



Cholecystostomy: how to get a safe way to perform a percutaneous biopsy of the pancreatic head

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Cholecystostomy has well-established and standardized indications, such as acute cholecystitis in patients with significant comorbidities unfit for surgery or biliary decompression following the failure of endoscopic or percutaneous biliary drainage (1,2). This case highlights a potential new indication for cholecystostomy: facilitating percutaneous pancreatic biopsy when standard techniques are challenging or yield non-diagnostic results.

A 67-year-old patient presented to our emergency department with jaundice. He had a history of gastric ulcer treated with resection and reconstruction according to Billroth II, hepatitis B virus (HBV)-related cirrhosis, and gallbladder lithiasis. A contrast-enhanced abdominal computed tomography (CT) raised suspicion of a neoplastic lesion in the head of the pancreas (*Figure 1*).

The patient underwent endoscopic retrograde cholangiopancreatography (ERCP), which confirmed the imaging suspicion of an infiltrative stricture in the distal common bile duct. A fully covered stent was placed to resolve the jaundice. Once the acute issue was resolved, an endoscopic ultrasound (EUS)-guided biopsy of the

pancreatic lesion was performed to initiate the patient on the best possible treatment. Unfortunately, due to the anatomical condition, endoscopic techniques were unsuccessful as the head of the pancreas could not be properly visualized, while alternative surgical biopsy was deemed too complex and demolitive for a simple diagnostic procedure. Since histological confirmation was urgently needed to guide oncologic treatment, percutaneous biopsy represented the most appropriate option.

To obtain a sample, ultrasound (US)- or CT-guided approaches were considered. However, the interposition of both the colon and the afferent loop prevented a safe direct percutaneous approach to the lesion. The transhepatic approach was also difficult, as the gallbladder infundibulum was interposed between the liver and the pancreatic head (*Figure 1*). Gallbladder emptying after meals was attempted, but multiple stones prevented complete collapse, leaving the gallbladder persistently distended and obstructing the percutaneous access window. To overcome this limitation, an alternative approach was considered. We decided to perform a cholecystostomy [a 6 French (Fr) drain was

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placed, with aspiration of approximately 80 mL of bile] under US-guide. To reduce bleeding risk, gallbladder decompression was performed without transhepatic puncture. The collapse of the gallbladder created an access window to the head of the pancreas via an intercostal and transhepatic route, providing a straight trajectory avoiding interposed bowel loops and the risk of perforating the gallbladder (*Figure 2*). The recent contrast-enhanced CT



Figure 1 Axial CT scan in the portal phase showed hypodense lesion of the pancreatic head (asterisk). It was enclosed from colon and jejunum antero-medially and from liver and infundibulum of the gallbladder on the right side (arrow). The gastroduodenal artery and vein are also visible anterolaterally to the pancreatic head (arrowhead). CT, computed tomography.

had already defined the vascular anatomy, showing the gastroduodenal artery anterolateral to the pancreatic head, which was correlated with the non-contrast planning CT. A biopsy was performed using a coaxial technique, ensuring stability and enabling multiple samples without repeated liver punctures (two samples were collected) under real-time cytological assessment. The patient was discharged on the second day and the catheter was removed after 7 days. After histological confirmation of adenocarcinoma, the patient was referred to oncology and started neoadjuvant chemotherapy with gemcitabine plus nab-paclitaxel. However, due to clinical deterioration and the onset of liver metastases, surgical resection was not performed.

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s). This study was conducted in accordance with the Declaration of Helsinki and its subsequent amendments. Written informed consent was obtained from the patient for publication of this article and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

In this report, we present the case of a patient who required a pancreatic tissue sample for diagnosis to ensure timely and optimal treatment. Although EUS biopsy is the gold standard for diagnosing pancreatic lesions, the current data on the feasibility of the procedure is not well

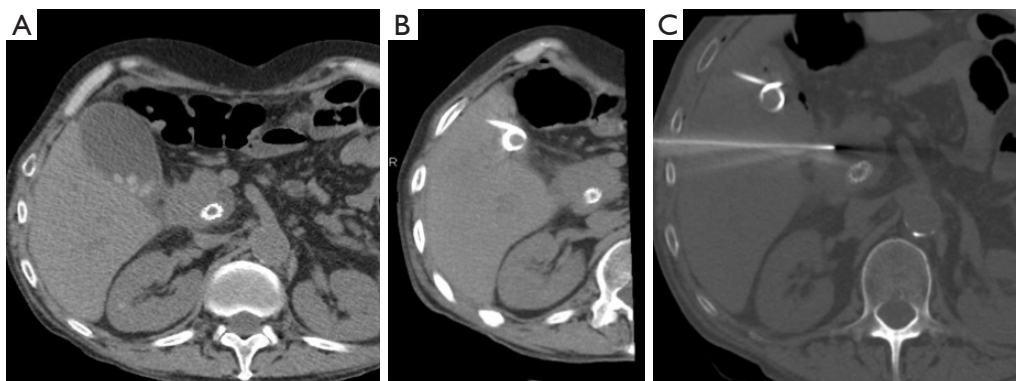


Figure 2 Imaging sequence illustrating the role of cholecystostomy in creating a safe percutaneous access route to the pancreatic head for biopsy. (A) Unenhanced CT scan for biopsy planning demonstrates a markedly distended gallbladder with stones in the infundibulum, interposed between the liver and the pancreatic head, preventing a safe access route. (B) After cholecystostomy with pigtail catheter insertion, gallbladder decompression creates a new access corridor to the deep lesion of pancreatic head. (C) Percutaneous intercostal and transhepatic biopsy using an 18 G needle with coaxial technique, ensuring a stable trajectory and minimizing the need for repeated punctures. CT, computed tomography; G, Gauge.

established in complex different surgery anatomies such as Billroth II conditions, where, though not common, the procedure may not be feasible for sampling lesions of pancreatic head (3). In such circumstances, an alternative biopsy strategy must be considered.

To our knowledge, there are no similar cases described in the literature where cholecystostomy has been utilized to facilitate a percutaneous biopsy of the pancreas. This approach may represent a valuable alternative for patients with challenging anatomical conditions. The use of gallbladder drainage to allow safe access for biopsy highlights the feasibility of cholecystostomy to assist in pancreatic biopsy, expanding its clinical indications beyond traditional recommendations.

Given the lack of prior cases in the literature, this case could contribute to a growing body of knowledge and inspire further exploration of this technique.

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Footnote

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