

## Case Report

# Unusual presentation of abdominal wall abscess: retained gallstones after laparoscopic subtotal cholecystectomy

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### ABSTRACT

This case depicts an uncommon origin of an abdominal wall abscess. A 66-years old woman presented with a flank abscess on the right side, following a previous laparoscopic subtotal cholecystectomy. Upon incision, the abscess revealed retained gall stones within the abdominal wall muscles. The patient underwent laparoscopic dissection of the fistula tract and retrieval of the retained stones. With proper expertise, this could be achieved laparoscopically, and potential difficulties should be anticipated pre-operatively. This also underscores the role of indocyanine green-guided biliary surgeries in preventing fatal complications.

**Keywords:** Cholecystocutaneous fistulas, Gall Stones, Abdominal wall abscess, Subtotal cholecystectomy

### INTRODUCTION

Cholecystocutaneous fistulas (CCF) are a rare surgical condition. Reports of spontaneous cholecystocutaneous fistulae occurring as early as the 17<sup>th</sup>-century have been reported. The first reported case of CCF was in 1670 by Thilesus, who described this phenomenon for the first time. CCF can be spontaneous after neglected gallbladder disease, or following previous surgical intervention such as subtotal cholecystectomy.<sup>1,2</sup> Retained stones after laparoscopic cholecystectomy and traumatic rupture of the gallbladder are considered as predisposing factors for cholecystocutaneous fistula.<sup>3</sup> In our case, we found it along the previous abdominal drain site, with the patient presenting to us with an abdominal wall abscess.

### CASE REPORT

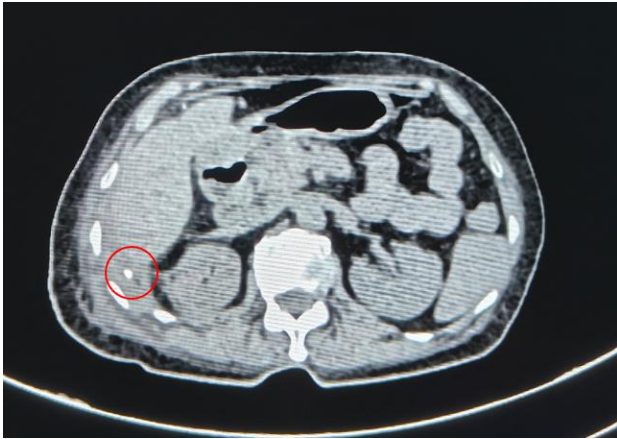
A 66-years old woman presented with an abscess in the right flank region. She had a medical history of chronic calculous cholecystitis for which she had undergone a laparoscopic subtotal cholecystectomy 9 months prior. She

is a known hypertensive and diabetic patient on medications with no other co-morbidities. Clinically, it was associated with overlying reddening of the skin and was painful, which increased over the following days. It was tender and warm to touch, consistent with an abscess. It was associated with fever.

### Investigations

Admission blood tests were performed as follows. The white blood cell count was elevated at  $16.2 \times 10^3/\text{dl}$  and C-reactive protein was raised, indicating an infective aetiology. Her liver function tests were all within normal limits. Ultrasonography of the local site revealed few hyperechoic calculi in the GB fossa along with few observed along the right inferior perihepatic space, where an abdominal drain has been previously placed, with adjacent minimal perihepatic fluid and subcutaneous inflammatory changes. Following review and the findings of the ultrasonography report, a CT scan of the abdomen and pelvis was requested. An initial CT scan was suggestive of irregular hypodense collection with

peripheral enhancement measuring 5×4.5×5 cms seen involving the posterolateral aspect of the right abdominal wall muscles. This is seen reaching up the bare area of the liver superiorly. There was also evidence of tiny hyperdense foci within the collection due to spilled gall stones (Figure 1). Residual gallbladder was seen with a hyperdense calculus of size ~8mm in the neck region and the common bile duct measured ~8mm with the rest of the abdomen normal.

