

Spontaneous Cholecystocutaneous Fistula: A Case Report

Pâmela de Oliveira Gonçalves Rodrigues ^{1,*}, Gustavo Ianzer Moraes ¹, João Pedro Valladão de Paula ², Amanda Araújo Brasil Duarte ², Isadora Mylius ¹, Filipe Gianecchini Rodrigues ²

¹ Faculty of Medicine, Federal University of Rio Grande – FURG, Rio Grande, Rio Grande do Sul, Brazil.

² Department of General Surgery, Santa Casa de Caridade do Rio Grande – ACSCRG, Rio Grande, RS, Brazil.

* Correspondence: rodriguespamelaog@gmail.com.

Abstract: Cholecystocutaneous fistula (CCF) is defined as a pathological communication between the gallbladder and/or its ducts directly with the skin. It is a rare complication of chronic calculous cholecystopathy. Its clinical presentation ranges from gastrointestinal symptoms such as nausea and vomiting, abdominal pain, jaundice, and acute pancreatitis to the drainage of biliary secretion and gallstones through the abdominal wall. The mainstay of treatment involves surgical reconstruction of the biliary anatomy. The incidence of new CCF cases appears to be decreasing due to earlier medical intervention and definitive treatments. This case report presents a patient with acute-on-chronic calculous cholecystitis who developed a CCF with externalization of a gallstone, requiring surgical management.

Keywords: Cutaneous Fistula; Biliary Fistula; Cholelithiasis; Cholecystitis Acute.

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1. Introduction

A cholecystocutaneous fistula (CCF) is characterized as an external fistula that establishes an atypical connection between the biliary tract and the abdominal wall, resulting in the drainage of bile and gallstones to the exterior of the body [1]. The first report of CCF was described in the literature by Thilesus in 1670, and the number of cases has declined over time, making it a rare condition. This reduction is believed to result from advances in the diagnosis and treatment of chronic cholelithiasis, as this and other neglected biliary diseases are the most common etiologies of CCF, although the condition may also arise from the progression of rarer disorders [2]. Nevertheless, the pathology remains a clinical challenge in certain situations.

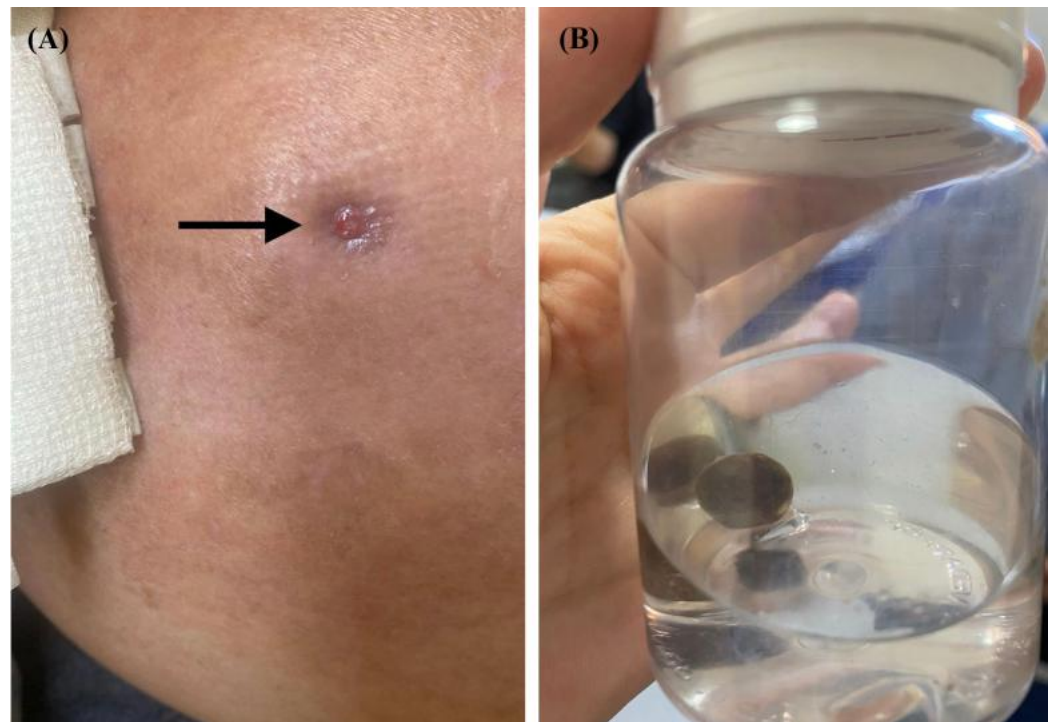
The fistula may develop spontaneously, post-traumatically, postoperatively, or iatrogenically. In most cases, treatment involves addressing the underlying cause, such as the removal of gallstones or correction of surgical complications. Therefore, the present report aims to describe a case of this rare complication of chronic cholelithiasis and to draw a parallel with the clinical features previously described in the literature.

