

## Gallstone ileus-induced intestinal obstruction in a 38-year-old patient with a history of three pregnancies and cesarean section: a case report

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### ABSTRACT

Gallstone ileus-induced intestinal obstruction is a rare but significant condition that occurs when a gallstone becomes lodged in the gastrointestinal tract. Major risk factors for gallstone ileus-induced intestinal obstruction include older age, female sex, diabetes, history of gallbladder disease such as gallstones, as well as previous gallbladder-related surgical procedures such as cholecystectomy. Pregnancy is also a known risk factor for gallstone disease. We present the case of a 38-year-old patient with a history of three cesarean sections and no apparent comorbidities. Prior to her visit to the emergency department, the patient experienced moderate colicky abdominal pain in the lower abdomen for two days. The physical examination revealed diffuse abdominal tenderness, predominantly in the right iliac fossa, along with signs of irritation of the peritoneum. Laboratory tests showed a leukocyte count of 11,490 cells/ $\mu$ l and neutrophilia of 85.6 %. Following an exploratory laparotomy, the suspected diagnosis of gallstone ileus was confirmed. An enterolithotomy was performed, and the patient experienced good post-surgical progress. In conclusion, it is important to consider gallstone ileus-induced intestinal obstruction among patients with relevant symptoms and medical history. This case report highlights the importance of considering gallstone ileus-induced intestinal obstruction among patients with gastrointestinal symptoms and a history of pregnancy. Early diagnosis and intervention are crucial to prevent serious complications.

**Keywords:** Ileal Diseases; Intestinal Obstruction; Cesarean Section; Ileum; Bile Duct Diseases (Source: MeSH NLM).

### INTRODUCTION

Gallstone ileus-induced intestinal is a rare but significant condition that occurs when a gallstone, also known as biliary calculus, becomes lodged in the gastrointestinal tract, resulting in a partial or total intestinal obstruction to the passage of both food and liquid <sup>(1)</sup>. This atypical condition is caused by abnormal communication between the gallbladder and the intestine, which allows the gallstone to migrate through the biliary system and become lodged in the digestive tract <sup>(2,3)</sup>.

The symptoms of gallstone-ileus induced intestinal obstruction may vary, but they frequently include acute abdominal pain and colic accompanied by nausea and vomiting. Patients may also experience abdominal distention and changes in bowel habits such as constipation <sup>(4)</sup>. Laboratory tests often reveal increased white blood cell counts and possibly increase liver enzyme levels due to associated inflammation <sup>(5)</sup>. The diagnosis is usually confirmed through imaging tests such as X-rays, ultrasound and computed tomography (CT) scanning <sup>(6)</sup>.

### CLINICAL CASE

The clinical case that we present occurred at the General Surgery Service of Hospital General de Nogales, Mexico. It involved a 38-year-old female patient urgently admitted, with a surgical history of three previous cesarean sections, the most recent being 17 years ago. In addition, she denied having any comorbidities or previous hospitalizations prior to this incident.

The symptoms, among which a colicky abdominal pain of moderate intensity in the lower abdomen stood out, began two days before her admission. Additionally, the patient had not had bowel movements for three days. Subsequently, she developed abdominal distension and oral intolerance, leading her to visit the emergency department. There, she was evaluated by the surgical team, and the physical examination revealed generalized abdominal tenderness, predominantly in the right iliac fossa, along with signs of irritation of the peritoneum.

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The laboratory tests showed the following results: leukocyte count of 11,490 cells/ $\mu$ l with neutrophilia of 85.6 %, hemoglobin level of 11.6 mg/dl, hematocrit of 36 %, platelet count of 371,000, glucose level of 104 mg/dl, urea level of 25.4 mg/dl, creatinine level of 0.8 mg/dl, total cholesterol of 127 mg/dl, prothrombin time of 13.1 seconds and activated partial thromboplastin time of 31.1.

Based on the aforementioned findings, it was decided to perform an exploratory laparotomy on the patient. During the procedure, approximately 200 cm<sup>3</sup> of free fluid was observed in the abdominal cavity. In addition, an oval-shaped stone measuring approximately 4 x 4 cm was found in the sigmoid colon, completely obstructing the lumen. Therefore, a 4 cm enterotomy was carried out using a cold scalpel (Figure 1). Subsequently, closure was achieved using 2-0 vascular Prolene sutures with Connell-Mayo stitches, followed by reinforcement with simple Lembert sutures using 2-0 silk.

