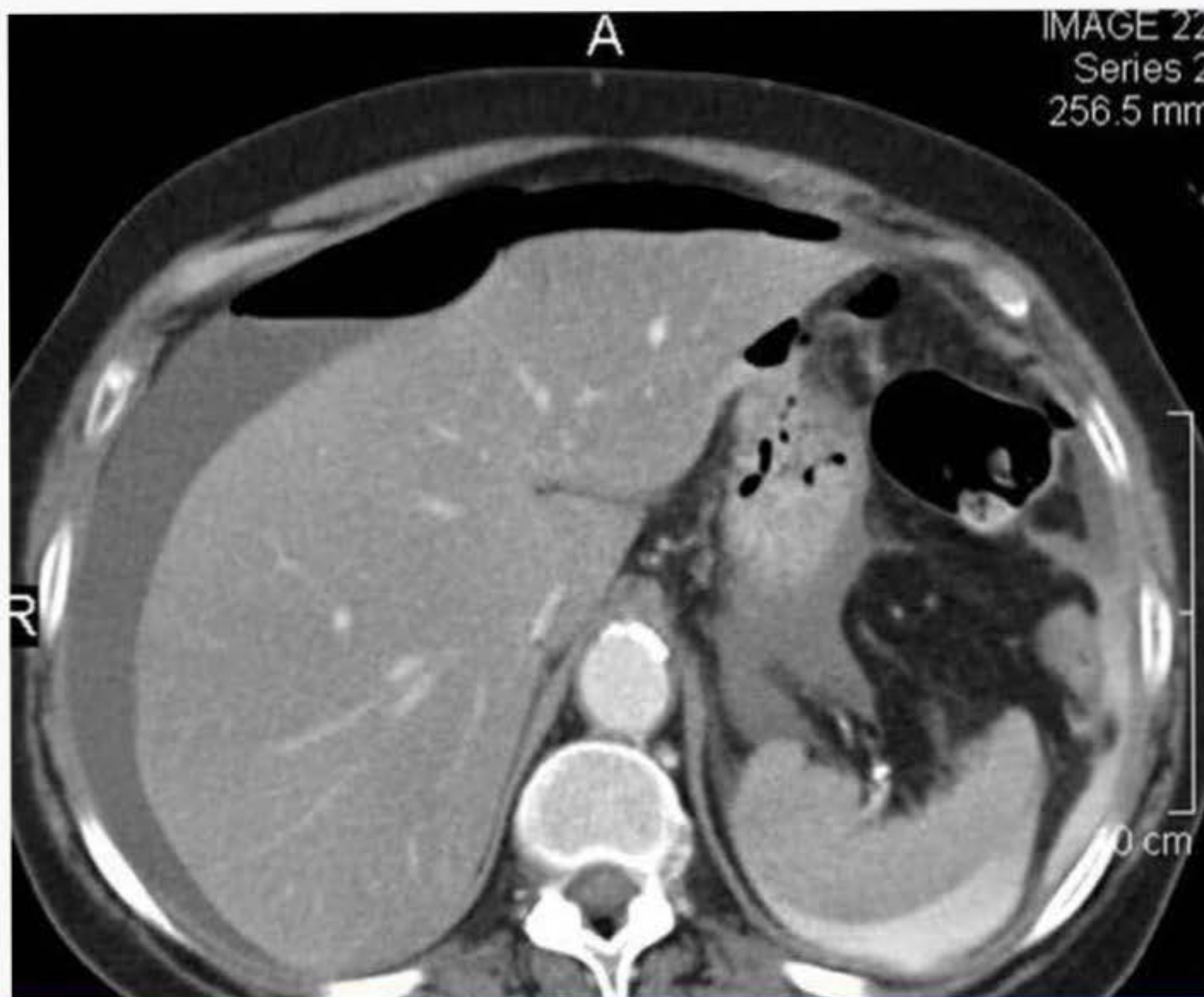


A 28-year-old man is brought to the emergency department after a high-speed motor vehicle collision. The patient was a restrained driver and the airbags deployed during the event. He is awake and reports left chest pain and vague abdominal discomfort. Blood pressure is 113/74 mm Hg and pulse is 112/min. Heart sounds are normal. Bilateral breath sounds are equal. Ecchymosis and tenderness over the abdominal wall in the distribution of the seat belt are present. Laboratory testing is within normal limits. Chest x-ray reveals left 6th rib fracture without pneumothorax. Cervical spine and pelvic radiographs reveal no fractures or dislocations. Bedside abdominal ultrasound does not demonstrate any injury, but CT