



Case report

Case report: Dropped gallstones diagnosis is hindered by incomplete surgical notes and a low index of suspicion

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ABSTRACT

Introduction and importance: Diagnosis and treatment of dropped gallstones (DG) complications can be delayed due to a low index of suspicion by treating physicians. This delay may derive from incomplete surgical notes that disregard and underreport DG. This report highlights the management of two cases of DG-related abscesses with incomplete surgical notes and how a high index of suspicion can bear positively on treatment results.

Case presentation: Two patients, a 62 and a 71-year-old female, presented intraabdominal abscesses resulting from DG from a prior laparoscopic cholecystectomy (LC). In neither patient did the surgical notes report the occurrence of DG. Both patients were treated with percutaneous drainage; however, their recovery was markedly different. In one case, an association with DG was not suggested until after several months of repeated abscess occurrence. In the other case, it was suggested early in the treatment, allowing for a shorter and improved recovery.

Clinical discussion: DG diagnosis is hindered by incomplete surgical notes and a low index of suspicion. Improvements in management can occur only if surgeons dependably report DG episodes. Percutaneous drainage of DG abscess under local anesthesia is less invasive than a laparoscopic or surgical approach and can be performed on an outpatient basis with or without using various stone fragmentation tools.

Conclusion: A high index of suspicion of DG can positively impact the treatment of these cases, therefore, reporting DG events during surgery is necessary. Percutaneous drainage with saline irrigation is safe and effective in selected patients with DG abscesses.

1. Introduction

Dropped gallstones (DG) can occur in 2.3% to 40.0% of laparoscopic cholecystectomies (LC) as a result of gallbladder perforation during surgical dissection and extraction [1–11]. Complications arising from DG have become more recognized in recent literature, with an estimated incidence of 0.04–19% adverse events [1]. Previously, DG were thought to carry no risk for the patient [2], and their retrieval was not considered mandatory during a complicated cholecystectomy [11,12]. Several reports have described many of the possible complications associated with DG [1,3–7]; however, the most common complication is the intraabdominal abscess [3].

Diagnosis of DG is challenging and frequently delayed because of an atypical clinical presentation, unexpected locations, and a low index of suspicion by the physicians [2]. Previous reports have shown that surgeons frequently underreport DG occurrence [8], which may also bring

about a low index of suspicion. This report highlights the management of two patients with intraabdominal abscesses due to DG in a teaching/community hospital of the national health system (C.C.S.S.). To our knowledge, percutaneous extraction of DG has been attempted in only 12 cases [2,4,9–11,14–16].

This report highlights the importance of recording the occurrence of DG in surgical notes to include this diagnostic possibility in the event of complications arising from DG, with the hope of helping other physicians arrive at this diagnosis sooner and positively impact patient treatment.

2. Case report

This work has been reported in line with the SCARE criteria [17].

Abbreviations: DG, dropped gallstones; LC, laparoscopic cholecystectomy; PD, percutaneous drainage; CT, computed tomography.

