MEDDOCS Open Access Publisher

Journal of Surgery Case Reports

Open Access | Case Report

Bouveret's Syndrome Associated with Johnson III Gastric Perforation. Clinical Case Report of Case of 82-Year-Old Female

Alejandro Tenorio-Pacheco[1]*; José Luis López Vázquez[2]; Marco Aurelio Álvarez Romero[1]

[1]General Surgery Resident, Hospital de Especialidades 5 de Mayo, ISSSTEP, Puebla, Mexico.

[2]Attending Surgeon, Hospital de Especialidades 5 de Mayo, ISSSTEP, Puebla, Mexico.

***Corresponding Author(s): Alejandro Tenorio-Pacheco**

Av. Emiliano Zapata 4732, San Baltazar Campeche, C.P. 72550, Heroica Puebla de Zaragoza, Pue, Mexico.

Tel: 2221-06-75-71; Email: teno_96@icloud.com & alejandro.tenorio@upaep.edu.mx

Received: Oct 08, 2025

Accepted: Oct 31, 2025

Published Online: Nov 07, 2025

Journal: Journal of Surgery Case Reports

Publisher: MedDocs Publishers LLC

Online edition: http://meddocsonline.org/

Keywords: Bouveret's syndrome; Gallstone ileus; Gastric perforation; Bilioenteric fistula; Intestinal obstruction.

Abstract

Background: Bouveret's syndrome is an uncommon variant of gallstone ileus that results from the impaction of a gallstone in the upper gastrointestinal tract, typically at the pylorus or duodenum, following migration through a bilioenteric fistula. It accounts for less than 5% of gallstone ileus cases and predominantly affects elderly women. Gastric perforation associated with this syndrome is extremely rare and may arise from ischemic necrosis secondary to chronic inflammation and elevated intraluminal pressure.

Case presentation: An 82-year-old woman with a history of diabetes mellitus and hypothyroidism presented with generalized abdominal pain, nausea, recurrent vomiting, and abdominal distension. Laboratory tests revealed leukocytosis, hyponatremia, hyperkalemia, hyperglycemia, and acute kidney injury. Computed tomography demonstrated findings compatible with intestinal obstruction, pneumobilia, pneumoperitoneum, and an ectopic gallstone measuring 30 mm in the distal ileum. The patient underwent emergency exploratory laparotomy, during which a 4-cm prepyloric gastric perforation (Johnson type III) and an impacted 4-cm gallstone located 155 cm from the ileocecal valve were identified. Surgical management consisted of primary repair of the gastric perforation, enterotomy with gallstone extraction, and peritoneal lavage. Histopathological examination confirmed chronic inflammation without malignancy. The postoperative course was favorable, with progressive clinical improvement.

Discussion: Bouveret's syndrome should be suspected in elderly patients presenting with gastric outlet obstruction and a history of gallstones. Computed tomography is the diagnostic gold standard, with the presence of Rigler's triad—pneumobilia, bowel obstruction, and ectopic gallstone—considered pathognomonic. The coexistence of gastric perforation, as in this case, is an exceptionally rare complication likely related to ischemic injury caused by increased intraluminal pressure and chronic inflammation.

Cite this article: Tenorio-Pacheco A, López Vázquez JL, Álvarez Romero MA. Bouveret's Syndrome Associated with Johnson III Gastric Perforation. Clinical Case Report of Case of 82-Year-Old Female. J Surg Case Rep. 2025; 3(2): 1013.

Conclusion: This case highlights the diagnostic value of computed tomography and the importance of early surgical intervention. Bouveret's syndrome with associated gastric perforation remains a surgical challenge that requires individualized management to optimize outcomes.

Introduction

Bouveret's syndrome is a rare form of gallstone ileus characterized by obstruction of the upper gastrointestinal tract, usually at the level of the pylorus or duodenum, caused by the impaction of a gallstone that has migrated through a bilioenteric fistula. This entity accounts for less than 5% of all gallstone-related complications and approximately 1–3% of gallstone ileus cases. It predominantly affects elderly women, with a median age at diagnosis of around 74 years.