scan of the abdomen reveals a mesenteric hematoma. The patient is hospitalized for monitoring and supportive care. Over the next 24-48 hours, he develops worsening abdominal pain, nausea, vomiting, and tenderness with guarding. Repeat CT scan of his abdomen is shown below.





Which of the following is the most appropriate next step in management of this patient?

- ☐ A. Contrast angiography
- ☐ B. Diagnostic peritoneal lavage
- ☐ C. Exploratory laparotomy
- ☐ D. Increased analgesia and close observation
- ☐ E. Upper gastrointestinal endoscopy

Submit

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2/25/03

W 400 L 40

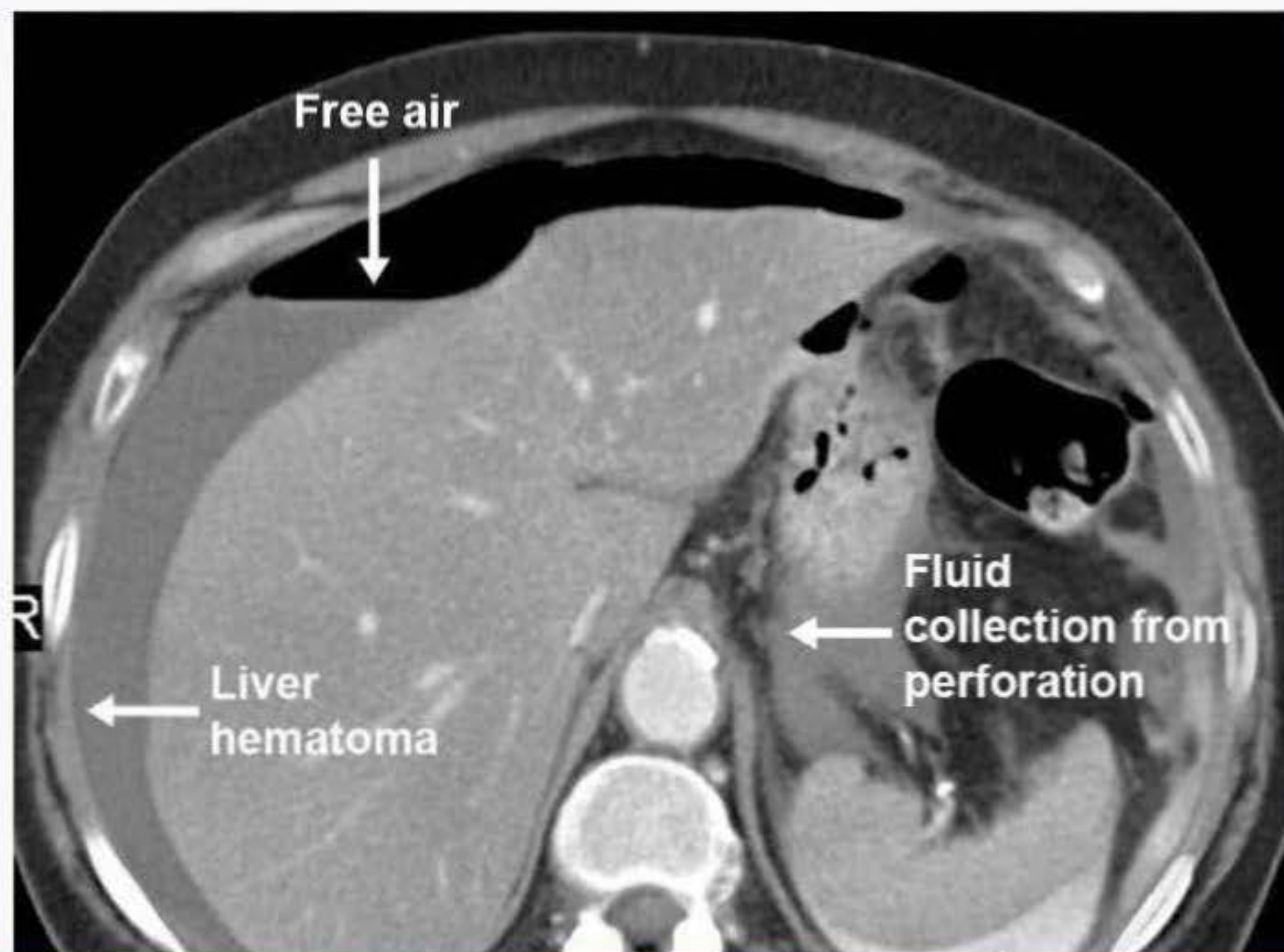
Which of the following is the most appropriate next step in management of this patient?

