

Abdominal Wall Abscess Formation Two Years After Laparoscopic Cholecystectomy

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ABSTRACT

Background: Spillage of gallstones within the subcutaneous tissue during laparoscopic cholecystectomy may lead to considerable morbidity.

Methods: We describe an abdominal wall abscess formation in a 50-year-old female that developed 24 months after a laparoscopic cholecystectomy.

Results: Spilled gallstones at the umbilical port site went undetected. Subsequently, an umbilical port-site abscess formed and was treated 2 years later.

Conclusion: Any patient with a foreign body in the subcutaneous tissues after a laparoscopic cholecystectomy should be considered to have a retained stone. Use careful dissection, copious irrigation, and a retrieval device to avoid stone spillage. If spillage does occur, percutaneous drainage and antibiotics followed by open retrieval of the stones should achieve adequate results during those delayed presentations of abdominal wall abscesses.

Key Words: Gallstones, Abscess, Retained stones, Laparoscopic complications.

INTRODUCTION

The spillage of gallstones is not an uncommon occurrence in this era of laparoscopic cholecystectomy. Removal of the stones can be a difficult process and is often incomplete or avoided altogether. Numerous articles have outlined the delayed complications of intraabdominal retained gallstones.^{1,2} However, there is a paucity of reports regarding the delayed presentation and treatment of subcutaneous abscess formation from spilled gallstones.^{3,4} We report a case of an abdominal wall abscess due to retained gallstones presenting 24 months after laparoscopic cholecystectomy.

METHODS AND RESULTS

A 50-year-old Hispanic female presented to the emergency department with complaints of an abdominal mass, pain, and fever. She stated that this mass had been present for 2 weeks and was increasing in size and becoming more symptomatic. She denied any weight loss, anorexia, or gastrointestinal symptoms. The remainder of her review of systems was negative, and her past medical history was noncontributory. Twenty-four months earlier, she had undergone an uncomplicated laparoscopic cholecystectomy for biliary pancreatitis. Her postoperative course was uneventful.

On physical examination, the patient was afebrile with a soft, nondistended abdomen. A large, fluctuant mass was present lateral to the umbilicus that was mildly painful and had moderate surrounding erythema. Laboratory tests revealed leukocytosis of 12,200. Abdominal computed tomography (CT) demonstrated an 11x8-cm anterior abdominal wall, complex cystic mass (**Figure 1**). Sonographic-guided percutaneous drainage catheter was placed within the mass and returned 800 mL of purulent material. This resulted in near resolution of the mass. Cultures were obtained and a Jackson-Pratt (JP) drain was left within the abscess cavity. The patient was then admitted for intravenous antibiotics and observation. One day after initial drainage, a repeat CT scan demonstrated calcified foreign bodies within the abscess (**Figure 2**). The patient was discharged home on hospital day 2 with the JP in place. She continued on oral antibiotics, ciprofloxacin and metronidazole, for 14 days.

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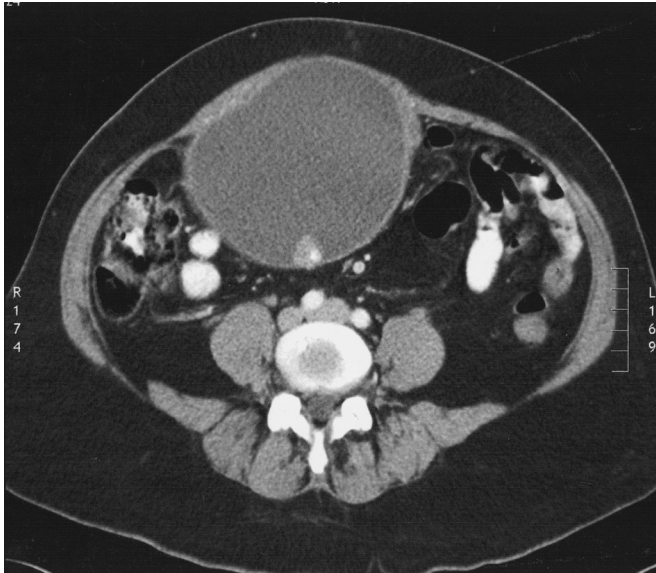


Figure 1. Anterior abdominal abscess with calcified objects.

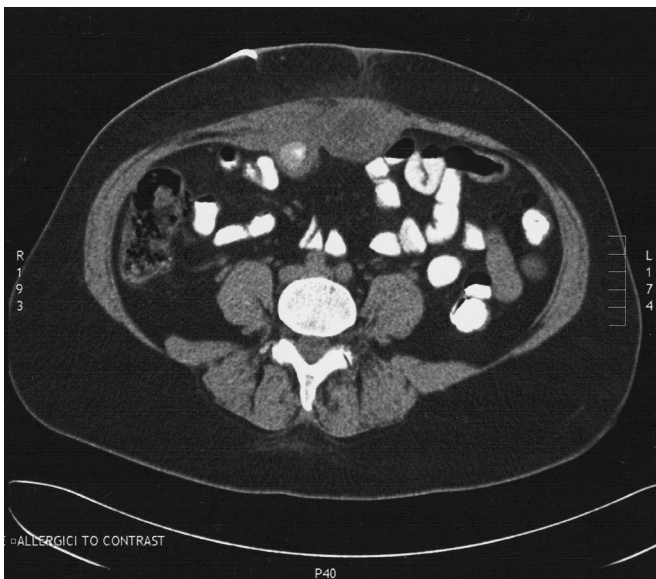


Figure 2. Abscess and calcified objects after drainage.

