

# *Symptomatic lithiasis in residual gallbladder*

## *Litíase sintomática em vesícula biliar residual*

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### RESUMO

Sintomas pós-colecistectomia muitas vezes tem causas extra-biliares. As causas biliares mais comuns são presença de cálculos ou cirurgia incompleta. O uso da colangiorressonância magnética pode evitar complicações intraoperatórias decorrentes anatomia biliar pouco usual facilitando o acesso cirúrgico. No presente trabalho é relatado caso de paciente com litíase sintomática em vesícula residual.

UNITERMOS: Vesícula Biliar Residual, Ducto Cístico, Colecistectomia, Colecistite, Dor Abdominal.

### ABSTRACT

*Most post cholecystectomy symptoms have extrabiliary causes. The most common biliary causes are calculi and incomplete surgery. The use of magnetic resonance cholangiography (MRC) seems to avoid intraoperative complications due to a possible unusual biliary anatomy and to facilitate surgical access. Here in is reported a case of patient with symptomatic lithiasis in residual gallbladder.*

KEYWORDS: *Residual Gallbladder, Cystic Duct, Cholecystectomy, Cholecystitis, Abdominal Pain.*

### INTRODUCTION

The incidence of abdominal symptoms after cholecystectomy ranges from 10% to 40% (1) and may reach 50% according to some authors (2, 3, 4). Some of these symptoms are mild and cause almost no discomfort, such as transient nausea, eructation, flatulence and dyspepsia. Most postoperative symptoms have extra-biliary causes, such as chronic pancreatitis, peptic ulcer, gastroesophageal reflux, coronary arterial disease and irritable bowel syndrome (2, 3, 4). The most common biliary causes are stenosis, or dysfunction of the sphincter of Oddi, choledocolithiasis and incomplete surgery (1, 5). The latter occurs when a residual gallbladder or a cystic duct remnant is left at the operation site (Figure 1). Both the open and laparoscopic techniques may result in inadvertent subtotal cholecystectomy, but a few more cases seem to occur among patients that undergo laparoscopic surgery (5, 6). In this study, we report the case

of a patient that had undergone open cholecystectomy five years before, and later presented with abdominal symptoms. Noninvasive tests revealed a cystic structure that extended to the choledochus and contained calculi. This structure was located in the right upper abdominal quadrant. Clinical details and surgical approach are described below.

### CASE REPORT

A 50-year-old male patient was seen in a general surgery outpatient department because of intermittent epigastric dull pain. Pain lasted for about two to three hours each episode. The patient also complained of dyspepsia and an epigastric sensation of heaviness between pain episodes. All symptoms began about five years before, after he had undergone an open cholecystectomy, but the patient had no significant weight loss. Physical examination revealed

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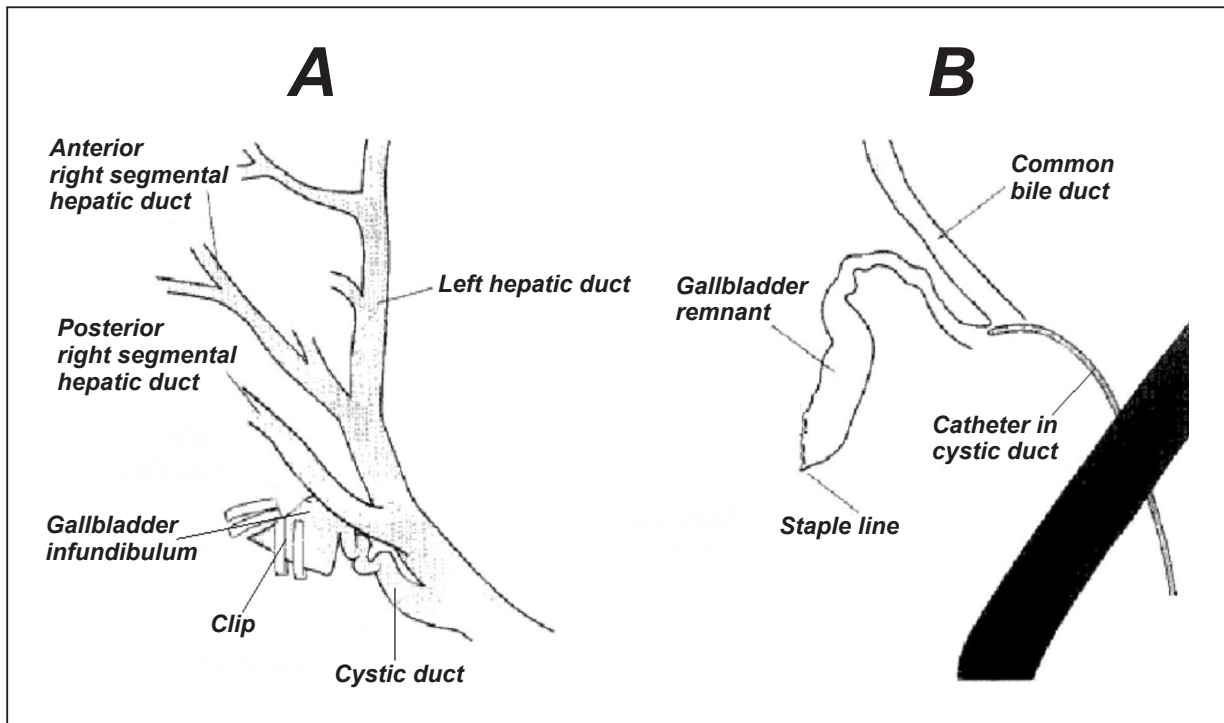


