


## IMAGES IN EMERGENCY MEDICINE

## Imaging

# Older man with chronic right upper quadrant pain and vomiting

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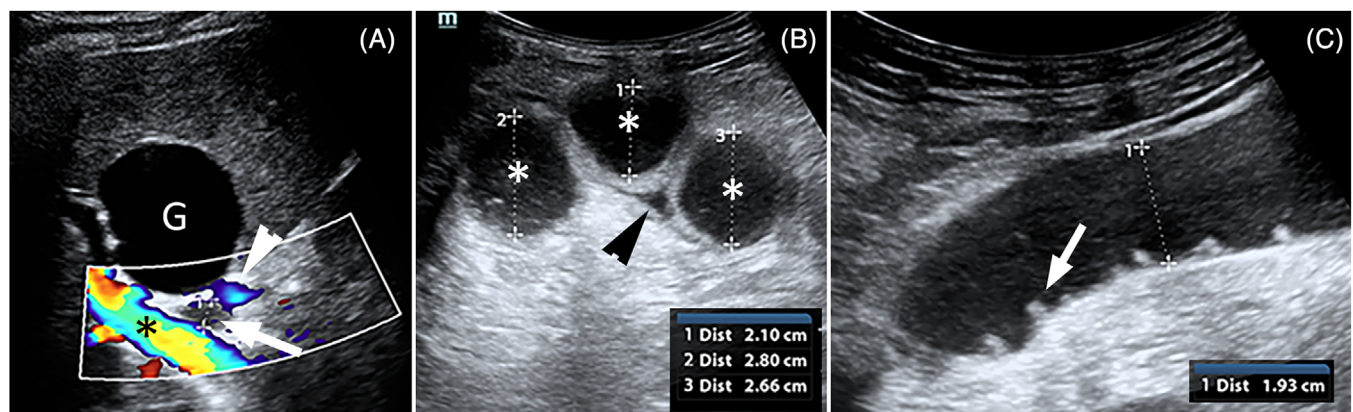
## 1 | CASE PRESENTATION

A 75-year-old man presented to the emergency department with intermittent right upper quadrant abdominal pain for 6 months and newly onset vomiting for 1 day. Two days prior, he received an abdominal ultrasound showing extensive cholecystolithiasis. Clinical examination showed mild tenderness in the right abdomen without peritonitis. Blood test results revealed moderately elevated inflammatory markers as follows: white blood cell (WBC) count 15.44 g/L and c-reactive protein (CRP) 43.4 mg/L. Liver parameters were within normal range. Bedside ultrasound was performed showing a stone-free gallbladder, non-dilated bile duct (Figure 1, panel A), and distended small bowel (Figure 1, panels B and C). Accordingly, computed tomography (CT) was performed (Figure 2).

## 2 | DIAGNOSIS

### 2.1 | Gallstone ileus with bilioduodenal fistula (Barnard's syndrome)

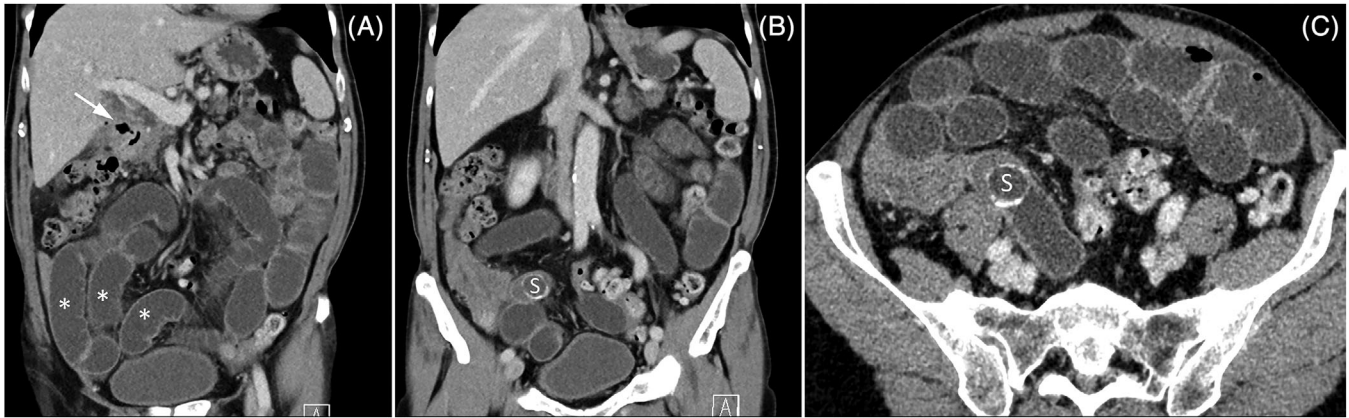
Gallstone ileus is a rare complication of gallbladder disease occurring in only 0.3%–0.5% of patients.<sup>1,2</sup> A bilioenteric fistula can develop after recurrent episodes of acute cholecystitis.<sup>1–3</sup> This most commonly occurs between the gallbladder and the duodenum as seen in our patient.<sup>1,2,4</sup> Gallstones can then pass through the fistula and create a mechanical obstruction.<sup>1–3</sup> This generally happens at physiological restrictions, with the ileocecal valve being the most common.<sup>1–4</sup> The clinical presentation can vary due to the location of the stone and is not unique to the condition.<sup>1,2,4</sup> For diagnosis, abdominal CT scans show



**FIGURE 1** Ultrasound images: (A) Stone-free gallbladder (G), non-dilated bile duct (arrowhead), liver artery (arrow), portal vein (asterisk). (B) Multiple small bowel loops (asterisk) dilated up to 2.8 cm, inter-enteric free fluid (arrowhead). (C) Plicae circulares/keyhole sign (arrow).

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**FIGURE 2** Computed tomography images: (A) Distended bowel loops up to 3 cm (asterisk), bilioduodenal-fistula/pneumobilia (arrow). (B and C) 19 × 18 mm radiopaque gallstone in the terminal ileum (S).

the highest accuracy.<sup>2,5</sup> The three diagnostic imaging criteria are called Rigler's triad and consist of radiopaque stone, pneumobilia, and distended bowel loops.<sup>1,2,5</sup> The gallstone was laparoscopically removed via enterotomy. The patient was discharged in good condition after 6 days. For the fistula, conservative treatment was initially chosen.

#### CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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