

A 37-year-old hospitalized man is evaluated for acute onset of intense periumbilical abdominal pain associated with nausea and vomiting. He has had 2 bowel movements since the pain started. The patient has a history of alcohol and intravenous heroin abuse. He was admitted 4 days ago for fever, chills, and shortness of breath and was diagnosed with acute bacterial endocarditis. His blood cultures grew *Staphylococcus aureus*, and an echocardiogram showed vegetations on the mitral valve. He is currently being treated with intravenous vancomycin. On examination, the patient appears in significant distress and is restless. Temperature is 37.5 C (99.5 F), blood pressure is 150/90 mm Hg, pulse is 110/min and regular, and respirations are 18/min. Pupils are equal, round, and 3 mm in size. Lungs are clear to auscultation. A 3/6 holosystolic murmur is present over the apex. There is no third heart sound. On abdominal palpation, minimal diffuse tenderness is present. There is no rigidity or rebound. Bowel sounds are decreased. Extremities are warm with normal pulses. There is no tremor. Abdominal x-rays reveal no free air or obstruction. Which of the following is the most likely diagnosis?

- ☐ A. Acalculous cholecystitis
- ☐ B. Acute pancreatitis
- ☐ C. Alcohol withdrawal
- ☐ D. Intraabdominal abscess
- ☐ E. Mesenteric ischemia
- ☐ F. Opioid withdrawal
- ☐ G. Papillary muscle rupture

Submit

A 37-year-old hospitalized man is evaluated for acute onset of intense periumbilical abdominal pain associated with nausea and vomiting. He has had 2 bowel movements since the pain started. The patient has a history of alcohol and intravenous heroin abuse. He was admitted 4 days ago for fever, chills, and shortness of breath and was diagnosed with acute bacterial endocarditis. His blood cultures grew *Staphylococcus aureus*, and an echocardiogram showed vegetations on the mitral valve. He is currently being treated with intravenous vancomycin. On examination, the patient appears in significant distress and is restless. Temperature is 37.5 C (99.5 F), blood pressure is 150/90 mm Hg, pulse is 110/min and regular, and respirations are 18/min. Pupils are equal, round, and 3 mm in size. Lungs are clear to auscultation. A 3/6 holosystolic murmur is present over the apex. There is no third heart sound. On abdominal palpation, minimal diffuse tenderness is present. There is no rigidity or rebound. Bowel sounds are decreased. Extremities are warm with normal pulses. There is no tremor. Abdominal x-rays reveal no free air or obstruction. Which of the following is the most likely diagnosis?

- ☐ A. Acalculous cholecystitis [2%]
- ☐ B. Acute pancreatitis [9%]
- ☐ C. Alcohol withdrawal [5%]
- ☐ D. Intraabdominal abscess [5%]
- ☒ E. Mesenteric ischemia [54%]
- ☐ F. Opioid withdrawal [23%]
- ☐ G. Papillary muscle rupture [1%]

Proceed to Next Item

Explanation:

User Id: [REDACTED]

Acute mesenteric ischemia	
Presentation	<ul style="list-style-type: none"> • Rapid onset of periumbilical pain (often severe) • Pain out of proportion to examination findings • Hematochezia (late complication)
	<ul style="list-style-type: none"> • Atherosclerosis (acute on chronic)

Explanation:

User Id: [REDACTED]

Acute mesenteric ischemia	
Presentation	<ul style="list-style-type: none"> • Rapid onset of periumbilical pain (often severe) • Pain out of proportion to examination findings • Hematochezia (late complication)
Risk factors	<ul style="list-style-type: none"> • Atherosclerosis (acute on chronic) • Embolic source (thrombus, vegetations) • Hypercoagulable disorders
Laboratory findings	<ul style="list-style-type: none"> • Leukocytosis • Elevated amylase & phosphate levels • Metabolic acidosis (elevated lactate)
Diagnosis	<ul style="list-style-type: none"> • CT (preferred) or MR angiography • Mesenteric angiography, if diagnosis unclear

©UWorld

This patient most likely has **acute mesenteric ischemia** (AMI) due to embolism from a cardiac valve vegetation. AMI is most commonly due to abrupt arterial occlusion from either of the following:

- **Cardiac embolic events** in the setting of atrial fibrillation, valvular disease (eg, infective endocarditis), or cardiovascular aneurysms
- Acute thrombosis due to peripheral arterial disease or low cardiac output states

AMI typically presents with sudden-onset, severe, poorly localized (visceral) midabdominal pain accompanied by nausea and vomiting. In early-stage ischemia, physical examination is typically unremarkable (eg, minimal diffuse tenderness) despite patients having severe pain **out of proportion** to the examination findings. If bowel infarction occurs, patients may develop more focal abdominal tenderness (due to local inflammation/infarction), peritoneal signs (eg, guarding, rebound tenderness), rectal bleeding, and sepsis. Leukocytosis, elevated hemoglobin (hemoconcentration), elevated amylase, and **metabolic acidosis** (lactate) are frequently seen on laboratory testing.

(Choice A) Acalculous cholecystitis usually occurs in critically ill, hospitalized patients.

patients having severe pain **out of proportion** to the examination findings. If bowel infarction occurs, patients may develop more focal abdominal tenderness (due to local inflammation/infarction), peritoneal signs (eg, guarding, rebound tenderness), rectal bleeding, and sepsis. Leukocytosis, elevated hemoglobin (hemoconcentration), elevated amylase, and **metabolic acidosis** (lactate) are frequently seen on laboratory testing.

(Choice A) Acalculous cholecystitis usually occurs in critically ill, hospitalized patients. Patients often have jaundice as well as pain and/or a mass in the upper right quadrant.

(Choice B) Acute pancreatitis commonly produces nausea, vomiting, and epigastric pain radiating to the back. This patient's minimal abdominal tenderness, urge to defecate (common with AMI), and history of endocarditis make AMI a more likely diagnosis.

(Choice C) Alcohol withdrawal frequently presents with restlessness, diaphoresis, and tachycardia. In moderate-to-severe cases, it may also present with seizures, hallucinations, and altered mental status. Acute, severe abdominal pain is less likely.

(Choice D) Intraabdominal abscesses usually present subacutely with fever, focal abdominal tenderness, and weight loss.

(Choice F) Opioid withdrawal commonly presents with gastrointestinal manifestations. However, these are also usually accompanied by flulike symptoms and signs of sympathetic nervous system activation (eg, mydriasis, agitation, anxiety); bowel sounds are typically increased rather than decreased.

(Choice G) Papillary muscle rupture is a serious mechanical complication of acute myocardial infarction characterized by acute-onset hypotension and pulmonary edema with respiratory distress.

Educational objective:

Acute mesenteric ischemia classically presents with acute-onset, severe, midabdominal pain out of proportion to physical examination findings. Progression to bowel infarction causes focal pain, peritoneal signs, rectal bleeding and sepsis.

References:

1. **Mesenteric ischemia: Pathogenesis and challenging diagnostic and therapeutic modalities.**
2. **The diagnosis of acute mesenteric ischemia: A systematic review and meta-analysis.**
3. **Acute mesenteric ischemia: A vascular emergency.**