Case Report

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Surgery Section

Concomitant Malignancies of the Gall Bladder and Pancreas: A Synchronous Oncologic Challenge

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ABSTRACT

Synchronous malignancies involving the pancreas and gallbladder are exceedingly rare and often diagnosed incidentally during surgical exploration. We report a case of a 60-year-old male who presented with obstructive jaundice, pruritus, and epigastric discomfort. Imaging and endoscopic evaluation suggested a periampullary mass, and endoscopic ultrasound-guided Fine-Needle Aspiration Cytology (FNAC) confirmed adenocarcinoma of the distal common bile duct. During a Whipple's pancreaticoduodenectomy, an incidental nodule on the gallbladder wall was identified and confirmed to be malignant on frozen section, leading to a radical cholecystectomy. Histopathological examination revealed moderately differentiated adenocarcinomas in both the periampullary region and the gallbladder, confirming the diagnosis of synchronous primary malignancies. Postoperative recovery was complicated by haemorrhage, intra-abdominal abscess, and gastric outlet obstruction, all of which were managed conservatively. Six months later, recurrence and metastasis were detected on Positron Emission Tomography-Computed Tomography (PET-CT), and the patient was started on palliative chemotherapy. This case highlights the need for intraoperative vigilance, comprehensive histological assessment, and a multidisciplinary approach in managing synchronous pancreaticobiliary malignancies.

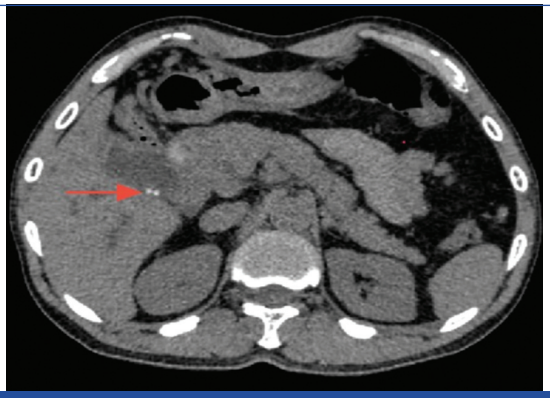
Keywords: Obstructive jaundice, Palliative chemotherapy, Periampullary carcinoma, Synchronous malignancy, Whipple's procedure

CASE REPORT

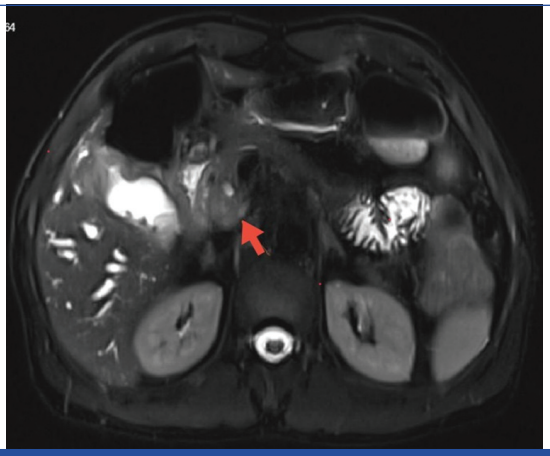
A 60-year-old male presented with dull, non-radiating epigastric pain, jaundice, pruritus, and dark-colored urine for 14 days. The pain was rated 6/10 on the Visual Analogue Scale (VAS) scale, had no aggravating factors, and was relieved temporarily with medication. He had a history of chronic alcohol consumption for 30 years and was known to be hypertensive, on regular medication. On general examination, pallor and icterus were observed, and on abdominal examination, tenderness was present in the epigastric region, with a palpable epigastric mass noted.

Laboratory investigations revealed a total bilirubin level of 10.76 mg/dL (normal range: 0.22-1.20 mg/dL) with direct bilirubin of 8.29 mg/dL (normal: up to 0.5 mg/dL). Aspartate Transaminase (AST) was 103 U/L (normal: 8-48 U/L), Alanine Transaminase (ALT) was 127 U/L (normal: 7-55 U/L), and Alkaline Phospahatse (ALP) was 571 U/L (normal: 40-129 U/L). Serum Carbohydrate Antigen (CA) 19-9 was markedly elevated at >1200 U/mL (normal: less than 37 U/mL). Contrast-Enhanced CT (CECT) of the abdomen and pelvis failed to visualise a gallbladder mass. Magnetic Resonance Cholangiopancreatography (MRCP) demonstrated gallstones, biliary ductal dilation, and an ill-defined mass in the periampullary region [Table/Fig-1,2].

Endoscopic ultrasound-guided Fine-Needle Aspiration Cytology (FNAC) confirmed adenocarcinoma of the distal common bile duct. An initial Endoscopic Retrograde Cholangiopancreatography (ERCP) with stenting was unsuccessful in relieving obstruction due to a blocked stent. Endoscopic Nasobiliary Drainage (ENBD) was performed, followed by a Whipple's pancreaticoduodenectomy after stabilisation of liver function. Intraoperatively, a suspicious nodule on the gallbladder wall was identified [Table/Fig-3,4]. The frozen section confirmed malignancy, and a radical cholecystectomy with feeding jejunostomy was performed. Histopathological examination revealed moderately differentiated adenocarcinomas in both the gallbladder (pT3) and periampullary region (pT3bN2) [Table/Fig-5,6].

