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Metastatic Carcinoma Gallbladder with Drain Site Cutaneous Metastasis: A Case Report

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Abstract: ***Introduction**: Gallbladder carcinoma (GBC) is an aggressive malignancy with a poor prognosis, frequently diagnosed at an advanced stage. Cutaneous metastasis, particularly at surgical drain or port sites, is rare but signifies disseminated disease and adverse outcomes. With the increasing use of minimally invasive and biliary interventions, awareness of this entity is crucial. **Case Presentation**: We report a 60-year-old male who presented with a right upper quadrant abdominal mass and an ulceroproliferative lesion at a previous drain site. Four months earlier, an attempted open cholecystectomy for cholelithiasis was abandoned due to dense adhesions, and a subhepatic drain was left in situ for a prolonged duration. Subsequent evaluation revealed a poorly differentiated adenocarcinoma of the gallbladder with extensive locoregional invasion and metastatic lymphadenopathy. Histopathology from the drain-site lesion confirmed cutaneous metastasis from gallbladder carcinoma. **Conclusion**: Drain-site metastasis in gallbladder carcinoma is an uncommon but ominous manifestation, often reflecting advanced disease and tumour seeding related to surgical manipulation. Meticulous surgical technique, avoidance of bile spillage, and early recognition of suspicious cutaneous lesions are essential. This case highlights the need for heightened oncological vigilance during biliary procedures and emphasises the prognostic significance of drain-site metastasis in gallbladder cancer.*

Keywords: Gallbladder carcinoma; Drain-site metastasis; Cutaneous metastasis; Cholecystostomy; Adenocarcinoma gallbladder

1. Introduction

Gallbladder carcinoma (GBC) is the most common malignancy of the biliary tract and remains a major oncological challenge, particularly in endemic regions such as the Indian subcontinent. It is characterised by aggressive biological behaviour, early local invasion, and a high propensity for regional lymphatic and hepatic spread, resulting in poor long-term survival outcomes [1,2]. Owing to its nonspecific clinical presentation, the disease is frequently diagnosed at an advanced stage or incidentally during cholecystectomy performed for presumed benign gallbladder disease [3].

Cutaneous metastases from internal malignancies are uncommon, accounting for less than 1% of all metastatic presentations. In gallbladder carcinoma, cutaneous involvement is exceedingly rare and has been reported primarily as isolated case reports. When present, cutaneous metastases often indicate disseminated disease and carry an unfavourable prognosis [4,5]. Such lesions may manifest as nodular, plaque-like, or ulceroproliferative growths and are frequently misdiagnosed as benign dermatological conditions, leading to delays in diagnosis and oncological management [5,6].

Drain-site and port-site metastases represent a distinct subset of cutaneous metastases, most commonly associated with laparoscopic surgery but also reported following open procedures and percutaneous biliary interventions. Proposed mechanisms include direct implantation of exfoliated tumour cells, bile spillage containing malignant cells, aerosolisation of tumour cells during laparoscopy, and local immunosuppression at wound sites [7–9]. Although port-site recurrence is considered rare, its occurrence often reflects aggressive tumour biology rather than isolated local failure and is frequently associated with synchronous intra-abdominal metastases [10].

The present case highlights the rare occurrence of drain-site cutaneous metastasis in gallbladder carcinoma following an abandoned cholecystectomy with prolonged drain placement. Reporting such cases is important to enhance awareness among surgeons and oncologists, emphasise preventive strategies during biliary surgery, and underscore the prognostic implications of cutaneous metastatic disease in gallbladder carcinoma.

2. Case Presentation

2.1 Patient Information

A 60-year-old male presented to the general surgery outpatient department with complaints of a progressively enlarging right upper quadrant abdominal mass for three months and an ulcerated lesion at a previous drain site for two months. The lesion was associated with localised, intermittent, pin-prick–like pain in the right hypochondrium, partially relieved by oral analgesics. The patient also reported reduced appetite and unintentional weight loss over the preceding two months. There was no history of tobacco or alcohol use and no significant family history of malignancy.

Four months prior, the patient had undergone an attempted open cholecystectomy for symptomatic cholelithiasis at an outside center. The procedure was abandoned due to dense adhesions in the hepatobiliary region, and a subhepatic drain was placed, reportedly functioning as a cholecystostomy. The drain was left in situ for approximately four months.

