بسم الله الرحمن الرحيم
ABDOMINAL PAIN
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Inflammatory
- Chronic appendicitis
- Inflammatory bowel disease
- Chronic pancreatitis
- Celiac disease
- Pelvic inflammatory disease
- Primary sclerosing cholangitis
- Fibrosing mesenteritis
- Eosinophilic gastroenteritis

Vascular
- Mesenteric ischemia
- Celiac artery syndrome
- Superior mesenteric artery syndrome

Metabolic
- Diabetic neuropathy
- Familial mediterranean fever
- Hereditary angioedema
- Porphyria

Neuromuscular
- Anterior cutaneous nerve entrapment syndrome
- Myo fascial pain syndrome
- Slipping rib syndrome
- Thoracic nerve radiculopathy

Other
- Peptic ulcer disease
- Gall stones
- Endometriosis
- Adhesions
- Neoplasms
- Anaphylaxis
- Hernias
- Intestinal obstruction
- Intestinal malrotation
- Lactose intolerance
- Lipomatosis

Functional
- Irritable bowel syndrome
- Biliary pain (GB or sphincter of Oddi dysfunction)
- Functional abdominal pain syndrome
- Functional (non-ulcer) dyspepsia
- Gastroparesis
- Levator ani syndrome
Mechanical trauma to the tissue.

Excess heat or cold.

Chemical damage.

Radiation damage.

Inadequate blood flow.
Source of abdominal pain

Abdominal

Extra-abdominal

Pelvic organs

Functional abdominal pain

Intra-thoracic organs

Abdominal wall

Intra-peritoneal organs

Retro-peritoneal organs

Systemic dysfunction

Diabetes, tabes dorsalis, porphyria

Functional abdominal pain
Types of abdominal pain

Visceral pain is primitive and therefore related to embryologic development.
Types of abdominal pain

Somatic pain is entirely different from visceral pain
Visceral pain

1- Receptor

(Visceral peritoneum)
2 - Stimulus

Pat. Experienced pain by traction, distention & spasm

The visceral peritoneum is insensitive to touch & heat or any condition that promotes an inflammatory reaction
3 - Mediation

Autonomic nervous System Interpreted at the thalamic level of the brain
4- Specificity

Vague, often dull, poorly described & associated with nausea & vomiting
5- Localization

Is poor & the patient placing the entire hand over the involved region
VISCERAL:

- Deep, poorly localised, in midline
- Conducted via sympathetic splanchnic nerves
- Due to distension of hollow organs, mesenteric traction or smooth muscle contraction
Somatic pain

1- Receptor

Pain stimuli start in the parietal peritoneum, which is innervated by peripheral nerves.
Somatic pain

2- Stimulus

Pat. experienced pain by

Heat
Somatic pain

2- Stimulus

Pat. experienced pain by Pressure
Somatic pain

2- Stimulus

Pat. experienced pain by

Touch
Somatic pain

3- Mediation

Central nervous system & Interpreted at a specific cortical location
Somatic pain

4- Specificity

Precisely described as

Cutting
Somatic pain

5- Localization

The pain is localized with great accuracy by the patient, who can often point to the site with one finger.
SOMATIC

- Localised to area of inflammation
- Conducted via intercostal nerves
- Due to diseases of parietal peritoneum / abdominal wall
Important features of somatic pain

I. Pat. Laying quite in bed. (movement is limited)

II. Examination may demonstrate guarding, tenderness.

III. The pain is localized over the inflamed organ.

IV. Fever, tachycardia & tachypnea are systemic manifestation for generalized inflammation.
Referred pain

Pain felt at a site other than where the cause is situated. An example is the pain from the pancreas, which is felt in the back. Pain in internal organs is often referred to sites distant from them.
located in the cutaneous dermatomes that share the same spinal cord level as the affected visceral inputs
Referred pain –

Pain originating in the viscera may sometimes be perceived as originating from a site distant from the affected organ. Referred pain is usually located in the cutaneous dermatomes sharing the same spinal cord level as the visceral inputs.