- ☐ A. Contrast angiography [2%]
- ☐ B. Diagnostic peritoneal lavage [4%]
- ☒ C. **Exploratory laparotomy** [92%]
- ☐ D. Increased analgesia and close observation [1%]
- ☐ E. Upper gastrointestinal endoscopy [0%]

[Proceed to Next Item](#)

Explanation:

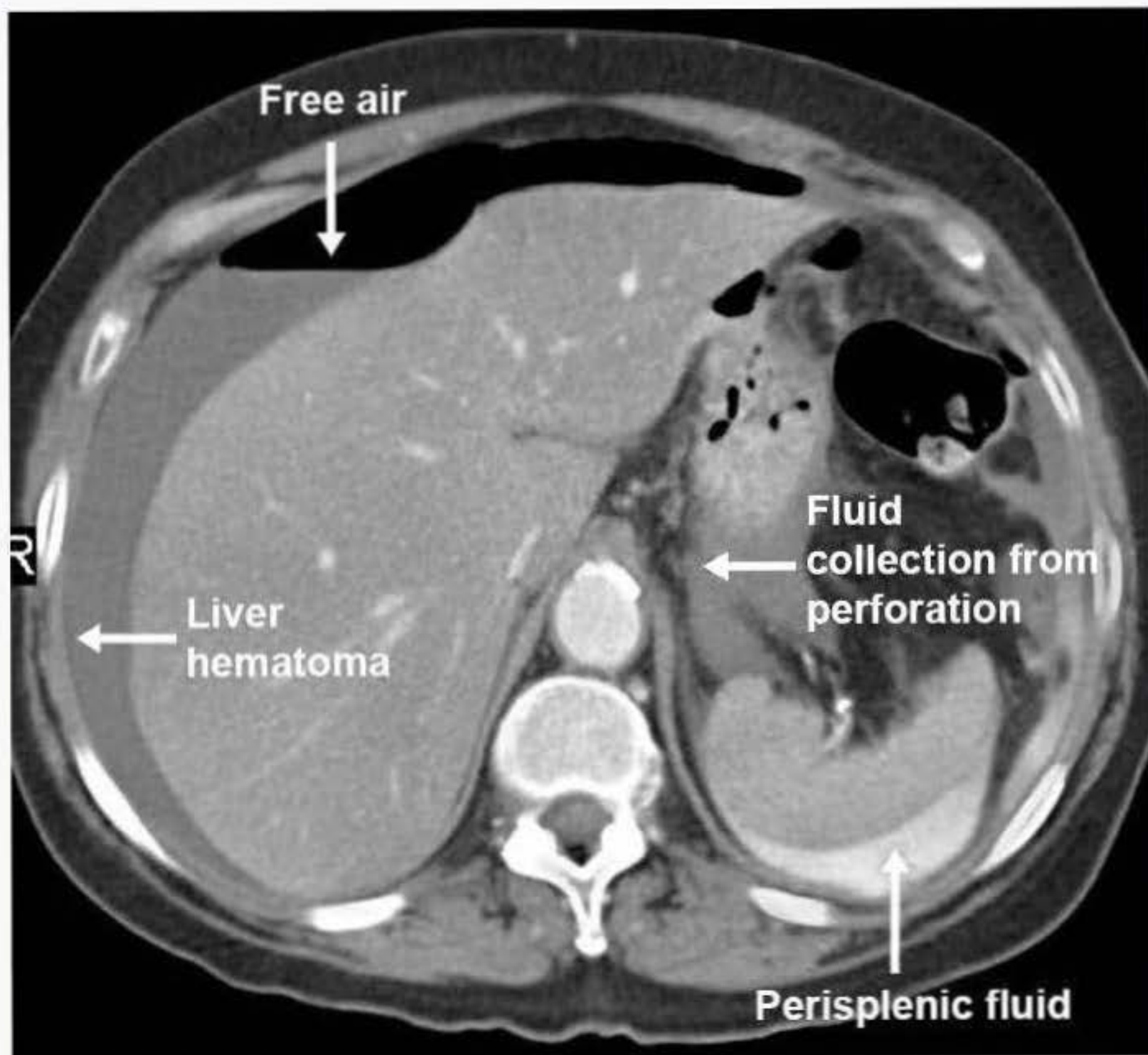
User Id:



