

The Last Place You Would Expect to Find a Gallstone

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ABSTRACT

The increasing use of laparoscopic cholecystectomy has led to an increased frequency of gallbladder perforation and subsequent gallstone spillage in the abdominal cavity. Occasionally unretrieved gallstones can cause infection, adhesions, and obstruction. Furthermore, spilt stones can cause erosion into adjacent organs and can migrate to distant sites, causing a variety of complications. We report the unusual case of a patient who presented with spontaneous erosion of gallstones through Grynfeltt's triangle, 1 year after laparoscopic cholecystectomy and review the current literature.

Key Words: Cholecystectomy, Grynfeltt's triangle, Gallstones.

INTRODUCTION

Laparoscopic cholecystectomy has become the procedure of choice for symptomatic cholelithiasis due to its minor overall morbidity and recuperation time and its substantially better aesthetic result compared with laparotomy. Nonetheless, the increasing use of these minimally invasive techniques has been associated with an increased frequency of 2 already existing complications in laparotomy, bile duct injury and gallstone spillage into the abdominal cavity.^{1,2} The iatrogenic injury of the common bile duct during laparoscopy is a severe complication and therefore has gained considerable attention.³ On the other hand, the presence of free intraperitoneal gallstones is generally considered harmless, not producing any deleterious effects.^{4,5} Nevertheless, in contrast to the latter notion, recent reports have shown that occasionally unretrieved gallstones can cause infection, adhesions, obstruction, or even severe sepsis and septic shock.⁶⁻⁹ Furthermore, these complications may occur many months or even years after surgery, thus confusing the unsuspecting physician and ultimately leading to further unnecessary and time-consuming diagnostic procedures.¹⁰ We report on an unusual case of a patient who presented with spontaneous erosion of spilled gallstones through Grynfeltt's triangle 1 year after laparoscopic cholecystectomy and review the current literature on the subject.

CASE REPORT

A 50-year-old male was admitted to our department due to symptomatic cholelithiasis. He complained of experiencing indigestion, flatulence, and intermittent right upper quadrant abdominal pain for the last few months. The ultrasound examination revealed a thick layer of gallbladder containing mud and multiple gallstones, and thus the patient was scheduled for laparoscopic cholecystectomy. During diathermy dissection from the hepatic fossa, the gallbladder was accidentally injured, resulting in the spillage of bile and gallstones into the peritoneal cavity. Efforts were made to recover the lost stones with extraction instruments and suction devices, followed by extensive peritoneal lavage with saline solution. Many of the split stones were gradually retrieved, and thus we decided to complete the operation. The patient received intravenous antibiotics for 48 hours, had an uneventful postoperative

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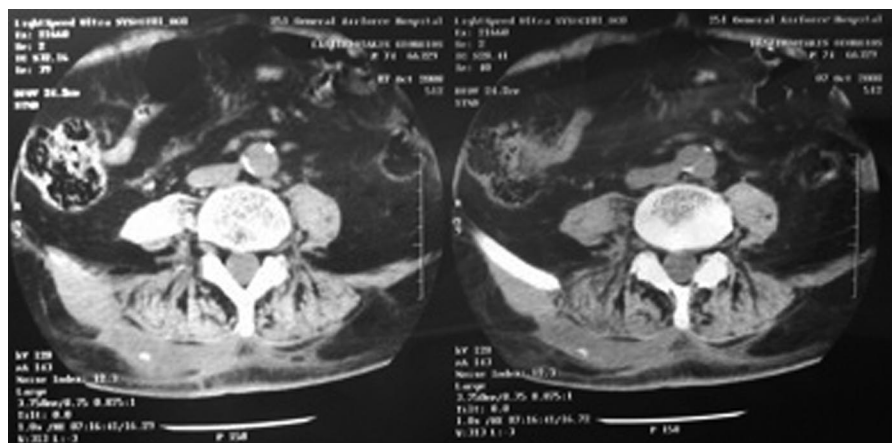


Figure 1. Abdominal computed tomography showed a large abscess extending from the retroperitoneal space lateral to the paraspinal musculature to the subcutaneous fat. A calcified lesion is visible in the abscess.

period, and was discharged on the third postoperative day. The patient was informed about the spillage of gallstones and their possible consequences and was asked to communicate with our department in case any symptoms appeared.