2. Case Report

A 74-year-old male patient with a history of systemic arterial hypertension, managed with hydrochlorothiazide and losartan, reported social alcohol consumption and denied smoking. His medical history included amputation of the right fifth finger due to an occupational accident, with no prior abdominal surgeries. He reported previous episodes of abdominal pain consistent with biliary colic, which had been neglected and left untreated.

Six months earlier, he developed pain and erythema with the appearance of a pustule in the right flank region (Figure 1A), which progressed within one week to spontaneous drainage of a yellowish, non-fetid secretion. He sought medical care on several occasions, receiving a diagnosis of “abscess” and undergoing multiple antimicrobial regimens (amoxicillin, amoxicillin-clavulanate, and ciprofloxacin combined with metronidazole), in addition to analgesics prescribed during previous emergency visits. During the course of the illness, he reported the spontaneous extrusion of three gallstones of varying sizes through the fistulous tract (Figure 1B). There were no reports of fever, altered mental status, or signs of toxemia.

Figure 1. A. External opening located on the right flank. B. A biliary calculus expelled through the fistula.



Two months after symptom onset, an abdominal ultrasound (USG) was performed for diagnostic clarification, revealing a “gallbladder with irregular walls, filled with gallstones, with apparent discontinuity of the gallbladder wall and a fistulous tract extending to the subcutaneous tissue of the abdominal wall, suggestive of cholecystocutaneous fistula.” No other significant findings were observed. Given this diagnosis, the patient was referred to the general surgery service of the public health system (SUS) on an outpatient basis, as he did not meet criteria for emergency admission. He presented only with dyspeptic complaints, without signs of peritoneal irritation or incapacitating pain.

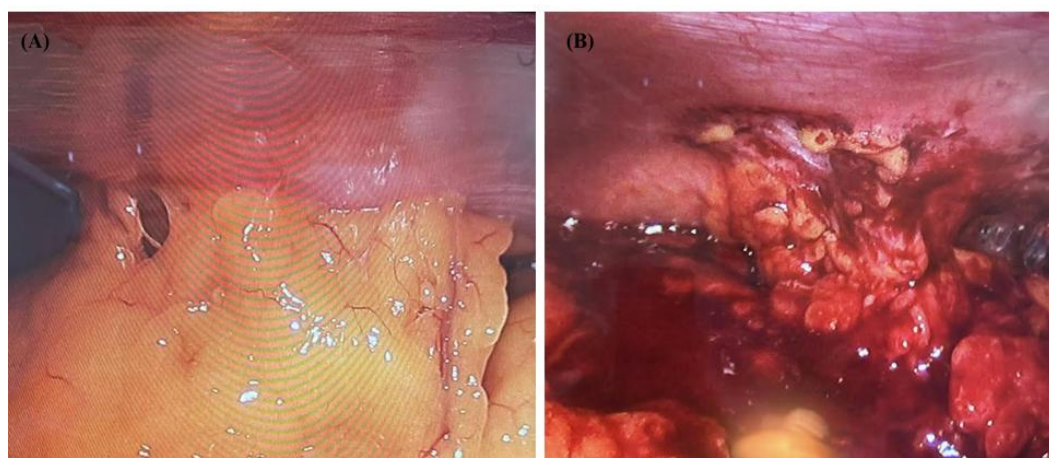
Six months after symptom onset, he was electively admitted for definitive treatment and underwent laparoscopic cholecystectomy. Abdominal access was achieved using the open Hasson technique with safe pneumoperitoneum. Intra-abdominal exploration revealed the gallbladder firmly adherent to the anterior abdominal wall in the right hypochondrium, associated with an exuberant inflammatory process, marked wall thickening, dense adhesions to the omentum, and macroscopic evidence of active inflammation, including neovascularization (Figure 2). Careful adhesiolysis was performed using monopolar energy for cauterization.

