

An unexpected cause of acute intestinal obstruction: the major role of imaging

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An 84-year-old woman with a history of cholelithiasis was admitted for abdominal pain and persisting vomiting, which had started more than a week earlier, as well as symptoms of acute small bowel obstruction, which she noted 3 days earlier. On physical examination, she appeared distressed and dehydrated, while her abdomen was distended, diffusely painful, and soft, without rebound tenderness. A laboratory analysis revealed neutrophilic inflammation and mild cholestasis (increased conjugated bilirubin and serum alkaline phosphatase levels). The levels of pancreatic enzymes were normal, and other laboratory test results were unremarkable. Abdominal ultrasound revealed a shrunken gallbladder with the air inside, but without stones, and a nondilated common bile duct. Plain abdominal X-ray showed dilated small-bowel loops with air-fluid

levels, associated with gas within the biliary tree (FIGURE 1A). Abdominal computed tomography (CT) confirmed the acute occlusive distention of the jejunum and proximal ileum, as well as pneumobilia. There was no presence of a gallstone in the air-filled gallbladder, but a concentric intraluminal ring was present in the right iliac fossa, suggesting a migrated gallstone in the bowel lumen, with a secondary ileoileal intussusception (FIGURE 1B-E). The clinical diagnosis was acute intestinal obstruction probably due to gallstone ileus associated with secondary ileoileal intussusception, bilioenteric fistula, and pneumobilia.

The emergent surgery revealed a jejunal obstruction by a gallstone of 2.5 cm in diameter, a spontaneous cholecystoduodenal fistula, and a secondary ileoileal intussusception due to gallstone displacement. The gallstone was extracted



FIGURE 1 A – plain abdominal X-ray showing intestinal air-fluid levels and pneumobilia with air-filled gallbladder (arrow); B – abdominal computed tomography (CT; coronal view) confirming ileal and jejunal dilation and pneumobilia, and suggesting the presence of a cholecystoenteric fistula (arrow)

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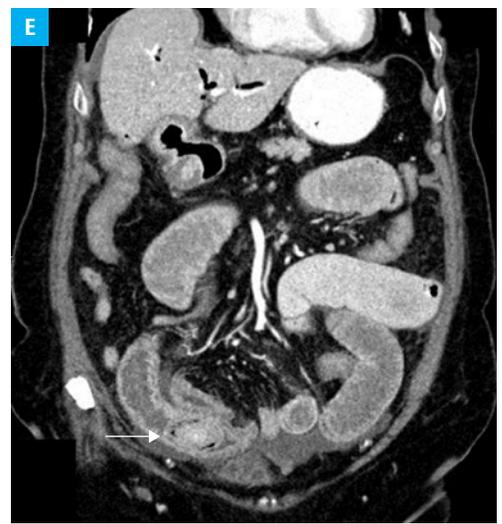


FIGURE 1 **C** – abdominal CT (transverse view) showing marked intestinal distention (arrow); **D** – abdominal CT (transverse view) demonstrating ileoileal intussusception (arrow); **E** – abdominal CT (coronal view) showing the intraluminal gallstone (arrow) with secondary intussusception

and the intestine was sutured in 2 planes was performed, with a favorable postoperative outcome.

Gallstone ileus is an unusual complication (0.9%) of gallbladder disease and a rare cause of mechanical small bowel obstruction, developing only in 1% to 4% of all cases of occlusive bowel disease. The gallstone migration occurs through bilioenteric fistulas from the biliary tree into the small bowel, the most common type being cholecystoduodenal followed by choledochoduodenal fistulas.^{1,2} The preoperative diagnosis requires a high index of suspicion, and is supported by physical examination findings (abdominal occlusion) and imaging data. The Rigler triad is defined as a combination of imaging findings including the presence of pneumobilia, intestinal obstruction, and ectopic gallstone, the latter being radiopaque in about 15% to 20% of cases.³ All of the 3 components are present in only 15% of the abdominal plain X-ray scans, but the diagnostic sensitivity increases to over 77% on an abdominal CT scan.⁴ Gallstone ileus is more common in the elderly population and is associated with high mortality rates.

What makes this clinical case remarkable is the clinical suspicion of gallstone ileus in a patient with a history of gallbladder lithiasis, presenting with acute small bowel obstruction due to ectopic gallstone, spontaneous cholecystoduodenal fistula with pneumobilia, and secondary intussusception due to stone migration. The favorable outcome in this elderly patient with long-lasting symptoms and late presentation of acute intestinal obstruction after successful emergent ectopic gallstone extraction in a single-stage surgical procedure is particularly notable.

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