

A 12-year-old boy is brought to the emergency department due to postprandial, colicky abdominal pain and bilious vomiting. He has not had similar symptoms before and has no other medical issues. The patient had a bicycle accident 2 days ago when he stopped abruptly and fell into the handlebar. He immediately experienced abdominal pain but started to feel better several hours later. His vital signs are normal. Physical examination shows tenderness in the epigastric area. Bowel sounds are normal. Bedside ultrasonography does not demonstrate free intraperitoneal fluid. Plain abdominal radiograph shows dilated stomach with scanty distal gas. Laboratory results are as follows:

Hemoglobin	13.8 g/dL
Leukocytes	8000/mm ³
Total bilirubin	1.3 mg/dL
Amylase	91 U/L

Which of the following is the most likely diagnosis for this patient?

- ☐ A. Duodenal hematoma
- ☐ B. Liver laceration
- ☐ C. Pancreatic pseudocyst
- ☐ D. Pyloric stenosis
- ☐ E. Small-bowel perforation

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Which of the following is the most likely diagnosis for this patient?

- ☒ A. Duodenal hematoma [73%]
- ☐ B. Liver laceration [5%]
- ☐ C. Pancreatic pseudocyst [14%]
- ☐ D. Pyloric stenosis [4%]
- ☐ E. Small-bowel perforation [3%]

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Explanation:

User Id: [redacted]

Duodenal hematomas (DHs) most commonly occur following **blunt abdominal trauma (BAT)**. They are more commonly seen in **children** due to a number of anatomic differences, including thinner abdominal wall musculature, less abdominal adipose tissue, and more pliable ribs (which absorb less force than the stiffer ribs of adults). DH commonly occurs when a blunt force rapidly compresses the duodenum against the vertebral column. Following trauma, blood collects between the submucosal and muscular layers of the duodenum causing partial or complete obstruction.

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Duodenal hematomas (DHs) most commonly occur following **blunt abdominal trauma (BAT)**. They are more commonly seen in **children** due to a number of anatomic differences, including **thinner abdominal wall musculature**, **less abdominal adipose tissue**, and **more pliable ribs** (which absorb less force than the stiffer ribs of adults). DH commonly occurs when a blunt force rapidly compresses the duodenum against the vertebral column. Following trauma, blood collects between the submucosal and muscular layers of the duodenum causing partial or complete obstruction.

Patients with DH due to BAT may initially have only symptoms of abdominal wall trauma, which may improve before subsequent clinical deterioration as the DH expands. Patients classically present 24-36 hours after the initial event with epigastric pain and vomiting due to failure to pass gastric contents beyond the **obstructing** hematoma. Diagnosis is confirmed with CT imaging of the abdomen.

Most DHs will resolve in 1-2 weeks. Management involves decompression by nasogastric tube and, in many patients, parenteral nutrition. Surgery or percutaneous drainage may be considered to evacuate the hematoma if nonoperative management fails.

(Choice B) Liver laceration is one of the most common complications of BAT. However, this patient's lack of right upper quadrant tenderness, lack of intraperitoneal free fluid, hemodynamic stability, and normal blood counts make a liver laceration less likely.

(Choice C) The pancreas is infrequently injured during BAT, but occasionally patients can develop pancreatic pseudocysts subacutely (days to weeks) after an event with nausea, vomiting, weight loss, and a palpable abdominal mass. It would be unlikely for a pancreatic pseudocyst to develop within 2 days.

(Choice D) Pyloric stenosis classically presents with nausea, vomiting, and poor feeding in a 1-month-old infant. It would be an extremely rare presentation in a preadolescent child.

(Choice E) Although delayed small bowel perforation can occur from BAT due to DH or mesenteric injury with subsequent ischemia and necrosis, patients more commonly present with fever, hemodynamic instability, and diminished bowel sounds. Chest x-ray may show intraperitoneal free air.

Educational objective:

Duodenal hematomas are more commonly seen in pediatric patients and most often occur following blunt abdominal trauma. They present with epigastric pain and vomiting

commonly occurs when a blunt force rapidly compresses the duodenum against the vertebral column. Following trauma, blood collects between the submucosal and muscular layers of the duodenum causing partial or complete obstruction.

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Educational objective:

Duodenal hematomas are more commonly seen in pediatric patients and most often occur following blunt abdominal trauma. They present with epigastric pain and vomiting 24-36 hours after the initial injury. Management involves gastric decompression and parenteral nutrition.

References:

1. [Post-traumatic intramural duodenal hematoma in children.](#)