An anterograde laparoscopic approach was chosen due to difficulty in adequately exposing Calot’s triangle. Dissection was initiated at the gallbladder fundus and progressed toward the cystic plate, allowing achievement of the critical view of safety according to Strasberg’s criteria. To facilitate this, the gallbladder was drained and transected at

the body, followed by removal of the distal portion and subsequent proximal dissection from the hepatic bed. The cystic duct and artery were clipped with size 300 metallic clips, then divided, and the gallbladder was completely excised and retrieved in a sterile endoscopic bag through an enlarged umbilical port. Fistulectomy was not required, and conversion to open surgery was unnecessary.

Histopathological examination confirmed the diagnosis of acute-on-chronic calculous cholecystitis, with no evidence of associated neoplasia. The postoperative course was uneventful. During eight months of outpatient follow-up, the patient remained asymptomatic, with no complaints suggesting biliary tract injury, recurrence, or formation of a new cholecystocutaneous fistula.

Figure 2. A. Omentum adherent to the anterior abdominal wall. B. Neovascularization with the gallbladder adherent to the abdominal wall.



3. Discussion and Conclusion

Reports of cholecystocutaneous fistula (CCF) are scarce, which prevents the determination of its prevalence or annual incidence. In the 19th century, 169 cases were described; in the 20th century, fewer than 100. Between 2007 and March 2019, 28 cases were published [3]. In 2023, only one case was reported, and no records were found in 2024 [1].

The main etiologies of CCF are cholelithiasis and cholecystitis, although cases related to trauma, postoperative complications, ampullary carcinoma, and bacterial infections have also been described [2]. The most frequently isolated microorganism in fistulous discharge is *Escherichia coli*. The literature does not establish a direct association between CCF and multimorbid patients, as most reported cases occur in individuals without severe underlying diseases. A common complication is an intra-abdominal abscess, which may or may not communicate with the CCF. From a pathophysiological standpoint, CCF results from obstruction of bile flow, leading to increased intramural pressure, impaired local perfusion, and parietal necrosis, culminating in gallbladder perforation. Bile leakage may occur into the peritoneal cavity, adjacent viscera, or, less frequently, the abdominal wall, resulting in a cutaneous fistula. Although the condition often presents with infectious features, a chronic inflammatory course without severe systemic repercussions may occur. Furthermore, the use of multiple antimicrobial regimens may suggest partial bacterial control without appropriate indication [4].

The mean age of reported patients is 72.8 years (ranging from 21 to 94 years). In elderly individuals, clinical presentation tends to be atypical and insidious, often masked by comorbidities [5]. The patient in this report showed no major systemic involvement or complications, except for local manifestations due to gallstone extrusion through the CCF and the formation of adhesions and scar tissue, as observed intraoperatively. This finding

supports the chronic inflammatory course with acute exacerbations noted in the histopathological analysis, differing from acute cholecystitis, which typically presents rapid abscess formation and rupture.

In comparison, the present case describes a CCF secondary to symptomatic cholelithiasis in a patient without consumptive disease and of an age consistent with previously reported cases. Considering the initial diagnosis of a pustule in the right flank, cutaneous conditions such as furunculosis, foreign body reaction, cellulitis, or erysipelas were the primary differential diagnoses, particularly in the absence of systemic symptoms or severe pain. Intra-abdominal etiologies, such as colonic or retroperitoneal disease, are rarely considered as differential diagnoses for a draining pustule, especially in an outpatient with no history of abdominal surgery and were ruled out by the absence of clinical findings.

The request for imaging studies is often limited in emergency care settings, especially when the case appears clinically mild [6]. It is important to emphasize that the primary care physician's comprehensive evaluation, who referred the patient to the surgical team, was crucial. The patient's history of chronic biliary colic, followed by biliary drainage and gallstone extrusion through the cutaneous opening, strongly supported a biliary etiology. Although the initial misdiagnosis as a cutaneous abscess led to treatment with multiple antibiotic courses and delayed definitive management, this is understandable given the rarity of CCF and the lack of familiarity among non-specialist healthcare providers [2].

