



Vomiting and abdominal pain in a woman with diabetes

A CT scan of this patient's abdomen led us to an unusual and life-threatening diagnosis.

A 60-YEAR-OLD WOMAN WITH DIABETES sought treatment for worsening generalized abdominal pain and intermittent vomiting that she'd had for 5 days. She was afebrile and had no history of abdominal surgeries.

Liver function and amylase tests were normal. Lab work revealed normal sodium and potassium levels and a normal platelet count. The patient's hemoglobin was 12.2 g/dL (normal 12.3-15.3 g/dL); white blood cell count, 150,000 mcL (normal 4500-11,000 mcL); serum blood urea nitrogen, 25 mg/dL (normal 6-20 mg/dL); serum creatinine, 1.3 mg/dL (normal 0.6-1.2 mg/dL); and blood

glucose, 331 mg/dL (normal <125 mg/dL).

On physical examination, the patient had moderate abdominal distension without tenderness. Murphy's sign was negative. A digital rectal examination revealed an empty rectum. The patient was hospitalized for further work-up and a computed tomography (CT) scan of the abdomen was performed (FIGURE 1).

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

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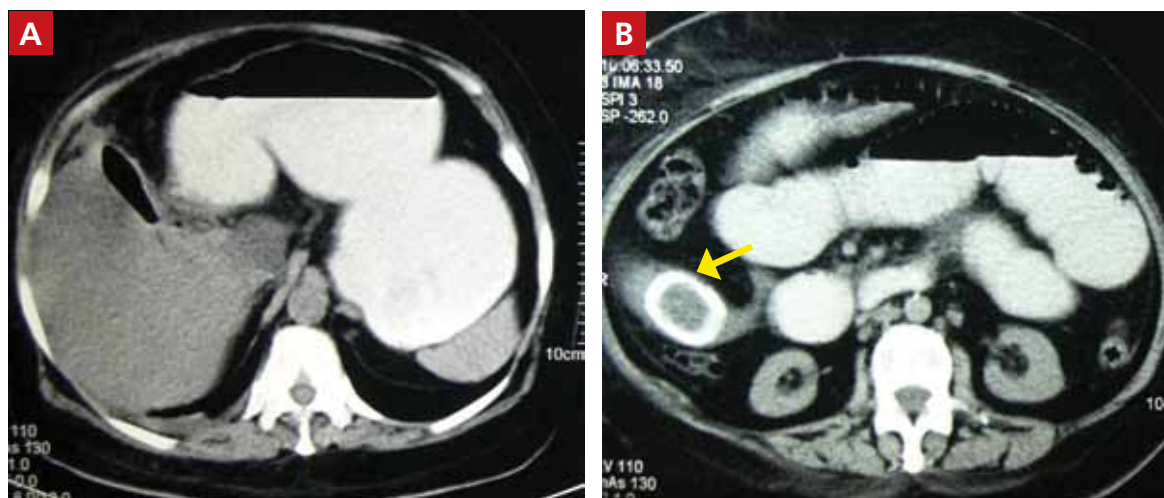
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FIGURE 1

An abdominal CT scan revealed the cause of this patient's pain



➤ Imaging studies in a patient with gallstone ileus typically reveal a classic radiographic triad of small bowel obstruction, pneumobilia, and an ectopic gallstone.

Dx: Gallstone ileus

Evaluation of the spiral CT scan revealed abnormal gas in the gallbladder fossa (FIGURE 1A), gas in the biliary tree, and distended loops of small bowel consistent with partial small bowel obstruction. A laminated calcified mass was present in the ileal lumen in the right iliac fossa (FIGURE 1B, arrow). These findings suggested gallstone ileus.¹

■ **Gallstone ileus** is a rare complication of recurrent gallstones.² It accounts for 1% to 4% of all cases of mechanical intestinal obstruction, but up to 25% of cases in patients older than age 65.² The condition is more common in women² and, if missed, is associated with a high degree of morbidity and mortality.³

Rule out other causes of right upper quadrant pain

The differential diagnosis for gallstone ileus includes other causes of right upper quadrant pain.

■ **Acute cholecystitis** is characterized by abdominal pain in the right upper quadrant that extends to the shoulder. It can be visualized by sonography as a gallbladder with a thickened wall.⁴

■ **Acute cholangitis** typically presents with fever, right upper quadrant pain, and jaundice (Charcot’s triad).

■ **Biliary colic** is associated with right upper quadrant or epigastric pain that begins postprandially.

■ **Hepatitis** can be asymptomatic or the patient can have icterus with gastrointestinal symptoms, depending on the type of causative virus and phase of illness.

Also consider other potential causes of small bowel obstruction.

■ **Gastric or duodenal ulcers** usually present with painless bleeding and can be diagnosed with an upper endoscopy.⁴

■ **Pancreatitis** is characterized by high lipase levels and patients may describe the pain as feeling “like a belt around the upper abdomen.”⁴

■ **Bowel ischemia** is usually characterized by diffuse pain, diarrhea, and a positive lactate test.⁴

Imaging leads to a prompt Dx

In a patient with gallstone ileus, imaging studies typically show a classic radiographic triad

(Rigler’s triad) consisting of small bowel obstruction, pneumobilia, and an ectopic gallstone.^{2,5} Optimizing patient management hinges on prompt correction of fluid and electrolyte imbalances and surgical intervention.

■ **Surgical management** of gallstone ileus must be individualized according to the patient’s comorbid conditions.⁶ Patients with significant comorbidities are usually managed with a 2-stage procedure: first with enterolithotomy to relieve the obstruction, and later with biliary tract surgery.⁷ This approach avoids the need for fistula exploration and reduces operative time. (Most fistulas close spontaneously if left alone.) Performing enterolithotomy and biliary tract surgery at the same time (a one-stage procedure) is more technically difficult, but reduces the risk of recurrent gallstone ileus or cholecystitis. Published reports show a lower mortality rate for the 2-stage procedure (11%) compared to the one-stage procedure (16.7%).⁷

■ **After fluid resuscitation, our patient** underwent an exploratory laparotomy, during which a 2.5 x 1.5 cm stone was extracted from the ileum. A cholecystoduodenal fistula was left intact because the chances of recurrence are very low and the patient did not have residual gallstones. Fistula repair is usually done 6 to 8 weeks after resolution of acute symptoms, but a less aggressive surgical approach was used for our patient. The patient remained well on follow-up at 6 months. **JFP**

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