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Abdominal Wall Sinus Due To An Undetected Spilled Gallstone: An Unusual Report Of A Case

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1. Abstract

In the last decades, laparoscopic cholecystectomy (LC) has been the gold standard treatment for cholelithiasis. LC through the years has presented its complications like any other surgical technique. Compared to open cholecystectomy, LC is related to a risk of gallbladder perforation with spillage of bile and stones into the peritoneal cavity. The retrieval of spilled stones is not always possible by laparoscopic technique since stones can move into unapproachable sites in the peritoneal cavity. Most of these cases do not have any problem in the future but sometimes the lost stones lead to serious complications. The most common complications of remained gallstones are intra-abdominal or abdominal wall abscesses and fistula formation. Additionally, many other rarer complications have been reported in the literature, creating diagnostic difficulties. These complications can arise from days to years postoperatively and are responsible for serious morbidity. We report a case of an abdominal wall sinus due to a spilled gallstone that was presented in an 81-year-old female patient 7 years after an emergency laparoscopic cholecystectomy due to acute cholecystitis.

2. Keywords

Remained Gallstones, Sinus Formation, Gallbladder Perforation, Spillage of Gallstones, Laparoscopic Cholecystectomy

3. Introduction

Laparoscopic cholecystectomy (LC) has become the gold standard treatment in the management of calculus gallbladder disease [1]. Compared to open cholecystectomy, LC presents less postoperative pain, faster recovery, better cosmetic results, and lesser hospitalization [2]. Gallbladder perforation and stone spillage are the two most common occurrences during dissection and removal of the gallbladder in LC [3]. The retrieval of all dropped stones is sometimes not possible with laparoscopic techniques. The potential late sequelae and associated morbidity are not well documented yet. However, complications due to un-retrieved spilled stones have been reported many years after surgery and may require re-operation [2]. We present a rare case report of chronic abdominal wall sinus due to a spilled gallstone presenting 7 years after LC.

4. Case Report

An 81-year-old female patient attended the emergency department complaining of pus licking from a cholecystectomy port wound on her right hypochondrium, without any sign of abdominal pain or systemic symptoms. Her medical history revealed an open right colectomy for right colon cancer 8 years ago and an emergency LC 7 years ago due to acute cholecystitis. Her laboratory testsrevealed no inflammatory signs (White Blood Cells: 5.630/μL, C-Reactive Protein: 0,38mg/dl). Ultrasonography revealed a subcutaneous abscess (dmax 1,5cm) with heterogeneous echogenic fluid (Figure 1).

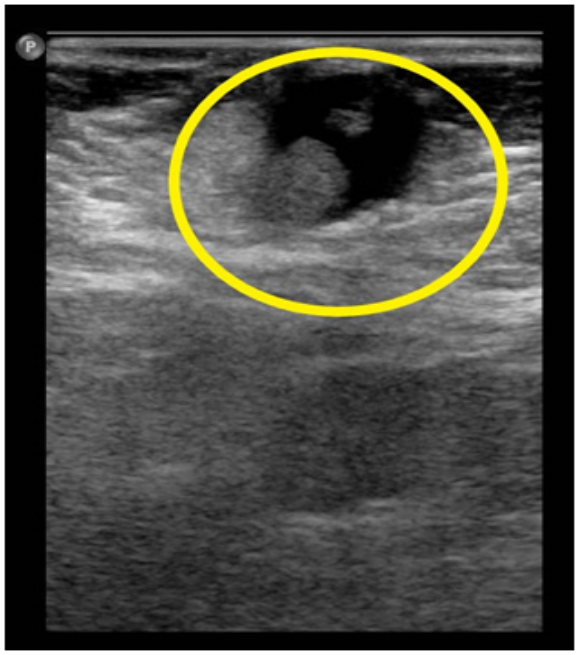

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Figure 1: Subcutaneous abscess (dmax: 1.5cm) with heterogeneous echogenic fluid found on ultrasonography test.

Abdominal computed tomography (CT) revealed a thickened subcutaneous area (dmax 1,8cm) including a calcified foreign matter (Figure 2), without any communication with the intraperitoneal cavity.

Figure 2: Abdominal computed tomography scan revealed a thickened subcutaneous area (dmax: 1.8 cm) including a calcified foreign matter.

Her wound was cleaned and she was treated with antibiotics for 4 days. She was admitted to the operating room where, with local anesthesia, the skin and subcutaneous tissue that presented abnormalities were removed. The dissection of the removed tissue revealed a sinus and a gallstone (Figure 3). Histopathology test of the excised sinus tract revealed chronic inflammatory granulation tissue and foreign body giant cells. Her post-operative period has been uneventful.The patient wasn't informed about the spillage of gallstones and the possibility of unretrieved stones. Additionally, the operation report did not mention the incidence of gallbladder rupture.