Anatomically, the externalization of the fistula to the flank, rather than the more common right hypochondrium, can be explained by the formation of adhesions and the direction of least resistance between the gallbladder and the abdominal wall. This results in a tract following fascial planes toward the weakest external point, as previously described in series and literature reviews [2]. The spontaneous tunneling and drainage of bile and gallstones prevented intraperitoneal bile leakage and accumulation, thereby avoiding peritonitis. Other external openings described in the literature include the right subcostal, epigastric, right breast, and paraumbilical regions [2].

Imaging modalities used for diagnosis include abdominal ultrasonography (US), computed tomography (CT), and magnetic resonance cholangiography (MRC). Ultrasonography remains the first-line imaging method for biliary pathology, particularly when cholelithiasis is suspected, as defined by clinical protocols, since CT has low sensitivity for gallstone detection. When evaluating a fistula or possible abscess, CT is preferred due to its superior visualization of the tract and its anatomical relationships, which can guide fistulectomy planning, although ultrasound may suggest similar findings.

Treatment is not standardized due to the rarity of reported cases and the heterogeneity of clinical presentations. Although conservative management may be considered for debilitated patients, the treatment of choice consists of surgical intervention with cholecystectomy and fistulectomy, performed either in a single stage or in separate procedures depending on clinical conditions [2]. In a subset of patients, the external biliary fistula closes spontaneously after treatment of the underlying pathology, obviating the need for fistulectomy [7]. In the present case, surgical intervention was indicated upon confirmation of CCF, but the fistulous tract was not excised given its high likelihood of spontaneous closure, as it presented with a small orifice (<1 cm under laparoscopy), a long tract, and minimal daily drainage. Thus, only closure of the peritoneal defect was performed without additional manipulation.

The laparoscopic approach is preferred over the open technique because it reduces surgical stress and morbidity in elderly patients, provided that adequate expertise is available [8]. In this case, the location of the fistula on the flank did not interfere with technical execution or port placement. The Hasson open laparoscopic access technique was chosen over the Veress needle method due to the presence of adhesions. Intraoperatively, the main challenges involved establishing a safe surgical field amid chronic inflammation and dense fibrosis, which required meticulous adhesiolysis. The use of blunt dissection and energy devices was essential for adhesion release, and electrocautery allowed for effective

hemostasis in the setting of marked neovascularization. The greatest potential risk identified was biliary duct injury, which was mitigated by adopting an antegrade approach, starting with dissection at the gallbladder body and progressing to achieve the critical view of safety. The risk of intestinal injury decreased after adhesiolysis, and no vascular or visceral complications occurred.

Complete excision of the fistulous tract was not performed; only the intraperitoneal portion, where the gallbladder was in direct contact with the peritoneum, was resected due to dense fibrosis and increased risk of bleeding or abdominal wall injury. Removal of the gallbladder, the primary inflammatory focus, was sufficient to promote spontaneous closure, approach consistent with contemporary reports documenting successful outcomes without fistulectomy [2, 8]. The external drainage orifice had already closed by secondary intention prior to surgery. The patient recovered well postoperatively, continued outpatient follow-up, and required no drainage or reintervention.

In summary, this case is notable for the patient's clinical stability, absence of severe infectious signs or complications, and successful laparoscopic management. Although it aligns with the limited epidemiological patterns described in the literature, the scarcity of cases makes direct comparison challenging. Table 1 summarizes the most recent reports available. The rarity of CCF and the outpatient nature of the healthcare system contributed to delayed treatment; however, this did not result in life-threatening complications. Despite its rarity, CCF should be considered in the differential diagnosis of cutaneous abscesses in the right hypochondrium or flank, particularly in patients with a long-standing history of neglected cholelithiasis or spontaneous biliary drainage through the abdominal wall.

Table 1. Comparison of Reported Cases of Cholecystocutaneous Fistula in Recent Literature.

