr>
<tr>
<td>Amylase</td>
<td>Pancreatitis, perf DU, bowel ischemia</td>
</tr>
<tr>
<td>LFT</td>
<td>Jaundice, hepatitis</td>
</tr>
<tr>
<td>UA</td>
<td>GU- UTI, stone, hematuria</td>
</tr>
<tr>
<td>Beta-hCG</td>
<td>Ectopic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>KUB</td>
<td>Flat &amp; Upright</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>Chol’y, jaundice GYN pathology</td>
</tr>
<tr>
<td>CT scan</td>
<td>Diagnostic accuracy</td>
</tr>
<tr>
<td></td>
<td>Anatomic dx Cases not straightforward</td>
</tr>
</tbody>
</table>
What is the diagnosis?
What is the diagnosis? Acute appendicitis
# Non-Surgical Causes by Systems

<table>
<thead>
<tr>
<th>System</th>
<th>Disease</th>
<th>System</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac</td>
<td>Myocardial infarction</td>
<td>Endocrine</td>
<td>Diab ketoacidosis</td>
</tr>
<tr>
<td></td>
<td>Acute pericarditis</td>
<td></td>
<td>Addisonian crisis</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Pneumonia</td>
<td>Metabolic</td>
<td>Acute porphyria</td>
</tr>
<tr>
<td></td>
<td>Pulmonary infarction</td>
<td></td>
<td>Mediterranean fever</td>
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<tr>
<td></td>
<td>PE</td>
<td></td>
<td>Hyperlipidemia</td>
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<tr>
<td>GI</td>
<td>Acute pancreatitis</td>
<td>Musculo-skeletal</td>
<td>Rectus muscle hematoma</td>
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<tr>
<td></td>
<td>Gastroenteritis</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Acute hepatitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GU</td>
<td>Pyelonephritis</td>
<td>CNS</td>
<td>Tabes dorsalis (syph)</td>
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<tr>
<td></td>
<td></td>
<td>PNS</td>
<td>Nerve root compression</td>
</tr>
<tr>
<td>Vascular</td>
<td>Aortic dissection</td>
<td>Heme</td>
<td>Sickle cell crisis</td>
</tr>
</tbody>
</table>
Decision to operate

- Peritonitis
- Tenderness w/ rebound, involuntary guarding
- Severe / unrelenting pain
- “Unstable” (hemodynamically, or septic)
- Tachycardic, hypotensive, white count
- Intestinal ischemia, including strangulation
- Pneumoperitoneum
- Complete or “high grade” obstruction
Special Circumstances

- Situations making diagnosis difficult
  - Stroke or spinal cord injury
  - Influence of drugs or alcohol
- Severity of disease can be masked by:
  - Steroids
  - Immunosuppression (i.e. AIDS)
- Threshold to operate must be even lower
Post-Op Considerations

- Bleeding
- Anastomotic Leak
- Fascial Dehiscence
- Bowel Obstruction
- Abscess
- Abdominal compartment syndrome
Bowel Obstruction

- Dx confounded by normal post-op adynamic ileus
- Narcotic analgesia
- Complete obstruction or nonresolving / worsening
  PSBO requires reoperation
In cases where leak controlled by drainage w/ little or no peritoneal contamination, may not need early operative intervention

- Percutaneous drainage
- NPO, TPM
- If peritoneal spillage or signs of intraabdominal sepsis, need emergent reoperation
Abscess

- Need approximately 7 days post-op days to organize an abscess
- Small ones may only require abx
- Larger ones or those w/ continued enteric contamination (leak) require drainage
- Percutaneous - operative if not accessible
Take Home Points

- Careful history (pain, other GI symptoms)
- Remember DDx in broad categories
- Narrow DDx based on hx, exam, labs, imaging
- Always perform ABC, Resuscitate before Dx
- If patient’s sick or “toxic”, get to OR (surgical emergency)
  - Ideally, resuscitate patients before going to the OR
- Don’t forget GYN/medical causes, special situations
- For acute abdomen, think of the common dx