Bacteriologic cultures of fluid were positive for *Klebsiella*, *Escherichia coli*, *Enterobacter*, and *Bacteroides fragilis*. Given the patient's history of laparoscopic cholecystectomy, it was suspected that the foreign bodies represented retained gallstones from extraction of the gallbladder through the umbilical port site. The drain was left in place for 2 weeks to allow healing of the abscess cavity. She then underwent successful local exploration where the abscess capsule and multiple foreign bodies were removed from the abdominal wall. Pathology examination

determined the masses to be granulation tissue with chronic inflammation and golden-yellow crystals of bile consistent with cholesterol gallstones.

The patient did well and was discharged home the same day of surgery. Postoperatively, she had complete resolution of her symptoms at 2-week and 4-week follow-up visits.

DISCUSSION

With shorter hospital stays and greater patient satisfaction, laparoscopic cholecystectomy has become the treatment of choice for patients with gallbladder disease. However, this procedure brings increased inherent risks, such as gallbladder tears and spilled stones, when compared with the conventional open technique.^{5,6} Some studies report the frequency of stone spillage to be from 5.7% to 36%.⁷ However, complications from retained stones are reported to occur in only 0.08% to 6% of laparoscopic cholecystectomies.⁸ The majority of discussion about the topic of retained stones regards those within the peritoneum. However, some consideration must be given to other types, such as abdominal wall abscesses, as these represent 18% of all complications from retained stones.⁹

The cause of retained stones within the subcutaneous tissues can be attributed to several factors. Hawasli et al² noted that the incidence increases when the operation is performed for an acutely inflamed gallbladder, in males, the elderly, obese patients, or in the presence of adhesions. These patients typically have either a greater degree of inflammation or a more friable gallbladder. These issues may lead to the tearing of a friable gallbladder wall during retraction or dissection. Additional causes of gallstone spillage include the loss of a cystic duct clip, laceration by an instrument, and tearing during retrieval through a port site. Regardless, spillage of the gallbladder contents is not an indication for conversion to the open technique.¹⁰

To prevent spillage from occurring, careful dissection between the wall of the gallbladder and surrounding structures should be strictly adhered to during the removal of the gallbladder from the hepatic fossa.² Aspiration of a distended gallbladder before dissection may help to ease tension on the wall and, thus, facilitate dissection. Stones can also be spilled from the gallbladder during extraction from the umbilical port site. These stones may not be noticed because often visualization of the specimen as it passes from within the abdominal cavity is inadequate. The most efficient method of preventing retained subcu-

taneous gallstones is to use a retrieval bag. The use of a bag avoids further contamination of the peritoneal cavity and protects the port site from stones or contaminated fluids. Further measures to prevent a retained, subcutaneous stone would be palpation of the preperitoneal tissue and flushing the port site with saline to dislodge any remaining stone.⁵

Retained stones are a serious condition and great effort should be taken to retrieve any spilled stones. In the event of contamination, the peritoneal cavity should be irrigated with saline to dilute any infected bile and an extraction device, such as a retrieval bag, used to retrieve the gallbladder and any free peritoneal stones. Other techniques recommended are placement of extra ports, use of 30-degree to 45-degree telescopes, and copious irrigation.⁸ Any suspected spillage of stones should be documented clearly in the operative report so that any future complications from such stones can be more easily diagnosed.

Perioperative antibiotic treatment is recommended by some authors in an attempt to sterilize the surrounding tissues in hopes that any missed stone will result in adhesions rather than abscesses.² In the event that a gallstone abscess does occur, as in the case of our patient, simple or percutaneous drainage should be performed to resolve the patient's acute symptoms. The patient may then be placed on antibiotics to cover biliary tract organisms. Once the acute inflammation has resolved, the stones and abscess capsule should be removed by operative measures. This is usually best accomplished by local exploration with removal of the abscess cavity along with the stones. No clear mechanism is available for the development of a delayed abscess versus one that is of an acute nature.

CONCLUSION

Any patient with a foreign body in the subcutaneous tissues after a laparoscopic cholecystectomy should be considered to have a retained stone. The best approach is to avoid stone spillage and its sequelae during the initial procedure by using careful dissection, copious irrigation,

and a retrieval device. Regardless, percutaneous drainage and antibiotics followed by open retrieval of the stones can be expected to achieve adequate results during those delayed presentations of abdominal wall abscesses.

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