Caspian Journal of Surgery
e-ISSN 3115 - 9087
(2026) vol 2: (1)

Image in Surgery

Biliary Ileus: An Intraoperative Observation of Gallstone Impaction in the Ileum

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Background: Biliary ileus is a rare but notable cause of mechanical intestinal obstruction, typically observed in patients with a history of gallbladder disease. This image documents the intraoperative extraction of a gallstone that had impacted the ileum, resulting in bowel obstruction. The case underscores the diagnostic and surgical significance of identifying biliary ileus in the context of small bowel obstructions

Keywords: Gallstone, Gallstone Ileus, Cholecystoduodenal Fistula, Small Bowel Obstruction

Received:
December18, 2025
Revised:
February6, 2026
Accepted:
February16, 2026
Published on:
March11, 2026

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Introduction

Biliary ileus is an uncommon condition characterised by the impaction of a gallstone within the gastrointestinal tract-typically the ileum-resulting in bowel obstruction (1). It commonly presents in patients with a history of chronic cholecystitis or cholelithiasis, in which a biliary-enteric fistula has developed, permitting calculi to transit into the stomach, duodenum, small intestine, or even the colon. The clinical presentation frequently mimics other causes of small bowel obstruction, which may complicate the diagnostic process (2). Early detection and surgical intervention are essential for effective management and for the prevention of complications, such as bowel perforation or sepsis.

Surgical Image Discussion

This intraoperative image illustrates the surgical retrieval of a gallstone that had become impacted within the ileum, leading to a diagnosis of biliary ileus. The patient was an 80-year-old woman with a prolonged history of poorly controlled diabetes and chronic gallbladder disease who presented with acute intestinal obstruction. Whilst preoperative CT imaging revealed the presence of air within the gallbladder-indicative of a biliary-duodenal fistula-the gallstone itself remained occult **(Figure 1)**. During laparotomy, the stone was identified in the ileum, where it had caused a mechanical obstruction **(Figure 2)**. Due to significant ischemic damage to the intestinal wall at the site of impaction, the stone could not be extracted intact. Consequently, a resection of the affected ileal segment and subsequent anastomosis were performed to resolve the obstruction and mitigate the risk of further complications. This image depicts the gallstone being carefully manipulated with surgical instruments, illustrating the complexity and delicate nature of the procedure (3).

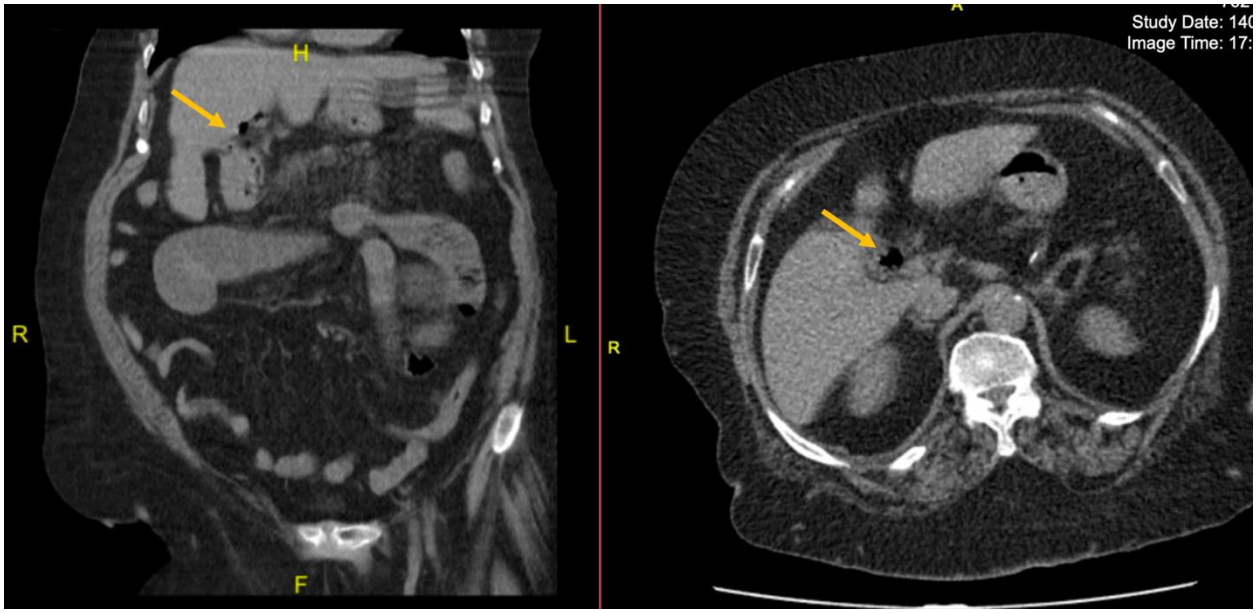

Fig 1. Preoperative CT scan of the patient revealed the presence of air bubbles within the gallbladder (yellow arrow), suggesting the formation of a biliary-duodenal fistula, although the gallstone itself was not visualized.

