

A 46-year-old man is brought to the emergency department after being involved in a motor vehicle collision. He is unresponsive and his injuries include a basilar skull fracture, brain contusion, fractures of ribs 7-10, hemopneumothorax on the right, and a pelvic fracture. After multiple blood product transfusions, placement of a chest tube, and pelvis fixation, his condition stabilizes. On the 5th day of his hospital stay, he is minimally responsive and has spontaneous respirations. Examination shows diminished bowel sounds and facial grimacing with palpation of the right upper quadrant of the abdomen. Rectal examination shows no abnormalities. Nasogastric tube aspiration shows retention of gastric contents. An abdominal CT scan reveals gaseous distension of the small and large bowels without air-fluid levels. The gallbladder is distended with no gallstones; there is small amount of pericholecystic fluid. Which of the following is the most likely cause of this patient's condition?

- ☐ A. Acalculous cholecystitis
- ☐ B. Duodenal perforation
- ☐ C. Mesenteric ischemia
- ☐ D. Pancreatitis
- ☐ E. Small-bowel obstruction

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- ☒ A. **Acalculous cholecystitis** [66%]
- ☐ B. Duodenal perforation [4%]
- ☐ C. Mesenteric ischemia [16%]
- ☐ D. Pancreatitis [3%]
- ☐ E. Small-bowel obstruction [11%]

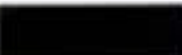
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Explanation:

User Id: [REDACTED]

This patient's clinical presentation is suggestive of **acalculous cholecystitis**. This condition is most often seen in **severely ill** patients in the intensive care unit with multiorgan failure, severe trauma, surgery, burns, sepsis, or prolonged parenteral nutrition. Acalculous cholecystitis is likely due to cholestasis and gallbladder ischemia leading to secondary infection by enteric organisms and resultant edema and necrosis of the gallbladder. Most patients affected by this condition have no prior history of gallbladder disease.

Acalculous cholecystitis is a serious condition that can lead to sepsis and death if undetected. The clinical signs of disease (eg, fever, leukocytosis) are vague, and patients most vulnerable to this condition are typically non-communicative due to their general medical condition. The best way to make the diagnosis is a high degree of clinical suspicion and confirmation with imaging studies. Radiologic signs include gallbladder wall thickening and distension and the presence of pericholecystic fluid. The immediate treatment in critically ill patients includes antibiotics followed by

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Acalculous cholecystitis is a serious condition that can lead to sepsis and death if undetected. The clinical signs of disease (eg, fever, leukocytosis) are vague, and patients most vulnerable to this condition are typically non-communicative due to their general medical condition. The best way to make the diagnosis is a high degree of clinical suspicion and confirmation with imaging studies. Radiologic signs include gallbladder wall thickening and distension and the presence of pericholecystic fluid. The immediate treatment in critically ill patients includes antibiotics followed by **percutaneous cholecystostomy** under radiologic guidance. Cholecystectomy with drainage of any associated abscesses is the definitive therapy once the patient's medical condition improves.

(Choice B) Duodenal perforation usually presents with sudden-onset, diffuse abdominal pain. The abdomen is rigid on initial examination (becomes distended later) with signs of peritonitis. Imaging studies typically show free air under the diaphragm.

(Choice C) Mesenteric ischemia usually presents with sudden periumbilical abdominal pain out of proportion to examination findings. Risk factors include older age, atrial fibrillation, congestive heart failure, and atherosclerotic vascular disease. CT of the abdomen typically shows focal or segmental bowel wall thickening, small-bowel dilation, and mesenteric stranding.

(Choice D) Pancreatitis would not cause a distended gallbladder and pericholecystic fluid. CT findings of pancreatitis include parenchymal enhancement with intravenous contrast (in patients with no pancreatic necrosis), pseudocyst formation, or peripancreatic fluid collection.

(Choice E) Small-bowel obstruction is characterized by abdominal distension, high-pitched hyperactive bowel sounds, dilated loops of bowel with air-fluid levels on imaging, and no or minimal air in the colon and rectum. This patient's small- and large-bowel

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(Choice E) Small-bowel obstruction is characterized by abdominal distension, high-pitched hyperactive bowel sounds, dilated loops of bowel with air-fluid levels on imaging, and no or minimal air in the colon and rectum. This patient's small- and large-bowel distension and hypoactive bowel sounds are more consistent with **ileus** due to his serious medical condition.

Educational objective:

Acalculous cholecystitis occurs in critically ill patients. The clinical presentation may be similar to calculous cholecystitis, though assessment may be difficult due to the underlying illness. Imaging studies show gallbladder wall thickening and distension and pericholecystic fluid. The emergency treatment of choice is antibiotics and percutaneous cholecystostomy, followed by cholecystectomy when the medical condition stabilizes.

References:

1. [Percutaneous cholecystostomy in critically ill patients: early response and final outcome in 82 patients](#)
2. [Acute acalculous cholecystitis: a review](#)
3. [Prolonged postoperative ileus-definition, risk factors, and predictors after surgery.](#)
4. [Pneumatosis intestinalis and hepatic portal venous gas on computed tomography – a non-lethal outcome.](#)

Media Exhibit

Small bowel obstruction versus ileus

Small bowel obstruction versus ileus		
	Small bowel obstruction	Ileus
Etiology	<ul style="list-style-type: none">• Prior surgery (weeks to years)	<ul style="list-style-type: none">• Recent surgery (hours to days)• Metabolic (eg, hypokalemia)• Medication induced
Abdominal examination	<ul style="list-style-type: none">• Distension• Increased bowel sounds	<ul style="list-style-type: none">• Possible distension• Reduced/absent bowel sounds
Small bowel dilation	Present	Present
Large bowel dilation	Absent	Present

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