

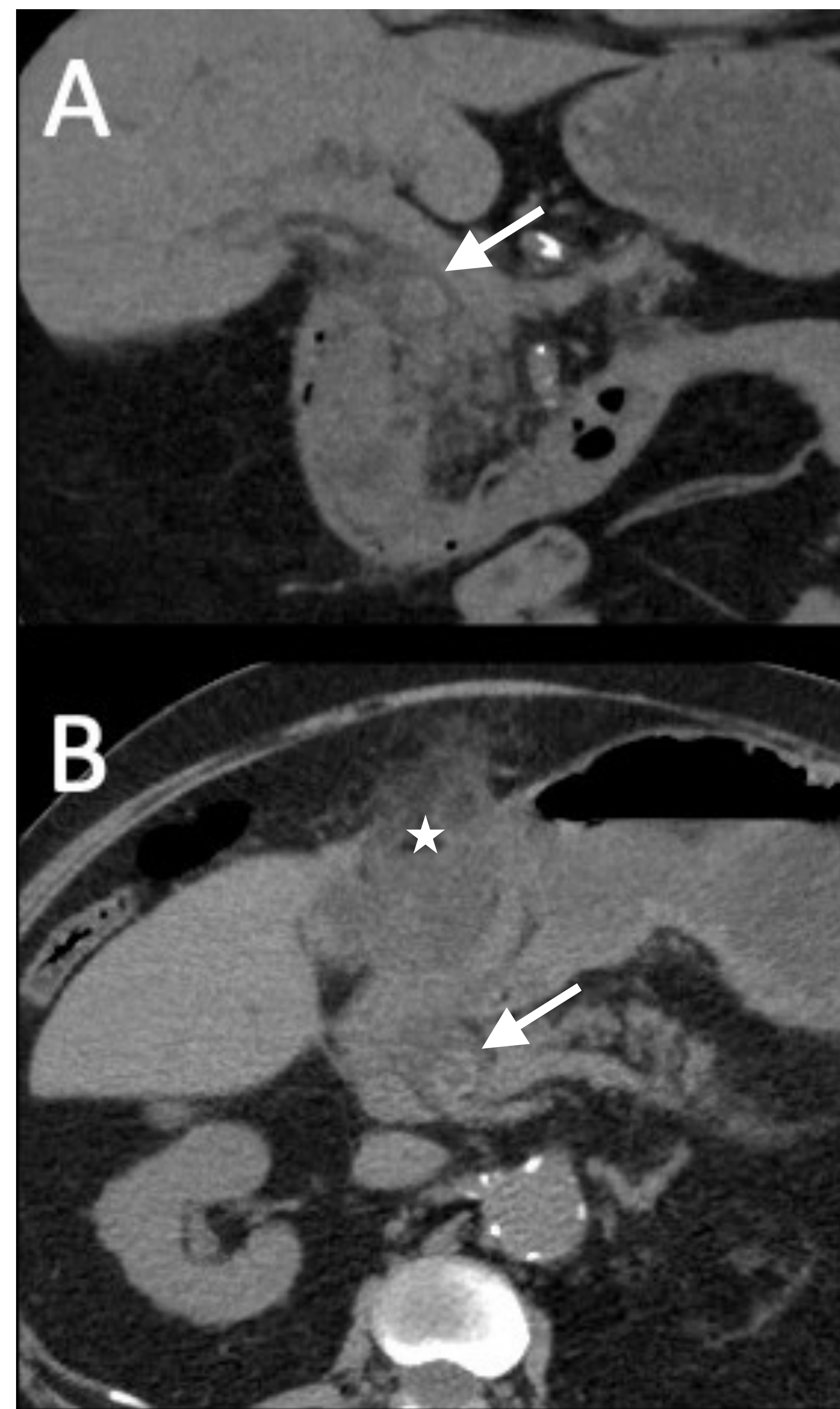
## Clinical History / Pre-Treatment Planning:

A 67-year-old male presented with two weeks of progressive abdominal pain and leukocytosis 50,700 cells/mm<sup>3</sup>, total bilirubin 6.5 mg/dL, lipase 777 U/L, creatinine 2.6 mg/dL, lactic acid 4.6 mmol/L, and procalcitonin 75 ng/mL. Initial non-contrast CT demonstrated choledocholithiasis, severe intrahepatic ductal dilatation, and perforated gallbladder with ill-defined fluid pooling anterior to the gastric pylorus and proximal duodenum (Figure 1). Clinically, patient was in cholangitis-associated septic shock.