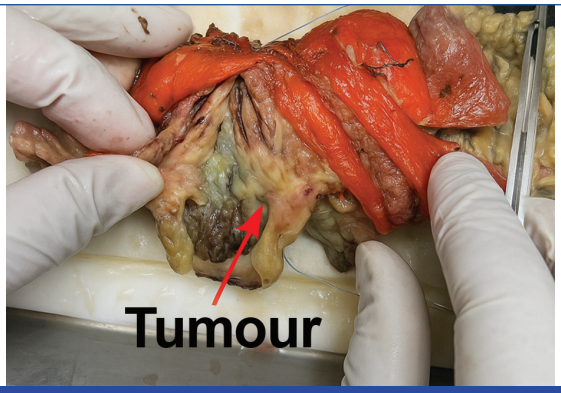


[Table/Fig-1]: CECT abdomen pelvis showing faintly radio dense calculcccus in lower Common Bile Duct (CBD) just proximal to ampulla of vater.

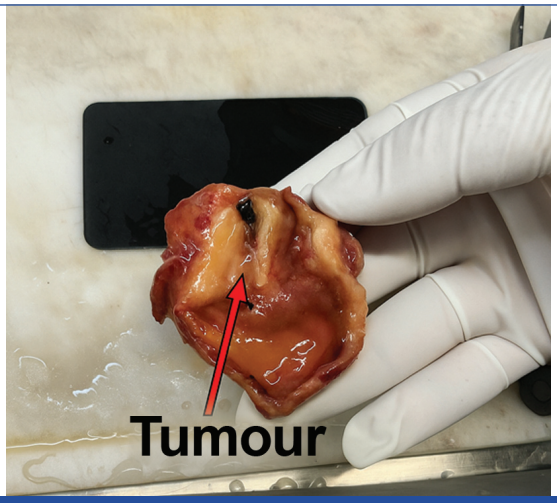


[Table/Fig-2]: MRCP showing an irregular focal lesion involving head region of pancreas and involvement and encasement of lower CBD.

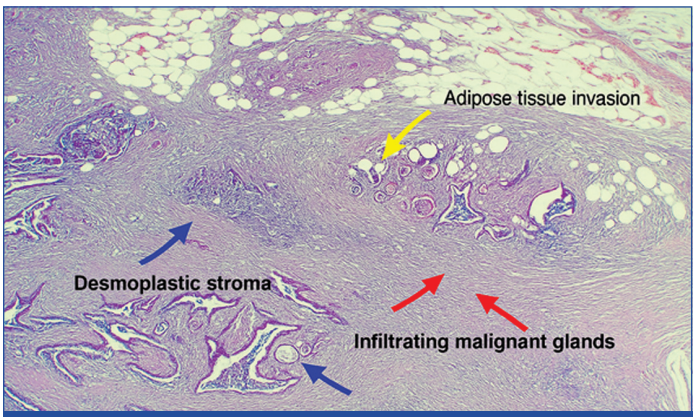
Postoperatively, the patient developed complications such as acute haemorrhage from a branch of the splenic artery, for which he underwent exploratory laparotomy on Postoperative Day (POD)-2. He also developed an intra-abdominal abscess with pancreatic fistula



[Table/Fig-3]: On serial sectioning of pancreas and adjacent duodenum, greyish white tumour- Distal part of Common Bile Duct (CBD) surrounding and blocking the lumen.



[Table/Fig-4]: Excised specimen of gall bladder in this nodule felt in body of gall bladder.



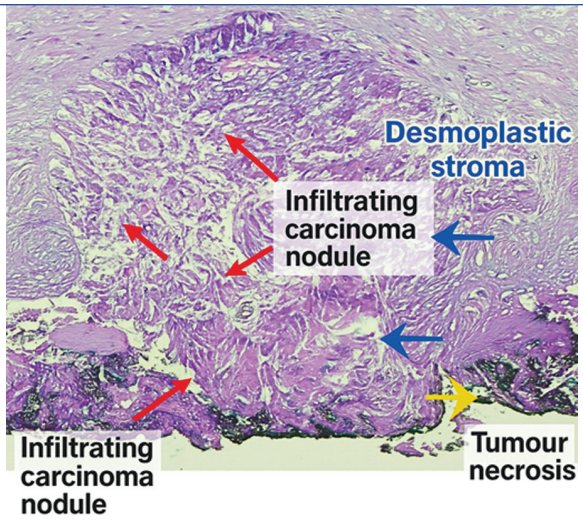
[Table/Fig-5]: Histopathology slide showing periampullary adenocarcinoma Masson's trichrome stain (100×). The section shows invasive adenocarcinoma with irregular infiltrating glands (red arrows), dense desmoplastic stroma (blue arrows), and invasion into adipose tissue (yellow arrow).

and gastric outlet obstruction on POD-10, which was managed conservatively. The patient recovered well and was discharged from the hospital on POD-48.

