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Gallstone Ileus With Pneumobilia and Proximal Jejunal Obstruction in a 48-Year-Old Woman: A Case Report

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Abstract

Gallstone ileus is an uncommon cause of mechanical small bowel obstruction, particularly in younger patients, and its nonspecific clinical presentation may delay diagnosis. We present the case of a 48-year-old woman who presented to the ED with a two-day history of diffuse abdominal pain, nausea, and vomiting. CT of the abdomen and pelvis demonstrated small bowel obstruction caused by a 5.5-cm gallstone impacted in the proximal jejunum, along with the classic findings of Rigler's triad: pneumobilia, bowel obstruction, and an ectopic gallstone. The patient underwent laparoscopic enterolithotomy with subsequent resolution of symptoms. This case is noteworthy because of the patient's relatively young age and the unusual proximal jejunal location of the obstructing gallstone. It highlights the importance of considering gallstone ileus in the differential diagnosis of small bowel obstruction, recognizing its characteristic CT findings, and initiating timely surgical management.

Categories: Emergency Medicine
Keywords: emergency medicine, gallstone ileus, jejunal obstruction, pneumobilia, rigler's triad, small bowel obstruction

Introduction

Gallstone ileus is an uncommon complication of cholelithiasis, accounting for approximately 1%-4% of intestinal obstructions [1,2]. It occurs predominantly in older adults, particularly women, and most commonly results from the passage of a gallstone through a biliary-enteric fistula, typically between the gallbladder and duodenum [1,3,4]. The resulting mechanical obstruction most frequently occurs in the distal ileum, whereas proximal jejunal impaction is less common [2,3]. The clinical presentation is often nonspecific, with symptoms including abdominal pain, nausea, vomiting, and abdominal distension, which may contribute to delayed diagnosis [3,5]. CT plays an important role in diagnosis by identifying bowel obstruction, an ectopic gallstone, and pneumobilia, the characteristic components of Rigler's triad [6,7].

We report an unusual case of gallstone ileus in a 48-year-old woman with a 5.5-cm gallstone impacted in the proximal jejunum, emphasizing diagnostic recognition and individualized operative management.

This case report was presented in poster format at the Rowan-Virtua Research Day on May 6, 2026, in Stratford, NJ.

Case Presentation

A 48-year-old woman was assigned an Emergency Severity Index (ESI) triage level of 2 upon presentation to the ED. She reported a two-day history of diffuse abdominal pain, described as sharp and aching, predominantly in the periumbilical region with radiation to the right upper quadrant. Associated symptoms included nausea, bilious vomiting, and belching. She denied fever, chills, constipation, or diarrhea. Her medical history was notable for obesity and possible irritable bowel syndrome. She had no history of abdominal surgery. The patient had been taking semaglutide (Ozempic; Novo Nordisk A/S, Bagsværd, Denmark) for weight management for approximately three months, with a dose increase one week before presentation. Semaglutide use was documented as part of the patient's medication history; an adverse medication effect was not initially suspected, and semaglutide exposure did not alter the diagnostic evaluation or management.

On arrival, her vital signs included a blood pressure of 154/74 mmHg, heart rate of 84 beats/minute, respiratory rate of 17 breaths/minute, and temperature of 98.4°F (36.9°C). She reported a pain score of 5/10. Physical examination revealed bilateral epigastric tenderness without guarding, rigidity, or rebound tenderness (Table *1*).

Laboratory test	Result	Normal range	Units
WBC count	6,000	4,000-11,000	cells/μL
Blood urea nitrogen (BUN)	31	5-20	mg/dL
Creatinine	1	0.6-1.2	mg/dL
Lactate	1.5	0.5-2.2	mmol/L
Lipase	40	10-180	U/L
Total bilirubin	1.1	0.1-1.2	mg/dL
Aspartate aminotransferase (AST)	30	8-33	IU/L
Alanine aminotransferase (ALT)	52	7-56	IU/L
Alkaline phosphatase	183	39-117	IU/L
Urine bilirubin	Positive	Negative	N/A
Urine ketones	Negative	Negative	N/A

TABLE 1: Selected laboratory findings at ED presentation.

BUN: Blood urea nitrogen; AST: Aspartate aminotransferase; ALT: Alanine aminotransferase; μL: Microliter; mg/dL: Milligrams per deciliter; mmol/L: Millimoles per liter; U/L: Units per liter; IU/L: International units per liter; N/A: Not applicable.