Postoperative ultrasonography demonstrated a Foley's catheter within the gallbladder along with gallstones.

2.2 Clinical Findings

On examination, the patient was conscious, oriented, and hemodynamically stable. His body mass index was 26.3 kg/m². Abdominal examination revealed a 3 × 3 cm ulceroproliferative lesion with surrounding erythema and serous discharge in the right hypochondrium, corresponding to the previous drain site. (Figure 1) The lesion was located inferior to a healed right subcostal surgical scar, consistent with the previous drain exit site (Figure 2). A firm, irregular, non-tender mass measuring approximately 10 × 10 cm was palpable in the right hypochondrium and epigastrium. The mass moved with respiration and showed no side-to-side mobility. Other systemic examinations were unremarkable.

2.3 Diagnostic Assessment

Routine haematological and biochemical investigations were within normal limits. Contrast-enhanced computed tomography (CECT) of the abdomen revealed a large, ill-defined, heterogeneously enhancing mass in the gallbladder fossa measuring approximately **11.1 × 9.1 × 12.4 cm**, with non-visualisation of the gallbladder. The lesion showed contiguous infiltration into hepatic segments **IVa, IVb, V, and VII**, with loss of fat planes with the antro-pyloric region, duodenum, and proximal transverse colon (Figure 3). Vascular involvement included encasement and luminal attenuation of the right anterior and left medial portal veins, with associated transient hepatic attenuation differences. There was infiltration of the cystic duct, common hepatic duct, and proximal common bile duct, resulting in bilateral intrahepatic biliary radical dilatation. Multiple conglomerated metastatic lymph nodes were noted in the **peripancreatic and periportal regions**, with the largest measuring **5.8 × 7.4 cm** (Figure 4).

A biopsy obtained from the ulceroproliferative drain-site lesion demonstrated **poorly differentiated adenocarcinoma**, confirming metastatic gallbladder carcinoma (Figure 5, Figure 6).

2.4 Therapeutic Intervention

In view of advanced locoregional disease with cutaneous metastasis, the patient was deemed unsuitable for curative surgical resection and was managed conservatively. He was referred for oncological evaluation for palliative systemic therapy.

2.5 Outcome and Follow-up

The patient recovered from the diagnostic surgical procedure without immediate complications and was discharged in stable condition. He remains under follow-up with the oncology services.

3. Discussion

Gallbladder carcinoma (GBC) is an aggressive malignancy characterised by early local invasion, regional lymphatic dissemination, and a high likelihood of late-stage presentation, resulting in poor overall survival. The liver and regional lymph nodes are the most common sites of metastasis, while distant spread typically occurs in advanced disease [1,2]. Cutaneous metastasis from GBC is exceptionally rare and is generally regarded as a marker of disseminated disease and aggressive tumour biology [4–6].

Cutaneous metastases from internal malignancies occur in less than 1% of cases overall, and gallbladder carcinoma contributes only a minute fraction of these cases. Most published data consist of isolated case reports or small case series, underscoring the rarity of this presentation [4,5]. Recent reports describe cutaneous metastases presenting as nodular or ulceroproliferative lesions that often masquerade as benign dermatological conditions, thereby delaying diagnosis [5,11]. In rare instances, cutaneous lesions may precede the diagnosis of the primary gallbladder malignancy, further complicating clinical evaluation [6,11].

Drain-site and port-site metastases constitute a distinct subset of cutaneous metastases and have been increasingly recognised in the era of minimally invasive and interventional biliary procedures. While most commonly associated with laparoscopic surgery, similar tumour seeding has been documented following open surgery and percutaneous interventions. Several mechanisms have been proposed, including direct implantation of exfoliated malignant cells along surgical tracts, bile spillage containing viable tumour cells, aerosolisation during pneumoperitoneum, local tissue trauma, and impaired immune surveillance at wound sites [7–9,12]. Prolonged indwelling drains or cholecystostomy catheters may further predispose to tumour implantation by maintaining a chronic inflammatory tract between the gallbladder and the skin surface.