Its clinical presentation is often nonspecific and typically includes symptoms such as nausea, vomiting, and abdominal pain, which may delay diagnosis. The diagnosis is based on imaging findings, with computed tomography being the study of choice due to its high sensitivity and specificity. The presence of Rigler's triad-pneumobilia, intestinal obstruction, and an ectopic gallstone-is considered pathognomonic.

Gastric perforation associated with Bouveret's syndrome is exceptional and may result from ischemic necrosis secondary to chronic inflammation and increased intraluminal pressure, further complicating the clinical scenario.

This article describes the case of an 82-year-old female patient diagnosed with Bouveret's syndrome and gastric perforation who underwent emergency surgical treatment. Clinical, radiological, and surgical findings are discussed, along with relevant diagnostic and therapeutic considerations, to provide useful insights into this uncommon and challenging clinical presentation.

Case presentation

An 82-year-old female patient with a medical history of diabetes mellitus treated with sitagliptin every 24 hours and hypothyroidism treated with levothyroxine every 24 hours presented to the emergency department. She denied any known allergies. Her surgical history included an open appendectomy at age 11.

The clinical picture began on March 8, 2025, with generalized abdominal pain accompanied by nausea, multiple episodes of vomiting, and unquantified fever. She initially received outpatient medical treatment by a private practitioner; however, progressive abdominal distension, inability to pass stool or flatus, and worsening symptoms prompted her to seek emergency care.

On physical examination, the patient was awake, alert, and cooperative. Pupils were isochoric and reactive to light. The thorax was symmetric with adequately ventilated lung fields. Heart sounds were present with normal tone and intensity. The abdomen was globose due to adipose tissue, distended by meteorism, with decreased peristalsis, diffuse tenderness more pronounced in the epigastrium, and a positive rebound sign.

Laboratory results revealed hemoglobin 17.3 g/dL, platelets 363×10³/µL, leukocytes 5.13×10³/µL, neutrophils 84.4%, sodium 123.4 mmol/L, chloride 66.1 mmol/L, potassium 6.81 mmol/L, glucose 235 mg/dL, creatinine 7.01 mg/dL, total bilirubin 0.6 mg/dL (direct 0.33 mg/dL, indirect 0.34 mg/dL), lactate 2.2 mmol/L, prothrombin time 11.8 s, INR 1.07, partial thromboplastin time 22.9 s, D-dimer 5256 ng/mL, and procalcitonin 7.83 ng/mL.

Abdominal computed tomography revealed findings consistent with intestinal obstruction, pneumobilia, pneumoperitoneum, and a 30-mm gallstone located within a distal ileal loop (Figure 1). Based on these findings, emergency surgery was indicated. The patient underwent exploratory laparotomy with primary closure of a perforated Johnson type III gastric ulcer, enterotomy with gallstone extraction, and gastric excisional biopsy.

Intraoperative findings included a prepyloric perforation on the anterior gastric wall measuring approximately 4 cm in diameter (Figure 2); adhesions between the omentum and intestinal loops, between the loops and liver, and between the loops and abdominal wall, classified as grade III according to the Zühlke scale; approximately 50 mL of inflammatory fluid in the peritoneal cavity; and a 4-cm gallstone located 155 cm from the ileocecal valve (Figure 3).

Surgical technique involved layered dissection followed by adhesiolysis and copious lavage with 0.9% saline solution. A dense inflammatory mass was found adherent to the gallbladder bed. Continued dissection revealed a 4-cm perforation on the anterior gastric wall, 2 cm proximal to the pylorus. Primary closure was performed using a continuous 3-0 Vicryl suture, reinforced with a second Lembert layer of 3-0 silk. A firm 1-cm gastric lesion was also noted and biopsied. At 155 cm from the ileocecal valve, an impacted 4-cm gallstone was identified. Traction sutures were placed with silk, and a 2-cm enterotomy was performed for stone extraction, followed by closure with a continuous 3-0 Vicryl suture reinforced with a second Lembert layer of 3-0 silk.

An air-leak test was negative, and layered abdominal closure was completed without complications.