As an example, nociceptive inputs from the gallbladder enter the spinal cord at T5 to T10. Thus, pain from an inflamed gallbladder may be perceived in the scapula.
Analysis of pain

DATA COLLECTION

1. History
2. Physical exam.
3. Lab.inv.

need

apply

your medical knowledge***
History of pain

- The history of pain
Localizing pain -- epigastric

- PUD
- Gastritis
- Pancreatitis
- GERD
- Cardiac (MI, pericarditis, etc)
Epigastric pain

— Pancreatic and gastric etiologies often cause epigastric pain

**Acute myocardial infarction** – Epigastric pain can be the presenting symptom of an acute myocardial infarction. Patients may have associated shortness of breath or exertional symptoms.

**Pancreatitis** – Both acute and chronic pancreatitis are associated with abdominal pain that often radiates to the back. Most patients with acute pancreatitis have acute onset of persistent, severe epigastric pain. The pain is steady and may be in the mid-epigastrium, right upper quadrant, diffuse, or, infrequently, confined to the left side.

The two primary clinical manifestations of chronic pancreatitis are epigastric pain and pancreatic insufficiency. The pain is typically epigastric, is occasionally associated with nausea and vomiting, and may be partially relieved by sitting upright or leaning forward.

**Peptic ulcer disease** – Upper abdominal pain or discomfort is the most prominent symptom in patients with peptic ulcers. Patients most often have epigastric pain, but occasionally the discomfort localizes to one side.
**Gastroesophageal reflux disease (GERD)** – Most patients with GERD complain of heartburn, regurgitation, and dysphagia. However, some patients may also complain of epigastric and/or chest pain.

**Gastritis/gastropathy** – Gastritis refers to inflammation in the lining of the stomach. Gastritis is predominantly an inflammatory process, while the term gastropathy denotes a gastric mucosal disorder with minimal to no inflammation. Acute gastropathy often presents with abdominal discomfort/pain, heartburn, nausea, vomiting, and hematemesis. Gastropathy may be caused by a variety of etiologies including alcohol and non-steroid antiinflammatory medications.

**Functional dyspepsia** – Functional dyspepsia is defined as the presence of one or more of the following symptoms: postprandial fullness, early satiation, and epigastric pain or burning, with no evidence of structural disease (including at upper endoscopy) to explain the symptoms.

**Gastroparesis** – Patients with gastroparesis can present with nausea, vomiting, abdominal pain, early satiety, postprandial fullness, bloating, and, in severe cases, weight loss. The most common causes are idiopathic, diabetic, or postsurgical
Localizing pain -- RUQ

- Hepatitis
- Cholecystitis
- Cholangitis
- RLL pneumonia
- Subdiaphragmatic abscess
Right upper quadrant pain

— Biliary and hepatic etiologies cause right upper quadrant pain syndromes.

Biliary etiologies include:

Gallstones – Symptoms of biliary colic classically include an intense, dull discomfort located in the right upper quadrant, epigastrium, or (less often) substernal area that may radiate to the back (particularly the right shoulder blade). Patients may have associated nausea, vomiting, and diaphoresis. The pain generally lasts at least 30 minutes, plateauing within an hour. Patients have an unremarkable abdominal examination. (See...
Acute cholecystitis – The clinical manifestations of acute cholecystitis include prolonged (more than four to six hours), steady, severe right upper quadrant or epigastric pain, fever, abdominal guarding, a positive Murphy's sign, and leukocytosis.

Acute cholangitis – Acute cholangitis occurs when a stone becomes impacted in the biliary or hepatic ducts, causing dilation of the obstructed duct and bacterial superinfection. It is characterized by fever, jaundice, and abdominal pain, although this classic triad (known as Charcot’s triad) occurs in only 50 to 75 percent of cases. The abdominal pain is typically vague and located in the right upper quadrant.

Sphincter of Oddi dysfunction – Sphincter of Oddi dysfunction can be a cause of biliary pain in the absence of gallstones or biliary inflammation. Typically the pain is located in the right upper quadrant or epigastrium and lasts from 30 minutes to several hours.
Hepatic etiologies include

**Hepatitis** – Patients with acute hepatitis (eg, from hepatitis A, alcohol, or medications) may have fatigue, malaise, nausea, vomiting, and anorexia in addition to right upper quadrant pain. Other symptoms include jaundice, dark urine, and light colored stools.

**Perihepatitis** – The Fitz-Hugh-Curtis syndrome, or perihepatitis, is a cause of right upper quadrant pain in young women with pelvic inflammatory disease (PID). It occurs in approximately 10 percent of patients with acute PID. It is characterized by right upper quadrant pain with a distinct pleuritic component, sometimes referred to the right shoulder.

