
Anterior Abdominal Wall Abscess Secondary to Subcutaneous Gallstones

John A. Murphy C. Dale Vimalachandran Nathan Howes
Paula Ghaneh

Division of Surgery and Oncology, Royal Liverpool University Hospital, Liverpool, UK

Key Words

Abscess · Cholecystocutaneous fistula · Subcutaneous gallstones

Abstract

Abdominal wall abscess secondary to spontaneous cholecystocutaneous gallstone fistulation is an uncommon presentation of a rare pathological process. Having been described relatively frequently in the 19th century, it is now much less common in the late 20th and early 21st century, probably due to earlier recognition of symptoms, better imaging and surgical treatment of biliary tract disease. Here we describe a report of a case with an unusual clinical presentation of the already rare pathological disease process of spontaneous cholecystocutaneous fistula.

Case Report

We present a case of an 80-year-old gentleman presenting to the emergency department with a swelling on the anterior abdominal wall in the right upper quadrant extending over the right costal margin. The swelling had developed spontaneously, was painless and increasing in size over two months. He had specifically not complained of any symptoms at all previously in this area and had no other significant medical or surgical history apart from hypertension controlled by beta blockers and thiazide diuretics. Prior to admission the area had acutely become inflamed with a purulent discharge and an abscess was diagnosed. The patient showed no signs of systemic sepsis with a mildly elevated serum C-reactive protein of 55 mg/ml being the only biochemical abnormality.

Incision and drainage was performed and antibiotics were given. At operation a hard, smooth surfaced structure was encountered deep into the cavity, thought to be either a costal margin edge or possibly an intraperitoneal structure. Ultrasonography of the area was performed postoperatively, but this was unable to define the anatomy surrounding the abscess cavity. In the postoperative period the wound continued to discharge pus, which on Gram stain demonstrated leucocytes and Gram-negative bacilli, culturing lactose-fermenting coliforms. From this, the possibility of a colonic component to the pathological process was raised. Histological examination of the abscess cavity wall biopsies ruled out more unusual aetiologies.

Subsequent computerised tomography scanning of the area revealed an intraabdominal collection in front of segment IV of the liver which was extending inferiorly and pointing on to the abdominal wall where three low density structures were identified, presumed to be loculations of pus ([fig. 1](#)). The patient underwent exploratory laparotomy to investigate and drain any collections present. A Kocher incision was made and an inflammatory mass containing the gallbladder, an edge of the duodenum and omentum was found to be adherent to the under surface of the liver and to the anterior abdominal wall.

Careful dissection revealed a chronic fistula from the fundus of the gallbladder to the abdominal wall measuring around 5 mm in diameter. A subtotal cholecystectomy was subsequently performed and the wound closed. The abscess cavity was opened and three large gallstones were removed ([fig. 2](#)). The gallstones were smooth, firm, brown coloured structures consistent with cholesterol-based gallstones usually encountered during elective cholecystectomy. Histological examination of the removed gallbladder and adherent abdominal wall demonstrated evidence of gallstone migration both microscopically and macroscopically secondary to active chronic cholecystitis. The abdominal wall section showed inflamed fibrofatty connective tissue containing gallbladder lumen and wall demonstrating fibrosis, chronic inflammation, Rotitansky Aschoff sinuses and muscular hypertrophy, confirming gallstone fistulation as the underlying aetiology.

The patient made an uneventful recovery and was discharged home on day 7 following the procedure with the abscess cavity wound dressed regularly, with a calcium alginate fibre dressing, and allowed to heal by secondary intention. He suffered no recurrence in the following months and was discharged from the surgical team after 12 months having made a full recovery.

Discussion

Abdominal wall and intraperitoneal abscess formation after iatrogenic spillage of gallstones following laparoscopic cholecystectomy has been reported [1–3], although this is rare. Cholecystocutaneous fistulation is noted in the literature but is still extremely uncommon, with only around 22 cases described over the last two decades or so. The aetiology described usually results from spilled gallstones following laparoscopic cholecystectomy, as mentioned [4], or is associated with previous episodes of recurrent acute cholecystitis [5], although rarely other aetiologies such as malignancy have to be considered [6, 7]. This is presumably due to the fact that one may suffer symptoms early such as those experienced with cholecystitis and, therefore, have definitive imaging and treatment before this particular eventuality is reached. This theory is also supported by the evidence that prior to 1950, Courvoisier had described 169 cases, with Henry and Orr adding another 36 cases, of external biliary fistulae [8], but subsequently relatively few cases described.