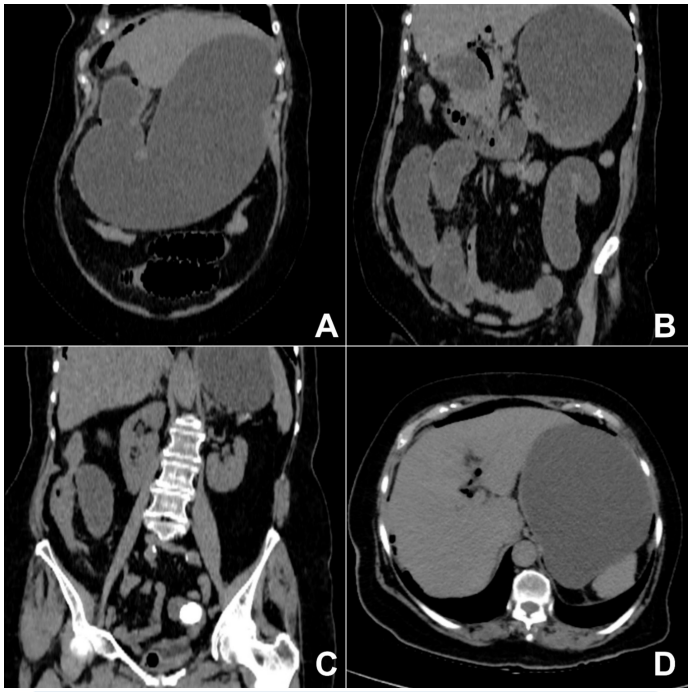

Figure 1: CT findings: **(A)** Coronal view. Significant gastric distension. **(B)** Coronal view. Pneumobilia. **(C)** Coronal view. Gallstone at the level of the small intestine. **(D)** Axial view. Free air in the abdominal cavity and pneumobilia.

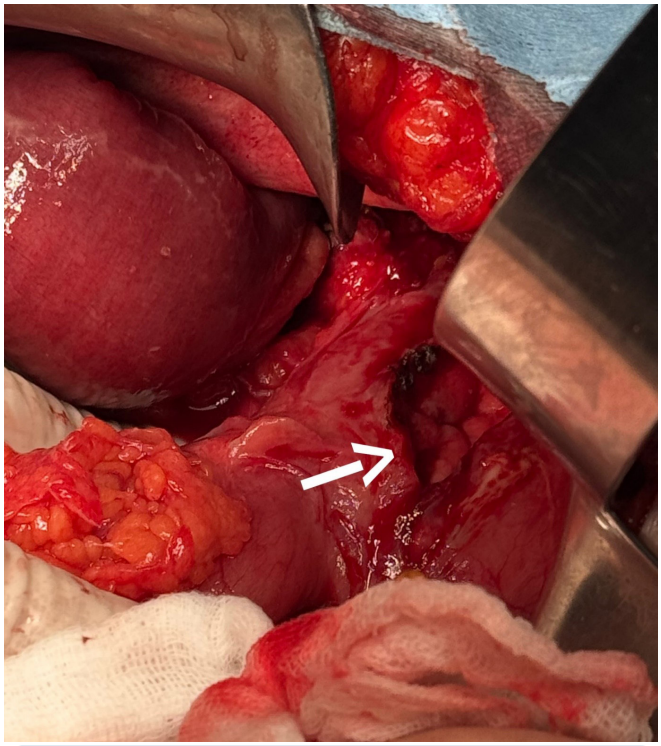

Figure 2: A gastric perforation of approximately 4 centimeters is evident.

