Abdominal Pain Assessment and Management

Abdominal Pain is a common presenting concern and can be related to an intra-abdominal process or to causes originating outside the abdomen. It is often a benign complaint but can also represent an underlying serious/urgent pathology. A detailed history and physical examination are the cornerstones in developing a differential diagnosis and guiding the clinical workup. While life-threatening causes of abdominal pain are not as common, it is crucial to rule them out as soon as possible.

Causes of Abdominal Pain

This list is not exhaustive but includes the most common causes.

- Gallbladder stones or inflammation: Typically right upper quadrant (RUQ) pain, post-prandial, positive Murphy's sign on exam; ultrasound can help support diagnosis
- Appendicitis: Usually begins in periumbilical region and then moves to right lower quadrant (RLQ), often associated with fever, anorexia
- Diverticulitis: acute left lower quadrant (LLQ) pain, often found in patients over 65 years old
- Urinary Tract Infection (UTI): dysuria, urgency and frequency; urinalysis suggestive of UTI
- Kidney Stones: nausea or vomiting, abdominal and/or flank pain, hematuria, male, history of kidney stones, less than 60 years old
- Ulcer: peptic ulcer common in upper abdomen and worsens with food; for duodenal ulcers, classic pain is 2 hours after a meal
- Pelvic Inflammatory Disease: at risk for sexually transmitted infection, vaginal discharge, lower abdominal discomfort, cervical motion tenderness on pelvic exam
- Ectopic Pregnancy: positive pregnancy test, no intra-uterine pregnancy on ultrasound, possibly vaginal bleeding
- Abdominal Aortic Aneurysm (AAA): if ruptured, may present with hypotension, severe pain, pulsating abdominal mass
- Bowel Obstruction: nausea, vomiting, inability to pass gas or stool, abdominal distention
- Hepatitis: may have upper abdominal pain, jaundice, elevated liver function tests
- Incarcerated Hernia: pain at hernia and not reducible
- Mesenteric Ischemia: often rapid onset abdominal pain that appears out of proportion with exam findings

Patient History

- **Symptom description - ask the patient to describe the following:**
    - Type of pain: pressure or tightness, pulsating, deep, explosive, burning (may be associated with gastroesophageal reflux disease [GERD])
    - Timing of the pain: is it related to food intake?
    - Location of the pain: is it generalized, localized to one quadrant, or radiating?

  - Duration of symptoms: hours, days, acute vs. chronic
  - Relieving and alleviating factors: worse or better with food or movement?
  - History of similar pain?
  - Associated symptoms: any fever/chills, dysuria, change in bowel habits (constipation, diarrhea), nausea or vomiting, chest pain, shortness of breath, bloody stools
  - Recent travel (consider infectious causes)
  - New medications or recently taking new over-the-counter (OTC) medications such as non-steroidal anti-inflammatory drugs (NSAIDs)
- Medical History: Chronic health conditions such as diabetes, cancer, HIV, thyroid conditions, sexual history, alcohol or drug use, recent antibiotic use
- Surgical History: any history of abdominal or gynecological surgeries
- Family History

Differential Diagnosis

The following is a list of differential diagnoses based on location of the pain. Please note this is not an exhaustive list but can help guide your evaluation.

- Epigastric: may originate from the heart, gastric region, and pancreas such as myocardial infarction, pancreatitis, biliary, gastritis, gastroparesis, GERD, peptic ulcer
- RUQ Pain: may originate from the liver, biliary tree, or gallbladder such as gallstones, cholecystitis, hepatitis, lower lobe pneumonia, pancreatitis, duodenal ulcer
- LUQ Pain: may originate from the spleen, renal colic, lower lobe pneumonia, or may be atypical referred pain
- Periumbilical: AAA, early appendicitis, hernia, gastroparesis
- Lower Abdominal Pain: diverticulitis-usually LLQ, pyelonephritis-with urinary symptoms, kidney stones often with flank pain, hematuria, appendicitis-periumbilical and then RLQ, cystitis-urinary symptoms, ectopic pregnancy, testicular torsion, ovarian torsion, ovarian cyst rupture, hernia, colitis-diarrhea, possibly fever
- Generalized Abdominal Pain: consider gastroenteritis (based on patient symptoms), pulmonary pathology (again, consider patient's other symptoms), bowel obstruction or perforation, acute/chronic mesenteric ischemia, inflammatory bowel disease, irritable bowel syndrome, constipation, colon cancer, celiac, diverticulosis

Physical Examination

- Vital Signs: include blood pressure, heart rate, and temperature
- Mental status
- Eyes and Skin-check for jaundice
- Heart and Lungs
- Abdominal Exam: inspection, auscultation, percussion, palpation
- Pelvic Exam: perform on any patient with female reproductive organs, if lower abdominal pain or suspicion for pelvic inflammatory disease, adnexal torsion, etc.

- Rectal Exam may be considered

Diagnostic Tests

Imaging: often based on the location of the abdominal pain

- Right Upper Quadrant Pain, suprapubic, pelvic (if female organs): Ultrasound is preferred
- Left Upper Quadrant Pain, non-localized pain, and lower abdominal pain: CT Scan with IV contrast is often performed
- Chest x-ray may be considered if cough and fever to rule out pneumonia

Labs:

- Complete blood count: can suggest infection or bleeding
- C-reactive protein: identifies inflammation or infection
- Hepatobiliary marker: assess liver inflammation/involvement
- Electrolyte imbalance
- Creatinine: kidney involvement
- Glucose: is uncontrolled diabetes a factor?
- Pregnancy testing: if positive and lower abdominal pain, consider ectopic pregnancy
- Lipase: may support diagnosis of pancreatitis if elevated but could also be normal
- Urinalysis: identify signs of urinary infection or kidney stones
- Sexually Transmitted Infection testing in those at risk

Management

- If hemodynamically unstable, sudden onset with signs of peritonitis, severe new onset pain, then fast track for surgical evaluation and follow resuscitation protocols
- Ultimately, the management of the pain will depend on diagnosis and managing symptoms
- Rule out any life-threatening causes based on above workup
- If no organic disease found and patient is young and otherwise healthy, then symptomatic treatment can be initiated

Reassuring findings:

- Afebrile
- Normal labs and imaging
- Age less than 50 years
- No underlying health issues
- Response to symptomatic treatment

Conclusion

Abdominal pain is a common cause of presentation for care for adults. It is important to rule out any severe or urgent illness and evaluate for underlying causes. Consider the patient's age and underlying health conditions, as these may result in abnormal pain presentations and symptoms. Immediate treatment may be required for about ten percent of primary care patients with abdominal pain (Yew, 2023). Once a cause is determined, then the appropriate treatment plan targeting the illness can be implemented.

References

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