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REVIEW ARTICLE

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## INTESTINAL OBSTRUCTION SECUNDARY TO GALLSTONE ILEUS: A CASE REPORTS AND A SISTEMATIC REVIEW

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### ABSTRACT

Gallstone ileus is a rare complication of cholelithiasis, responsible for 4% of all cases of abdominal mechanical obstruction. Is caused by calculus impact in gastrointestinal treatment after a bilioenteric fistula which, in 60% of cases, is cholecystoduodenal. His treatment is eminently surgical. The authors report a clinical case of a 68-year-old patient, who appeared at the Nova Iguaçú General Hospital, suffering from abdominal distension, associated with the elimination of flatus and feces. The diagnosis of intestinal obstruction secondary to gallstone ileus is based on a history, physical examination and abdominal tomography. Exploratory laparotomy was performed with enterotomy and stone removal and subsequent enterorrhaphy, without manipulation of the gallbladder or bilioenteric fistula at this first moment. To complement the study, a bibliographic survey was carried out, through a search in the databases PUBMED, EMBASE, LILACS, Scielo and MEDLINE, using the following terms: "Cholelitiase" AND "Biliary Ileus" AND "Intestinal Obstrução" AND "review".

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## INTRODUCTION

A calculous disease of the gallbladder is one of the most frequent surgical treatment conditions. Your incident is related to the progress of life. Thus, the global prevalence of 9.0% falls to 21.0% in the population aged 60 to 69 and more than 30% in individuals over 70 years of age.<sup>1-4</sup> In the majority of cases, the disease is calculous and asymptomatic,<sup>1,5,6</sup> being diagnosed accidentally during an imaging examination (ultrasound or abdominal tomography). However, in the evolution of the disease, about 2% of patients each year become symptomatic or present some type of complication, among which acute cholecystitis, acute biliary pancreatitis and choledocholithiasis are the most common.<sup>7-9</sup> In some cases, the fistula may have formed between the gallbladder and some intestinal segment and may cause intestinal obstruction, due to the impact of the same intestinal segment (generally the ileocecal valve), a condition called biliary tract.<sup>10-12</sup> The most frequent topography of stone obstruction is distal ileus, which represents 75% of the two described cases of gallstone ileus.

Gastric, duodenal and jejunal obstruction is also possible through cholecystoduodenal fistula or, less frequently, cholecystogastric, cholecystojejunal and cholecystoileal fistulas.<sup>13</sup> Colonic obstruction occurs, predominantly, in the presence of cholecystocolic fistula.<sup>14</sup> In this study, we report a case of a patient with a gallstone, asymptomatic, who presented a picture of intestinal obstruction due to gallstone ileus and required emergency surgery. Furthermore, an updated systematic review was carried out on the topic, to show new evidence on pathophysiology, diagnostic approach, treatment options and morbidity and mortality rates.

## CASE REPORT

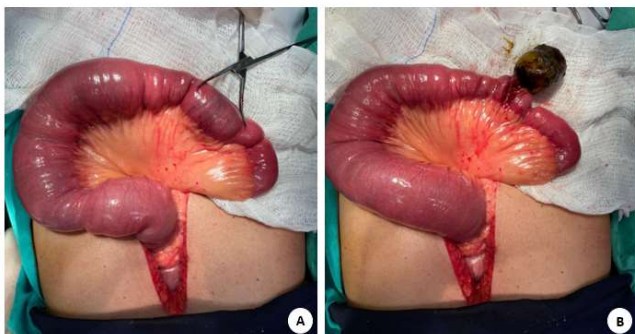
Female patient, 68 years old, with systemic arterial hypertension, type 2 diabetes mellitus and gallstone disease, admitted to Hospital Geral de Nova Iguaçú – Rio de Janeiro with complaints of abdominal distension and colic type associated with nausea, vomiting and stoppage of fecal elimination 1 day ago.

A physical examination showed her to be dehydrated, tachypneic and tachycardic. On palpation of the abdomen there is diffuse pain, with percussive tympany, without signs of peritoneal irritation. With a hypothetical diagnosis of acute obstructive abdomen, clinical treatment was initiated (correction of hydroelectrolytic disturbances, venous hydration and passage of a nasogastric tube). The laboratory tests evidence leukocytes without deviation and alterations in both urea and creatinine levels. In the sequence of the investigation, we performed tomography of the abdomen, which showed aerobilia, distention of the gastric chamber and the small intestine, with an abrupt reduction in caliber in the ileo-caecal transition region, with a lack of enchimento rounded in this region compatible with the biliary ileus (Figure 1).