One year after the operation, the patient presented with an abscess in the lumbar region (**Figure 1**). Abdominal computed tomography revealed a large collection extending from the retroperitoneal space through Grynfelt's triangle to the subcutaneous fat. The abscess was drained percutaneously and was found to contain 5 medium size gallstones (**Figure 2**). The patient was readmitted to our department, where he received intravenous antibiotics and was finally discharged on the fifth day. The formed fistulous tract closed spontaneously, and to date the patient remains asymptomatic.

DISCUSSION

The introduction of minimally invasive laparoscopic procedures has revolutionized the field of surgery. To date, laparoscopic cholecystectomy is the treatment of choice for symptomatic cholelithiasis. Nonetheless, its revolution has its price. The increasing use of minimally invasive cholecystectomy has led to an increase in the frequency of gallbladder perforation and subsequent stone spillage.¹¹

According to previous studies, the incidence of gallstone spillage ranges from 6% to 30%.^{2,12} The presence of acute cholecystitis, obesity, older age, male gender, and the surgeon's experience have been nominated as possible risk factors for gallbladder injury during laparoscopy.¹³⁻¹⁵ Nevertheless, a multivariate analysis by Sarli et al¹⁵ re-



Figure 2. Drainage of the abscess revealed the presence of cholesterol stones.

vealed that the surgeon's skill was the only statistically significant factor related to gallbladder perforation.

Accidental injury of the gallbladder can occur during its dissection from the hepatic fossa or while removing it through a small trocar site.^{13,15} In the case of gallstone spillage, every effort should be made to retrieve the stones. A variety of instruments, such as laparoscopic

spoons, Dormia Baskets, graspers, and suction devices as well as the use of peritoneal lavage, are all recommended interventions for stone retrieval.¹⁶ Moreover to minimize any further stone spillage, an attempt should be made to close any defects in the gallbladder wall.¹⁷ Conversion to open surgery remains a matter of controversy. To date, routine conversion to laparotomy is not indicated, although it should be considered in patients with suspected bile contamination and spillage of multiple stones.^{14,16,17}

By utilizing the aforementioned techniques, successful retrieval of lost stones can be achieved in only 63% of the patients.¹⁰ The remaining gallstones are treated as foreign bodies, resulting in local inflammation and fibrosis. Although these stones may long or forever remain asymptomatic, occasionally they can cause serious complications.¹⁸ The most frequent complication is abscess formation at the subhepatic and subphrenic region and less frequently at the port sites.¹ Furthermore, split stones can cause erosion into adjacent organs and can migrate to distant sites, causing a variety of retroperitoneal, cardiothoracic, and urological complications.^{19–21} In a few cases, as in our report, stone migration can even lead to stone extravasation through the skin.²²

The cornerstone for the prompt diagnosis and treatment of these complications is a high index of clinical suspicion that the underlying problem could be the presence of split gallstones. The use of imaging techniques, such as computed tomography, ultrasound, and magnetic resonance imaging are valuable; nonetheless, the radiographic appearance of gallstones can sometimes be very difficult to distinguish from an underlying neoplastic process.²³

Abscesses must be treated with drainage, antibiotics, and more importantly removal of the causative factor, the stone. Local drainage can be an option for abdominal wall abscesses, while the use of minimally invasive percutaneous techniques is proffered for intraabdominal abscesses.^{24,25} Laparotomy is warranted in cases where the latter technique fails.

CONCLUSION

Complications resulting from fallen gallstones, although infrequent, can be severe. Intraoperatively, every effort should be made to retrieve them; however, to date, conversion to open surgery is not indicated when the lost stones are not found. The patient should be aware in case of gallstone spillage and informed about the possible complications. A high index of clinical suspicion is the key

for early diagnosis and avoidance of any unnecessary investigations.

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