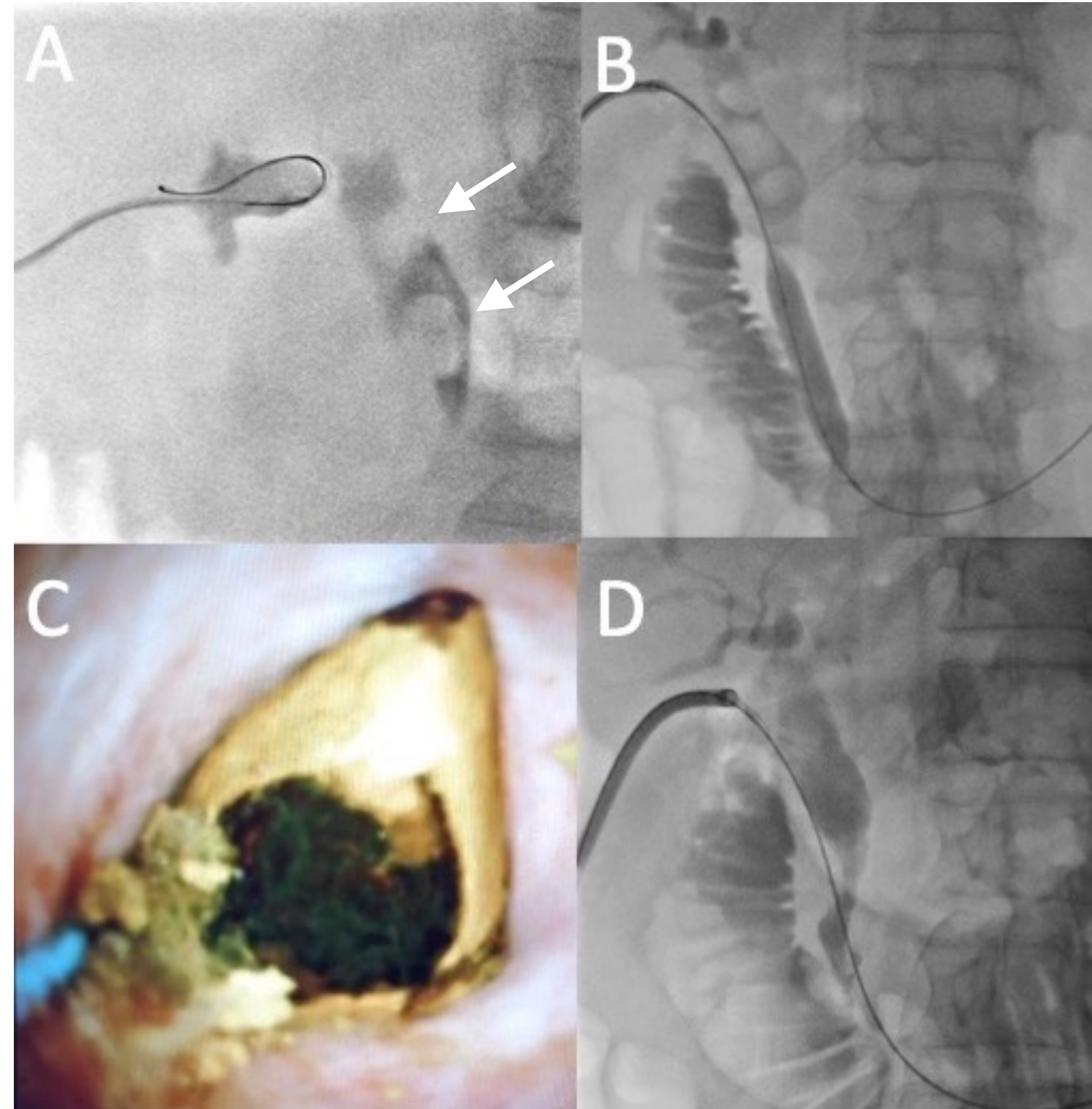
## Treatment Options / Results

Endoscopic retrograde cholangiopancreatography was the initial treatment plan, however was not performed. Instead, patient was taken urgently to the interventional radiology suite for diagnostic and therapeutic intervention. Percutaneous transhepatic cholangiogram demonstrated small residual intact gallbladder neck with a short dilated cystic duct, extraluminal contrast spillage into the peritoneum, marked intrahepatic and extrahepatic biliary ductal dilatation secondary to choledocholithiasis, and no flow of contrast into the duodenum (Figure 2A). Transhepatic transcholecystic internal/external biliary drain was placed for initial biliary diversion/decompression. Two weeks later, delayed percutaneous antegrade cholangioscope-aided extracorporeal shock-wave lithotripsy, cholangioplasty, and biliary drain exchange was performed.

## Images



**Figure 1.** Coronal (A) and axial (B) non-contrast CT demonstrate choledocholithiasis (arrow) and perforated gallbladder (star).



**Figure 2.** Initial cholangiography (A) shows multiple large filling defects in the CBD (arrow) without opacification of the duodenum or distal CBD. Balloon angioplasty was performed (B), followed by shock-wave lithotripsy (C) and additional balloon sweeping (D), with no residual choledocholithiasis.

## Treatment Options / Results

Fluoroscopic evaluation showed contrast readily opacified the dilated biliary system without residual filling defects and passed into the duodenum beyond the distal common bile duct stricture (Figure 2B). Patient has recovered from his acute illness, and is currently awaiting cholecystectomy.

## Discussion

Choledocholithiasis treatment varies regionally according to subspecialist skills and availability. Percutaneous therapy is indicated when prior therapy fails or is unavailable, unfavorable anatomy, stone burden, and medically frail patients unsafe for general anesthesia or ERCP/surgical complications. Our case highlights the importance of the interventional radiologist maintaining technical competence with cholangioscopy, as well as the ability to perform lithotripsy and basket retrieval of cholelithiasis/choledocholithiasis.

## Take Home Points

Choledocholithiasis treatment varies regionally according to subspecialist skills and availability. Percutaneous therapy is indicated when prior therapy fails or is unavailable, unfavorable anatomy, stone burden, and medically frail patients unsafe for general anesthesia or ERCP/surgical complications. Our case highlights the importance of the interventional radiologist maintaining technical competence with cholangioscopy, as well as the ability to perform lithotripsy and basket retrieval of cholelithiasis/choledocholithiasis.

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## Acknowledgements / Disclosures

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