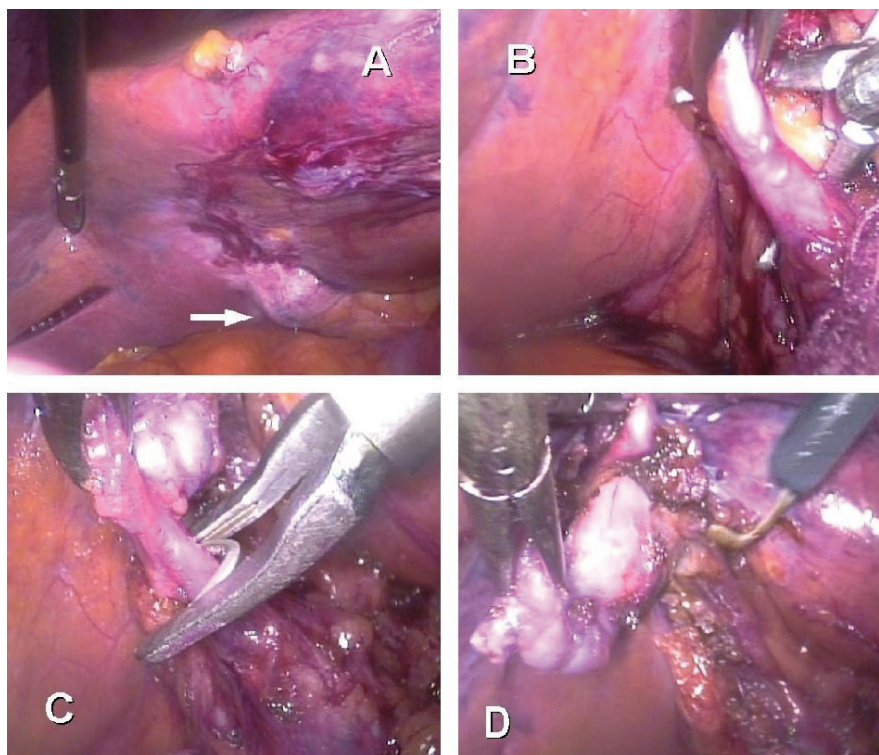
FIGURE 1 – Diagram of a long cystic duct – A; Diagram of gallbladder remnant – B [adapted from Walsh et. al., 1995 6]

pain during epigastric palpation, but no jaundice. Upper digestive tract endoscopy revealed mild esophagitis and small elevated lesions in the gastric antrum. Ultrasound showed an oval hypoechoic structure in the left hepatic lobe, with longer axis measured 6.6 cm. The patient was taking 20 mg omeprazole twice a day, and reported previous *Helicobacter pylori* eradication. The results of laboratory tests were: hematocrit = 51.5%; hemoglobin = 16.9 g/dl; direct bilirubin = 0.1 mg/dl; total bilirubin = 0.5 mg/dl; aspartate aminotransferase (AST) = 46 U/l; alanine

aminotransferase (ALT) = 107 U/l; prothrombin time = 11.9 s. Magnetic resonance cholangiography (MRC) (Figure 2) revealed an elongated cystic structure that extended to the choledochus; findings were suggestive of a residual cystic duct stump, also called neo-gallbladder. Inside the cystic duct there was an oval and hypodense image at T2; this structure measured about 1 cm and was suggestive of calculi. The duct of Wirsung was not dilated, and there was no change in the choledochus. Because of these findings, a diagnosis of residual gallbladder with calculi was made.



FIGURE 2 – MR cholangiogram shows dilated cystic remnant with calcifications (arrows)



**FIGURE 3** – Steps of laparoscopic cholecystectomy. A – Traction of the liver to find the cystic duct stump (arrow); B – Isolation and dissection of the cystic duct; C – Clipping the duct; D – Resection of the residual gallbladder

The patient underwent laparoscopic resection (Figure 3), During surgery, a cystic duct stump was detected, isolated, clipped and resected without any complications. Macroscopic examination of the surgical specimen revealed three calculi inside a residual gallbladder (Figure 4). The patient had no significant complications and his postoperative recovery was uneventful.