The patient showed good postsurgical progress in the postoperative period, resulting in her discharge in good overall condition three days after the surgery.



**Figure 1.** Removal of gallstone through enterolithotomy. A) Incision in the taenia using a scalpel. B, C, D) Removal of gallstone.

## DISCUSSION

This clinical case shows a rare but significant condition of gallstone ileus-induced intestinal obstruction in a female patient with a surgical history and characteristic symptoms. Gallstone ileus is an infrequent but potentially serious complication of gallstone disease. The gallstone migrates from the gallbladder, leading to an obstruction within the gastrointestinal tract <sup>(2,7)</sup>. Although this condition is rare, it is essential to consider it in the differential diagnosis of patients with abdominal pain and a history of gallstones. If not treated promptly, this obstruction can lead to complications such as intestinal perforation, abdominal infection and sepsis <sup>(8)</sup>.

Previous studies have shown that approximately 1 % to 4 % of cases of intestinal obstruction are caused by gallstone migration <sup>(9)</sup>. Major risks factors for gallstone ileus-induced intestinal obstruction include older age, being female, having diabetes, history of gallbladder disease such as gallstones, as well as previous gallbladder-related surgical procedures <sup>(10)</sup> such as cholecystectomy. Pregnancy is also a known risk factor for gallstone disease <sup>(11)</sup>. The pregnancy-related risk is associated with both adolescent pregnancy and the number of pregnancies <sup>(11)</sup> and, as shown in this case, the patient had a history of three previous cesarean sections, the most recent being 17 years ago. Although the absence of comorbidities, intestinal obstruction caused significant symptoms, including colicky abdominal pain and signs of irritation of the peritoneum. These symptoms, together with the laboratory findings, suggested a mechanical intestinal obstruction and the symptoms justified the decision to perform an exploratory laparotomy.

Surgery remains the gold standard for treatment, with three different approaches <sup>(12)</sup>: A) enterolithotomy, B) a two-stage strategy comprising an initial enterolithotomy followed by a postponed cholecystectomy and subsequent fistula closure and C) a unified approach involving enterolithotomy along with cholecystectomy and concurrent fistula closure <sup>(13)</sup>. In many cases, an exploratory laparotomy is performed to identify and address the problem <sup>(14)</sup>. In this case, an exploratory laparotomy was performed followed by an enterolithotomy <sup>(15)</sup> to remove the gallstone and correct abnormal communication between the gallbladder and the intestine.

This surgical intervention is not exempt from complications: following the procedure, the most common complications include surgical wound infection, intestinal fistulas and intra-abdominal abscesses <sup>(16)</sup>. These complications require comprehensive management, which may include antibiotic treatment, abscess drainage and surgical reintervention in severe cases. In this case, the favorable postoperative evolution of the patient was encouraging and reflected the effectiveness of the surgical treatment in this condition.

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The resolution of the obstruction and early intervention allowed the patient's full recovery in a relatively short period.

From a clinical perspective, this case report highlights the importance of considering gallstone ileus-induced intestinal obstruction in patients with gastrointestinal symptoms and a history of pregnancy. The typical clinical presentation, along with laboratory findings, should alert physicians to the possibility of this condition. However, a limitation of the case was the lack of details regarding the imaging diagnostic methods used to confirm the obstruction before surgery. Although gallstone ileus-induced intestinal obstruction is an uncommon condition, its diagnosis and management are essential to prevent serious complications such as intestinal perforation or abdominal infection. Multidisciplinary collaboration between surgeons, gastroenterologists and radiologists is crucial to improve the diagnosis and management of this clinically relevant entity.

In conclusion, it is important to consider gallstone ileus-induced intestinal obstruction among patients with relevant symptoms and a medical history. This case report highlights the importance of considering gallstone ileus-induced intestinal obstruction among patients with gastrointestinal symptoms and a history of pregnancy. Early diagnosis and intervention are crucial to prevent serious complications. Collaborative efforts between surgeons, gastroenterologists and radiologists are crucial to improve diagnosis and management of this unusual but clinically significant condition.

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