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CARCINOMA GALL BLADDER WITH INTRALUMINAL EXTENSION UP TO COMMON BILE DUCT PRESENTING AS CYSTIC GALL BLADDER LUMP: A CASE REPORT

Dr. Nishant Kumar Singh[1], Prof. Dr. Bijoyananda Das[2], Dr. Dilip Killing[3]

[1]Post Graduate Trainee, Dept. of General Surgery, AMCH, Dibrugarh, Assam [2]Professor, Dept. of General Surgery, AMCH, Dibrugarh, Assam

[3]Associate Professor, Dept. of General Surgery, TMCH, Tinsukia, Assam

CORRESPONDING AUTHOR: Prof. Dr. Bijoyananda Das

ORCID: 0009-0006-6527-9526

Professor, Dept. of General Surgery, AMCH, Dibrugarh, Assam

ABSTRACT

Gallbladder carcinoma with intraluminal extension into the common bile duct (CBD) is a rare clinical entity, particularly when presenting without jaundice or locoregional invasion. We report a case of a 60-year-old woman who presented with a cystic lump in the right upper abdomen. Imaging revealed polypoidal lesions within the gallbladder lumen extending into the cystic duct and CBD, causing upstream biliary dilation. Histopathology confirmed papillary adenocarcinoma without infiltration or metastasis. The patient underwent successful radical cholecystectomy with negative margins. This case emphasizes the importance of early recognition, comprehensive evaluation, and complete surgical resection in rare, atypical presentations of gallbladder carcinoma.

Keywords: Gallbladder carcinoma, Intraluminal extension, Common bile duct, Radical cholecystectomy, Papillary adenocarcinoma

Introduction

Gallbladder carcinoma (GBC) remains one of the most aggressive malignancies of the biliary tract, often associated with a dismal prognosis due to its late presentation and nonspecific clinical symptoms. Although it constitutes a relatively small fraction of gastrointestinal cancers globally, its incidence and mortality rates are particularly high in specific geographic regions, including South America, Eastern Europe, and parts of South Asia. Despite medical advances, the 5-year survival rate remains low owing to the insidious onset and early metastatic potential of this neoplasm[1].

The clinical presentation of gallbladder cancer is notoriously variable. In its early stages, it may mimic benign gallbladder diseases such as cholelithiasis or cholecystitis, leading to

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misdiagnosis or delayed detection. A large proportion of cases are discovered incidentally during imaging or surgical procedures for presumed benign conditions. Rarely, GBC can present as a palpable mass in the right upper abdomen, often mistaken for an inflamed or distended gallbladder. The presence of a cystic lump in the right hypochondrium raises diagnostic challenges, especially when the clinical features are devoid of classical signs such as jaundice or significant systemic symptoms. One of the lesser-known but critical manifestations of advanced GBC is its intraluminal extension along the cystic duct into the common bile duct (CBD), simulating a cystic biliary mass. This type of presentation is particularly unusual and may complicate both the clinical impression and radiological interpretation. The extension of a friable, papillary tumor mass along the biliary tree can result in luminal obstruction, leading to upstream biliary dilatation without overt jaundice, especially if the progression is gradual. Such atypical behavior reflects the biologic heterogeneity of gallbladder malignancy and highlights the need for heightened clinical suspicion in ambiguous cases[2].

The presence of gallstones is a well-documented risk factor for gallbladder cancer. Large solitary stones are particularly associated with chronic irritation and mucosal injury, which may precipitate dysplastic changes and carcinogenesis. Chronic cholecystitis in the presence of gallstones may thus provide a microenvironment conducive to malignant transformation. However, the size and duration of stone presence, along with other factors such as genetic susceptibility and environmental exposures, modulate the individual risk of developing GBC[2]. This chronic inflammation-induced carcinogenesis model underpins much of the current understanding of gallbladder tumorigenesis.

References:

Levy et al (2001) emphasized this disparity between luminal tumor burden and parenchymal invasion on radiologic-pathologic correlation, especially in cases involving papillary histology or polypoid carcinoma, which often leads to underestimation of the disease extent in imaging studies[7].