Reference	Type of Fistula / Condition	Age / Sex	Fistula Location	Diagnosis	Treatment Performed	Outcome
[9]	Cholecystocholedochal (internal)	-	-	Radiography Surgery	/ Open surgery	Recovery
[10]	Spontaneous external biliary fistula without gallstones	-	-	Physical examination and imaging	Surgery	Favorable outcome
[11]	Spontaneous cholecystocutaneous	50 / F	Right hypochondrium	US	Cholecystectomy	Recovery
[12]	Spontaneous cholecystocutaneous	65 / F	Right flank	US/ CT	Cholecystectomy	Recovery
[13]	Spontaneous cholecystocutaneous	70 / F	Right subcostal margin	US/ CT	Surgery	Recovery
[14]	Hypochondrial abscess secondary to cholecystitis	60 / M	Right hypochondrium	CT	Drainage and antibiotics	Cure
[15]	Spontaneous cholecystocutaneous	60 / F	Right hypochondrium	US	Surgery	Cure
[16]	Spontaneous cholecystocutaneous	68 / F	Right hypochondrium	CT	Surgery	Favorable outcome

Reference	Type of Fistula / Condition	Age / Sex	Fistula Location	Diagnosis	Treatment Performed	Outcome
[17]	Spontaneous cholecystocutaneous (glueal)	65 / F	Gluteal region	CT	Surgery	Cure
[18]	Post-percutaneous drainage (iatrogenic)	75 / F	Right hypochondrium	CT	Drain removal / Surgery	Recovery
[19]	Spontaneous gallbladder rupture (abdominal wall abscess)	55 / M	Anterior abdominal wall	CT	Drainage / Surgery	Recovery
[20]	Cholecystocutaneous abscess	67 / F	Right hypochondrium	US/ CT	Drainage and cholecystectomy	Favorable outcome
[21]	Acute cholecystitis (high surgical risk)	-	-	US/ CT	Non-surgical management	Clinical control
[22]	Percutaneous cholecystostomy in high-risk patient	-	-	-	Percutaneous drainage	Recovery
[23]	Spontaneous cholecystocutaneous	73 / M	Right hypochondrium	CT	Laparoscopic cholecystectomy	Recovery
[24]	Spontaneous cholecystocutaneous	69 / F	Right hypochondrium	US/ CT	Laparoscopic cholecystectomy	Favorable outcome

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Research Ethics Committee Approval: The patient provided written informed consent to participate in the study, which was conducted in accordance with the ethical principles of the Declaration of Helsinki. All data were anonymized to safeguard patient privacy. The study and its ethical approval were provided by the Ethics Committee of the Santa Casa de Caridade Hospital of Rio Grande (ACSCRG), Rio Grande, RS, Brazil (CAAE: 88276625.7.0000.5324).

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References

- Suárez EB, Navarro-Tovar F, Díaz-Barrientos CZ, Marín-Pardo EL, Hernández-Pérez E. Cholecystocutaneous fistula, an uncommon pathology today. *Revista de Gastroenterología de México (English Edition)* [Internet]. 2023 Apr;88(2):177–9.
- Alsaman MZB, Mazketly M, Ziadeh M, Aleter O, Ghazal A. Cholecystocutaneous fistula incidence, Etiology, Clinical Manifestations, Diagnosis and treatment. A literature review. *Annals of Medicine and Surgery*. 2020 Nov;59:180–5.
- Lofgren DH, Vasani MD S, Singzon MD V. Abdominal Wall Abscess Secondary to Cholecystocutaneous Fistula via Percutaneous Cholecystostomy Tract. *Cureus*. 2019 Apr 12;11(4).
- Sayed L, Sangal S, Finch G. Spontaneous Cholecystocutaneous Fistula: A Rare Presentation of Gallstones. *Journal of Surgical Case Reports*. 2010 Jul 1;2010(5):5–5.
- Lyon C, Clark DC. Diagnosis of Acute Abdominal Pain in Older Patients. *American Family Physician* [Internet]. 2006 Nov 1;74(9):1537–44. Available from: <https://www.aafp.org/pubs/afp/issues/2006/1101/p1537.html>
- Guardado-Bermúdez F, Aguilar-Jaimes A, Ardisson-Zamora FJ, Guerrero-Silva LA, Estefanie Villanueva-Rodríguez, Alondra N. Fístula colecistocutánea espontánea. *Cirugía y Cirujanos*. 2015 Jan 1;83(1):61–4.
- Pol MM, Vyas S, Singh P, Rathore YS. Spontaneous cholecystocutaneous fistula: empirically treated for a missed diagnosis, managed by laparoscopy. *BMJ Case Reports*. 2019 Feb;12(2):e228138.

