

Case Report

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Cutaneous Metastases of Gallbladder Adenocarcinoma Following Percutaneous Cholecystostomy Tube

Kathryn Cavallo^{1,2}, Corbin Morris^{1,3}, and Jonathan M. Hernandez^{1,*}

¹National Cancer Institute at the National Institutes of Health, Bethesda, MD, United States

²George Washington University, School of Medicine and Health Sciences, Washington, DC, United States

³Penn State Health, Hershey, PA, United States

* Author to whom any correspondence should be addressed; Email: jonathan.hernandez@nih.gov

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Abstract

Gallbladder carcinoma is a rare malignancy with a poor prognosis and is frequently metastatic at the time of diagnosis. Port-site or incisional metastases are relatively well documented and are a known risk when removing specimens, especially in the setting of incidentally identified gallbladder malignancy. Skin metastasis from percutaneous cholecystostomy tube placement has not been well documented in the literature to date. Here, we report a case of an elderly patient with acute cholecystitis who received a percutaneous cholecystostomy tube and was found to have gallbladder adenocarcinoma following interval cholecystectomy. Postoperatively, he developed a raised lesion at the site of his percutaneous cholecystostomy tube, which was biopsied and found to be adenocarcinoma.

Keywords

Gallbladder carcinoma; skin metastases; percutaneous cholecystostomy tube; cholecystitis; cholecystectomy

1. Introduction

Gallbladder carcinoma is a rare malignancy; however, it constitutes nearly half of all biliary cancers, with adenocarcinoma being the most common [1]. It is associated with a poor prognosis, with 5-year survival rates < 20%, and is frequently diagnosed incidentally following cholecystectomy [2]. In the US, the majority of gallbladder carcinomas are metastatic at the time of diagnosis. The most frequent sites of metastatic disease include direct extension into local organs and, less commonly, the lung via vascular dissemination [3]. In a review of the literature, there have been only rare reports of skin metastasis from gallbladder carcinoma [4,5]. While spontaneous skin metastases are incredibly rare, port-site or incisional metastases are relatively well documented and are a known risk when removing specimens, especially in the setting of incidentally identified gallbladder malignancy [6]. Given the above, it stands to reason that skin metastases may result from percutaneous instrumentation

of the gallbladder when cancer is either not confirmed or suspected. Despite this theoretical risk, there has not been a documented case of direct seeding from percutaneous drainage of the gallbladder in the literature to date. Here, we present a case of gallbladder adenocarcinoma with skin metastases following percutaneous cholecystostomy tube (PCT) placement for cholecystitis.

2. Case Presentation

The patient is an 80-year-old male with a past medical history of coronary artery disease requiring three-vessel bypass and hypertension who initially presented to an outside institution in October 2024 with severe right upper quadrant abdominal pain, leukocytosis, hyperbilirubinemia, and computed tomography (CT) scan findings of gallbladder wall thickening and pericholecystic fluid. There was no evidence of any gallbladder masses or polyps on initial imaging. He was diagnosed with acute calculous cholecystitis, Tokyo Grade

I. Rather than proceeding with definitive cholecystectomy, a PCT was placed for gallbladder decompression given his comorbidities. Magnetic resonance imaging (MRI) was done following drain placement and was also without evidence of polyps or masses. Four months after PCT placement, he underwent a laparoscopic cholecystectomy with biliary drain removal. The percutaneous tube site was not utilized as a port during that procedure. Postoperatively, his pathology demonstrated G1 to G2 gallbladder adenocarcinoma, pyloric gland type, extending through the muscularis (pT2bNX). Both the cystic duct margin and the deep margin were positive for adenocarcinoma. He had a repeat CT after his pathology results, which did not demonstrate any evidence of disease. The patient and his family elected to forgo systemic chemotherapy and opted for continued surveillance. Four months later, interval labs were remarkable for an increase in bilirubin, and a repeat CT demonstrated a new mass in the gallbladder resection bed (**Figure 1**) as well as a subcutaneous and perihepatic nodule (**Figure 2**). He was referred to a surgical oncologist for review of scans and consideration for possible surgical resection. In the clinic, the patient was noted to have a hard, poorly circumscribed subcutaneous mass at the site of his previous PCT. No masses or lesions were present at the laparoscopic port sites. Given suspicion for possible skin metastases, the mass was biopsied and confirmed to be metastatic moderately differentiated adenocarcinoma to the skin. The patient was referred to medical oncology for discussion of systemic chemotherapy, but has not yet been treated to date.