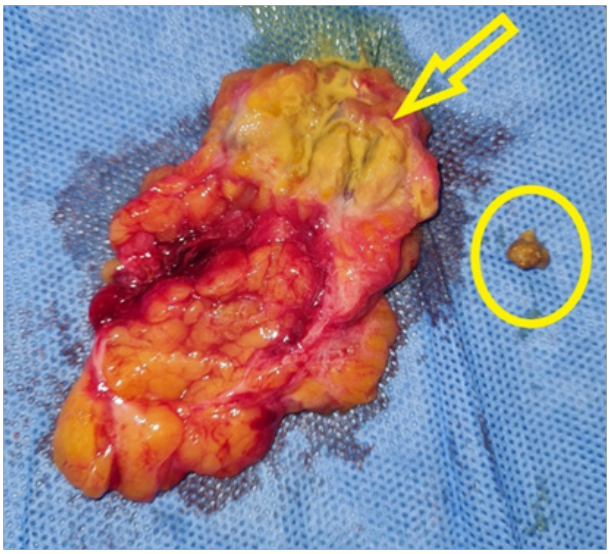

Figure 3: Surgically removed tissue with sinus and gallstone

5. Discussion

The rupture of the gallbladder during its dissection from the liver bed and spillage of stones are common events during LC. The exact incidence of those, which are not being considered as complications, is difficult to quantify. Gallbladder perforation is reported in 3 to 40% of series [4, 5] and it depends on the skill of the surgeon or the characteristics of the gallbladder wall. The spillage of stones is less frequent and its incidence is 7,3% [6]. The usual cause of spillage of stones during cholecystectomy is perforation of the gallbladder during its dissection from the liver bed or the retrieval of the gallbladder through the abdominal wall. Usually, bile and stones are removed after copious irrigation of the area, but in some cases, laparoscopic retrieval may be impossible. There is difficulty to determine the exact incidence of unretrieved stones during LC. Data suggest that the incidence of unretrieved gallstones is approximately 4 % [7]. The fate of spilled stones is unknown. Initially, it was thought that remained gallstones are either absorbed or cause no inflammatory or infectious response in the peritoneal cavity. Clinical and experimental studies have shown that intraperitoneal abscess formation may occur around gallstones. It appears likely that spilled gallstones form a nidus of infection with resulting abscess formation which later discharges spontaneously via adjacent structures. Surgeons used to consider intraperitoneal stones as innocuous. According to reports they may lead by 0,01-0,08% to complications with severe morbidity [8]. The lost gallstones were reported to cause a vast range of complications such as intra-abdominal abscesses, abdominal wall abscesses or sinus, fistula formation (skin, umbilicus, colocutaneous and colovesical), small bowel obstruction, thoracic empyema, cholelithoptysis, hernia sac gallstones and salpinx tubalithiasis [3, 9-11]. The possibility of complications arises by older age, male sex, acute cholecystitis, pericholecystic adhesions, thickened gallbladder wall, obesity, number and size of spilled gallstones (more than 15 unretrieved stones, larger than 1,5 cm diameter), pigmented stones and previous laparotomy [12]. The time of presentation of complications attributed to spilled gallstones ranges from days to years after LC [8, 9, 13, 14]. The onset of symptoms may occur immediately after the cholecystectomy, but most frequently, they begin days or months postoperatively. Symptoms may be presented as pain, fever, nausea or vomiting, loss of weight, abdominal swelling or fistula formation, blood or pus licking especially from skin scars as in our case.

It is difficult to prevent the opening of the gallbladder during the dissection from the liver bed, but it is necessary to prevent the spillage of stones and to retrieve them before they are lost in inaccessible areas of the abdomen. It is recommended that in case of perforation of the gallbladder, the surgeon should close the gallbladder with a clip, a grasp forceps, or an endollop to prevent further spillage of stones and use an endobag to retrieve spilled stones. Their management is controversial. Most surgeons prefer to find and remove all retained stones. Some studies have yet recommended a conversion to laparotomy in special cases with multiple pigmented stones [13]. The common practice is to remove as many spilled stones as possible

laparoscopically and use suction devices after intensive irrigation of the peritoneal cavity with copious normal saline and performing an antibiotic treatment [15]. The majority of patients need to be treated operatively thus approximately 10% of patients can be treated with US or CT scan guidance drainage. Only a few of them will be scheduled for regular follow up [3]. Although unretrieved spilled gallstones can lead to severe complications the majority of surgeons do not mention it neither to the operation report nor to the patient, making even harder the future diagnostic dilemmas due to remained gallstones [3].

Another point to mention is that spilled gallstones can create diagnostic dilemmas, mimicking lesions like cancer. Capolupo et al., [16] reported a 73-year-old male patient, who underwent LC 1 year ago and the spilled gallstones were simulating peritoneal neoplastic nodules in imaging. Suarez-Zamora et al., [17] reported a 29-year-old female patient, who underwent LC in the past 2 years and during an emergency cesarean several hard nodules were found in the omentum, with differential diagnosis of peritoneal metastasis. After histopathology test of the nodules the patient presented granulomatous peritonitis due to the remained gallstones. Although gallbladder perforation and remained gallstones after LC can lead to rare but severe complications a notable percentage of surgeons (from 10 to 43,9%) have no knowledge that remained gallstones can lead to any complications [18] and only 41% of surgeons informed their patients about the incidence of spillage and the possibility of future complications [13]. The large majority of surgeons agree that spillage of bile and stones during LC should be mentioned in the operation notes [18] however many of them do not inform their patients. There are no specific recommendations concerning the follow up period of patients after LC with incidence of spillage of stones, therefore surgeons follow their own beliefs about the postoperative follow up [18].

6. Conclusions

Stone spillage has not been considered an indication of conversion laparoscopic to open cholecystectomy [15], but it is now accepted that it is a source of infrequent but severe complications that may require a reintervention for treatment. Thus, it is recommended that an effort should be made to retrieve all the spilled stones in order to reduce one source of unpredictable morbidity. In selected cases, open retrieval should be considered. Surgeons should inform their patients of the spillage of gallstones so as to recognize any relevant future complications.

Abbreviations

LC: Laparoscopic Cholecystectomy
CT: Computed Tomography
US: Ultrasonography
dmax: the maximum diameter

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying figures.

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