Case Report

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Empyema of Gallbladder Presenting as Abdominal Wall Abscess: A Case Report with Review of Literature

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Abstract: Empyema of the gallbladder is a severe complication of acute cholecystitis, and it can take unexpected turns when complications like fistula formation arise. This report outlines the case of a 45-year-old female who presented with a 5-day history of pain and a lump in her right upper abdomen. Initial evaluation revealed an abdominal wall abscess, but intraoperative findings revealed a fistula from the gallbladder, complicating what initially appeared to be a straightforward incision and drainage. An open cholecystectomy was performed after the abscess was explored, and the patient had an uneventful recovery. This case serves as a reminder that gallbladder pathology can sometimes manifest in surprising ways, requiring a change in surgical strategy.

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Introduction

Gallstone abdominal wall abscess can happen as a complication of gallbladder pathology or as a complication of gallbladder surgery.1-3 Laparoscopic cholecystectomy (LC) has been the gold standard treatment for symptomatic cholelithiasis for over two decades due to its advantages of less postoperative pain, shorter hospital stays, early return to work, and better cosmetic results.3 However, gallbladder perforation during LC and subsequent spillage of bile and stones into the peritoneal cavity are among the most common complications, occurring in 10-40% and 6-30% of cases, respectively.4 Spilled stones can lead to severe complications such as abscess formation, fistulae, and even malignancy. Abdominal wall abscess and discharging sinus can occur several years post-LC due to lost gallstones. This highlighted the importance of thorough intraoperative management and long-term vigilance.

Repeated acute cholecystitis can result in complications like perforation, localized abscess, empyema, internal (stomach, duodenum, colon) fistula or external (cutaneous) fistula.1 Gallbladder empyema, though rare, is a significant and life-threatening escalation of acute cholecystitis. While most cases lead to generalized peritonitis or sepsis, this case presented with a localized abdominal wall abscess due to fistula formation—a highly unusual course. Few cases have documented this form of presentation, which poses both a diagnostic and surgical challenge. Here, we report a case that required a rapid shift from routine abscess management to open cholecystectomy due to the involvement of a gallbladder empyema.

Case Presentation

A 45-year-old female came with complaints of a lump and persistent pain in the right upper quadrant of abdomen for last 5 days. The pain had been worsening and now accompanied by fever. On physical exam, she was febrile (100°F), and a firm, tender mass measuring 5 x 5 cm with reddened

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overlying skin found in the right hypochondrium. The initial diagnosis was an abdominal wall abscess.

Lab results showed leukocytosis, pointing toward an infectious process. An ultrasound confirmed the presence of an abscess in the abdominal wall and incidentally reported a solitary gallstone. Based on these findings, we planned an incision and drainage procedure under general anesthesia.

Once the abscess cavity was opened, approximately 50 ml of purulent material was drained. After cleaning the cavity, a small opening was noted at the base. Suspecting a possible deeper connection, we inserted a catheter and injected saline. To our surprise, bile-tinged fluid returned. At this point, we extended the incision for further exploration, and a gallstone was felt deep within the abscess cavity.

We realized that the abscess was secondary to a fistula from the gallbladder. After counseling the patient's attendants, we converted the procedure to open cholecystectomy via right Kocher's incision. The perforated gallbladder fundus was found adherent to the abdominal wall, which was dissected free. Cystic artery and duct were divided between ligature, gallbladder dissected off the bed and hemostasis secured. Rectus sheath was closed in layers. The skin wound left opened for secondary closure.

The patient recovered well postoperatively, with no further complications. Secondary closure done on 3rd postoperative day. The patient was discharged on postoperative day 5, and at her follow-up visit, she reported no residual symptoms. The surgical wound had healed without issues.

Discussion

This case underscores the unpredictable course of gallbladder disease. Gallbladder empyema is a known complication of acute cholecystitis, but its presentation as an abdominal wall abscess via a cholecystocutaneous fistula is exceedingly rare, especially with modern diagnostic and management options.5 The patient’s symptoms were deceptive at first, mimicking straightforward case of a superficial abscess. However, the discovery of bile-tinged fluid within the cavity and the presence of a gallstone changed the entire approach.

Though empyema typically presents with more alarming symptoms—such as high fever, severe right upper quadrant pain, and signs of systemic infection—this case highlights the importance of considering gallbladder pathology even in atypical presentations. Ultrasound did confirm the presence of cholelithiasis, but it failed to detect the fistula as well as didn’t notice any signs of cholecystitis. MRCP and abdominal CT are useful diagnostic tools.5 But, these tools were not available in this case because of resource-limited setting, nor does laparoscopic facilities were available. It was the intraoperative exploration that revealed the true nature of the problem. The surgical decision-making process here also emphasizes flexibility. What began as a simple drainage turned into a full cholecystectomy due to unexpected findings. Had the fistula gone unnoticed or untreated, the patient might have developed more severe complications, including peritonitis. This reinforces the importance of maintaining a high index of suspicion when treating abscesses in the right upper quadrant, especially in the presence of biliary pathology. Mayank et al reported a similar case but they managed in two steps, first drainage and antibiotic, followed 5 days later with open cholecystectomy.6 Sanjay et al also managed the case in one stage, with drainage and open cholecystectomy.7

The incidence of gallbladder perforation and stone spillage during LC is relatively high, yet the majority of these cases do not result in significant complications.8 However, when complications do arise, they can be severe and challenging to manage. The most common complication associated with spilled gallstones is abscess formation, which accounts for approximately 60% of such cases.4 Other complications include small bowel obstruction, fistula formation, and even rare occurrences of port-site malignancy.3

The risk factors for such complications include acute cholecystitis, spillage of pigmented stones, multiple stones, and large stone size.4 The patient in this case had also acute cholecystitis with empyema, but with single stone impacted at the Hartmann’s pouch. Management of gallbladder

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perforation and stone spillage during LC involves meticulous intraoperative techniques to minimize the risk of complications. This includes the use of suction devices, endo-bags for specimen retrieval, and thorough irrigation of the peritoneal cavity. Despite these measures, not all stones can be retrieved laparoscopically, and conversion to open surgery is not always deemed necessary given the low overall complication rate.

When complications do occur, postoperatively, the appropriate treatment involves drainage of the abscess and removal of any necrotic tissue and retained stones.9 Open surgical drainage is often preferred over percutaneous methods due to the higher success rate and lower recurrence risk.10 Documentation of lost stones in medical records is crucial for future reference and management.4 Early recognition and appropriate management are key to preventing severe outcomes and ensuring patient well-being.2

Conclusions

This case highlights a rare and challenging presentation of gallbladder empyema that fistulated into the abdominal wall, manifesting as an abscess. The ability to adapt the surgical plan based on intraoperative findings was crucial in this case. Surgeons must remain vigilant for atypical presentations of biliary disease, as early recognition and intervention are essential for optimal outcomes.

Conflict of interest: None.

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