Abdominal pain

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What are the most common complaints in medical practise?

- Sore throat,
- skin rash,
- abdominal pain,
- earache, and
- backache

- Abdominal pain is a challenging complaint for both primary care and specialist clinicians because it is frequently a benign complaint, but it can also herald serious acute pathology.
- Clinicians need to determine who could be safely observed, treated symptomatically or who would require further investigation or specialist referral.
- This task is complicated by the fact that abdominal pain is often a nonspecific complaint that presents with other symptoms

History

- Determine whether the pain is acute or chronic
- Detailed description of the pain and associated symptoms
- Sensitivity and specificity of the history and physical examination in diagnosing the different causes of abdominal pain is poor particularly for benign conditions.

Acute versus chronic abdominal pain.

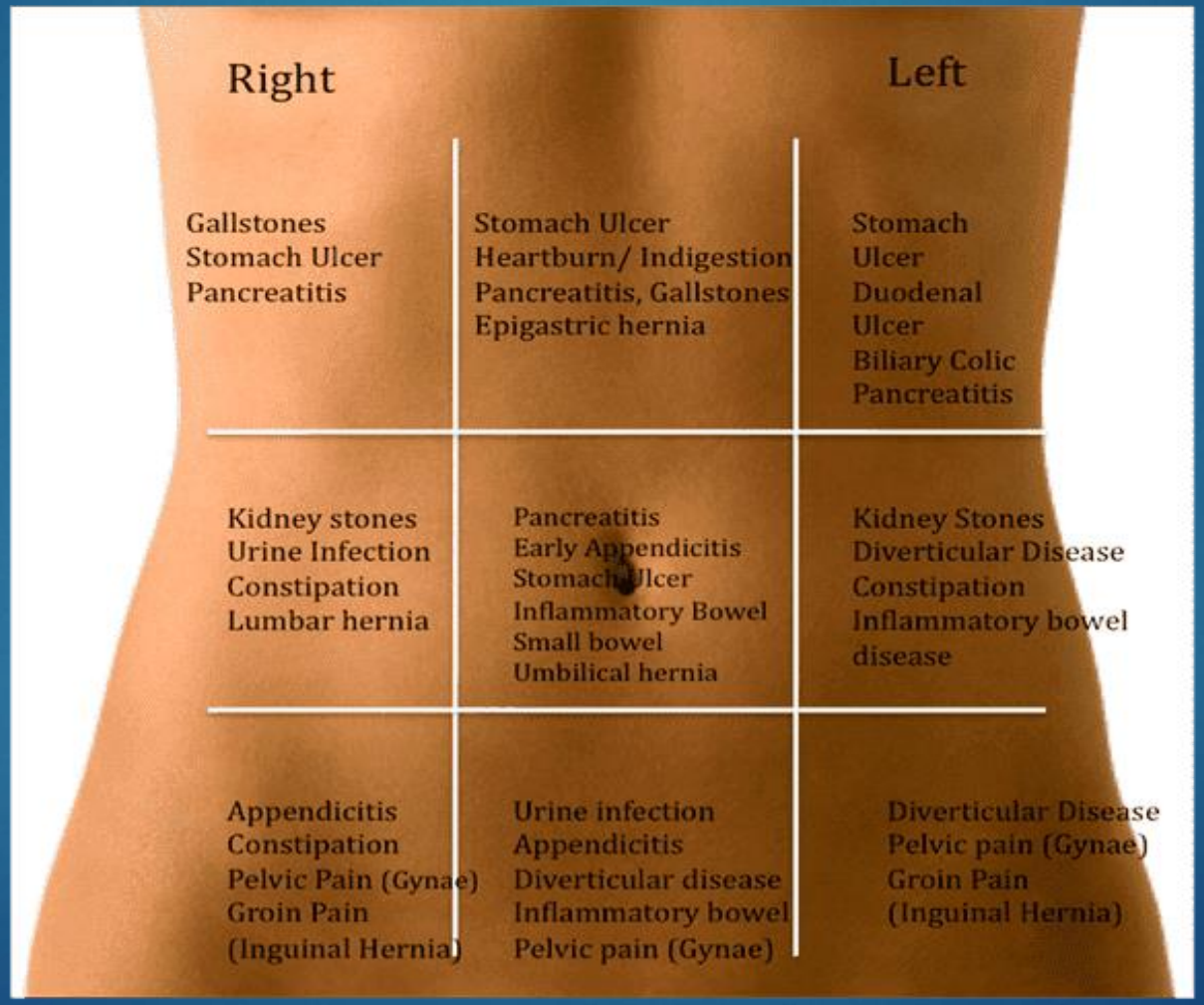
- No strict time period
- A clinical judgment must be made that considers whether this is an accelerating process, one that has reached a plateau, or one that is longstanding but intermittent.
- Chronic abdominal pain may present with an acute exacerbation of a chronic problem or a new and unrelated problem.