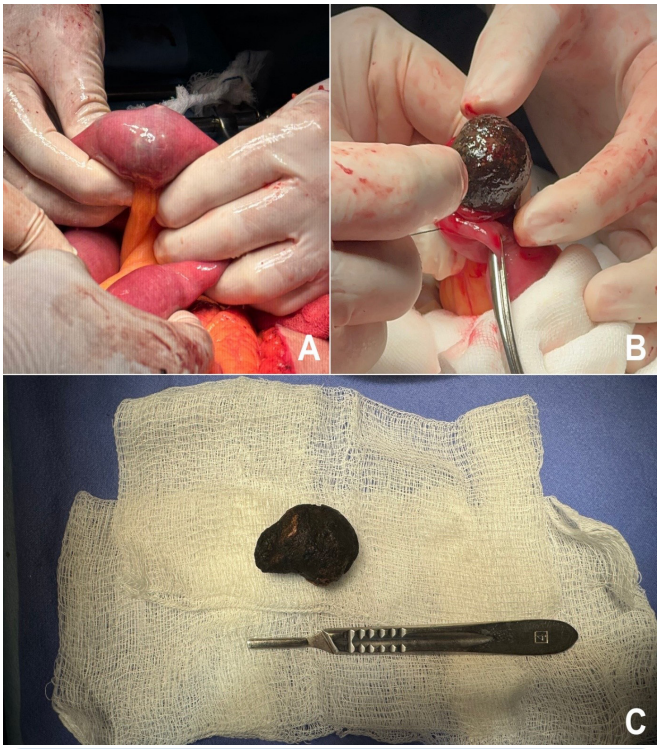

Figure 3: (A) Presence of an intraluminal gallstone. **(B)** Enterotomy. **(C)** Gallstone measuring 3 cm.

Discussion

Bouveret syndrome is a cause of intestinal obstruction resulting from the formation of a biliodigestive fistula, secondary to an impacted large gallstone [1]. The site of occlusion in gallstone ileus is usually the narrowest caliber of the distal intestine, most frequently the terminal ileum.

This syndrome accounts for between 0.3% and 5% of cholelithiasis complications and 1–3% of gallstone ileus cases [2]. Its prevalence is higher in elderly women, with a median age at diagnosis of 74 years and a female-to-male ratio of 9:1 [3].

The most common clinical manifestations of this syndrome include nausea and vomiting (87%), abdominal pain (71%), and, less frequently, hematemesis (15%) [3].

The presence of clinical signs of intestinal obstruction warrants an abdominal radiograph as an initial study, or a Computed Tomography (CT) scan for a more precise diagnosis. In cases of pain in the right upper quadrant or epigastric region, ultrasound is the first-choice study to rule out biliary pathology. If hematemesis is the presenting symptom, upper gastrointestinal endoscopy is indicated. Nonetheless, CT is considered the gold standard due to its high sensitivity and specificity [4].

The combination of small bowel obstruction, pneumobilia, and the presence of an ectopic gallstone is known as Rigler's triad, which is specific for gallstone ileus [3,5].

Bouveret syndrome was first described in 1770 by Beaussier; however, it was in 1896 that the French internist Léon Bouveret published a series of two clinical cases of obstruction secondary to duodenal gallstone impaction [6]. Initial treatment includes nasogastric tube placement, fasting, and fluid resuscitation [7]; however, surgery remains the cornerstone of treatment for this syndrome [8].

The presented case corresponds to an 82-year-old female patient, which aligns with the literature, showing higher prevalence in elderly women, with a median age of 74 years at diagnosis and a female-to-male ratio of up to 9:1. Although the syndrome is classically associated with duodenal obstruction, in this case a perforated gastric ulcer was identified, representing an atypical and clinically significant presentation.

A gallstone larger than 2–2.5 cm in diameter is required to cause gastrointestinal tract obstruction (9). This, combined with inflammation from recurrent episodes of acute cholecystitis, may favor adherence of the gallbladder to the gastrointestinal tract. This condition promotes ischemic necrosis of the adjacent walls of the gallbladder, stomach, and intestine, secondary to increased mechanical tension exerted by the gallstones on these structures, ultimately leading to a biliodigestive fistula [2].

Based on the above, it is suspected that in this case the presence of a biliogastric fistula not only allowed the passage of stones into the digestive tract but also contributed to the development of ischemic necrosis of the gastric wall, resulting in an associated gastric perforation.

The preoperative diagnosis was suspected via CT, a study considered the gold standard due to its high sensitivity (93%) and specificity (100%) [10]. This modality allowed identification of Rigler's triad, consisting of pneumobilia, intestinal obstruction, and ectopic gallstone, considered pathognomonic of gallstone ileus.

Surgical intervention was necessary due to intestinal obstruction and progressive instability. The procedure consisted of enterotomy with stone extraction and primary closure of the gastric perforation.