[Proceed to Next Item](#)

Explanation:

User Id: [REDACTED]



This patient, who had **blunt abdominal trauma (BAT)** due to a motor vehicle collision, now has worsening abdominal pain and signs of peritoneal inflammation (eg, guarding). His abdominal CT scan demonstrates evidence of liver hematoma, perisplenic fluid, and - most importantly - free intraperitoneal air, which reflects perforation warranting urgent **exploratory laparotomy**.

Perisplenic fluid

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Although **gastrointestinal (GI) perforation** is more frequently associated with penetrating abdominal trauma, it can also result from BAT due to **damage** to the **mesenteric blood supply**, subsequent GI necrosis, and eventual perforation. Consequently, although injury due to penetrating trauma may present acutely, signs and symptoms of perforation due to BAT may take several days to present. Therefore, patients with any evidence of injury to the mesenteric vessels should be considered for longer periods of observation and monitoring. When perforation does occur, the jejunum is most frequently involved, whereas the stomach and colon are less frequently injured.

(Choice A) Contrast angiography is sometimes used for unstable trauma patients who have pelvic fractures with associated disruption of the pelvic vessels and for patients who have hemorrhage due to splenic or hepatic lacerations.

(Choices B and D) The role of diagnostic peritoneal lavage (DPL) has largely been reduced to hemodynamically unstable patients with questionable bedside ultrasound results or in settings where emergency ultrasound or CT scanning is unavailable. This patient has clear evidence of GI perforation, indicating the need for urgent surgical intervention rather than DPL or analgesia and observation.

(Choice E) Upper endoscopy is helpful to evaluate patients with esophageal perforation as it can also be a therapeutic intervention. However, the esophagus is not commonly injured due to BAT, and, given the evidence of other intraabdominal injuries, laparotomy is a more appropriate intervention.

Educational objective:

Blunt abdominal trauma may result in damage to the mesenteric blood supply, subsequent necrosis, and eventual gastrointestinal perforation several days after the initial event. Once perforation is identified, patients should be taken for urgent exploratory laparotomy.

References:

1. [Intestinal injury from blunt abdominal trauma: a study of 47 cases.](#)
2. [Delayed small bowel perforation following blunt abdominal trauma: A case report and review of the literature.](#)

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