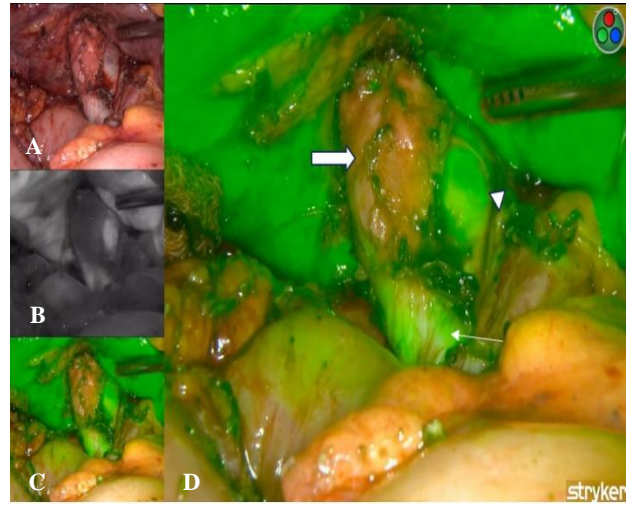


**Figure 1: CT-Scan revealed spilled gall stones in the tract (circle) with subcutaneous fat stranding.**

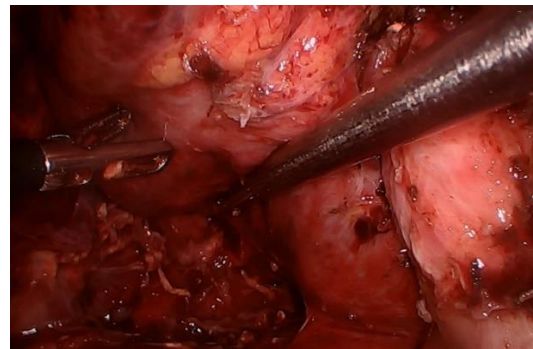
### Treatment

The patient was admitted for planned incision and drainage. She was started on intravenous antibiotics. The abscess was incised and around 100cc of pus was drained with evidence of a few tiny gall stones. No bile was visible intraoperatively. The patient was given intravenous antibiotics for a week when MRI - fistulography was performed, which revealed a large fistulous tract in the right lateral subcutaneous planes of length 5.5cm and calibre of 9mm, extending deep into the abdominal wall muscles extending upto the peritoneum but no communication with the bowel loops. The patient was then scheduled for a total laproscopic cholecystectomy, dissection of the fistulous tract, and removal of the impacted stones from the abdominal wall. A primary port was inserted inferiorly and left to the umbilicus, and further ports were inserted based on ergonomics. The stomach, duodenum, and greater omentum were adhered densely to the gall bladder fossa. Initial adhesiolysis was carried out meticulously. Intraoperatively, indocyanine green was used to visualise the biliary tree. A dose of 2 ml of 2.5 mg/ml was given at the time of induction. This helped us to visualise the common bile duct throughout its full course, and a small remnant gall bladder was seen adhering densely to it (Figure 2). There was no evidence of a stone in the remnant gall bladder. Owing to the difficult initial dissection of the gall bladder and the absence of any stone, the gall bladder was left in-situ. The fistula tract was opened from the intra-abdominal aspect, and all gall

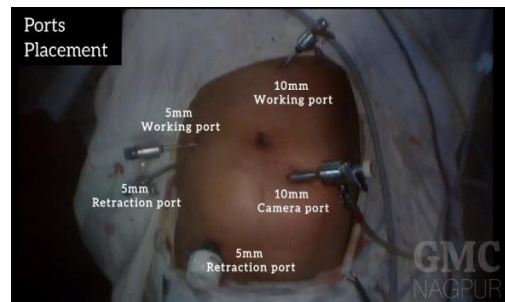
stones were retrieved laproscopically (Figure 3). The fistulous tract was thoroughly curettaged and irrigated.



**Figure 2 (A-D): Remnant gall bladder (solid arrow) along with common hepatic duct (arrowhead) and common bile duct (arrow) highlighted by the indocyanine green dye.**



**Figure 3: Intra-operative image of dissection of the fistulous tract in right sub hepatic region.**



**Figure 4: Ports placement.**

A drain was placed in the subhepatic region and a corrugated drain was placed in the external opening of the fistula. Post-operative course of the patient was uneventful. Both the drains were removed on POD-3 and patient was subsequently discharged. The patient recovered well and the external wound healed after regular dressings.

## DISCUSSION

This is a rare case. It is rare for infected gall stones to form a fistula and drain from an abdominal wall abscess. This can happen due to spilling of the gall stones in the previous surgery<sup>4</sup> or from an obstructed cystic duct or common bile duct, leading to cholecystitis and/or empyema, with eventual perforation of the gall bladder remnant.<sup>1,5</sup> Over a period, infected bile progresses towards the anterior abdominal wall, eventually manifesting as a discernible abscess. Jabbari et al reviewed >250 cases of postoperative complications of spilled gallstones and found intraperitoneal abscesses and fistulas to be the most common complications.<sup>6</sup>

Complications presented from day 4 to month 29.<sup>7</sup> Cases of cholecystocutaneous fistulas are now a rare occurrence as a result of rapid diagnosis and treatment. According to a 2005 study, a total of 226 cases have been reported, with fewer than 25 in the last 50 years.<sup>8</sup> Pripotnev and Petrakos et al described cholecystocutaneous fistula after percutaneous drainage of the gall bladder.<sup>9</sup>

Maynard et al reported an abdominal wall abscess in a patient developing 20 years after an open subtotal cholecystectomy.<sup>1</sup> Saunders et al described a cholecystocutaneous fistula in a patient with chronic lithiasic cholecystitis.<sup>10</sup> Our patient underwent a laparoscopic subtotal cholecystectomy, a postoperative condition for which we found no similar cases despite an exhaustive literature review. Because of its uncommon occurrence, there are currently no established international guidelines for managing CCF.

Nevertheless, the customary approach involves administering antibiotics and performing drainage for any abdominal wall abscesses.<sup>3</sup> There are a handful of cases reporting laproscopic management of CCF. This case represents one of the few described in the literature of the laproscopic retrieval of gallstones that have migrated through a cholecystocutaneous tract, along the previous drain site. Port placement is important, and the principles of laproscopic surgery should be kept in mind (Figure 4).

The use of indocyanine green dye really helped us to identify the biliary anatomy, which would have otherwise been very difficult in a previously operated case. Conventional traction of the gallbladder is a significant technical challenge that we encountered intraoperatively. A fifth port was further placed to assist in retraction. Furthermore, the external opening was also dilated and an open drain was kept.

## CONCLUSION

Surgeons should be vigilant regarding the diverse atypical presentations of gallstone complications, particularly in patients with a history of prior biliary

surgery or intervention. Suspicion should arise when encountering an abscess in an unusual location in a patient with a surgical history. Standard management involves performing a total cholecystectomy if evidence of stones is observed in the gallbladder, including dissection of the fistulous tract and removal of the gall stones.

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