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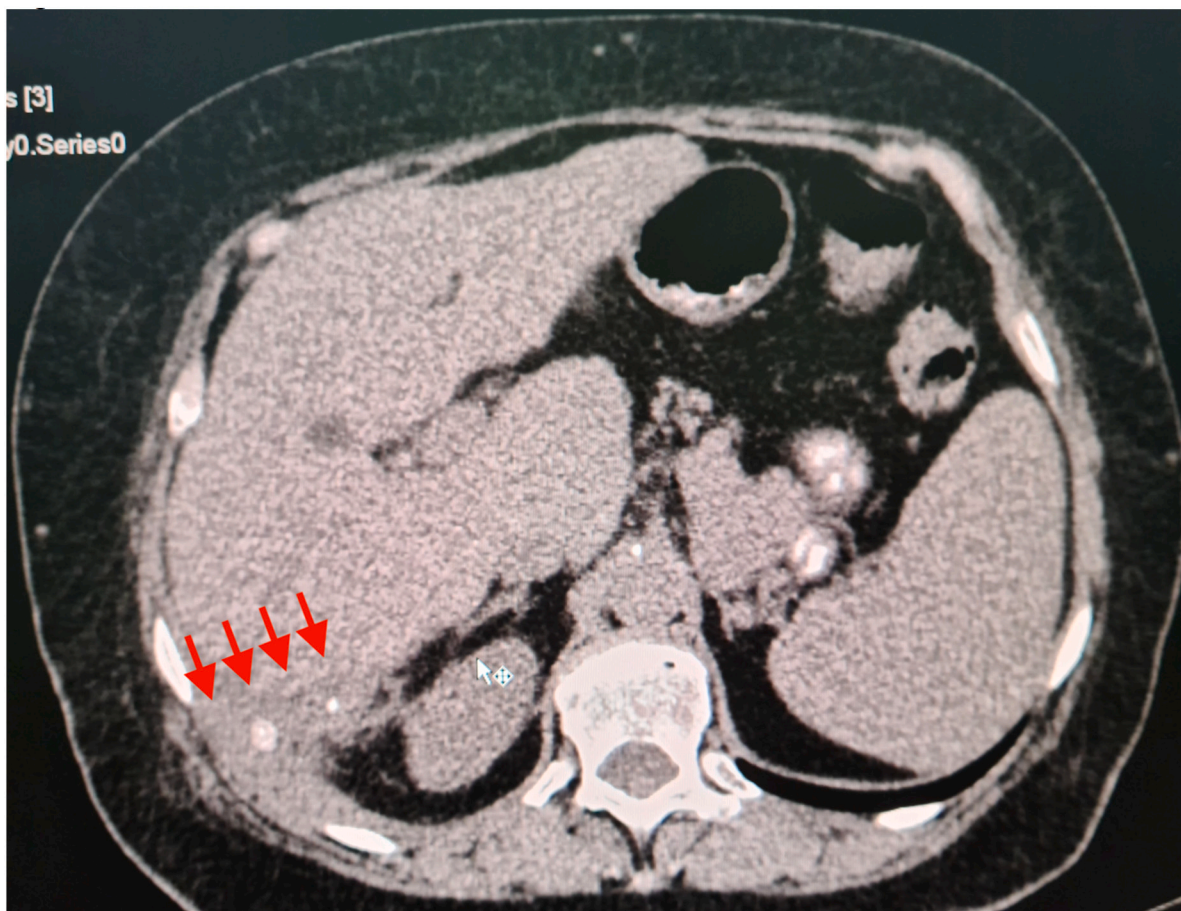


Fig. 1. CT scan showing an abscess in the hepatorenal recess with large calcifications (arrows).

2.1. Case 1

A 62-year-old female presented to the Emergency Department with a history of right upper quadrant pain since a previous LC three months prior; she also had recently begun to feel feverish. Physical examination revealed mild abdominal tenderness in the right flank. Diagnostic workup included a computed tomography (CT) scan that revealed a 50 mL hepatic abscess in the right lobe (Fig. 1). The radiologist's report of the CT described an abscess with calcifications, but the possibility of dropped gallstones was not suggested.

A review of the surgical records disclosed a complicated procedure with only a partial resection of the gallbladder. However, the surgeons did not mention dropped gallstones.

A decision was made to proceed with PD. Using a standard Seldinger technique, a 10.5 Fr multipurpose catheter (Cook Medical LLC., Bloomington, Indiana, USA) was placed under CT guidance in the abscess (performed by M. Zeledón/I. Siles). Approximately 30 mL of pus was aspirated, but no stones were extracted (Fig. 2). The patient quickly recovered and was discharged with the catheter in-situ and antibiotic treatment for five days. The catheter was removed from the asymptomatic patient ten days following the procedure in the outpatient clinic.

Two months after the PD, the patient returned to the Emergency Department with fever, pain, and swelling in the skin area at the prior catheter site. The patient was diagnosed with a skin abscess secondary to the preceding PD, and it was treated with superficial drainage of the skin abscess, antibiotics, and discharged home.

A month later, the patient again returned to the Emergency Department with the same symptoms. Further imaging studies were performed during this new consultation, and a CT scan found a second 36 mL subcapsular hepatic abscess in the same area as the one prior. At

this time, PD was not possible because the hospital did not have catheters available, and the patient was treated only with antibiotics. During the patients' evaluation, an Infectious Disease specialist suggested that persistent postoperative intraabdominal infectious loci from the LC should be suspected.