**Figure 1.** Note the CT of the abdomen and pelvis, axial section, Showing an impacted stone in the ileocecal transition (red arrow)

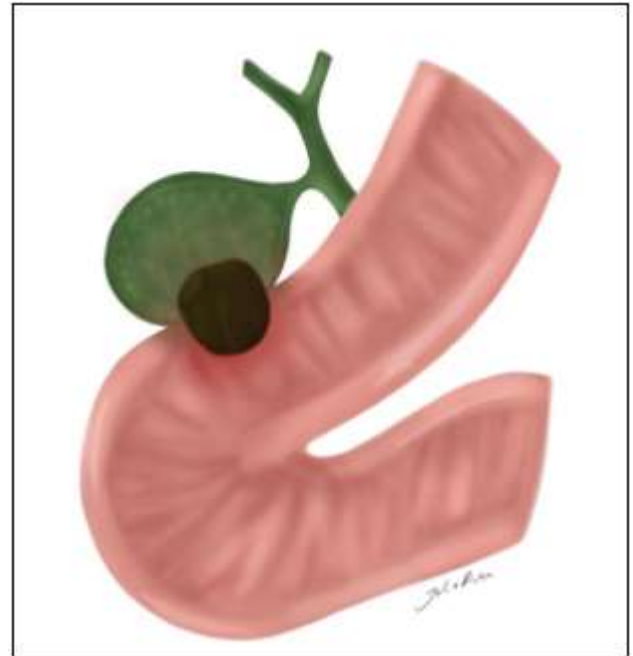
The patient was subjected to exploratory laparotomy, general anesthesia and antibiotic prophylaxis with ampicillin-sulbactam and metronidazole. Some adhesions were evidenced in the cavity, small intestine obstruction due to a gallstone of approximately 4 cm in diameter, in the topography of the ileo-caecal transition, in addition to a blockage around the gallbladder. A longitudinal enterotomy was performed with removal of the stone and transversal enterorrhaphy of the upper part, without manipulation of the gallbladder (Figure 2). The patient remains post-operatively in Intensive Care for 24 hours, from a respiratory and hemodynamic point of view. An oral diet was released 48 hours after vomiting, or delayed discharge, which was only granted on the fourth post-operative day, after diet oil, and absence of symptoms. Antibiotic therapy was de-escalated, and outpatient return for accompaniment and programming of approach for cholecystoduodenal fistula.



**Figure 2.** A- Note the intestinal obstruction of the small intestine with distension upstream. B. Gallstones after enterotomy

**Systematic Discussion and Review:** Gallstone ileus was first described by Bartholin in 1654, and occurs in 0.3% to 0.5% of gallstone carriers. It is due to 1% to 4% of intestinal obstructions. In approximately 25% of cases, it affects patients over 65 years of age and the majority of the patients are carriers of asymptomatic gallstone disease,<sup>15, 16</sup> being evidenced in this article, in that the patient was known to be a carrier of asymptomatic cholelithiasis, without surgical

indication, and He had never presented symptoms of biliary crisis. The pathophysiological mechanism of fistula formation generally appears when there are recurring episodes of acute cholecystitis, generating generalized inflammation and adhesion between the gallbladder and the digestive tract.<sup>13</sup> Beltrán and Csendes believe that a gallstone that is impacted and in contact with the mucosa first it develops inflammation, ischemia, after necrosis and due to inflammation associated with the gallbladder wall and the hepatic duct or common bile duct, causing stones to corrode the wall or ducts forming a fistula<sup>19</sup> (Figure 3).



