Lost gallstones disguised as intraabdominal abscesses - percutaneous drainage with US

Clinical History:

A 65-year-old male presents to the emergency room with exacerbation of the epigastric and right upper quadrant pain he has been suffering from for 2 years following laparoscopic cholecystectomy. No nausea, vomiting, or fever were present. On physical examination an epigastric mass was palpable. Laparoscopic scars showed no signs of complications. Blood workup: normal leukocyte count.

Imaging Findings:

CT showed two round and hypodense abdominal lesions (one supraumbilical and located in the peritoneal fat and the other subhepatic), with well-defined borders and a thickened wall. Findings prompted US examination. US proved the two lesions to be anechoic and showed the presence of stones within.

Comparison with previous CT and US examinations revealed growth and formation of liquid within the abovementioned lesions.

Given the medical history of cholecystectomy with intraoperative gallbladder rupture, the findings were suspicious of granulomas related to gallstone spillage.

The radiological findings warranted percutaneous drainage with combined gallstones extraction. Punctures were performed with progressive dilatations up to a diameter of 20 Fr. A tube was placed and purulent outflow obtained. The cavity was instilled with abundant saline solution and the gallstones extracted with vacuum aspiration. Shortly after the procedure the patient became asymptomatic. Follow-up CT showed an almost complete resolution of the collections and no gallbladder stones left.

Discussion:

Laparoscopic cholecystectomy is the gold standard for symptomatic gallstones. However, there are two problems that arise more commonly than in open cholecystectomy: injury to the common bile duct and complications from lost gallstones [1].

Spillage of gallstones commonly occurs, with an estimated incidence of 0.1–20%. Stones may remain in the
peritoneal cavity adjacent to the liver or migrate to distant sites. In the majority of cases they cause no symptoms and remain benign. Complications are reported to occur in 0.08%–0.3% of patients. Every effort should be made to retrieve the stones in case of spillage in view of the risk of developing important complications. Abscess represents the most common complication. Retained gallstones have also presented after erosion through the skin, as a colovesical fistula, with expectoration (cholelithoptysis) and as the cause of an incarcerated hernia [2].

The reason why only a few patients develop such complications remains uncertain. Risk factors include acute cholecystitis with infected bile, spillage of pigment stones, multiple stones (15 stones), stone size (1.5cm), and age. The time gap after surgery for the clinical manifestations to occur varies from as short as one month to as long as 20 years, with an estimated peak incidence around four months. In most instances the immune mechanisms cope and lead to spontaneous resolution. Often the patients presenting with an abscess can be afebrile and have a normal white cell count [3].

Spilled gallstones appear on ultrasound examination as small hyperechoic lesions that may be related to fluid collections and are found most often in the subdiaphragmatic or subhepatic spaces. Radio-opaque calcified stones can be clearly seen on CT. On MRI most stones are hypo-intense on T2-weighted images and iso-intense to hyperintense on T1-weighted images. These are best seen without fat suppression. Sometimes the radiological findings mimic unusual diagnoses such as actinomycosis, hydatid disease or even malignancy, so diagnosis can be challenging. Ultimately, abscesses should be drained, whether percutaneously or surgically, and the stones should eventually be removed. Ideally this is done via minimally invasive techniques, but open surgery is often required [4].

In conclusion, the advent of an unexplained intraabdominal abscess in a patient who underwent a laparoscopic cholecystectomy in the past, even if surgery was performed many years ago, should lead to the differential diagnosis of spilled stones even if rupture of the gallbladder was not evident during the procedure. Our case illustrates how percutaneous image-guided techniques can successfully resolve this complication and avoid surgery.

**Differential Diagnosis List:** Gallstone-Related Abdominal Abscesses After Laparoscopic Cholecystectomy, Malignancy, Spontaneous Abscess

**Final Diagnosis:** Gallstone-Related Abdominal Abscesses After Laparoscopic Cholecystectomy

**References:**


**Figure 1**

**Description:** Cholecystectomy surgical clips (green arrow) **Origin:** Radiology Department, Hospital del Mar, Barcelona
**Description:** Solid nodule with no fluid content  
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Figure 3

Description: Round and hypodense lesions (one supraumbilical and located in the peritoneal fat and the other subhepatic), with well-defined borders and a thickened wall. Findings compatible with an abscess. Origin: Radiology Department, Hospital del Mar, Barcelona
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Description: Careful examination allows identification of the spilled gallbladder stone (white arrow)
Origin: Radiology Department, Hospital del Mar, Barcelona
**Description:** US proved the two lesions to be anechoic and showed the presence of stones within.

**Origin:** Radiology Department, Hospital del Mar, Barcelona
Description: Collapsed cavity after vacuum aspiration of the gallstones. Note the presence of acoustic shadowing derived from the presence of air. Origin: Radiology Department, Hospital del Mar, Barcelona
Figure 6

Description: Residual lesion on follow-up

Origin: Radiology Department, Hospital del Mar, Barcelona
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Origin: Radiology Department, Hospital del Mar, Barcelona
Description: Ultrasound guided vacuum aspiration  
Origin: Radiology Department, Hospital del Mar, Barcelona
Description: Black pigmented gallstone. They represent a risk factor for the development of complications. Origin: Radiology Department, Hospital del Mar, Barcelona