

Spilled Gallstones Following Laparoscopic Cholecystectomy: A Report of Two Cases

G. Kyriakopoulos, D. Manganas, M.X. Papadopoulou, E. Daskalaki, V. Kalatzis, K. Mpotsakis, S. Voulgaris, S. Drakopoulos

Abstract

Background: Abdominal complications due to spilled gallstones after laparoscopic cholecystectomy are a rare event and may occur months, or even years after the operation.

Case report: We present two cases:

- A 62-year-old female patient, who was submitted to an uneventful laparoscopic cholecystectomy, and whose *immediate* post-operative course was delayed due to a persistent small bowel obstruction. Exploratory laparotomy revealed a mass, consisting of joined gallstones that caused strong adhesions between the loops of the terminal ileum.
- A 67 year-old male patient, with a “lost” gallstone presenting as an epigastric mass, *18 months* after an uneventful laparoscopic cholecystectomy for gallstone disease. Exploratory laparotomy revealed a mass, full of pus and inflammatory tissues, in the core of which a pigmented gallstone with a diameter of 3 cm was found.

Conclusion: The surgeon should always try to avoid causing a gallbladder perforation during laparoscopic cholecystectomy. In case that a perforation occurs, the surgeon should meticulously try to collect all –if possible – the spilled gallstones. Patients should always be aware of this event postoperatively. This must also be documented in the discharge notes, in order to assist the early recognition and treatment of any future complications.

Key words: *Spilled gallstones; laparoscopic cholecystectomy; bowel obstruction; epigastric mass; complications*

Introduction

Laparoscopic cholecystectomy (LC) is a very widespread procedure and the definitive treatment for symptomatic gallstone disease. Gallbladder perforation with concomitant bile and gallstone spillage is a common intraoperative event. These unretrieved stones were initially considered to be innocent, but in rare cases they can cause a wide variety of complications, even months or years after the LC.

Case presentation #1

A 62-year-old female patient is scheduled for an elective laparoscopic cholecystectomy, because of symptomatic

gallstone disease. Her personal history is significant only for a distal gastrectomy, operated on more than 3 decades ago, due to a perforated, bleeding duodenal ulcer. The patient



Figure 1. Abdominal X-ray.

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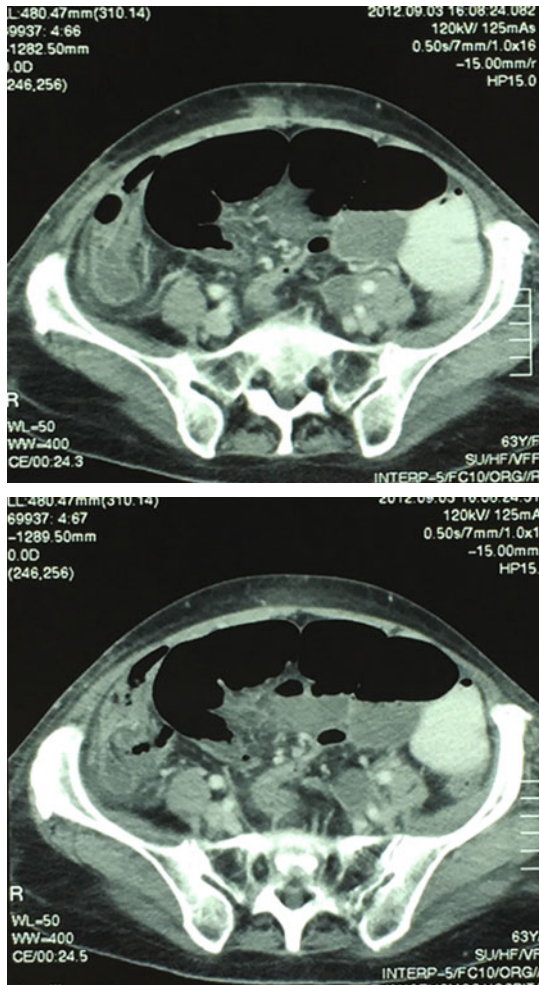


Figure 2. Abdominal CT-scan.

underwent an uneventful laparoscopic cholecystectomy. Two days post-operatively, however, she presented with acute abdominal pain and vomiting. Antiemetics and IV analgesics did not ameliorate the symptoms which seemed to worsen. An abdominal x-ray was ordered.

Bowel rest was ordered and a nasogastric tube was placed, but the symptoms never improved. An elevated WBC count and a temperature of 38,3 degrees of Celsius on the 7th post-operative day forced the surgeon to order an abdominal CT-scan.

The abdominal CT-scan not only reconfirmed the small bowel obstruction (Figure 2 – air-fluid levels), but also implied the presence of a mass in the right lower quadrant of the patient's abdomen (Figure 3 – arrow). The patient's septic profile made an exploratory laparotomy mandatory. Reoperation revealed the presence of three dice-like gallstones joint together and forming a mass, around which many loops of the terminal ileum were attached. The mass was dissected and removed, followed by extensive lysis of the adhesions.

