ABDOMINAL PAIN

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Overview

Adult abdominal pain (AP)

- Pain in the abdominal region usually coming from or adjacent to organs within the abdomen
- Does not specify etiology so it is incumbent on the practitioner to define its characteristics through history, physical exam, and investigations before deciding on the differential diagnoses and appropriate management

Definitions[1,5]

- Acute – AP requiring emergent or urgent attention
- Chronic – AP of continuous or intermittent nature lasting at least three to six months; etiology more often benign; challenge is to determine which patients can be safely observed or treated symptomatically, and which require further investigations for more serious causes such as cancer

Diagnostic Considerations[1-4]

- Taking a good history and performing a suitable **physical examination** are often the most useful steps in diagnosing AP
- **History**
  - ***Characteristics of AP – how it started, duration, location, pattern, radiation, aggravating and alleviating factors***
  - How it started – sudden or gradual – often defines acute or chronic AP
  - Location – see "Diagnostic considerations by location" table below
  - Pattern – crampy, steady, increasing, unrelenting (pain scale may help)
  - Radiation – from or to chest (cardiac vs abdominal etiology), neck (GERD), shoulders (biliary), back (vascular or renal), specific abdominal organs or regions, groin (hernia), legs (vascular)
  - Aggravating factors – postprandial (gastric ulcer, pancreatitis, gallstones, ischemia), menstrual cycle (ovarian cysts or torsion), urination (cystitis), coughing (inflammatory etiology), medications (NSAIDS, iron, calcium, antibiotics etc.)
  - Alleviating factors – eating (duodenal ulcer), vomiting (UGI obstruction causing distension), antacids (gastro-esophagitis), lying on side with knees bent (peritonitis)
  - Associated symptoms – nausea, vomiting, weight change, GI bleed, change in bowel habits, jaundice
- Physical examination
  - ***Assess by inspection, auscultation, palpation, percussion, digital exam of anus, vagina or inguinal canals (if appropriate), general systems exam (e.g. vital signs, hydration, level of consciousness, response to pain)***
  - Auscultation – bowel sounds (silent, decreased or increased sounds), vascular bruits
  - Palpation and percussion – degree and location of tenderness (see "map" below), guarding or rigidity over abdominal wall (i.e. suggestion of "surgical abdomen"), masses (firm, fluctuating, pulsating), enlarged organs
  - Digital exam – rectal for ano-rectal masses, frank bleeding, black stools; vaginal for assessment of female organs, bleeding or abnormal discharge; inguinal canal and groin for protuberances with or without cough and enlarged lymph nodes
- **Differential diagnosis** may be approached by 1) location or 2) system:

1) Diagnostic considerations by location		
RUQ	**EPIGASTRIC**	**LUQ**
- Biliary colic, cholecystitis, cholangitis, CBD obstruction - Hepatitis, hepatic abscess - Congestive hepatomegaly - Pancreatitis - Nephrolithiasis/ pyelonephritis	- Gastritis - GERD, esophagitis - PUD - Pancreatitis - MW tear - AAA	- Gastritis - PUD - Pancreatitis - Splenic infarct, abscess, rupture - Nephrolithiasis/ pyelonephritis
LOWER ABDOMEN (RLQ or LLQ only where indicated)		
- Appendicitis (RLQ) - Colitis/ ileitis (infectious, ischemic, inflammatory) - Hernia – ventral, umbilical, inguinal or femoral - Colon cancer - Abdominal abscess - Abdominal wall hematoma - AAA	- Diverticulitis (LLQ>RLQ) - Fecal impaction (LLQ) - PID, endometriosis, hydrosalpinx, ovarian (torsion, abscess) - Mittelschmerz pain - Pregnancy (ectopic, threatened abortion) - Leiomyoma - Cystitis, renal stone, epididymitis, testicular torsion	