CT findings established the diagnosis of gallstone ileus, and laparoscopic enterolithotomy was planned for definitive treatment. Diagnostic laparoscopy was performed as the initial operative step to assess the bowel and localize the obstruction, followed by laparoscopic enterolithotomy with extraction of the obstructing gallstone, which was submitted for pathological examination. The surgeon inspected the entire small bowel, from the ligament of Treitz to the terminal ileum, and identified no additional gallstones or abnormalities. Intraoperative evaluation demonstrated that the gallbladder was completely decompressed and adherent to the duodenum, with an established cholecystoduodenal fistula. Following assessment of these findings, the surgical team elected to limit the procedure to relief of the mechanical obstruction, leaving the fistula intact without performing cholecystectomy or fistula closure.

The patient's obstructive symptoms subsequently resolved, and she was discharged in stable condition seven days after admission, with follow-up arranged with general surgery.

Discussion

The present case is unusual in both the patient's age and the anatomical location of the obstruction. Although gallstone ileus predominantly affects older adults, particularly women, our patient was 48 years old [1-3]. Furthermore, gallstone impaction occurs most frequently in the distal ileum, making proximal jejunal obstruction a less common presentation [2,3]. Stone size also influences the likelihood of obstruction, with stones larger than 2-2.5 cm more likely to become impacted [2,8]. Ayantunde AA and Agrawal A reported a mean impacted stone size of approximately 3.6 cm [3]. In our patient, CT demonstrated a 5.5-cm gallstone impacted in the proximal jejunum (Figures *1*-*3*). The unusually large stone and proximal site of impaction distinguish this presentation from more typical cases. An established cholecystoduodenal fistula was subsequently confirmed intraoperatively.

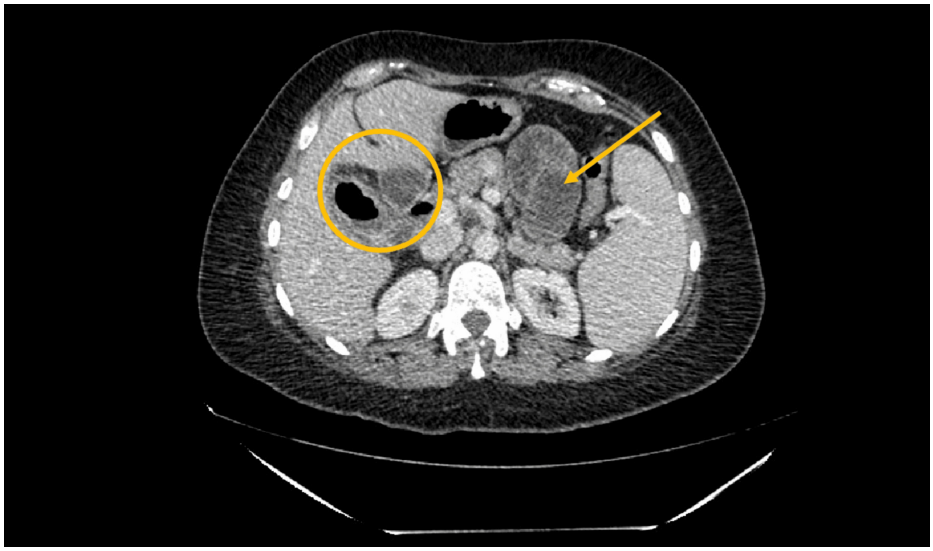


FIGURE 1: Axial CT image showing pneumobilia (yellow circle) and dilated small bowel loops (yellow arrow).