Interestingly, the absence of wall infiltration, lymphovascular invasion, and negative lymph nodes in this case aligns with the relatively indolent nature observed in certain histological subtypes like intracholecystic papillary neoplasms. However, this also raises the possibility of early-stage diagnosis due to the tumor's extension causing mechanical symptoms rather than systemic deterioration. In line with this, **Taskin et al (2019)** discussed sarcomatoid and

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papillary variants of GBC as entities with variable aggressiveness, where the biological behavior is not always correlated with the size or extension of the mass[8].

The surgical approach in this case—radical cholecystectomy with Roux-en-Y hepaticojejunostomy—was guided by intraoperative findings and negative frozen section biopsy. This is consistent with current best practices wherein curative intent surgery is pursued when metastatic spread is absent. **Hickman et al (2019)** highlighted that radical resection remains the cornerstone for localized GBC, particularly when bile duct involvement is suspected or confirmed, necessitating biliary reconstruction to achieve negative margins and improve outcomes[9].

Notably, the tumor markers CEA and CA 19-9 were within normal limits, a finding not uncommon in well-differentiated papillary GBCs. **Aldossary et al (2019)** documented similar instances in a rare series of gallbladder carcinosarcomas, where tumor marker elevation was inconsistent and could not be solely relied upon for disease detection or staging. This underscores the importance of a multi-modal diagnostic approach incorporating imaging, intraoperative assessment, and histopathological correlation[10].

The final histopathological diagnosis of papillary adenocarcinoma without invasion or nodal metastasis suggests an early-stage tumor with favorable prognostic indicators. **Zhang et al (2008)**, in their meta-analysis, demonstrated that tumor size and absence of nodal involvement were among the most significant predictors of long-term survival in gallbladder carcinosarcoma and similar aggressive subtypes. This reinforces the prognostic relevance of early detection even in histologically aggressive tumors, provided complete surgical excision is achieved[11].

Furthermore, the absence of serosal breach and the negative aortocaval nodes in this patient negate the need for extended hepatic resection or palliative chemotherapy, at least in the initial postoperative period. Such findings echo the outcomes reported by **Siddiqui et al (2020)** in rare forms of sarcomatoid gallbladder carcinoma, where early surgical intervention without evidence of metastasis significantly improved survival metrics[12].

From a pathological perspective, the lack of perineural and lymphovascular invasion is a critical feature favoring a lower recurrence risk. **Mochizuki et al (2019)** reported that while certain gallbladder tumors may exhibit alarming gross appearances and rapid luminal expansion, the absence of microscopic invasion markers can imply a less aggressive biological course, necessitating diligent but not overly aggressive postoperative surveillance[13].

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In the subset of patients who present with intraluminal neoplasms extending into the biliary tract, one must consider differential diagnoses including intracholecystic papillary-tubular neoplasms (ICPNs), cholangiocarcinoma, and mucin-producing tumors. ICPNs, though rare, represent a distinct preinvasive lesion that can display malignant transformation. These lesions are characterized by exophytic, papillary growths within the gallbladder lumen and may extend into the cystic duct and CBD, mimicking the pattern of advanced GBC[3]. Such growth patterns make distinction between benign premalignant and overtly malignant processes difficult on imaging alone, necessitating tissue diagnosis and careful intraoperative assessment.

Imaging modalities such as contrast-enhanced computed tomography (CECT) and magnetic resonance cholangiopancreatography (MRCP) play an essential role in delineating the extent of disease. They provide valuable information about local invasion, lymph node involvement, and intraductal extension. However, interpretation can be challenging when the tumor presents as multiple polypoidal lesions within the gallbladder and ducts, which may be mistaken for sludge, benign polyps, or intraductal stones. Moreover, serum tumor markers such as CEA and CA 19-9 are not always elevated in gallbladder cancer, limiting their diagnostic utility in ambiguous cases. Surgical exploration remains the mainstay of diagnosis and treatment for suspected GBC with intraductal extension. Intraoperative findings, particularly the assessment of peritoneal metastasis and lymph node status, are crucial for determining resectability. The use of frozen section biopsy, especially of regional lymph nodes such as the aorto-caval or periportal group, helps guide the extent of surgical resection. When negative for metastasis, radical cholecystectomy with en bloc resection of the involved bile duct and Roux-en-Y hepaticojejunostomy is often the preferred approach[4].

