

A 45-year-old woman comes to the emergency department due to severe abdominal pain, nausea, and 2 episodes of bilious vomiting over the past 4 hours. For the last several weeks, she has had episodic epigastric and right upper quadrant abdominal pain associated with nausea. The patient has a history of mitral valve prolapse and migraine headaches relieved by NSAIDs. She drinks a glass of wine with dinner every evening but does not use tobacco or illicit drugs. Temperature is 38.3 C (101 F), blood pressure is 140/95 mm Hg, and pulse is 102/min. Physical examination shows tenderness, guarding, and rigidity mostly over the upper abdomen. There is rebound tenderness and bowel sounds are reduced. Stool guaiac test is positive. Which of the following is the best next step in management of this patient?

- ☐ A. Gallbladder ultrasonography
- ☐ B. Mesenteric arteriography
- ☐ C. NSAID avoidance and proton pump inhibitors
- ☐ D. Upper and lower gastrointestinal endoscopy
- ☐ E. Upright x-ray of the chest and abdomen

A 45-year-old woman comes to the emergency department due to severe abdominal pain, nausea, and 2 episodes of bilious vomiting over the past 4 hours. For the last several weeks, she has had episodic epigastric and right upper quadrant abdominal pain associated with nausea. The patient has a history of mitral valve prolapse and migraine headaches relieved by NSAIDs. She drinks a glass of wine with dinner every evening but does not use tobacco or illicit drugs. Temperature is 38.3 C (101 F), blood pressure is 140/95 mm Hg, and pulse is 102/min. Physical examination shows tenderness, guarding, and rigidity mostly over the upper abdomen. There is rebound tenderness and bowel sounds are reduced. Stool guaiac test is positive. Which of the following is the best next step in management of this patient?

- ☐ A. Gallbladder ultrasonography [19%]
- ☐ B. Mesenteric arteriography [6%]
- ☐ C. NSAID avoidance and proton pump inhibitors [5%]
- ☐ D. Upper and lower gastrointestinal endoscopy [14%]
- ☒ E. Upright x-ray of the chest and abdomen [57%]

[Proceed to Next Item](#)

Explanation:

User Id: [REDACTED]

This patient with acute-onset severe abdominal pain, fever, tachycardia, and signs of **peritonitis** (eg, guarding, rigidity, reduced bowel sounds, rebound tenderness) likely has a **perforated viscus**. Her preceding episodic epigastric pain, nausea, history of **NSAID** and **alcohol use**, and positive stool guaiac test raise suspicion for **peptic ulcer disease** as the cause of perforation. The diagnosis of gastrointestinal perforation is confirmed with **upright x-ray of the chest and abdomen**, which typically shows **free intraperitoneal air** under the diaphragm (pneumoperitoneum).

(Choice A) Gallbladder ultrasonography should be considered in patients with suspected acute cholecystitis, which typically presents with right upper quadrant/epigastric abdominal pain, fever, leukocytosis, and Murphy sign (eg, inspiratory arrest during right upper quadrant palpation). A positive stool guaiac test is not characteristic of cholecystitis.

(Choice B) Mesenteric angiography is the gold standard for evaluating mesenteric ischemia, which typically presents with periumbilical pain out of proportion to examination findings and hematochezia.

peritonitis (eg, guarding, rigidity, reduced bowel sounds, rebound tenderness) likely has a perforated viscus. Her preceding episodic epigastric pain, nausea, history of NSAID and alcohol use, and positive stool guaiac test raise suspicion for peptic ulcer disease as the cause of perforation. The diagnosis of gastrointestinal perforation is confirmed with upright x-ray of the chest and abdomen, which typically shows free intraperitoneal air under the diaphragm (pneumoperitoneum).

(Choice A) Gallbladder ultrasonography should be considered in patients with suspected acute cholecystitis, which typically presents with right upper quadrant/epigastric abdominal pain, fever, leukocytosis, and Murphy sign (eg, inspiratory arrest during right upper quadrant palpation). A positive stool guaiac test is not characteristic of cholecystitis.

(Choice B) Mesenteric angiography is the gold standard for evaluating mesenteric ischemia, which typically presents with periumbilical pain out of proportion to examination findings and hematochezia.

(Choice C) NSAID avoidance and proton pump inhibitors may be considered in uncomplicated peptic ulcer disease; however, this patient has signs of peritonitis that are concerning for a perforated viscus. The diagnosis should be confirmed with upright x-ray of the chest and abdomen.

(Choice D) Upper endoscopy should be considered in patients with acute upper gastrointestinal hemorrhage (eg, hematemesis, melena) to diagnose and potentially treat the source of bleeding. Colonoscopy is usually performed afterward in patients with a negative upper endoscopy to rule out a right-sided colonic source for the bleeding. Upper endoscopy is generally not performed in the acute setting of a perforated peptic ulcer.

Educational objective:

A perforated viscus typically presents with severe abdominal pain, fever, tachycardia, and signs of peritonitis (eg, rigidity, reduced bowel sounds, rebound tenderness). It can occur in the setting of peptic ulcer disease, which is often associated with NSAID and alcohol use. The diagnosis of gastrointestinal perforation is confirmed with upright x-ray of the chest and abdomen showing free intraperitoneal air under the diaphragm.

References:

1. [Gastrointestinal perforation and the acute abdomen.](#)
2. [Diagnosis and treatment of perforated or bleeding peptic ulcers: 2013 WSES position paper.](#)

Media Exhibit

under diaphragm