The patient's post-laparotomy course was uneventful and was finally discharged on the 7th post-operative day.

Case Presentation #2

Herein, we present the case of a 67-year-old male patient, who was admitted to our Surgical Department with a 3-month history of epigastric discomfort. The patient also reported nausea, vomiting and 10 kg weight loss during the last 3 months. No fever or change in the bowel habits of the patient was mentioned. The patient's history was remarkable only for arterial hypertension under medical treatment. He had also undergone an uneventful laparoscopic cholecystectomy for symptomatic gallstone disease 18 months ago, at another institution. Physical examination revealed a bulging, tender epigastric mass with no signs of inflammation. An abdominal ultrasound showed a 3-cm dense mass-like lesion in the epigastric region. More detailed imaging was suggested. Laboratory workup (complete blood count, biochemistry, coagulation studies and tumor

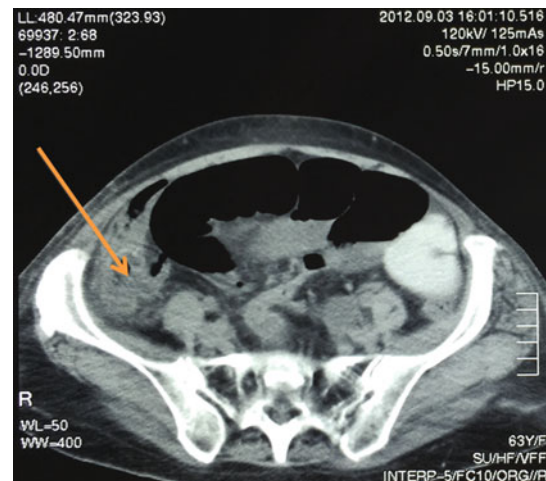


Figure 3. Abdominal CT-scan.

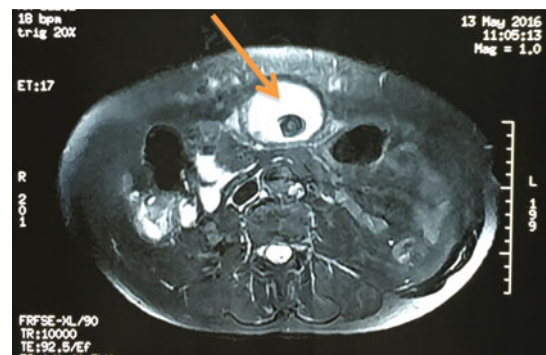


Figure 4. Abdominal MRI.

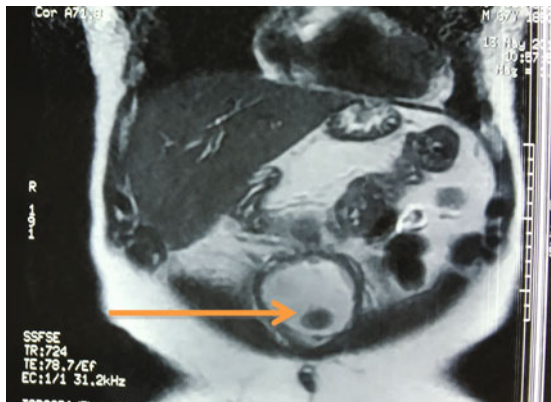


Figure 5. Abdominal MRI.

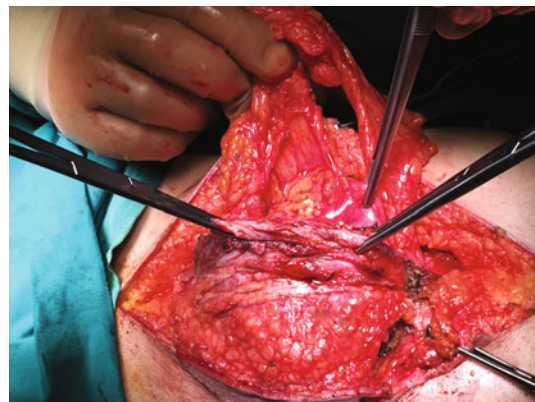


Figure 6. Intraoperative image.

markers) was within the normal range. Upper GI endoscopy revealed esophagitis and a small hiatal hernia and a tru-cut biopsy of the mass revealed only fibrotic and inflammatory components, with no evidence of malignancy. MRI of the abdomen confirmed the mass, revealing a dense element into its core. An exploratory laparotomy was decided.

The patient was placed under general anesthesia and an epigastric midline incision was made. The mass was dissected en-bloc, after being found between the liver edge and the lesser gastric curve.

The post-operative course was uneventful and the patient was discharged 1 week after the operation. The patient remains in good condition at the 3 and 6-month follow-up.

The report of the pathology department showed nothing but “abscess, inflammatory and hemorrhagic elements, foamy histiocytes at the sites of fat necrosis in close relation to the abdominal muscle wall”.