Histopathologically, these tumors may exhibit papillary, tubular, or mixed architectural patterns, with varying grades of differentiation. The friability and vascularity of papillary masses often lead to luminal obstruction and biliary dilation, even without parenchymal invasion. This form of tumor spread, though confined intraluminally, carries prognostic implications due to potential perineural invasion and lymphatic spread[5].

The National Comprehensive Cancer Network (NCCN) guidelines underscore the importance of accurate staging and appropriate surgical planning in the management of biliary tract cancers. These guidelines advocate for comprehensive resection strategies in operable cases, along with adjuvant therapy tailored to pathological staging. Postoperative surveillance remains integral due to the risk of recurrence, particularly in node-positive or margin-positive cases[6].

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Case Presentation

A 60-year-old woman presented to the emergency department with complaints of pain and swelling in the right upper abdomen persisting for one month. The pain was dull, localized, and non-radiating, with no associated history of fever, weight loss, vomiting, or jaundice. On physical examination, a globular, hard, non-tender, and freely mobile mass with irregular margins was palpable in the right hypochondrium. The overlying skin was unremarkable, and no signs of peritonitis or hepatomegaly were observed.

Imaging Workup:

Contrast-enhanced computed tomography (CECT) of the abdomen revealed multiple enhancing polypoidal soft tissue lesions occupying the gallbladder lumen, extending into the cystic duct and the common bile duct. These lesions caused proximal CBD obstruction with upstream intrahepatic biliary dilation. No evidence of liver infiltration or distant metastasis was observed.

Histopathology:

Ultrasound-guided fine needle aspiration cytology (FNAC) of the gallbladder mass revealed features suggestive of adenocarcinoma of the gallbladder. Interestingly, serum tumor markers, including carcinoembryonic antigen (CEA) and CA 19-9, were within normal limits.

Surgical Management

After thorough preoperative evaluation and informed consent, the patient was taken up for diagnostic laparoscopy. Intraoperatively, the gallbladder appeared grossly distended without any serosal breach or peritoneal deposits. The liver surface was smooth with no visible nodules. Frozen section biopsy from aortocaval lymph nodes showed no evidence of malignancy. In light of these findings, the patient underwent open radical cholecystectomy with en bloc removal of the gallbladder, regional lymphadenectomy, and Roux-en-Y hepaticojejunostomy.

Histopathological Findings

Gross examination of the surgical specimen revealed a friable, papillary mass arising from the fundus and body of the gallbladder, extending intraluminally into the cystic duct and CBD. The largest dimension of the specimen was 22 cm. Microscopic analysis confirmed the diagnosis of papillary adenocarcinoma without infiltration into the gallbladder wall, cystic duct, CBD, or liver parenchyma. There was no evidence of lymphovascular or perineural invasion. Resection margins were free of tumor, and all retrieved lymph nodes were negative for malignancy.

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Fig 1.

Fig 2.

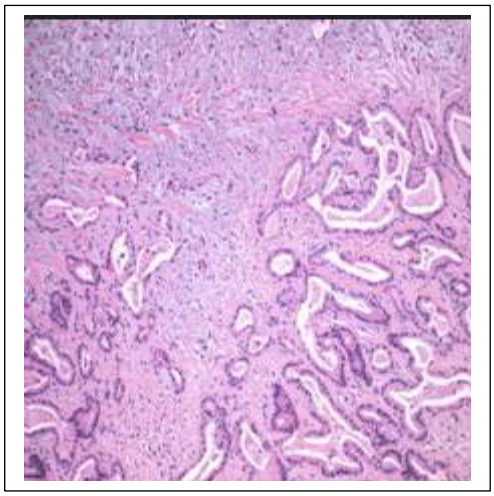

Fig 3.