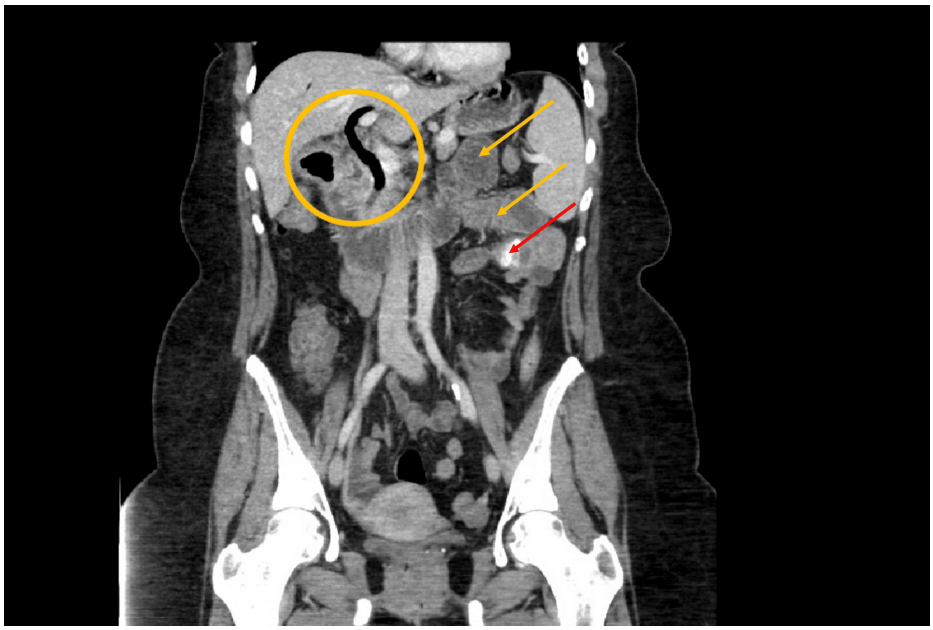


FIGURE 2: Coronal CT image showing pneumobilia (yellow circle), dilated small bowel loops (yellow arrows), and an ectopic gallstone (red arrow).

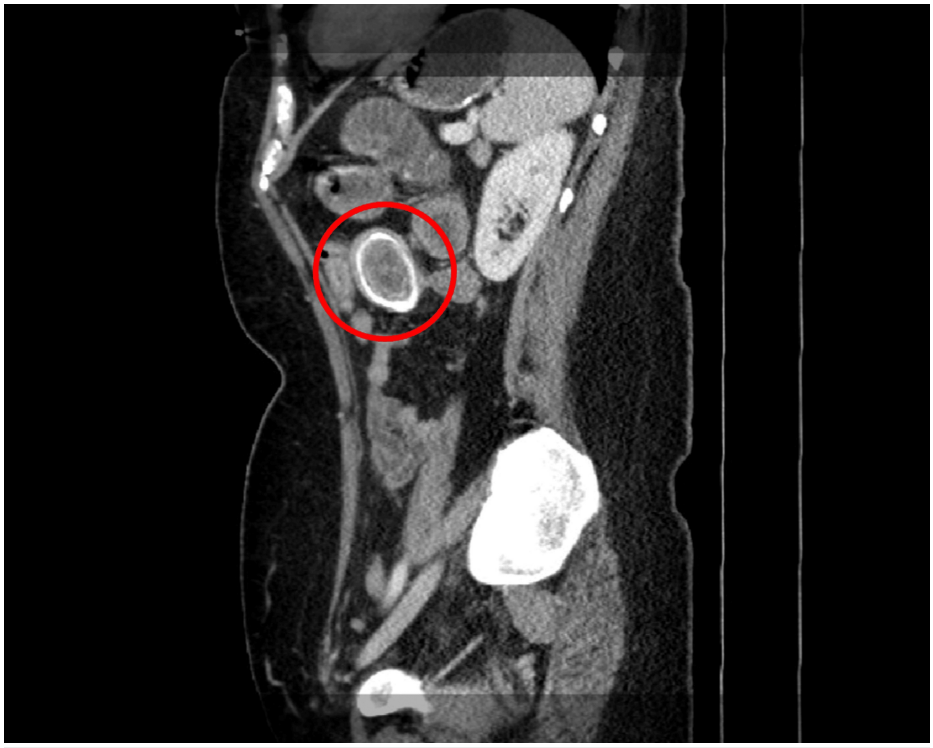


FIGURE 3: Sagittal CT image showing a large stone within the proximal jejunum (red circle).

Gallstone ileus may present with nonspecific gastrointestinal symptoms, including abdominal pain, nausea, and vomiting [3,5,7]. Our patient presented with these symptoms but was afebrile and hemodynamically stable, with a normal WBC count and no peritoneal signs. Although these findings did not independently establish the diagnosis, CT imaging promptly identified the mechanical obstruction and characteristic features of gallstone ileus. Thus, this case does not illustrate a delayed or particularly difficult diagnosis, but rather the value of timely imaging in identifying an uncommon cause of small bowel obstruction.

The large stone size and proximal jejunal location also have clinical implications. Compared with the more typical distal ileal obstruction, proximal small bowel obstruction may produce prominent nausea and vomiting relatively early in the clinical course. This is consistent with our patient's presentation with abdominal pain, nausea, and bilious vomiting over two days. The 5.5-cm stone produced mechanical obstruction requiring operative intervention. CT localization of the impacted stone helped guide the planned laparoscopic enterolithotomy. Intraoperative inspection of the remaining small bowel identified no additional gallstones, and the obstruction was successfully relieved without additional biliary surgery.