Discussion

Laparoscopic cholecystectomy is the golden standard of treatment for symptomatic gallstone disease. Gallbladder

perforation, followed by bile and gallstone spillage into the peritoneal cavity is a common intraoperative event (40%) [1], however complications occur in just 1-2% of these cases. [2] These most commonly happen during the traction of the Hartmann’s pouch, or when the gallbladder is extracted through one of the ports. The risk of perforation is increased if acute inflammation is present, making the gallbladder wall more susceptible to tearing during manipulation.[3] Other risk factors that have been identified are advanced age, male gender, stone size of more than 1,5 cm and infected bile. [4]

The natural history of these “lost” stones is most commonly benign. They are usually walled off by a part of the greater omentum and they subsequently form a core including the gallstone, around of which a dense fibrotic and inflammatory tissue develops [4].

However, this focus can induce inflammatory complications (e.g. intraperitoneal or abdominal wall abscess), fistulae or cause small bowel obstruction, after causing the adhesion of jejunal or ileal loops.

For the forementioned causes, the surgeon should make any effort in order to collect any spilled gallstone during an open or laparoscopic cholecystectomy [5]. The peritoneal

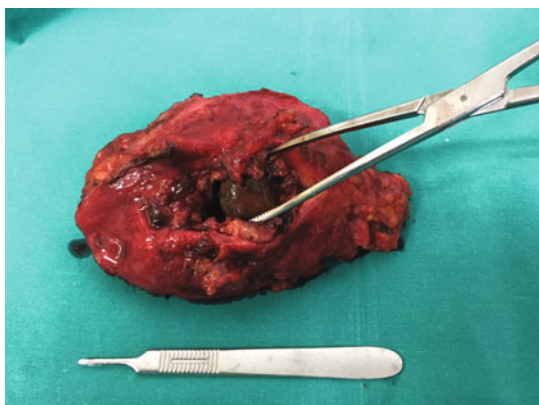


Figure 7. The extracted mass containing the gallstone.

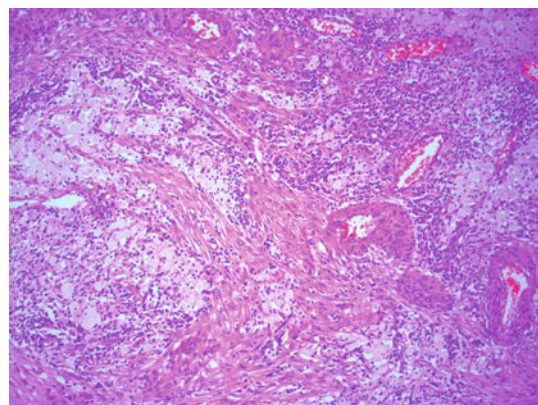


Figure 8. Histologic image of the surgical specimen.

cavity has also to be meticulously irrigated with saline, in order to dilute the spilled bile. Conversion to open surgery is not mandatory. This is a dilemma, only if there is a large amount of unretrieved gallstones, or when contaminated bile remains intra-abdominally.

From the radiologic point of view, an ultrasound is the preferred initial study, but an abdominal CT-scan is the imaging study of choice, because it can provide a more detailed and precise view of the gallstones' calcifications. [1]

Spilled gallstones should always be considered, in case of patients with a history of an "uneventful" laparoscopic cholecystectomy. Documentation of the intraoperative gallbladder perforation is mandatory in order to help future differential diagnostic issues. These "lost" stones can become symptomatic months or even years after the initial operation, so active follow-up can be helpful [6].

Conclusion

The surgeon shall make any effort intraoperatively to avoid gallbladder perforation. However, if such an event occurs, any spilled gallstones shall be collected meticulously during laparoscopy. Converting to open surgery in case of multiple large spilled gallstones remains debatable. In any case, such an event must be clearly documented in the operative note and in the discharge paperwork of the patient, in order to assist in the early recognition and treatment of any future complications.

Informed Consent: *Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this Journal.*

Conflict of Interest: *The authors declare that there is no conflict of interest.*

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References

1. Woodfield JC, Rodgers M, Windsor JA. Peritoneal gallstones following laparoscopic cholecystectomy: Incidence, complications, and management. *Surg Endosc Other Interv Tech* 2004;18:1200–7.
2. Rice DC, Memon MA, Jamison RL, et al. Long-term consequences of intraoperative spillage of bile and gallstones during laparoscopic cholecystectomy. *J Gastrointest Surg* 1997;1:81–5.
3. Sathesh-Kumar T. Spilled gall stones during laparoscopic cholecystectomy: a review of the literature. *Postgrad Med J* 2004;80:77–9.
4. Shocket E. Abdominal abscess from gallstones spilled at laparoscopic cholecystectomy - Case report and review of the literature. *Surg Endosc* 1995;9:344–7.
5. Bennett AA, Gilkeson RC, Haaga JR, et al. Complications of "dropped" gallstones after laparoscopic cholecystectomy: Technical considerations and imaging findings. *Abdom Imaging* 2000;25:190–3.
6. Tumer AR, Yüksek YN, Yasti AC, et al. Dropped gallstones during laparoscopic choleystectomy: The consequences. *World J Surg* 2005;29:437–40.