- Pain of less than a few days' duration that has worsened progressively until the time of presentation is clearly "acute."
- Pain that has remained unchanged for months or years can be safely classified as chronic
- If it does not clearly fit either category might be called subacute (wider differential dx)

Description

- Characterized the pain according to location, chronology, severity, aggravating and alleviating factors, and associated symptoms
- Patient has recurring episodes of similar pain as this may narrow the differential.

Location and radiation



Temporal elements

- Onset, frequency, and duration of the pain are helpful features
- Pancreatitis vs perforated peptic ulcer.

Quality

- Burning or gnawing, as is typical of gastroesophageal reflux and peptic ulcer disease, or colicky, as in the cramping pain of gastroenteritis or intestinal obstruction.

Severity

- Pain of biliary or renal colic or acute mesenteric ischemia is of high intensity, while the pain of gastroenteritis is less marked.
- Age and general health may affect the patient's clinical presentation
- Corticosteroids may have significant masking of pain, and older adult patients often present with less intense pain.

Precipitants or palliation

- Pain of chronic mesenteric ischemia usually starts within one hour of eating
- Pain of duodenal ulcers may be relieved by eating and recur several hours after a meal.
- Pancreatitis is classically relieved by sitting up and leaning forward
- Peritonitis often causes patients to lie motionless on their backs because any motion causes pain.

Associated symptoms

- **Other gastrointestinal symptoms**
- Nausea, vomiting, diarrhea, constipation, hematochezia, melena, and changes in stool (eg, change in caliber)
- Jaundice and changes in the color of urine and stool
- The bowel habit is an important part of the history for chronic abdominal pain.
- **Genitourinary symptoms**
- Dysuria, frequency, and hematuria

- **Constitutional symptoms**
- Fevers, chills, fatigue, weight loss, and anorexia would be concerning for infection, malignancy, or systemic illnesses.
- **Cardiopulmonary symptoms**
- Cough, shortness of breath, orthopnea, and exertional dyspnea suggest a pulmonary or cardiac etiology.

Physical examination

- **Vital signs**
- **Abdominal examination**
- **Inspection**
- level of comfort or discomfort should be noted ie lying very still vs writhing in pain.
- **Auscultation bowel obstruction vs ileus.**
- **Percussion**
- **Palpation**

DIAGNOSTIC APPROACH TO ACUTE ABDOMINAL PAIN

- Establish whether the condition is urgent or non urgent.
- Urgent would be patients with acute abdominal symptoms and who appear to be hemodynamically unstable.
- **Nonurgent evaluation**
- **Does the pain appear to be localized or diffuse in nature?**
- With localized pain, the differential diagnosis can be considered in terms of "symptom clusters" in order to guide further management and investigations.

Causes of right upper quadrant (RUQ) abdominal pain

RUQ	Clinical features	Comments
Biliary		
Biliary colic	Intense, dull discomfort located in the RUQ or epigastrium. Associated with nausea, vomiting, and diaphoresis. Generally lasts at least 30 minutes, plateauing within one hour. Benign abdominal examination.	Patients are generally well-appearing.
Acute cholecystitis	Prolonged (>4 to 6 hours) RUQ or epigastric pain, fever. Patients will have abdominal guarding and Murphy's sign.	
Acute cholangitis	Fever, jaundice, RUQ pain.	May have atypical presentation in older adults or immunosuppressed patients.
Sphincter of Oddi dysfunction	RUQ pain similar to other biliary pain.	Biliary type pain without other apparent causes.
Hepatic		
Acute hepatitis	RUQ pain with fatigue, malaise, nausea, vomiting, and anorexia. Patients may also have jaundice, dark urine, and light-colored stools.	Variety of etiologies include hepatitis A, alcohol, and drug-induced.
Perihepatitis (Fitz-Hugh-Curtis syndrome)	RUQ pain with a pleuritic component, pain is sometimes referred to the right shoulder.	Aminotransferases are usually normal or only slightly elevated.
Liver abscess	Fever and abdominal pain are the most common symptoms.	Risk factors include diabetes, underlying hepatobiliary or pancreatic disease, or liver transplant.
Budd-Chiari syndrome	Symptoms include fever, abdominal pain, abdominal distention (from ascites), lower extremity edema, jaundice, gastrointestinal bleeding, and/or hepatic encephalopathy.	Variety of causes.
Portal vein thrombosis	Symptoms include abdominal pain, dyspepsia, or gastrointestinal bleeding.	Clinical manifestations depend on extent of obstruction and speed of development. Most commonly associated with cirrhosis.