Previous CT scans were re-evaluated with in-hospital radiologists. The image of the overlooked calcifications in the abscess was interpreted as possible DG.

Surgical management was proposed, and the patient accepted. However, due to operating room scheduling constraints in our institution, the surgery was pushed back for nine months. During this period, she complained of pain in the right upper quadrant. She had another episode of skin infection that required local drainage, which evolved into a chronic skin fistula in the right flank with purulent discharge.

An exploratory laparoscopy (performed by M. Zeledón) revealed the presence of several DG in the area of Morrison's pouch. However, the DG were not found freely in the peritoneal cavity, as they had "burrowed" themselves in the abdominal wall under the parietal peritoneum. The abdominal wall was explored, and several small, irregular, dark gallstones were removed. The largest was 1.5 cm in diameter.

Despite removing the stones, the patient presented purulent discharge from the previous skin site with no fever or pain for several months after the procedure. After re-consultation with the Infectious Disease specialist, the patient was placed on chronic antibiotic treatment for six months. She presented accelerated progress and was able to interrupt antibiotic treatment after five months. A final CT scan reported no signs of residual abscess or calcifications/dropped gallstones. At 24 months since the last procedure, the patient has remained asymptomatic without recurrence of pain or abscess.

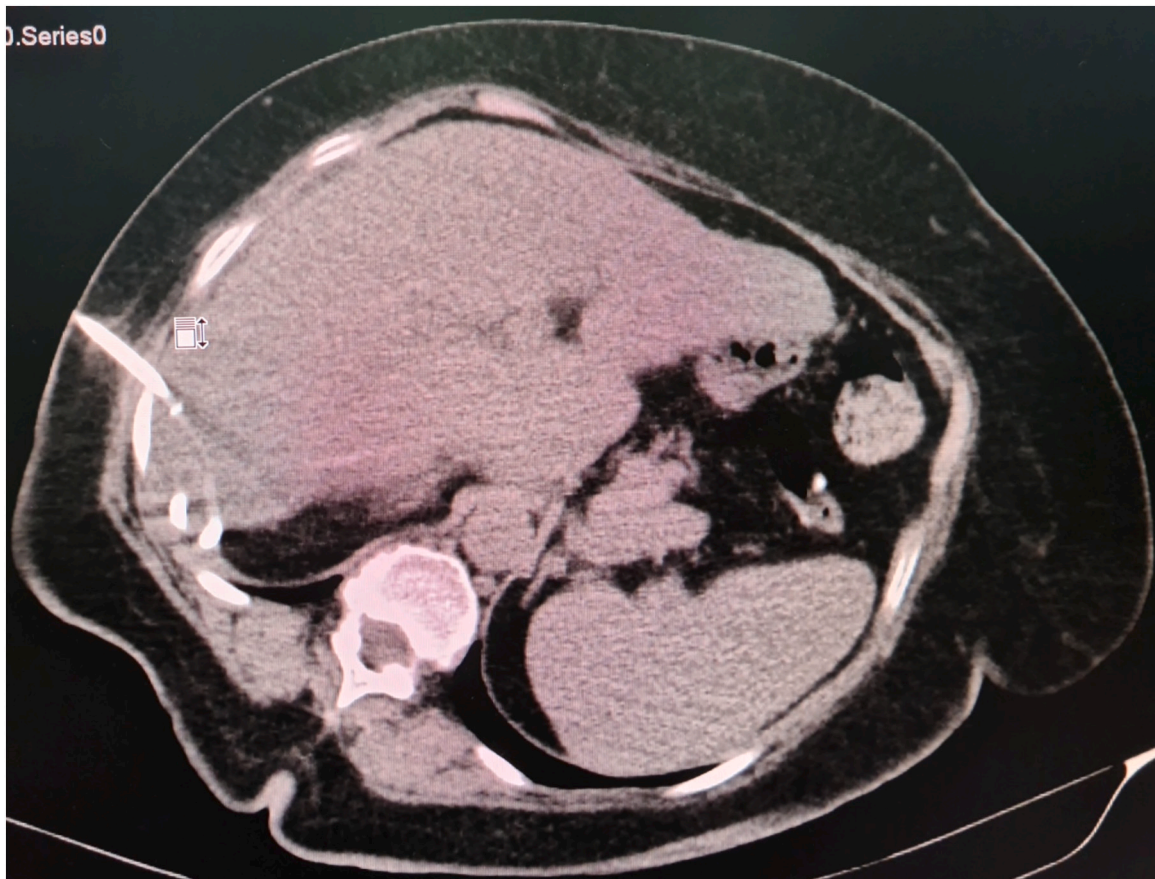


Fig. 2. CT scan showing percutaneous drain successfully draining the primary abscess.



