Abdominal Pain
Assessment and Diagnosis

Lawrence R. Kosinski, MD, MBA, AGAF

Principles of Gastroenterology for the Nurse Practitioner and Physician Assistant
August 10-12, 2012
What is Abdominal Pain?

An unpleasant experience commonly associated with tissue injury or tissue distress.

Represents an interplay of:
pathophysiologic and psychosocial factors

Physiologic Determinants

- The nature of the stimuli
- The type of receptor involved
- Modifying influences – psychosocial?
Today's Algorithm
Anatomic Basis of Abd Pain

Location of Sensory Neuroreceptors

- Muscularis of hollow viscera
- On Serosal Structures
- In the Mesentery

Types of Sensory Neuroreceptors

- Myelinated A Delta Fibers: somatoparietal pain
- Unmyelinated C Fibers: visceral pain
Abdominal Pain-Stimuli

Stretch

Inflammation

Ischemia
Abdominal Pain - Types

Visceral
Parietal
Referred
Abdominal Pain - History

- Location
- Quality
- Chronology
- Aggravating Factors
- Associated Symptoms
Location

Epigastrium
- Esophagus
- Stomach
- Duodenum
- Gallbladder
- Pancreas

Periumbilical
- Small Intestine
- Ascending Colon

Lower Abdomen
- Entire Colon
- Gyne Sources
Location

<table>
<thead>
<tr>
<th>Right</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallstones</td>
<td>Stomach Ulcer</td>
</tr>
<tr>
<td>Stomach Ulcer</td>
<td>Heartburn / Indigestion</td>
</tr>
<tr>
<td>Pancreatitis</td>
<td>Pancreatitis, Gallstones, Epigastric hernia</td>
</tr>
<tr>
<td>Kidney stones</td>
<td>Stomach Ulcer</td>
</tr>
<tr>
<td>Urine Infection</td>
<td>Duodenal Ulcer</td>
</tr>
<tr>
<td>Constipation</td>
<td>Gall Bladder</td>
</tr>
<tr>
<td>Lumbar hernia</td>
<td>Left</td>
</tr>
<tr>
<td>Appendicitia</td>
<td>Stomach Ulcer</td>
</tr>
<tr>
<td>Constipation</td>
<td>Diverticular Disease</td>
</tr>
<tr>
<td>Pelvic Pain (Gynaec)</td>
<td>Constipation</td>
</tr>
<tr>
<td>Lower Back Pain</td>
<td>Diverticular Disease</td>
</tr>
<tr>
<td>(Inguinal Hernia)</td>
<td>Inflammatory bowel</td>
</tr>
<tr>
<td></td>
<td>Diverticular Disease</td>
</tr>
<tr>
<td></td>
<td>Pelvic pain (Gynaec)</td>
</tr>
<tr>
<td></td>
<td>Diverticular Disease</td>
</tr>
</tbody>
</table>
Quality

Visceral Pain
- Dull, Cramping, Burning, Gnawing

Parietal Pain
- Sharp and intense

Examples
- Appendicitis
- Ulcers Gnaw
- Aneurysms tear
Pearl #1

The patient with Visceral Pain won’t stop moving.

The patient with Parietal Pain doesn’t want to move at all.
Chronology

Sudden
Rapid
Gradual
Case #1

Hx: 86 y/o female A/W the acute onset of severe diffuse abdominal pain. No bowel activity. She is lying motionless in the bed and is somewhat lethargic/confused.

Px:  T 101, P100, R 20, 180/90
Abd: Mildly distended, relatively soft, No BS

Labs: WBC 22K, Hb. 10, PC 110K
Differential Diagnosis of Abd Pain of Sudden Onset (<1 hour)

- Perforated Ulcer
- Ruptured Abcess
- Ruptured Hematoma
- Esophageal Rupture
- Dissecting Aneurysm
- Ectopic Pregnancy
- Mesenteric Infarction

Mechanical Process
CT Finding

Diagnosis: SMA Thrombosis with Ischemic Infarction of the Small Bowel
Pearl #2

When you are presented with sudden severe abdominal pain

THINK MECHANICAL PROCESSES:
RUPTURE
OR
INFACTION
Pearl #3

When pain is out of proportion to physical findings, think:

ISCHEMIA
Case #2

Hx: 42 y/o obese female admitted with the several hours of epigastric and RUQ abdominal pain associated with nausea and vomiting

Px: T 100, P 90, R 18, BP: 150/89

Abd: Obese, soft, BS absent. Tender to light palpation in the RUQ

Labs: WBC 13K, Hb 12, AST 180, ALT 160, AP 131
Abdominal Pain - Chronology
Rapid Onset (>1 hour)

All causes of Sudden Pain +
Intestinal Obstruction
Acute Cholecystitis
Acute Pancreatitis
Acute Diverticulitis
Ureteral Colic

Inflammation
Ultrasound

Diagnosis: Acute Cholecystitis
Pearl #4

Pain of Rapid onset (>1 hour)

THINK

OBSTRUCTION OR INFLAMMATION
Case #3

61yo w/m presented two days of LLQ abdominal pain, described as sharp, constant with no radiation. He has had no bowel movement during that time.