3. Discussion

Gallbladder carcinoma has a poor prognosis. In T1a tumors, cholecystectomy and systemic therapy have improved survival to a median of 12–14 months, with a median 5-year survival of 18%. However, 44.4% of cases present with metastatic disease, which confers a worse prognosis with a median 5-year survival of 2% [7]. When diagnosed, patients should have a discussion with their oncologist to determine the best treatment options that align with their goals. Comprehensive molecular profiling may identify actionable alterations, such as BRCA mutations or mismatch repair deficiency (dMMR/MSI-H), among others. Systemic chemotherapy, including capecitabine or 5-fluorouracil-based regimens, is typically the mainstay of treatment if not a candidate for targeted therapy [8].

Spontaneous skin metastases present at the time of diagnosis are exceedingly rare, with only several cases reported in the literature [5,9–13]. Skin metastases at port sites following laparoscopic cholecystectomy, however, are a relatively well-documented phenomenon, the first of which was described by Drouard *et al.* in 1991 [14]. The incidence of port-site metastasis (PSM) following laparoscopic cholecystectomy is reported to occur in between 2–14% of cases, and has decreased in recent years [15]. Abdominal wall metastases are also reported in open and laparoscopic converted-to-open cases. The etiology of spread, however, has not been reported to have a significant impact on overall 5-year survival [16].

Recent data demonstrate that port-site resection is not associated with improved recurrence-free or overall survival [17]. Therefore, port-site re-excision is no longer routinely recommended during definitive resection [8].

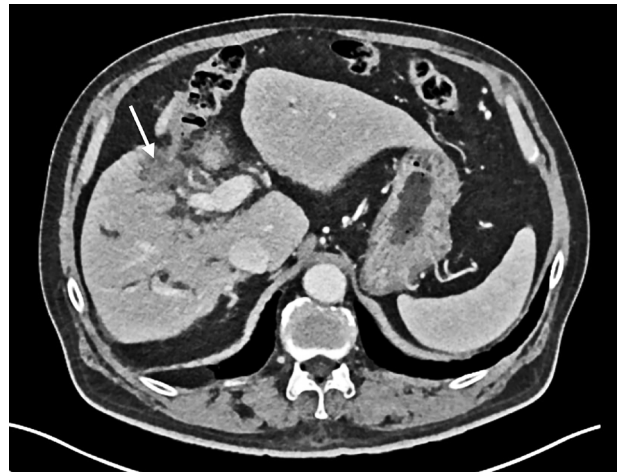


Figure 1: Interval CT scan that demonstrates an ill-defined mass (single arrow) involving the liver parenchyma, suspicious for recurrence.

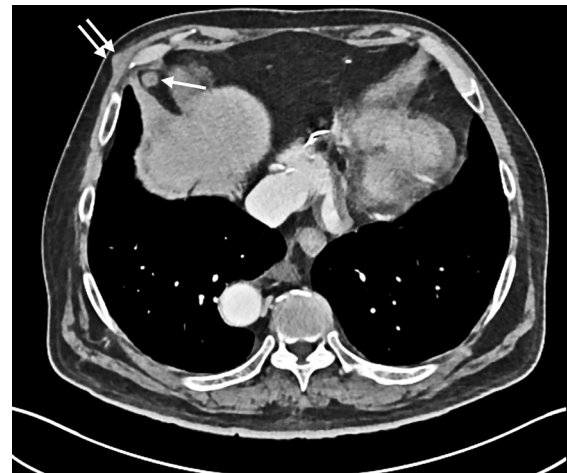


Figure 2: Interval CT scan demonstrating a subcutaneous nodule (single arrow) and a perihepatic nodule (double arrow) suspicious for peritoneal and abdominal wall seeding.

There are several mechanisms by which a PSM may occur, including direct contamination of tumor cells following removal of the specimen, pneumoperitoneum causing increased aerosolization of tumor cells, as well as postoperative incisional trauma and compromised immunity, creating a favorable environment for tumor cell implantation and growth. It would stand to reason, therefore, that many of the same mechanisms may be at play in the direct seeding of tumor cells into a PCT tract, whereby the gallbladder wall is directly disrupted, and the patient is already in a pro-inflammatory state secondary to their underlying infection. Similarly to specimen extraction, it is possible that malignant cells on the percutaneous tube may be deposited with its removal. The possibility of malignant cells being spread through multiple access attempts on PCT placement is feasible; however, the timing of recurrence in this case is more consistent with PCT removal.