Fig. 3. CT scan shows a primary abscess in the right flank-right pelvis with multiple, clearly round small stones (arrows).

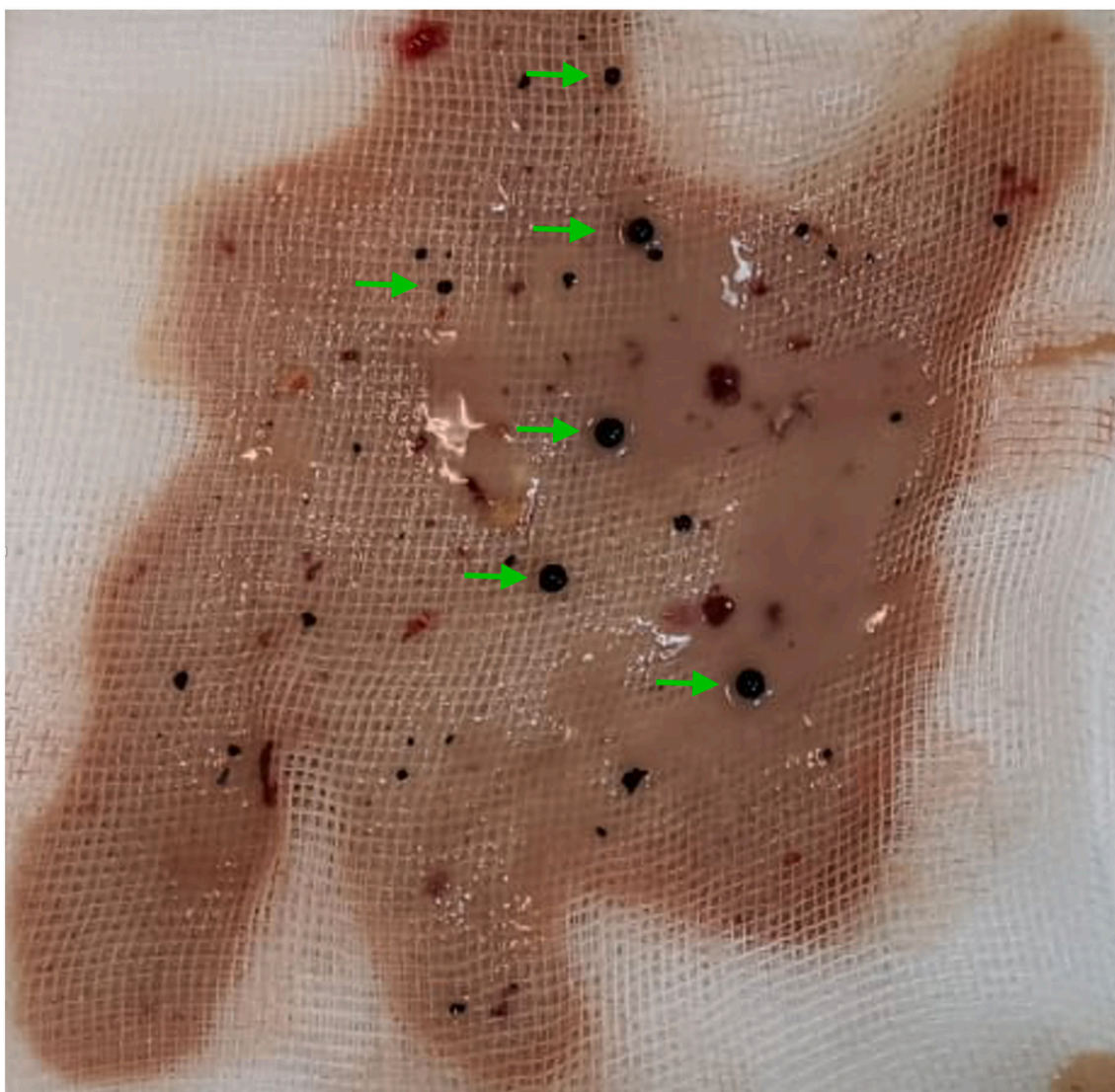


Fig. 4. Picture of purulent drainage from the abscess with small clots and multiple dark round stones (arrows).