Multiple risk factors have been implicated in the development of port-site or drain-site metastases, including advanced tumour stage, gallbladder perforation, bile leakage, inadequate oncological clearance, and delayed recognition of malignancy. Retrospective analyses suggest that port-site metastases are frequently associated with synchronous intra-abdominal disease, indicating that these lesions often reflect systemic dissemination rather than isolated local recurrence [10,13]. Functional imaging modalities such as 18F-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) have been shown to be valuable in detecting port-site disease, assessing metastatic burden, and guiding prognostication and treatment planning [13].

From a prognostic perspective, the presence of cutaneous or drain-site metastasis in gallbladder carcinoma portends a poor outcome. Reported survival following the diagnosis of cutaneous metastasis is limited, often measured in months, reflecting advanced disease at presentation [4–6,11]. Consequently, these patients are rarely candidates for curative-intent surgery, and management is predominantly palliative. Early biopsy of suspicious postoperative wound lesions is therefore essential to establish a diagnosis and facilitate timely oncological referral.

Management and Therapeutic Considerations

Radical surgical resection remains the cornerstone of curative treatment for localised gallbladder carcinoma. However, patients presenting with unresectable locoregional disease or distant metastases—including cutaneous involvement—are unsuitable for surgical cure [14]. In such cases, systemic therapy constitutes the mainstay of treatment. According to the latest National Comprehensive Cancer Network (NCCN) guidelines, first-line systemic therapy for advanced, unresectable, or metastatic biliary tract cancers includes combination chemotherapy with gemcitabine and cisplatin, with the addition of immune checkpoint inhibitors such as durvalumab recommended based on recent evidence demonstrating improved survival outcomes [15,16].

Alternative first-line regimens, including gemcitabine combined with oxaliplatin (GEMOX) or capecitabine, may be considered in patients who are not candidates for cisplatin-based therapy. Upon disease progression, second-line treatment options include fluoropyrimidine-based regimens such as FOLFOX, which have demonstrated modest survival benefits in advanced biliary tract cancers [14,15].

The role of molecular profiling in gallbladder carcinoma is evolving. Identification of actionable molecular alterations, such as HER2 overexpression, FGFR2 fusions, IDH1 mutations, and microsatellite instability-high (MSI-H) status, may enable targeted therapies or immunotherapy in selected patients, often within clinical trial settings [14,15]. Consolidation chemoradiotherapy and symptom-directed palliative interventions, including radiotherapy for painful or ulcerated cutaneous lesions, may be considered in selected patients to improve local control and quality of life [17,18].

Optimal management of patients with advanced gallbladder carcinoma and cutaneous metastasis requires a multidisciplinary approach involving medical oncology, radiation oncology, surgical oncology, and palliative care teams to ensure individualised, evidence-based treatment and optimal symptom control.

4. Conclusion

Drain-site cutaneous metastasis in gallbladder carcinoma is a rare but clinically significant manifestation indicative of advanced disease and poor prognosis. Surgeons should maintain a high index of suspicion for malignancy in patients with atypical postoperative wound lesions following biliary procedures. Early recognition, appropriate diagnostic evaluation, and adherence to oncological surgical principles are essential to minimise the risk of tumour seeding and improve patient outcomes.

Figure 1: Clinical photograph showing an ulceroproliferative lesion with irregular margins, surface slough, and surrounding erythema over the right hypochondrium at the previous drain insertion site.

Figure 2: Photograph demonstrating the ulcerated metastatic lesion located inferior to a healed right subcostal surgical scar, corresponding to the previous subhepatic drain site.