Causes of left upper quadrant (LUQ) abdominal pain

LUQ	Clinical features	Comments
Splenomegaly	Pain or discomfort in LUQ, left shoulder pain, and/or early satiety.	Multiple etiologies.
Splenic infarct	Severe LUQ pain.	Atypical presentations common. Associated with a variety of underlying conditions (eg, hypercoagulable state, atrial fibrillation, and splenomegaly).
Splenic abscess	Associated with fever and LUQ tenderness.	Uncommon. May also be associated with splenic infarction.
Splenic rupture	May complain of LUQ, left chest wall, or left shoulder pain that is worse with inspiration.	Most often associated with trauma.

Causes of epigastric abdominal pain

Epigastric	Clinical features	Comments
Acute myocardial infarction	May be associated with shortness of breath and exertional symptoms.	Consider particularly in patients with risk factors for coronary artery disease.
Acute pancreatitis	Acute-onset, persistent upper abdominal pain radiating to the back.	
Chronic pancreatitis	Epigastric pain radiating to the back.	Associated with pancreatic insufficiency.
Peptic ulcer disease	Epigastric pain or discomfort is the most prominent symptom.	Occasionally, discomfort localizes to one side.
Gastroesophageal reflux disease	Associated with heartburn, regurgitation, and dysphagia.	
Gastritis/gastropathy	Abdominal discomfort/pain, heartburn, nausea, vomiting, and hematemesis.	Variety of etiologies including alcohol and nonsteroidal antiinflammatory drugs (NSAIDs).
Functional dyspepsia	The presence of one or more of the following: postprandial fullness, early satiation, epigastric pain, or burning.	Patients have no evidence of structural disease.
Gastroparesis	Nausea, vomiting, abdominal pain, early satiety, postprandial fullness, and bloating.	Most causes are idiopathic, diabetic, or postsurgical.

Causes of lower abdominal pain

Lower abdomen	Localization	Clinical features	Comments
Appendicitis	Generally right lower quadrant	Periumbilical pain initially that radiates to the right lower quadrant. Associated with anorexia, nausea, and vomiting.	Occasional patients present with epigastric or generalized abdominal pain.
Diverticulitis	Generally left lower quadrant; right lower quadrant more common in Asian patients	Pain usually constant and present for several days prior to presentation. May have associated nausea and vomiting.	Clinical presentation depends on severity of underlying inflammatory process and whether or not complications are present.
Nephrolithiasis	Either	Pain most common symptom, varies from mild to severe. Generally flank pain, but may have back or abdominal pain.	Cause symptoms as stone passes from renal pelvis to ureter.
Pyelonephritis	Either	Associated with dysuria, frequency, urgency, hematuria, fever, chills, flank pain, and costovertebral angle tenderness.	
Acute urinary retention	Suprapubic	Present with lower abdominal pain and discomfort; inability to urinate.	
Cystitis	Suprapubic	Associated with dysuria, frequency, urgency, and hematuria.	
Infectious colitis	Either	Diarrhea as the predominant symptom, but may also have associated abdominal pain, which may be severe.	Patients with *Clostridioides difficile* infection can present with an acute abdomen and peritoneal signs in the setting of perforation and fulminant colitis.