**Liver abscess** – Liver abscess is the most common type of visceral abscess. Patients generally present with fever and abdominal pain. Risk factors include diabetes, underlying hepatobiliary or pancreatic disease, or liver transplant.
**Budd-Chiari syndrome**  – Budd-Chiari syndrome is defined as hepatic venous outflow tract obstruction, independent of the level or mechanism of obstruction, provided the obstruction is not due to cardiac disease, pericardial disease, or sinusoidal obstruction syndrome (veno-occlusive disease). Symptoms include fever, abdominal pain, abdominal distention (from ascites), lower extremity edema, jaundice, gastrointestinal bleeding, and/or hepatic encephalopathy. There are a variety of causes.

**Portal vein thrombosis**  – Clinical manifestations of portal vein thrombosis vary depending on the extent of obstruction as well as the speed of development (acute or chronic). It is common in patients with cirrhosis and is associated with the severity of liver disease. Patients may be asymptomatic or have abdominal pain, dyspepsia, or gastrointestinal bleeding.
Localizing pain -- LUQ

- Splenic infarct
- Splenic abscess
- Gastritis/PUD
Left upper quadrant pain

**Splenomegaly** – Splenomegaly can cause left upper quadrant pain or discomfort, referred pain to the left shoulder, and/or early satiety. Splenomegaly has multiple causes.

**Splenic infarction** – Patients with splenic infarction classically present with severe left upper quadrant pain, though atypical presentations are common. Splenic infarction is associated with a variety of underlying conditions (eg, hypercoagulable state, embolic disease from atrial fibrillation, conditions associated with splenomegaly).

**Splenic abscess** – Splenic abscesses are uncommon and typically are associated with fever and tenderness in the left upper quadrant. They may also be associated with splenic infarction.

**Splenic rupture** – Splenic rupture is most often associated with trauma. The patient may complain of left upper abdominal, left chest wall, or left shoulder pain (ie, Kehr's sign). Kehr's sign is pain referred to the left shoulder that worsens with inspiration and is due to irritation of the phrenic nerve from blood adjacent to the left hemidiaphragm.
Localizing pain -- RLQ

- Appendicitis
- Inguinal hernia
- Nephrolithiasis
- IBD
- Salpingitis
- Ectopic pregnancy
- Ovarian pathology
Localizing pain -- LLQ

- Diverticulitis
- Inguinal hernia
- Nephrolithiasis
- IBD
- Salpingitis
- Ectopic pregnancy
- Ovarian pathology
Localizing pain -- periumbilical

- Pancreatitis
- Obstruction
- Early appendicitis
- Small bowel pathology
- Gastroenteritis
Localizing pain -- pelvic

- UTI
- Prostatitis
- Bladder outlet obstruction
- PID
- Uterine pathology
Localizing pain -- diffuse

- Gastroenteritis
- Ischemia
- Obstruction
- DKA
- IBS
- Others
  - FMF
  - AIP
  - Vitamin D deficiency
  - Adrenal insufficiency
DIFFUSE ABDOMINAL PAIN SYNDROMES

— Abdominal pain syndromes may have diffuse, non-specific abdominal or variable presentations of pain

Obstruction

Severe, acute diffuse abdominal pain can be caused by either partial or complete obstruction of the intestines. Intestinal obstruction should be considered when the patient complains of pain, vomiting, and obstipation. Physical findings include abdominal distention, tenderness to palpation, high-pitched or absent bowel sounds, and a tympanic abdomen. There are many etiologies of obstruction
Obstruction

the most common etiologies in adults being postoperative adhesions, malignancy related (eg, from colorectal cancer), and complicated hernias. Other less common etiologies include Crohn disease, gallstones, volvulus, and intussusception.
Perforation of gastrointestinal tract

- Perforation of the gastrointestinal tract can present acutely or in an indolent manner. Patients complain of chest or abdominal pain to some degree. Sudden, severe chest or abdominal pain following instrumentation or surgery is very concerning for perforation.
• Patients on immunosuppressive or anti-inflammatory agents may have an impaired inflammatory response, and some may have little or no pain and tenderness.
Mesenteric ischemia –

Acute mesenteric ischemia presents with the acute and severe onset of diffuse and persistent abdominal pain, often described as pain out of proportion to examination. Several features of the pain and its presentation may provide clues to the etiology of the ischemia and help distinguish small intestinal from colonic ischemia. Chronic mesenteric ischemia may be manifested by a variety of symptoms including abdominal pain after eating ("intestinal angina"), weight loss, nausea, vomiting, and diarrhea. Ischemia that involves the celiac territory causes epigastric or right upper quadrant pain. Ischemia may be from either arterial or venous disease.