PMH: Totally negative

No meds

Px: T101, VSS

Abd: Mildly distended, no BS, tender in LLQ with guarding
Abdominal Pain – Chronology
Gradual Onset

All causes of Sudden and Rapid Appendicitis
Meckel’s Diverticulitis
Abdominal Abcess
Diagnosis: Diverticulitis with Abscess
Pearl #5

Pain nearly always precedes vomiting with surgical problems whereas with most nonsurgical causes, it follows and vomiting comes first.

Nonsurgical Problem: Vomiting before Pain
Surgical Problem: Pain before Vomiting
Abdominal Pain
Aggravating and Alleviating Factors

Postural Effects
- Remember the Mesentery

Meal Related Effects
- Remember the Gastro-colic Reflex

Bowel Related Effects
- They will tell you if the colon is involved

Medications
- Especially those taken at night
Abdominal Examination

Inspection
Auscultation
Palpation
Percussion
Physical Exam - Inspection

Distention
Scars
Ecchymosis
Venous Pattern
Stria
Jaundice
Abdominal Distention
Think of the 6Fs

Fat
Fluid - Ascites
Flatus - Gas
Fetus - Pregnancy
Feces - Obstipation
Fatal Growths - Tumors
Scars
Ecchymosis

Grey Turner’s Sign
Cullen’s Sign
Venous Pattern

Caput Medusa

Caput Medusae - flow is towards the legs
Inferior vena cava obstruction - flow is towards the head
Stria
Physical Exam - Auscultation

Bowel Sounds

- Normal
- Hyperactive: Obstruction or Colitis
- Hypoactive: Ileus
- Absent: Acute Abdomen

Bruits
Physical Exam - Palpation

Light Palpation
- Build Confidence
- Start away from the pain
- Tenderness
  - Direct Tenderness
  - Rebound Tenderness

Deep Palpation
- Organ Size
- Masses
Physical Exam - Percussion

Organ size and Density

Types of Sounds

- Tympani to Dullness

Ascites

Be careful in the patient with abdominal pain
Rectal Examination

Don’t forget a rectal exam

Pelvic Abscess

Masses

Varicosities
Laboratory Evaluation

CBC:
- Anemia, leukocytosis, thrombocytopenia, MCV

CMP
- Renal Function, Acid Base, LFTs

Amylase/Lipase

PT/INR: liver disease, Warfarin

Urinalysis

Pregnancy Test
Imaging

Obstructive Series:
- Distention
- Free Air

US:
- Cholecystitis
- Pelvic Processes

CT:
Plain X-rays

Utility
- Gas Patterns
- Calcifications

Benefits
- Inexpensive
- Easy to do
- Noninvasive

Limitations
- Limited Detail of hollow organs
Example 1
Example 2
Example 3
Ultrasound

Indications

- Evaluation of the Biliary Tree, Liver, Pancreas
- Pelvic Organs

Benefits

- Noninvasive
- No Radiation dose
- Patient Tolerance

Limitations

- Poor visualization of hollow GI organs
- Limited visualization in obese or distended patients
Nuclear Medicine Studies

Indications
- Liver and Biliary Scanning
- GI Bleeding
- Gastric Emptying

Benefits
- Noninvasive
- Good Patient Compliance

Limitations
- Poor Imaging detail
- Inconclusive results
Example 1

Normal Biliary Imaging
Example 2
Cholecystitis
CT Scanning

Indications

- Evaluation of Solid organs, ie: Liver, Pancreas, Spleen
  - Requires IV Contrast
- Bowel Wall Evaluation
  - Requires Oral Contrast

Benefits

- Easily Done
- Good Patient Compliance

Limitations

- Hollow organs not visualized in detail
- Immobile (Cannot be done at bedside)
CT Overview
Slices
Example 1
Cirrhosis with Ascites
Example 2
Bowel Wall Infarct
Example 3
Retroperitoneal Abscess
Example 4
Crohn’s Disease
Differential Diagnosis

Epigastric Pain

- GERD
- Peptic Ulcer Disease
- Gastritis
- Pancreatitis
- Ischemia/Infarction
Pearl #8

Bleeders don’t hurt and hurters don’t bleed
When you see a bleeder that hurts, think ischemia
Differential Diagnosis – RUQ Pain

Acute Cholecystitis
Peptic Ulcer Disease
Hepatic Disorders
Colon Disorders
Differential Diagnosis – LUQ Pain

- Splenic Disorders
- Colon Disorders
- IBS
- Pancreatitis
Differential Diagnosis – Periumbilical

Intestinal Disorders
- Obstruction
- IBD

Vascular Disorders
- AAA
- Infarction
Differential Diagnosis – RLQ Pain

Acute Appendicitis
Meckel’s Diverticulitis
Crohn’s Disease
Valentino Appendicitis
Ovarian Cyst
IBS
Differential Diagnosis – LLQ Pain

Colonic Disorders

- Diverticulitis
- IBD
- IBS

Ovarian Disorders
Differential Diagnosis – Suprapubic

Bladder Disorders
Ovarian Cyst
Ruptured Endometrioma
Patience and Wisdom
DISCUSSION

Lawrence R. Kosinski, MD, MBA, AGAF
Managing Partner
Illinois Gastroenterology Group
745 Fletcher Drive
Elgin, Illinois 60123