Causes of diffuse abdominal pain

Diffuse/poorly characterized	Clinical features	Comments
Bowel obstruction	Most common symptoms are nausea, vomiting, crampy abdominal pain, and obstipation. Distended, tympanic abdomen with high-pitched or absent bowel sounds.	Multiple etiologies.
Perforation of the gastrointestinal tract	Severe abdominal pain, particularly following procedures.	Can present acutely or in an indolent manner, particularly in immunosuppressed patients.
Acute mesenteric ischemia	Acute and severe onset of diffuse and persistent abdominal pain, often described as pain out of proportion to examination.	May occur from either arterial or venous disease. Patients with aortic dissection can have abdominal pain related to mesenteric ischemia.
Chronic mesenteric ischemia	Abdominal pain after eating ("intestinal angina"), weight loss, nausea, vomiting, and diarrhea.	May occur from either arterial or venous disease.
Inflammatory bowel disease (ulcerative colitis/Crohn disease)	Associated with bloody diarrhea, urgency, tenesmus, bowel incontinence, weight loss, and fevers.	May have symptoms for years before diagnosis. Associated extraintestinal manifestations (eg, arthritis, uveitis).
Viral gastroenteritis	Diarrhea accompanied by nausea, vomiting, and abdominal pain.	
Spontaneous bacterial peritonitis	Fever, abdominal pain, and/or altered mental status.	Most often in cirrhotic patients with advanced liver disease and ascites.
Dialysis-related peritonitis	Abdominal pain and cloudy peritoneal effluent. Other symptoms and signs include fever, nausea, diarrhea, abdominal tenderness, and rebound tenderness.	Only in peritoneal dialysis patients.
Colorectal cancer	Variable presentation, including obstruction and perforation.	
Other malignancy	Vary depending on malignancy.	
Celiac disease	Abdominal pain in addition to including diarrhea with bulky, foul-smelling, floating stools due to steatorrhea and flatulence.	
Ketoacidosis	Diffuse abdominal pain and nausea and vomiting.	
Adrenal insufficiency	Diffuse abdominal pain and nausea and vomiting.	Patients with adrenal crisis may present with shock and hypotension.
Foodborne illness	Mixture of nausea, vomiting, fever, abdominal pain and diarrhea.	
Irritable bowel syndrome	Chronic abdominal pain with altered bowel habits.	
Constipation		Associated with a variety of neurologic and metabolic disorders, obstruction lesions of the gastrointestinal tract, endocrine disorders, psychiatric disorders, and side effect of medications.
Diverticulosis	May have symptoms of abdominal pain and constipation.	Often an asymptomatic and incidental finding on colonoscopy or sigmoidoscopy.
Lactose intolerance	Associated with abdominal pain, bloating, flatulence, and diarrhea. Abdominal pain may be cramping in nature.	

Tests to consider in patients with diffuse abdominal pain.

- Electrolytes, with calculation of an anion gap
- BUN, creatinine, blood glucose
- Calcium
- Complete blood count with differential
- Lipase and/or amylase
- Pregnancy test in females of childbearing age
- In older adult or immunosuppressed patients who may have atypical presentations of biliary tree infection, we also check aminotransferases, alkaline phosphatase, and bilirubin

DIAGNOSTIC APPROACH TO CHRONIC ABDOMINAL PAIN

- Chronic abdominal pain is a common complaint, and the vast majority of patients will have a functional disorder, most commonly irritable bowel syndrome.

Initial workup

- Features that suggest organic illness include weight loss, fever, hypovolemia, electrolyte abnormalities, symptoms or signs of gastrointestinal blood loss, anemia, or signs of malnutrition.
- Laboratory studies should be normal in patients with functional abdominal pain.

Initial lab studies in patients with chronic abdominal pain.

- Complete blood count with differential
- Electrolytes, blood urea nitrogen (BUN), creatinine, and glucose
- Calcium
- Aminotransferases, alkaline phosphatase, and bilirubin
- Lipase and/or amylase
- Serum iron, total iron binding capacity, and ferritin
- Celiac serology.

Subsequent workup

- Young patients with no evidence of organic disease can be treated symptomatically.
- Invasive testing should be directed at ruling in or out specific diseases and not as a general screen.
- Diagnosis of new-onset functional illness should be made only with great caution in patients over 50 years of age.

Less common causes of abdominal pain

Abdominal aortic aneurysm
Abdominal compartment syndrome
Abdominal migraine
Acute hepatic porphyrias (eg, acute intermittent porphyria)
Angioedema (either hereditary or angiotensin-converting enzyme [ACE] inhibitor-related)
Celiac artery compression syndrome
Chronic abdominal wall pain
Colonic pseudo-obstruction (acute or chronic)
Eosinophilic gastroenteritis
Epiploic appendagitis
Familial Mediterranean fever
Helminthic infections
Herpes zoster
Hypercalcemia
Hypothyroidism
Lead poisoning
Meckel's diverticulum
Narcotic bowel syndrome
Paroxysmal nocturnal hemoglobinuria
Pseudoappendicitis
Pulmonary etiologies
Rectus sheath hematoma
Renal infarction
Rib pain
Sclerosing mesenteritis
Somatization
Wandering spleen

SPECIAL POPULATIONS

- Older adults
- HIV-infected patients

Older adults

- Older patients may not have fever or abnormal laboratory values with infectious etiologies for abdominal pain.
- The frequency of misdiagnosis of the acute abdomen in older patients is high and associated with higher mortality rates than in younger patients.

HIV-infected patients

- Diagnostic evaluation of abdominal pain in the HIV-infected patient is similar to that in the general population.
- it is also guided by the immunologic function as represented by the CD4 cell count.
- cytomegalovirus [CMV], *Mycobacterium avium* complex [MAC], cryptosporidium) and neoplasms (eg, Kaposi sarcoma, lymphoma) if there is evidence of advanced immunodeficiency (CD4 cell count <100 cells/microL)

Questions?

- Thank you.