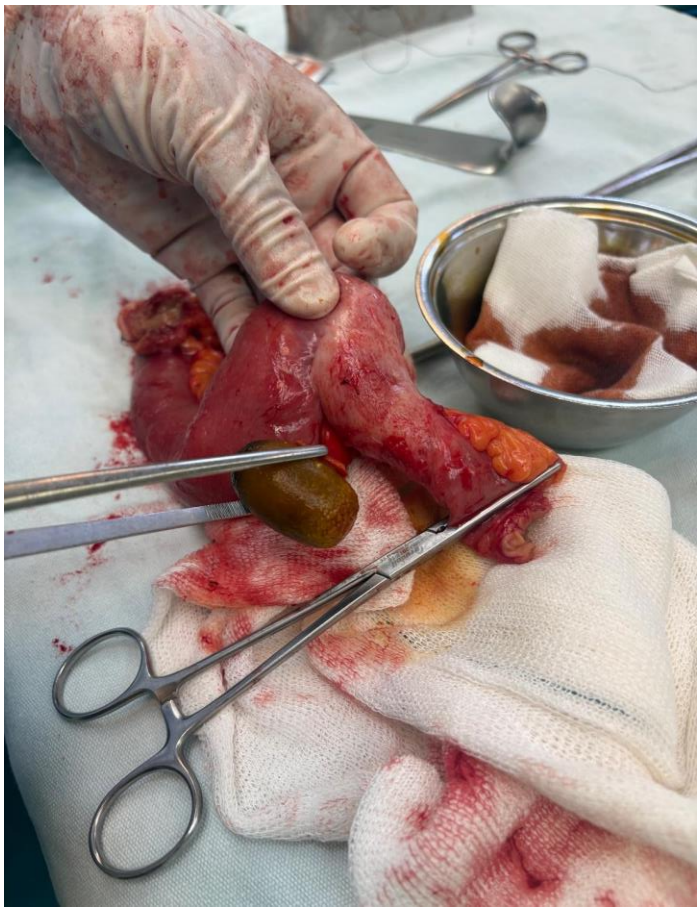

Fig 2. Intraoperative image showing a gallstone that caused mechanical obstruction in the ileum due to biliary ileus.

Pathophysiology and Clinical Relevance

Biliary ileus arises when a gallstone traverses a biliary-enteric fistula-in this instance, a cholecystoduodenal fistula-into the small intestine. These fistulae typically develop secondary to chronic inflammation, such as recurrent cholecystitis or long-standing cholelithiasis. Once the calculus enters the gastrointestinal tract, it may become impacted within the narrow lumen of the ileum, precipitating a mechanical obstruction. This condition is more prevalent among elderly patients, particularly those with multiple comorbidities, such as diabetes mellitus, which may impede prompt diagnosis and management. The clinical presentation of biliary ileus is frequently non-specific, often characterised by abdominal pain, emesis, and distension. Radiologic imaging, particularly abdominal computed tomography (CT), is instrumental in confirming the diagnosis by localising the gallstone and identifying the biliary-enteric fistula. In the present case, the diagnosis was established preoperatively, based on the patient's clinical history and radiographic findings.

Conclusion

Biliary ileus is a rare yet significant aetiology of small bowel obstruction that should be considered in any patient with a history of cholelithiasis presenting with signs of intestinal obstruction. The accompanying intraoperative image illustrates the characteristic appearance of a gallstone impacted within the ileum. Early diagnosis, facilitated by appropriate imaging, and prompt surgical intervention are essential to prevent severe complications. Surgeons must maintain a high index of suspicion for this condition, particularly when managing elderly patients with a history of neglected or poorly controlled gallbladder disease.

Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare no competing interests.

Funding

The author(s) received no financial support for the research, authorship, and/. or publication of this article.

Authors' contribution

All authors were participated in the concept and design, analysis and interpretation, data collection, writing the article, critical revision, final approval, statistical analysis, overall responsibility.

Acknowledgment

The authors would like to express their gratitude to the surgical and intensive care teams at Rouhani Hospital for their professional expertise and clinical management of this complex case.

References

1. De Monti M, Cestaro G, Alkayyali S, Galafassi J, Fasolini F. Gallstone ileus: A possible cause of bowel obstruction in the elderly population. *Int J Surg Case Rep*. 2018; 43:18-20.

2. Morosin T, De Robles MSB, Putnis S. Gallstone Ileus: An Unusual Cause of Intestinal Obstruction. *Cureus*. Mar 15 2020; 12(3):e7284.

3. Chang L, Chang M, Chang HM, Chang AI, Chang F. Clinical and radiological diagnosis of gallstone ileus: a mini review. *Emerg Radiol*. Apr 2018; 25(2):189-196.