Like PCTs, there have been several additional cases of documented skin metastases from gallbladder adenocarcinoma following percutaneous interventions, such as seeding along VP shunt tracts [18]. Additionally, there has been one report of metastatic seeding of a percutaneous

transhepatic cholecystostomy (PTC) tract reported in the literature to occur after placement for biliary decompression in the setting of known gallbladder carcinoma [19]. It stands to reason, therefore, that skin metastasis of gallbladder carcinoma may result secondary to any instrumentation of the gallbladder.

PCT placement is a validated method for both acalculous cholecystitis as well as for patients with calculous cholecystitis who are deemed unfit for surgery due to high anesthesia risk. When patients have underlying comorbidities or ongoing therapies that prevent surgical resection, percutaneous cholecystostomy tubes are a safe and effective method for treating acute cholecystitis or cholangitis. It is estimated that roughly 2.5% of patients presenting with cholecystitis undergo PCT placement in lieu of immediate cholecystectomy in the US [3]. Furthermore, the rate of incidentally detected gallbladder carcinoma is reported to occur between 0.2–2.5% of cholecystectomies for either symptomatic cholelithiasis or cholecystitis [20]. Our case report and review of the literature suggest that caution is warranted both in cases where a PCT may be suggested for management of acute cholecystitis in a patient with known or suspected gallbladder polyps or malignancy and in incidentally diagnosed gallbladder adenocarcinoma following cholecystectomy in which a patient has had prior instrumentation. Following surgical resection, more aggressive treatment may be required regardless of pathological stage, given the observed propensity for skin metastases as documented in this case and in others.

4. Conclusion

Skin metastases are a known possible complication of intra-abdominal malignancy resection. In the setting of gallbladder carcinoma, particularly, consideration must be taken prior to instrumentation of the biliary system, given the potential for tract seeding and metastatic spread to the skin as documented in this case and others.

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Authors' Contribution

K.C.: Conceptualization, Writing – Original Draft, Writing – Review & Editing. C.M.: Conceptualization, Writing – Original Draft, Writing – Review & Editing. J.M.H.: Writing – Original Draft, Writing – Review & Editing.

Data Availability

Case report details are included in the paper. Further information may be available from the corresponding author upon reasonable request

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Conflicts of Interest

The authors declare that there are no conflicts of interest.

Ethical Approval

This case report adheres to the ethical standards of the institutional research committee and the principles outlined in the Declaration of Helsinki.

Consent

The patient's consent was obtained prior to submission.