The great majority of biliary fistulas occur with connection to the duodenum, colon, stomach and choledochal duct. Spontaneous cholecystocutaneous fistula presenting as a subcutaneous abscess is an exceedingly rare presentation of this pathological process, having only been reported a few times [8, 9] in the last twenty years with the patients usually having a known history of gallbladder disease.

As is the case represented here, the most likely pathological process is recurrent gallbladder inflammation secondary to gallbladder calculi and chronic cholecystitis, causing adherence to the abdominal wall with eventual fistulation (confirmed histologically), but what is surprising in this case is the lack of symptoms experienced by the patient prior to abscess formation.

This case report highlights the need for vigilance by the clinician when investigating unusual and suspicious clinical presentations in this particular area and supports the liberal use of computerised tomography, or other modalities such as magnetic resonance cholangiopancreatography [10], early to gain an accurate diagnosis so that the appropriate treatment can be instituted.

Acknowledgement

John A. Murphy was a Clinical Research Fellow supported by CORE through an Amelie Waring fellowship.

Fig. 1. Computerised tomography image of three cholecystocutaneous gallstones located in the anterior abdominal wall in front of the liver (segment IV) represented by three areas of low attenuation.



Fig. 2. Three large gallstones removed at surgery from the anterior abdominal wall cavity. Macroscopic appearance is that of cholesterol based gallstones with cholecystocutaneous fistulation confirmed on histological examination.



References

- 1 Carlin CB, Kent RB Jr, Laws HL: Spilled gallstones – complications of abdominal-wall abscesses. *Surg Endosc* 1995;9:341–343.
- 2 Eisenstat S: Abdominal wall abscess due to spilled gallstones. *Surg Laparosc Endosc* 1993;3:485–486.
- 3 Papasavas PK, Caushaj PF, Gagné DJ: Spilled gallstones after laparoscopic cholecystectomy. *J Laparoendosc Adv Surg Tech A* 2002;12:383–386.
- 4 Yao CC, Wong HH, Yang CC, Lin CS: Abdominal wall abscess secondary to spilled gallstones: late complication of laparoscopic cholecystectomy and preventative measures. *J Laparoendosc Adv Surg Tech A* 2001;11:47–51.
- 5 Andley M, Biswas RS, Ashok S, Somshekar G, Gulati SM: Spontaneous cholecystocutaneous fistula secondary to calculous cholecystitis. *Am J Gastroenterol* 1996;91:1656–1657.
- 6 Jacobson BC, Waxman I, Parmar K, Kauffman JM, Clarke GA, Van Dam J: Endoscopic ultrasound-guided gallbladder bile aspiration in idiopathic pancreatitis carries a significant risk of bile peritonitis. *Pancreatology* 2002;2:26–29.
- 7 Kamisawa T, Amemiya K, Tu Y, Egawa N, Sakaki N, Tsuruta K, Okamoto A, Munakata A: Clinical significance of a long common channel. *Pancreatology* 2002;2:122–128.
- 8 Yüceyar S, Ertürk S, Karabiçak I, Onur E, Aydoğan F: Spontaneous cholecystocutaneous fistula presenting with an abscess containing multiple gallstones: a case report. *Mt Sinai J Med* 2005;72:402–404.
- 9 Cruz RJ Jr, Nahas J, de Figueiredo LF: Spontaneous cholecystocutaneous fistula: a rare complication of gallbladder disease. *Sao Paulo Med J* 2006;124:234–236.
- 10 De Waele E, Op de Beeck B, De Waele B, Delvaux G: Magnetic resonance cholangiopancreatography in the preoperative assessment of patients with biliary pancreatitis. *Pancreatology* 2007;7:347–351.