Because this condition is uncommon, Bouveret syndrome should be considered in the differential diagnosis of intestinal obstruction in older adults, particularly in women with a history or risk factors for gallstone disease. Furthermore, it highlights the diagnostic value of CT and the need for an individualized surgical approach.

Conclusion

Bouveret syndrome is a rare cause of intestinal obstruction, resulting from the migration of a large gallstone through a biliodigestive fistula, usually into the duodenum. Although its prevalence is low, it should be included in the differential diagnosis of older adults presenting with upper gastrointestinal symptoms, particularly in women with a history or risk factors for cholelithiasis.

The presented case highlights an unusual clinical variant with associated gastric perforation, emphasizing the potentially severe nature of this condition and the need to maintain a high index of diagnostic suspicion. In this context, a thorough medical history focused on prior biliary disease, episodes of cholecystitis, and chronic digestive symptoms is essential to guide initial clinical suspicion.

Complementary imaging studies play a crucial role in diagnosis. Computed Tomography (CT) is the most sensitive and specific method, allowing identification of Rigler's triad (pneumobilia, intestinal obstruction, and ectopic gallstone), a pathognomonic finding of gallstone ileus and highly suggestive of Bouveret syndrome. Additionally, other diagnostic modalities such as abdominal ultrasound and upper endoscopy may be useful depending on the predominant symptoms.

Therapeutic management should be individualized, taking into account the patient's clinical condition, the site of stone impaction, and the presence of complications such as perforation, peritonitis, or hemodynamic instability. In this case, surgical intervention was decisive for resolution, demonstrating that while minimally invasive alternatives exist, surgery remains the definitive treatment in complex scenarios.

In summary, this case underscores the importance of a comprehensive clinical evaluation, supported by appropriate imaging studies and timely intervention, to improve prognosis in patients with Bouveret syndrome, a rare but clinically challenging condition.

Author declarations

Acknowledgments

To Dr. López Vázquez for his surgical and musical teachings in the operating room.

Funding

The authors declare that they did not receive any financial support for the conduct of this research work.

Conflict of interest

The authors declare no conflicts of interest related to this research work.

Informed consent

Written consent was obtained from the patient and her family to carry out this research work, in accordance with data protection and confidentiality protocols.

References

1. Satchithanandha V, Lau N-S, Galevska A, Sandroussi C. Bouveret syndrome: two approaches one stone. J Surg Case Rep. 2023; 2023: 360–2.
2. Thatipalli N, Gattani R, Nayak K, Sudabattula K. Bouveret syndrome: etiology, clinical presentation, differential diagnosis, complications, and treatment options. Cureus. 2024.
3. Hufkens E, Struyve M, Bronswijk M, van der Merwe S. Endoscopic therapy for Bouveret syndrome, illustrated by a case report. Acta Gastro Enterol Belgica. 2023; 86: 360–2.
4. Checkley EW, Balian V, Aziz A, Lee F. Bouveret syndrome: a clinicoradiological perspective. BMJ Case Rep. 2020; 13: e238620.
5. Ayantunde AA, Agrawal A. Gallstone ileus: diagnosis and management. World J Surg. 2007; 31: 1294–9.
6. Peixoto R, Correia J, Soares MG, Gouveia A. Bouveret's syndrome: a case report and a brief literature review. Acta Med Port. 2020; 33: 347–9.
7. Sousa M, Santos M, Abrantes JF, Peixoto L. Bouveret's syndrome presenting as jejunal obstruction: a case report. Cureus. 2025.
8. Frąk W, Durczyński A, Hogendorf P, Fabisiak A, Małecka-Wojciesko E. A rare variant of ileus – Bouveret's syndrome. Gastroenterol Rev. 2022; 17: 83–4.
9. Tian Y, Sarvepalli N, Nazzal M. A unique presentation of Bouveret's syndrome: two large gallstones obstructing both the gastric outlet and the common bile duct simultaneously. Case Rep Surg. 2021; 2021: 1–6.
10. Turner AR, Kudaravalli P, Al-Musawi JH, Ahmad H. Bouveret syndrome (bilioduodenal fistula). StatPearls. 2025.