Patients with aortic dissection may have abdominal pain from mesenteric ischemia
Inflammatory bowel disease (IBD)

– IBD is also associated with a number of extraintestinal manifestations.

● Ulcerative colitis (UC) – Patients with UC usually present with diarrhea which may be associated with blood. Bowel movements are frequent and small in volume as a result of rectal inflammation. Associated symptoms include colicky abdominal pain, urgency, tenesmus, and incontinence.
(CD) – The clinical manifestations of CD are more variable than those of UC. Patients can have symptoms for many years prior to diagnosis. Fatigue, prolonged diarrhea with abdominal pain, weight loss, and fever, with or without gross bleeding, are the hallmarks of CD
Spontaneous bacterial peritonitis (SBP)

SBP most often occurs in cirrhotics with advanced liver disease with ascites. Patients present with fever, abdominal pain, and/or altered mental status.
Peritonitis in peritoneal dialysis patients

Peritonitis may develop in patients on peritoneal dialysis either from contamination during dialysis or catheter related infection. The most common symptoms and signs are abdominal pain and cloudy peritoneal effluent. Other symptoms and signs include fever, nausea, diarrhea, abdominal tenderness, rebound tenderness, and occasionally systemic signs (e.g., hypotension...
Malignancy

Gastrointestinal malignancies may be associated with abdominal discomfort. As examples:

**Colorectal cancer** – Patients with colorectal cancer may present with abdominal pain from partial obstruction, peritoneal dissemination, or perforation.

**Gastric cancer** – Patients with gastric cancer may have abdominal pain that is often epigastric pain.

**Pancreatic cancer** – The most common symptoms in patients with pancreatic cancer are pain, jaundice, and weight loss.

- Additionally, patients may have pain as part of pain syndromes related to malignancy
Celiac disease

Patients with celiac disease may complain of abdominal pain in addition to diarrhea with bulky, foul-smelling, floating stools due to steatorrhea and flatulence.
Ketoacidosis –
Patients with ketoacidosis (eg, from diabetes or alcohol) may have diffuse abdominal pain as well as nausea and vomiting

Adrenal insufficiency – Patients with adrenal insufficiency may have diffuse abdominal pain as well as nausea and vomiting. Patients with adrenal crisis may present with shock and hypotension. Patients with chronic adrenal deficiency may also complain of malaise, fatigue, anorexia, and weight loss
Irritable bowel syndrome (IBS)

Patients with IBS can present with a wide array of symptoms which include both gastrointestinal and extraintestinal complaints. However, the symptom complex of chronic abdominal pain and altered bowel habits remains the nonspecific yet primary characteristic of IBS.
Constipation

Constipation may be associated with abdominal pain. Diseases associated with constipation include neurologic and metabolic disorders, obstructing lesions of the gastrointestinal tract, including colorectal cancer, endocrine disorders such as diabetes mellitus, and psychiatric disorders such as anorexia nervosa. Constipation may also be due to a side effect of drugs.
**Diverticulosis** –

Uncomplicated diverticulosis is often asymptomatic and an incidental finding on colonoscopy or sigmoidoscopy. However, these patients may have symptoms of abdominal pain and constipation.

**Lactose intolerance** –

Symptoms of lactose intolerance include abdominal pain, bloating, flatulence, and diarrhea. The abdominal pain may be cramping in nature and is often localized to the periumbilical area or lower quadrants.
History of pain

➢ The history of pain

Mode of onset
Mode of onset

Sudden onset

[The patient can tell you exactly when the pain started]

The pain that start suddenly has a mechanical basis

Some thing has been Occluded
Mode of onset

Sudden onset

[The patient can tell you exactly when the pain started]

The pain that start suddenly has a mechanical basis

Some thing has been

Twisted
Mode of onset

Sudden onset

[The patient can tell you exactly when the pain started]

The pain that start suddenly has a **mechanical basis**

Some thing has been

Ruptured
Mode of onset

Gradual Onset

(The pat. Usually responds vaguely to questions about time of onset)

Non mechanical or chronic process
Abdominal Pain
Thank you