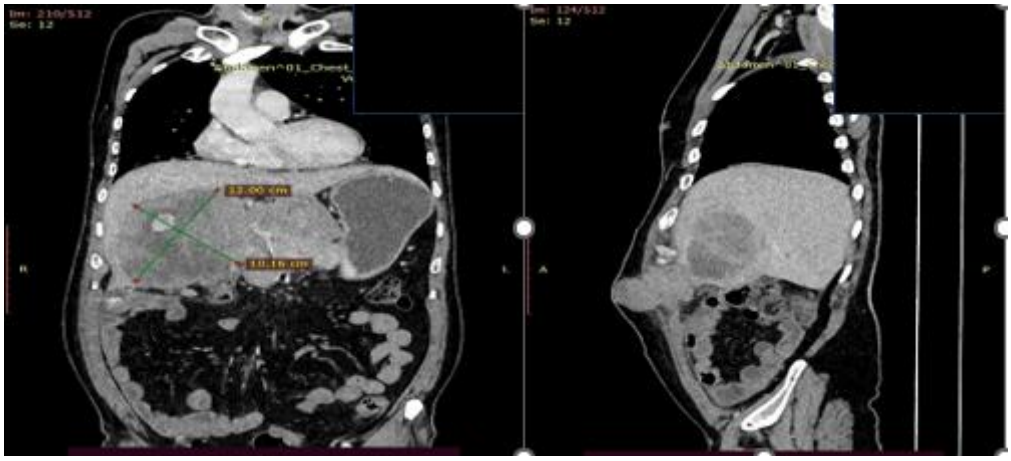

Figure 3: Axial contrast-enhanced CT image demonstrating a large, ill-defined, heterogeneously enhancing mass in the gallbladder fossa with contiguous infiltration into adjacent hepatic segments.

Figure 4: Axial contrast-enhanced CT image showing conglomerated heterogeneously enhancing metastatic lymph nodes in the peripancreatic and periportal regions

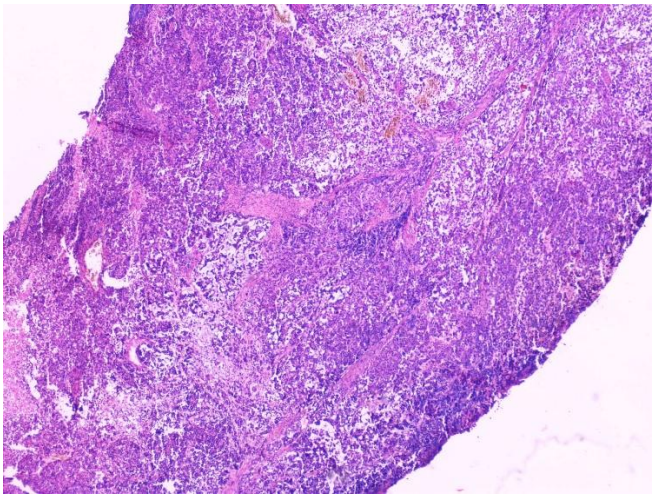

Figure 5: Hematoxylin and eosin–stained section (low magnification) showing sheets and nests of malignant epithelial cells infiltrating the dermis

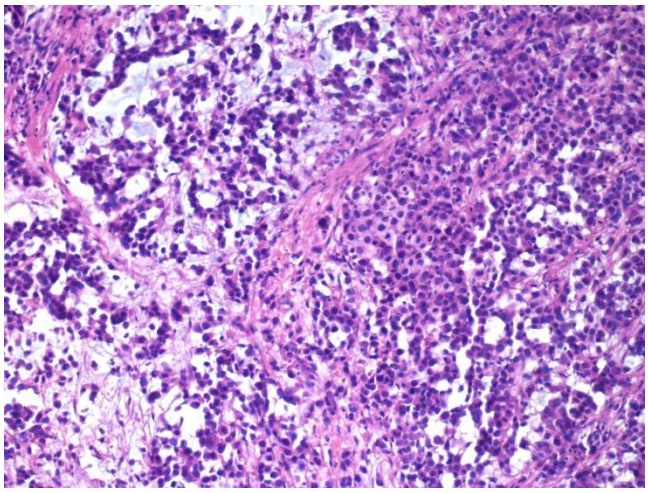

Figure 6: Hematoxylin and eosin–stained section (high magnification) demonstrating tumor cells with pleomorphic nuclei, high nuclear-cytoplasmic ratio, prominent nucleoli, and scant cytoplasm, consistent with poorly differentiated adenocarcinoma.

Availability of Data and Materials
The data supporting the findings of this case report are available from the corresponding author upon reasonable request.

Competing Interests
The authors declare that they have no competing interests.

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Authors' Contributions
N.J. was involved in patient management, data collection, and analysis. A.G. and K.S. contributed to study conception, supervision, and critical revision of the manuscript. All authors participated in manuscript drafting, read, and approved the final version.

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None.

Ethics Approval
Ethical approval was not required for this study as it is a single-patient case report.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and accompanying clinical images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon reasonable request.

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