**Figure 3.** Note the cholecystoduodenal fistula

The most common location for fistula formation is between the gallbladder and the duodenum, representing 85% of all types. The other 15% are hepatoduodenal, choledocoduodenal, cholecystogastric, cholecystojejunais and cholecystocolonic fistulas<sup>17,20,21</sup> The size of the calculation is significant for the onset of intestinal obstruction and must measure less than 2 cm in diameter to cause mechanical obstruction. The most frequent site of stone impaction is the terminal ileus (ileocecal valve), as it is the narrowest portion of the small intestine.<sup>22,23</sup> The clinical symptoms vary, depending on the location and how long the patient presents with obstruction. A patient with acute gall ileus usually presents with a sudden onset of abdominal distension, vomiting, and obstruction. In case of subacute gall ileus, the patient does not evacuate, but eliminates flatus (low-grade intestinal obstruction). The chronic type is characterized by recurring episodes of two and sometimes asymptomatic periods that cause complete obstruction in some part of the intestine.<sup>5,8,9,12</sup> The evaluation of two imaging tests in the diagnostic approach to any cause of intestinal obstruction comes with the performance of abdominal radiographs in the supine and orthostatic positions, for this reason, in this clinical case, we were not available for radiography at this time. The classic image for gallstone ileus is called Rigler's triad and consists of the presence of radiopaque stones (occurring in less than 10% of two cases), pneumobilia (Gottamenschler signal) and distension of the intestinal alças. The presence of 2 or 3 sinuses establishes the diagnosis.<sup>9,24, 25</sup> Abdominal ultrasound is useful to confirm the presence of cholelithiasis, showing a calculeus image within a segment of the hip, associated with the quadro de distensão de alças. Compared to radiography, abdominal ultrasound appears to be more sensitive for: initial obstruction of the small intestine, presence of small amounts of blood in the bile ducts or gallbladder, gallstones in atypical positions, concomitant stones, fistula between the gallbladder and duodenum, presence of ascites or intestinal ischemia. In most of the bibliographical references, the US was not used as an isolated method for the diagnosis of Biliary

Ileus.<sup>18,23,24</sup> The Computed Tomography (CT), when compared to the two methods previously described, appears to be more valuable, when compared with contrast, which is considered the reference method for the diagnosis of gallstone ileus, it presents sensitivity above 90%.<sup>8,14,15, 17,24</sup> In our unit, we present this available exam and we can visualize Rigler's Triad present, we have a pre-operative diagnosis. Many times, when there is no possibility of diagnosing this pathology with imaging tests, the clinical picture or surgery leads to proceeding with exploratory laparotomy. Prior to surgical intervention, the patient must have his electrolyte and metabolic balances, such as hemodynamic instability, restored.<sup>6</sup> In our clinical case, the patient presented with hydroelectrolytic disturbances due to two multiple episodes of vomiting. The objective of surgical treatment is to resolve intestinal obstruction. Given that most patients with gallstone ileus present advanced disease and, generally, important comorbidities, there is great controversy in relation to the best surgical approach: isolated enterolithotomy or associated with the fistula approach and cholecystectomy, since, in this case, there would be an increase in surgical time, with increased morbidity and mortality, without great benefits in a long term.<sup>7,9,20,21</sup> Some authors report the spontaneous dating of some fistulas and argue that, if the bile duct is patent and does not have residual stones, a cholecystoenteric fistula can be dated spontaneously, but if there is a significant acute inflammatory process (acute cholecystitis), cholecystectomy and correction must be performed gives fistula not the same operative procedure.<sup>23,24</sup> As for the surgical route, videolaparoscopy can also be a good method for treatment in teams with experience once in the best recovery of the non-post-operative patient, therefore in cases of large abdominal distension, this surgical route should not be considered.<sup>25,26,27</sup> The postoperative period is generally prolonged and the main complications include surgical infection, pneumonia, and evisceration. Mortality varies from 5 to 25% in the largest series of studies.<sup>14,18,19,23</sup> Recent studies, a decrease in morbidity and mortality have been demonstrated in patients with IB, suggesting that the use of antibiotic prophylaxis, perioperative management and care in intensive care units Intensive therapy plays a leading role in reducing complications.<sup>28</sup>

## CONCLUSION

Acute intestinal obstruction presents high morbidity and mortality and represents a surgical emergency. Thus, the gallstone as a cause of intestinal obstruction consists of a relatively serious complication of cholelithiasis, which despite incomum, reinforces the importance of cholecystectomy, in order to prevent the evolution of the quadro for conditions that can become critical and high risk. The surgery should consider gallstone ileus as a diagnostic hypothesis in elderly patients, with history or no cholelithiasis, which appears as an acute obstructive abdomen. Very often the diagnosis is not given by means of complementary examinations, in locations with difficult access to CT, or the patient must be subjected to exploratory laparotomy. The performance of enterolithotomy with fistula date in the second operative period, possui fewer complications, increasing the patient's prognosis, being considered in the majority of two cases.

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