8. Malik AH, Nadeem M, Ockrim J. Complete laparoscopic management of cholecystocutaneous fistula. *The Ulster Medical Journal* [Internet]. 2007 Sep;76(3):166. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC2075592/>
9. Behrend A, Cullen ML. Cholecystocholedochal fistula, an unusual form of internal biliary fistula. *Annals of surgery* [Internet]. 1950 Aug;132(2):297–303. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1616562/>
10. Birch BRP, Cox SJ. Spontaneous external biliary fistula uncomplicated by gallstones. *Postgraduate Medical Journal*. 1991 Apr 1;67(786):391–2.
11. Poudel R. Spontaneous Cholecystocutaneous Fistula: A Case Report. *ResearchGate* [Internet]. 2015 Apr 17;12(01):51–4. Available from: https://www.researchgate.net/publication/316276975_Spontaneous_Cholecystocutaneous_Fistula_A_Case_Report
12. Sulakshane S, Thakare V, Dumbre R. Consequences of gallbladder inflammation: spontaneous cholecystocutaneous fistula: a case report. *International Surgery Journal*. 2018 Apr 21;5(5):1974.
13. Rinzivillo NMA, Danna R, Leanza V, Lodato M, Marchese S, Basile F, Zanghì GN. Case Report: Spontaneous cholecystocutaneous fistula, a rare choledocholithiasis complication. *F1000Research* [Internet]. 2017 Sep 27 ;6:1768. Available from: <https://f1000research.com/articles/6-1768/v1>
14. Tinay OE, Zaka, Mogbil Alhedaihy, Mohamad. Right hypochondrial abscess: A rare consequence of supportive cholecystitis. *Annals of Medicine and Surgery*. 2016 Nov 25;12:106–8.
15. Flora HS, Bhattacharya S. Spontaneous cholecystocutaneous fistula. *HPB*. 2001 Dec;3(4):279–80.
16. Abbey R: Spontaneous cholecystocutaneous fistula. *Int J Adv Integ Med Sci*. 2016, 1:196-198.
17. Nicholson T, Born MW, Garber E: Spontaneous cholecystocutaneous fistula presenting in the gluteal region. *J Clin Gastroenterol*. 1999, 28:276-277.
18. Pripotnev S, Petrakos A: Cholecystocutaneous fistula after percutaneous gallbladder drainage. *Case Rep Gastroenterol*. 2014, 8:119-122. 10.1159/000362360
19. Natesan K: A rare complication of a common disease - anterior abdominal wall abscess due to spontaneous rupture of gall bladder. *University Journal of Surgery and Surgical Specialities*. 2017, 3:99-102. <http://ejournal-tnmgrmu.ac.in/index.php/surgery/article/view/4108>.
20. Ongso Y, Beh HN: Cholecystocutaneous abscess: a rare presentation of a common problem. *Clin Med Insights Gastroenterol*. 2017, 8:44-45. 10.4081/gi.2017.6899
21. Chopra S, Dodd III GD, Mumbower AL, et al.: Treatment of acute cholecystitis in non-critically ill patients at high surgical risk. *AJR Am J Roentgenol*. 2001, 176:1025-1031. 10.2214/ajr.176.4.1761025
22. Davis CA, Landercasper J, Gundersen LH, Lambert PJ: Effective use of percutaneous cholecystostomy in high-risk surgical patients techniques, tube management, and results. *Arch Surg*. 1999, 134:727-732. 10.1001/archsurg.134.7.727
23. Malik AH, Nadeem M, Ockrim J: Complete laparoscopic management of cholecystocutaneous fistula. *Ulster Med J*. 2007, 76:166-167.
24. Almotlaq AM: Laparoscopic management of a cholecystocutaneous fistula: a case report. *J Minim Invasive Surg Sci*. 2015, 4:1-3.