INTRODUCTION

LAPAROSCOPIC CHOLECYSTECTOMY (LC) is currently the standard approach for treating cholelithiasis and has undeniable advantages over laparotomy, although LC is associated with a slightly higher incidence of main bile duct lesions. A lesser known complication of LC is the dropping of gallstones in the peritoneal cavity, which can lead to the development of abscesses that usually require laparotomy for extraction of the stones. Dropped gallstones are usually found around the liver, often in the posterior subhepatic space, and they can lead to the development of adhesions and abscesses, frequently caused by Gram negative bacilli. The treatment of these abscesses by simple percutaneous drainage is usually ineffective because extraction of the stones is indispensable to successful treatment.

ABSTRACT

Complications resulting from gallstones left in the peritoneal cavity are most often reported after laparoscopic treatment of cholelithiasis. Gallstones are frequently dropped in the posterior subhepatic space, which occurs in up to 4% of cases and is more frequent after the treatment of acute cholecystitis.

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The endoscopic approach to the retroperitoneum was first described in the mid-1960s for the study and treatment of renal lesions andwas subsequently applied in the treatment of suprarenal, pancreatic, and abdominal wall diseases. There are no reports in the literature on the use of this approach to treat abscesses associated with dropped gallstones, which would be of greatest utility when the stones are in the posterior hepatorenal space (Fig. 1). We describe a simple and effective technique to extract these stones by retroperitoneoscopy.

Case Report

Retroperitoneoscopy to Extract Dropped Gallstones After Laparoscopic Cholecystectomy

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**CASE REPORTS**

**Case 1**

The first patient was a 64-year-old man who had undergone surgery for acute calculous cholecystitis 6 months earlier. He complained of nonspecific discomfort in right flank, associated with vespertine fever of 37.6°–37.8°C starting 3 months after laparoscopic cholecystectomy. Imaging studies showed collections of approximately 7-cm diameter localized in the right posterior subhepatic space. During the procedures, 11 gallstones were extracted, 5–9 mm in diameter.

The bacteriological study of the abscess contents showed growth of *Escherichia coli* (the same bacteria that was present previously during cholecystectomy). There were no postoperative complications, the drainage tube could be extracted on second postoperative day, and the patient was discharged from hospital on third postoperative day, under oral antibiotics regime. No recurrence of abscess was observed during the follow-up of 15 months (Fig. 2).

**Case 2**

The second patient was a 56-year-old man who had undergone laparoscopic cholecystectomy for acute calculous cholecystitis 9 months earlier. He complained of pain in right flank in the last 2 months, without fever or other complaints. Imaging studies showed collections of approximately 8-cm diameter localized in the right posterior subhepatic space. During the procedures, five stones (3–7 mm in diameter) were extracted after their sonographical localization (Fig. 3).

The bacteriological study of the abscess contents also showed growth of *Escherichia coli*. After an uneventful postoperative course, the patient was discharged on third postoperative day, under oral antibiotics regimen. No recurrence of abscess was observed during a 14-month follow-up period.

**Operative technique**

The procedure was carried out under general anesthesia, with the patient placed in the left lateral decubitus position with lumbar hyperextension (Fig. 4). Antibiotic and antithrombotic prophylaxis was administered and maintained postoperatively. A 10-mm optical trocar was...
inserted into the abscess via a 1-cm incision after its ultrasound localization in the right flank at the posterior axillary line, under ultrasonographic guidance (Fig. 3). After aspiration of the liquid component of the collection, taking a sample for bacteriologic study, a second 10-mm laparoscopic port sheath was inserted into the collection, immediately subcostally, under direct intracavitary vision obtained with a 10-mm zero-degree laparoscope.

After washing out the abscess cavity, any stones present were visualized and extracted with Babcock forceps inserted through either port (Fig. 5). After filling the abscess cavity with saline solution, the extraction of all stones was confirmed by ultrasound. Finally, an 18Fr aspirative drainage tube was placed in the collection cavity and exteriorized at the more caudal skin orifice. Fascial closure and skin suture were performed on the other orifice.

**DISCUSSION**

LC is one of the most frequently performed operations. Although it has advantages over the laparotomic approach in relation to hospital stay and patient comfort, it is more often associated with complications such as main bile duct lesions, gallbladder perforations, and the persistence of dropped gallstones in the peritoneal cavity that can produce adhesions and abscesses. These stones can remain after 0.3–0.6% of LCs, and their most common location is Morrison’s pouch, although they have also been reported in the pleural cavity and subphrenic space, at trocar ports, the retroperitoneum, and even within incisional hernial sacs.

Because of possible late serious complications, every effort should be made to avoid spillage of stones during dissection of the gallbladder and cystic duct and during retrieval of the gallbladder through the abdominal wall. Improvements in instrumentation that help prevent this complication include video systems with better visualization of the dissection plane, cautery probes insulated to the tip to avoid burning the gallbladder wall, improved graspers with wider surfaces that do not employ sharp teeth, and well-designed specimen bags.

Once perforation occurs, the gallbladder should be immediately closed using a grasper, ligature, or clip. It is possible to add additional trocar sites or use retractors to better examine the peritoneal cavity and especially the subhepatic space. If it is unknown whether all spilled stones have been removed, conversion to laparotomy can be considered, although the incidence of subsequent abscesses is <5% of all cases of spilled gallstones.

Once abscess has developed, percutaneous drainage is not generally effective for its treatment and require multiple procedures in most reported cases, because the retained stones generate abscess recurrence. Moreover, the use of laparotomy to drain abscesses also has drawbacks, with a high incidence of sepsis and wound and incisional hernia. Therefore, the ability to drain the abscess and extract the stones by a minimally invasive approach under direct intracavitary vision is of great interest.

Retroperitoneoscopy offers this ability when the abscesses are in the posterior hepatorenal space. It is a simple and comfortable procedure for the patient and can be performed with only two ports. It is safe, with the first insertion made under ultrasound guidance and the second under direct vision. An added value of this technique, also contributing to its safety, is that it avoids the spread of purulent content into the peritoneal cavity. Finally, it is an effective method that enables extraction of all of the stones and offers a definitive cure.
REFERENCES


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