DIFFUSE
- Peritonitis - Early appendicitis - Mesenteric ischemia or infarct - Gastroenteritis - Inflammatory bowel disease - Irritable bowel syndrome - Bowel obstruction, pseudo-obstruction - Pancreatitis - Sickle cell crisis, severe hemolysis, acute leukemia - Diabetic ketoacidosis - Carcinoid syndrome - Addisonian crisis

2) Diagnostic considerations by system	
GI tract	- Esophagus – GERD, drug-induced (bisphosphonate, erythromycin), motility disorders, malignancy - Stomach – gastritis (H pylori), drug or alcohol induced, PUD, malignancy - Liver – abscess, malignancy - Pancreas – chronic pancreatitis, cysts or pseudocysts - Gallbladder – cholelithiasis, cholecystitis - Bowel – inflammatory, infectious, drug-induced (NSAIDS), obstruction (volvulus), malignancy
GU	- Nephrolithiasis, endometriosis
Vasculature	- Mesenteric or intestinal ischemia, superior mesenteric artery syndrome
MSK	- Abdominal wall – localized anterior pain accentuated by physical activity - Abdominal wall cutaneous nerve entrapment syndrome - Hernia
Neurogenic	- Herpes zoster, radiculitis
Referred from	- Chest – respiratory (pneumonia, pleurisy), cardiac (MI, pericarditis), chest wall (costochondritis) - Skin (herpes zoster)
Systemic or metabolic	- Celiac disease, lactose intolerance, porphyria, metal poisoning, Familial Mediterranean Fever, paroxysmal nocturnal hemoglobinuria, drugs (opioids, calcium channel blockers), hyper/hypothyroidism
Psychogenic	- Somatisation

- **Red flags** - unstable vital signs, progressive symptoms, syncope, fever, uncontrolled vomiting or diarrhea, weight loss, obstipation, concomitant chest or back pain, awakening pain, respiratory distress, acute vaginal or GI bleeding, signs of peritonitis (guarding, rigidity, diminished bowel sounds)
- **Chronic abdominal pain**[4,5] – organic vs. functional causes:
  - **Organic** – see above tables: Diagnostic considerations by location and system
  - **Functional**
  - Majority of patients with chronic AP – e.g. IBS (alteration of bowel habits relieved with defecation), functional dyspepsia (epigastric pain exacerbated by eating or specific foods)
  - Diagnosed on basis of typical constellation of symptoms and absence of pathological findings
  - Diagnosis may be made without extensive workup in young patients but with caution in those with red flags or over 50 y.o.

Management[3-6]

- Specific to Diagnostic Considerations
- Patient with acute AP may be transferred to emergency care or referred to other medical specialists for further management
- **Investigations** (this information limited to common tests) – tailored to history and physical exam findings

Laboratory	WBC (infection); Hb (bleeding); electrolytes, glucose, Cr, BUN (metabolic); LFTs, liver enzymes, lipase, amylase; ESR, CRP (inflammation); urinalysis, urine culture; TSH; pregnancy test
Imaging studies	Plain films of abdomen, U/S, CT, MRI (similar use to CT), barium studies
Endoscopic studies	Esophago-gastro-duodenoscopy, colonoscopy
Surgery	Laparoscopic or open surgery
Additional tests (Depending on Diagnostic Considerations)	Stool for C&S, O&P (bowel infection), H pylori (dyspepsia), anti-tissue transglutaminase (celiac disease), gynecological (vaginal swabs or STI blood tests)

- Pharmacotherapy (if indicated) is specific to diagnosis – e.g. antibiotics for diverticulitis, proton pump inhibitor for GERD
  - Recent reviews demonstrate that early use of opioids for acute abdominal pain in adults did not increase the risks of diagnostic error or detrimental treatment decisions; in ER situations, may be appropriate to offer symptomatic pain relief despite diagnostic uncertainty[6]

References can be found online at http://www.dfcm.utoronto.ca/programs/postgraduateprograme/One_Pager_Project_References.htm