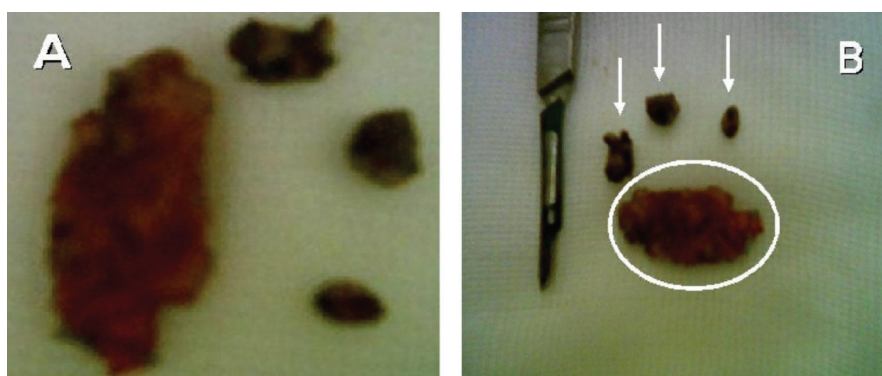
## DISCUSSION

Postcholecystectomy syndrome can occur in up to 50% of the patients that undergo gallbladder resection (2, 3, 4),

but only a few cases have a biliary cause. Among the possible biliary causes, the presence of a residual gallbladder is a frustrating event for both patient and surgeon because it requires a new surgical intervention.

Symptoms of postcholecystectomy syndrome may appear from 3 weeks to 25 years after gallbladder resection (1, 13). Some studies report that most of them appear from 14 months to 20 years after surgery, and that mean time interval is 8.5 years (6). Demetriades et al. (2008) (5) found that symptom onset occurred 3.5 years after cholecystectomy in their group of patients.

Cholecystectomy is the procedure of choice for the treatment of acute and symptomatic cholecystitis; its morbi-



**FIGURE 4** – Surgical specimen. A – Residual gallbladder and three calculi inside it (zoom); B – Residual gallbladder (circle) and three calculi (arrows). Note extremely small size of calculi in comparison with scalpel blade

dity ranges from 2% to 11%, and mortality, from 0.06% to 0.1% (4, 7, 8). This surgery is simple, but requires experience and technical expertise, particularly in cases of anatomic variation, extensive inflammation, or adhesions. In these cases, surgeons, aware of the increased probability of common hepatic duct lesion, may intentionally perform an incomplete resection of the cystic duct or misidentify the infundibular portion of the gallbladder (1, 5). Also, when the infundibulum is not clearly isolated, surgical clips may be placed in a wrong position, which may result in an unintentional subtotal cholecystectomy (1, 5, 9). Multiple small calculi may be retained in an excessively long cystic duct and may cause postoperative abdominal symptoms.

According to some authors, calculi may form inside a cystic duct remnant, which is also a risk for postoperative complications. On the other hand, gallbladder calculi may migrate during the operation and become impacted, in the cystic duct (5). According to COELHO et al. (4) (2002), the simple presence of cystic duct remnants does not cause postoperative abdominal pain as it was thought in the past, except in the cases associated with comorbidities, such as cholelithiasis, tumor or suture granuloma.

The factors that may lead to cystic remnant dilatation are unknown, but some authors suggest that an excessively long and obstructed remnant significantly increases the risk of complications (1).

When evaluating patients with abdominal symptoms after cholecystectomy, ultrasound examination is the first choice. MR cholangiography may be a valuable tool to identify causes of pain, palpable masses and jaundice (10). When performed before surgery, MRC outlines the biliary tree and detects aberrant anatomy (11). These informations may be useful to avoid intraoperative lesions of biliary tract (11). Furthermore, data in the literature show that MRC may obviate the need for intraoperative cholangiography, reducing operation time, especially in patients with signs and symptoms suggestive of presence of calculi in the common biliary duct (12).

The high rate of abdominal symptoms after cholecystectomy, and the fact that laparoscopic cholecistectomy is associated with a slightly higher rate of cystic duct remnants, may rise a word of caution. However, studies have found that 54% of healthy individuals have gastrointestinal symptoms (3). Also, 9% of the young adults included in one of these studies had abdominal symptoms (3). Such findings indicate that surgeons should not expect cure rates of symptoms higher than 80-90% after cholecistectomy, regardless of which treatment is used (3).

## FINAL COMMENTS

When patients present with epigastric or upper right quadrant pain after cholecystectomy, residual gallbladder

should be included in the differential diagnosis. The rate of postcholecystectomy symptoms may be as high as 50%, but they are usually benign. In the case reported here, MRC played an important role in establishing the diagnosis. This noninvasive method has high accuracy for biliary lithiasis, similar to rates reported for endoscopic retrograde cholangiopancreatography (14). We believe that MRC may reduce the number of misdiagnosed cases of residual gallbladder and avoid that cystic remnants be discovered only during surgery.

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