References

- [1] Siegel RL, Miller KD, Jemal A. Cancer statistics, 2017. *CA: A Cancer Journal for Clinicians* 2017;67:7–30. <https://doi.org/10.3322/caac.21387>.
- [2] Benson AB, D'Angelica MI, Abrams T, Abbott DE, Ahmed A, Anaya DA, *et al.* NCCN Guidelines® insights: Biliary tract cancers, version 2.2023. *Journal of the National Comprehensive Cancer Network* 2023;21:694–704. <https://doi.org/10.6004/jnccn.2023.0035>.
- [3] Wadhwa V, Trivedi PS, Makary MS, Strain DV, Ahmed O, Chick JFB, *et al.* Utilization and outcomes of cholecystostomy and cholecystectomy in patients admitted with acute cholecystitis: a nationwide analysis. *American Journal of Roentgenology* 2021;216:1558–65. <https://doi.org/10.2214/ajr.20.23156>.
- [4] Zheng Q, Xu Y, Nan K. Scalp metastasis from gallbladder cancer: an unusual case. *Chinese Medical Journal* 2014;127:393–4. <https://doi.org/10.3760/cma.j.issn.0366-6999.20112341>.
- [5] Tanriverdi O, Meydan N, Barutca S, Kadikoylu G, Sargin G, Tataroglu C, *et al.* Cutaneous metastasis of gallbladder adenocarcinoma in a patient with chronic lymphocytic leukemia: a case report and review of the literature. *Annals of Dermatology* 2013;25:99. <https://doi.org/10.5021/ad.2013.25.1.99>.
- [6] Ng YA, Tan QT, Wan WK, Goh YC. A case report of wound site seeding following cholecystectomy for dysplastic gallbladder. *International Journal of Surgery Case Reports* 2017;35:87–93. <https://doi.org/10.1016/j.ijscr.2017.04.006>.
- [7] Nuñez Carrasco V, Serdio Arias JL, Artazkoz del Toro JJ, Melgar Vilaplana L. Metastasis of gallbladder adenocarcinoma to the skin of the external auditory canal, a case report. *Acta Otorrinolaringologica (English Edition)* 2018;69:114–6. <https://doi.org/10.1016/j.otoeng.2017.01.015>.
- [8] NCCN Clinical Practice Guidelines in Oncology: gallbladder adenocarcinoma. *National Comprehensive Cancer Network (NCCN)*; 2023.
- [9] Mukhia R, Shrestha S, Malla K, Sharma VK. Cutaneous metastases from carcinoma of gall bladder. *Journal of Nepal Medical Association* 2009;48. <https://doi.org/10.31729/jnma.345>.
- [10] Kronic A, Martinovic N, Calonje E, Milinkovic M. Cutaneous metastatic adenocarcinoma of gallbladder origin presenting as carcinoma of unknown primary. *International Journal of Dermatology* 1995;34:360–2. <https://doi.org/10.1111/j.1365-4362.1995.tb03620.x>.
- [11] Garg PK, Khurana N, Hadke NS. Subcutaneous and breast metastasis from asymptomatic gallbladder carcinoma. *Hepatobiliary & Pancreatic Diseases International: HBPDI* 2009;8:209–11.
- [12] Bardaji M, Roset F, Puig A, Badal J, Fernandez-Layos MJ. Cutaneous metastatic adenocarcinoma of gallbladder origin: report of a case and review of the literature. *Hepato-Gastroenterology* 1998;45:930–1.

- [13] Kumar A, Kalonia T, Gupta A, Phulware RH. Gallbladder adenocarcinoma skin metastasis. *Autopsy Case Reports* 2023;13:e2023458. <https://doi.org/10.4322/acr.2023.458>.
- [14] Drouard F, Delamarre J, Capron JP. Cutaneous seeding of gallbladder cancer after laparoscopic cholecystectomy. *The New England Journal of Medicine* 1991;325:1316. <https://doi.org/10.1056/NEJM199110313251816>.
- [15] Zivanovic O, Sonoda Y, Diaz JP, Levine DA, Brown CL, Chi DS, *et al.* The rate of port-site metastases after 2251 laparoscopic procedures in women with underlying malignant disease. *Gynecologic Oncology* 2008;111:431–7. <https://doi.org/10.1016/j.ygyno.2008.08.024>.
- [16] Ricardo AE, Feig BW, Ellis LM, Hunt KK, Curley SA, MacFadyen BV, *et al.* Gallbladder cancer and trocar site recurrences. *The American Journal of Surgery* 1997;174:619–23. [https://doi.org/10.1016/s0002-9610\(97\)00178-5](https://doi.org/10.1016/s0002-9610(97)00178-5).
- [17] Agarwal AK, Javed A, Kalayarsan R, Sakhuja P. Minimally invasive versus the conventional open surgical approach of a radical cholecystectomy for gallbladder cancer: a retrospective comparative study. *HPB* 2015;17:536–41. <https://doi.org/10.1111/hpb.12406>.
- [18] Takatu CM, Tinoco LJ, Ferreira FR, de Oliveira RJ, Sanders FH, Sotto MN, *et al.* Gallbladder adenocarcinoma diagnosed from cutaneous metastases occurring along the tract of a ventriculoperitoneal shunt. *Journal of Cutaneous Pathology* 2018;45:870–3. <https://doi.org/10.1111/cup.13330>.
- [19] Yamakawa T, Itoh S, Hirokawa K, Miyoshi T, Katoh K, Iizumi S, *et al.* Seeding of gallbladder carcinoma along the tract after percutaneous transhepatic choledochoscopy. *The American Journal of Gastroenterology* 1983;78:649–51.
- [20] Geramizadeh B, Kashkoe A. Incidental gall bladder adenocarcinoma in cholecystectomy specimens; a single center experience and review of the literature. *Middle East Journal of Digestive Diseases* 2018;10:249–53. <https://doi.org/10.15171/mejdd.2018.118>.

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