2.2. Case 2

A 71-year-old female consulted the outpatient clinic six months after an elective laparoscopic cholecystectomy. The patient complained of right flank pain on inspiration ever since the operation, but previous consultations with the Emergency Department did not reveal the cause. She reported experiencing bouts of chills but no fever, and a physical examination revealed no abdominal discomfort, only mild pain on inspiration. An abdominal ultrasound revealed the presence of an intraabdominal abscess of approximately 139 cc in the right flank. The patient was referred for elective PD.

A review of the surgical records found no mention of a complex surgery, gallbladder perforation, or dropped gallstones.

During the PD procedure, the initial CT revealed multiple small, round calcifications inside the abscess (Fig. 3). The possibility of dropped gallstones was suggested before proceeding, and a large caliber catheter was chosen. A multipurpose 14F catheter (Cook Medical LLC., Bloomington, Indiana, USA) was placed under CT guidance (performed by M. Zeledón/I. Siles), and approximately 100 cc of pus including multiple, small, round, dark bile stones were aspirated (Fig. 4). After the procedure, the patient was discharged with the catheter in-situ with an eight-day antibiotic (ciprofloxacin) treatment.

Instructions were provided to continue with at-home lavage of the

abscess, injecting 100 mL of saline solution into the catheter, and then aspirating at least once a day. Family members reported obtaining multiple, small, round bile stones during the first two weeks. Three weeks after the PD, the catheter was removed. An abdominal ultrasound found no evidence of a residual abscess one month later. The patient mentioned a dramatic improvement in her pain and general quality of life, with occasional mild discomfort in her flank. At five months after the catheter removal, the patient was asymptomatic with no recurrence of symptoms.

3. Discussion

This case report reveals 1) incomplete surgical notes and a low index of suspicion hinder DG diagnosis; 2) percutaneous drainage with saline irrigation is safe and effective in selected patients with DG abscess. The cases presented herein show the difference between two patients, in which the suspicion of DG was a pivotal point in their management. In both cases, the surgical notes omitted the occurrence of DG; this hindered diagnosis by lowering the index of suspicion of the treating physicians.

Open or laparoscopic drainage under general anesthesia has been commonly used to treat DG abscesses [1–11,14]. Open drainage, however, is associated with the added morbidity of a larger wound as well as

the risks of complications such as seroma, hematoma, or wound dehiscence [7,9]. A laparoscopic approach is less invasive than an open drainage and the DG abscess cavity can be easily identified and visualized [7]; however, it requires general anesthesia. Percutaneous drainage of DG abscess can be performed under local anesthesia. In addition, it is less invasive than the surgical or laparoscopic approach and can be performed on an outpatient basis [11]. Both patients expressed their preference for the minimally invasive option and were very satisfied with their results.

Percutaneous minimally invasive techniques are well suited to small calculi in DG abscesses, which require superficial drainage, antibiotics and posterior stone evacuation with or without using a variety of tools such as facial dilators, stone baskets, electrohydraulic or ultrasonic lithotripsy [2,9,10,14–16]. In retrospect, the DG in case 1 could have been removed with the help of irrigation and some of the stone fragmentation tools.

4. Conclusion

DG diagnosis is hindered by incomplete surgical notes and a low index of suspicion. Reports have suggested that surgeons that perform a LC where DG occurred should compulsorily report this incident in the surgical notes, even if the stones were retrieved, and inform the patient and their general practitioner to alert them of any possible complication [8].

The ideal treatment option for intraabdominal abscess due to dropped gallstones (percutaneous drainage vs. surgical exploration) is still debated. However, percutaneous drainage with saline irrigation with or without using various stone fragmentation tools seems to be the treatment of choice in selected patients with DG abscess.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Manuel Zeledon collected the data, wrote and submitted the manuscript.

Ivan Siles Chaves collected the data and revised the manuscript.

Alexander Sanchez Cabo revised the manuscript and gave final approval.

Declaration of competing interest

None.

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