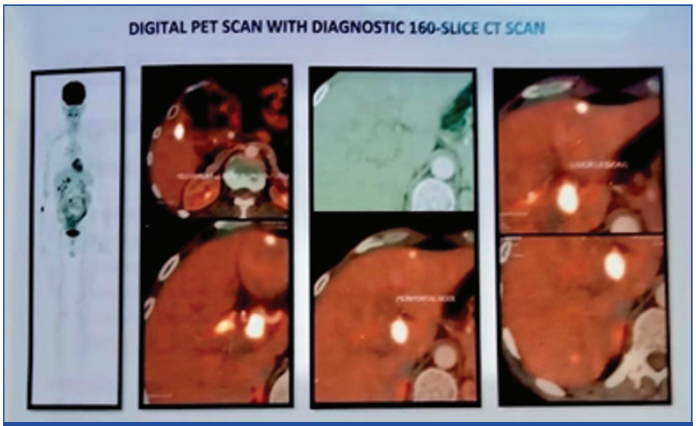
At six months postoperatively, the patient developed a metabolically active recurrent soft tissue lesion along the suture line, bilobar liver lesions, and periportal, retroperitoneal, and omental lymph nodes on PET-CT [Table/Fig-7]. He is currently receiving palliative chemotherapy with Gemcitabine and Cisplatin.

DISCUSSION

Synchronous primary malignancies are defined as independent tumors occurring within a six-month interval. These must be anatomically and histologically distinct and not represent metastatic spread [1]. In our case, both tumors exhibited primary growth patterns, supporting their classification as synchronous primaries.



[Table/Fig-6]: Histopathology slide showing gall bladder adenocarcinoma Masson's trichrome stain (100×). The section shows an infiltrating carcinoma nodule (red arrows) with central necrosis (yellow arrows) and surrounding dense desmoplastic stroma (blue arrows), consistent with invasive carcinoma with prominent desmoplastic response and necrosis.



[Table/Fig-7]: PET-CT report showing metastasis.

The estimated incidence of synchronous pancreaticobiliary malignancies estimates in the range of <1% of all pancreaticobiliary cancers [1]. The pathogenesis remains incompletely understood but is hypothesised to involve a combination of chronic inflammation, environmental exposure, and genetic predispositions [2,3]. A key congenital anomaly associated with these cancers is Pancreaticobiliary Maljunction (PBM), in which the pancreatic and bile ducts join outside the duodenal wall. This abnormal union permits reflux of pancreatic enzymes into the biliary system, promoting chronic inflammation [2-4] and carcinogenesis. While PBM was not radiologically evident in our case, it remains a plausible contributing factor.

Symptoms are often nonspecific and may overlap with those of single-site hepatobiliary or pancreatic tumors. Patients typically present with jaundice, right upper quadrant or epigastric pain, pruritus, anorexia, and weight loss [5-6]. Our patient presented with signs of obstructive jaundice and epigastric discomfort.

Histopathology is the gold standard for confirmation. Differentiating dual primaries from metastatic disease involves assessment of anatomical origin, histological differences, and lack of direct continuity [7,8]. In our patient, the periampullary and gall bladder tumors showed distinct features, ruling out metastasis.

Surgical resection is the cornerstone of management. Prognostic factors influencing outcomes include tumor stage, lymphovascular invasion, margin status, and patient performance scores; however, these have not been extensively validated in synchronous malignancies due to their rarity [3].

Ongoing research into molecular profiling, early biomarkers, and standardised treatment pathways may improve diagnosis and outcomes in such complex presentations. Multidisciplinary care

remains essential for achieving optimal outcomes in such challenging oncologic scenarios. Recent case reports highlight the complexity and variability of synchronous abdominal malignancies [Table/Fig-8] [1-4].

Authors name	Age/sex	Clinical symptoms	Location of pancreas/type	Treatment
Kumar S and Chandra A (2023) [1]	55/F	Alopecia totalis, epigastric pain	Pancreas+ Gallbladder	CT/EUS ->surgery; first report with alopecia
Nguyen HT et al., (2024) [2]	57/M	Abdominal pain	Gastric+ Gallbladder	Gastrectomy+ cholecystectomy+ PD; tumour board approach
Sivade C et al., (2019) [3]	72/F	Jaundice	Pancreas+ Gallbladder	Whipple+GB resection
Mori T et al., (2017) [7]	72/F	Epigastric pain	Pancreas+ Gallbladder (with PBM)	Subtotal PD+GB bed resection

[Table/Fig-8]: Showing similar studies and their findings [1-3,7].
CT: Computed tomography: EUS: Endoscopic ultrasound; PD: Pancreaticoduodenectomy; GB: Gall bladder

CONCLUSION(S)

Synchronous gallbladder and periampullary carcinomas present a rare and formidable clinical scenario. Thorough evaluation and timely intervention can improve survival, although recurrence remains a challenge. Genetic studies, such as next-generation sequencing, may further elucidate the clonal relationships between tumours and guide management, as this was not conducted in our case.

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