Fig 4.

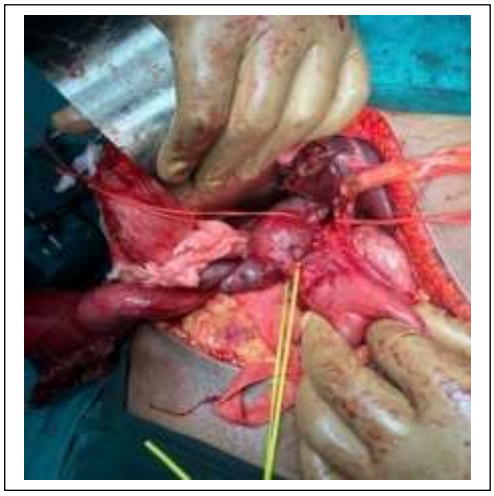

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Fig 5. Fig 6.

Conflict Of Interest: nil

Cross Reference: nil

Discussion

Gallbladder carcinoma (GBC) is often termed the "silent killer" of the gastrointestinal tract due to its insidious presentation and aggressive behavior. The present case adds to the spectrum of rare clinical manifestations where carcinoma gallbladder extended intraluminally into the common bile duct (CBD), mimicking a cystic biliary mass, yet without any parenchymal invasion or obstructive jaundice. Such presentations challenge traditional diagnostic algorithms and demand a high index of suspicion, particularly in elderly women presenting with right upper quadrant lumps.

The intraluminal, polypoidal growth pattern in this patient, extending from the gallbladder into the cystic duct and CBD, is reminiscent of morphological features described in papillary neoplasms and carcinosarcomas. These tumors, although uncommon, have been recognized for their exophytic, friable, and often mucin-secreting masses which grow along the mucosal surface, resulting in luminal obstruction without wall infiltration. **Levy et al (2001)** emphasized this disparity between luminal tumor burden and parenchymal invasion on radiologic-pathologic correlation, especially in cases involving papillary histology or polypoid carcinoma, which often leads to underestimation of the disease extent in imaging studies[7].

Interestingly, the absence of wall infiltration, lymphovascular invasion, and negative lymph nodes in this case aligns with the relatively indolent nature observed in certain histological subtypes like intracholecystic papillary neoplasms. However, this also raises the possibility of early-stage diagnosis due to the tumor's extension causing mechanical symptoms rather than systemic deterioration. In line with this, **Taskin et al (2019)** discussed sarcomatoid and papillary variants of GBC as entities with variable aggressiveness, where the biological behavior is not always correlated with the size or extension of the mass[8].

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Conclusion

Gallbladder adenocarcinoma measuring 22 cm, extending intraluminally into the cystic and common bile duct without causing clinical jaundice or exhibiting locoregional invasion, represents an exceptionally rare presentation. This case highlights the critical role of thorough clinical evaluation, high-resolution imaging, and prompt surgical decision-making in managing

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atypical presentations of gallbladder cancer. The successful outcome underscores the importance of achieving complete tumor excision with negative histopathological margins, which remains the cornerstone of curative treatment. Early recognition and radical resection in selected patients can significantly improve prognosis, even in cases with seemingly extensive anatomical involvement but limited biological aggressiveness.

Summary

Gallbladder carcinoma (GBC), known for its aggressive and silent nature, can present atypically, as seen in this rare case where the tumour extended intraluminally into the cystic and common bile ducts without causing jaundice or parenchymal invasion. The polypoidal, exophytic growth pattern mimicked papillary neoplasms, challenging standard diagnostic approaches. Despite its large size (22 cm), the tumour showed limited biological aggression. This case emphasises the value of early detection, advanced imaging, and prompt surgical intervention, with complete resection and negative margins being key to curative outcomes.

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