Although semaglutide was not suspected to have contributed to the patient's presentation, its use warrants clarification because gastrointestinal and gallbladder-related adverse events have been reported with this medication. Gastrointestinal adverse effects, including nausea and diarrhea, are commonly reported with semaglutide [9]. Gallbladder-related disorders, predominantly cholelithiasis, were reported in 2.6% of participants receiving semaglutide compared with 1.2% receiving placebo [9]. However, these findings do not establish a causal association between semaglutide and gallstone ileus. Accordingly, semaglutide exposure in this case is reported as part of the medication history and should not be interpreted as an established etiologic factor.

CT was particularly valuable in this case because it demonstrated all three components of Rigler's triad and identified the cholecystoduodenal fistula. The diagnostic importance of CT is supported by Lassandro F et al., who reported pneumobilia in approximately 55% of patients examined by USG and 89% of those evaluated by CT [7,10]. Yu CY et al. reported a CT sensitivity of 93% and specificity of 100% for diagnosing gallstone ileus [6]. In our patient, CT not only established the diagnosis but also identified the size and location of the obstructing gallstone and the associated biliary-enteric anatomy, providing important information for operative planning.

Initial management of gallstone ileus includes IV fluid resuscitation, correction of electrolyte abnormalities when present, nasogastric decompression, and early surgical consultation [1,3,11]. In our patient, these measures preceded laparoscopic enterolithotomy, which was planned to relieve the mechanical obstruction.

The operative management of this patient illustrates the importance of individualized surgical decision-making. Although enterolithotomy alone is commonly performed, there is no universal consensus regarding the optimal surgical approach [1,3,12]. Halabi WJ et al. identified enterotomy with stone extraction alone as the most frequently performed procedure in a nationwide analysis [13]. Alternative approaches include a one-stage procedure combining enterolithotomy, cholecystectomy, and fistula closure, or a two-stage approach with delayed biliary surgery when indicated [1,3,12]. The choice depends on the patient's clinical condition, operative findings, and associated biliary pathology.

In our patient, diagnostic laparoscopy was the initial step of the planned laparoscopic enterolithotomy, allowing direct assessment of the bowel before removal of the obstructing gallstone. Inspection of the remaining small bowel is important because additional ectopic gallstones may contribute to persistent or recurrent obstruction [7,11]. The surgeon inspected the entire small bowel, from the ligament of Treitz to the terminal ileum, and identified no additional gallstones or abnormalities. Although laparoscopic enterolithotomy has been reported, published experience remains more limited than with open surgery, and conversion may be necessary [1]. In this case, laparoscopic treatment successfully relieved the obstruction.

Although the patient was hemodynamically stable, this alone did not mandate a one-stage procedure. Surgical management must also account for operative anatomy and the potential risks associated with additional biliary intervention [1,3,11,12]. In this case, the gallbladder was completely decompressed and adherent to the duodenum, with an established cholecystoduodenal fistula. The surgical team elected to leave the fistula intact without performing cholecystectomy or fistula closure, prioritizing relief of the mechanical obstruction without additional biliary surgery. This approach illustrates that the decision to undertake a one-stage procedure should be individualized rather than determined solely by hemodynamic stability. The patient's obstructive symptoms resolved, and she was discharged in stable condition seven days after admission. Information regarding subsequent outpatient follow-up was unavailable.

Conclusions

This case demonstrates that gallstone ileus can occur in a relatively young patient, with an unusually large gallstone producing obstruction in the proximal jejunum rather than the more typical distal ileum. Despite the absence of marked abnormalities in vital signs, laboratory findings, or physical examination, CT promptly established the diagnosis and provided anatomical information for operative planning. Successful laparoscopic enterolithotomy, with preservation of the established cholecystoduodenal fistula, illustrates the importance of individualized surgical management based on intraoperative findings rather than hemodynamic stability alone.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Acquisition, analysis, or interpretation of data: James Espinosa, Kristine Rubi, Kelly Schuitema, Alan Lucerna, Russell Mordecai

Drafting of the manuscript: James Espinosa, Kristine Rubi, Kelly Schuitema, Alan Lucerna, Russell Mordecai

Critical review of the manuscript for important intellectual content: James Espinosa, Kristine Rubi, Kelly Schuitema, Alan Lucerna, Russell Mordecai

Disclosures

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