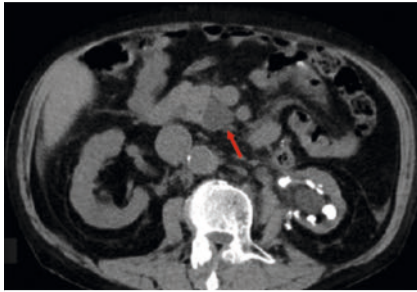


Hemorrhage into the bile duct after endoscopic ultrasound-guided fine needle aspiration for pancreatic cancer

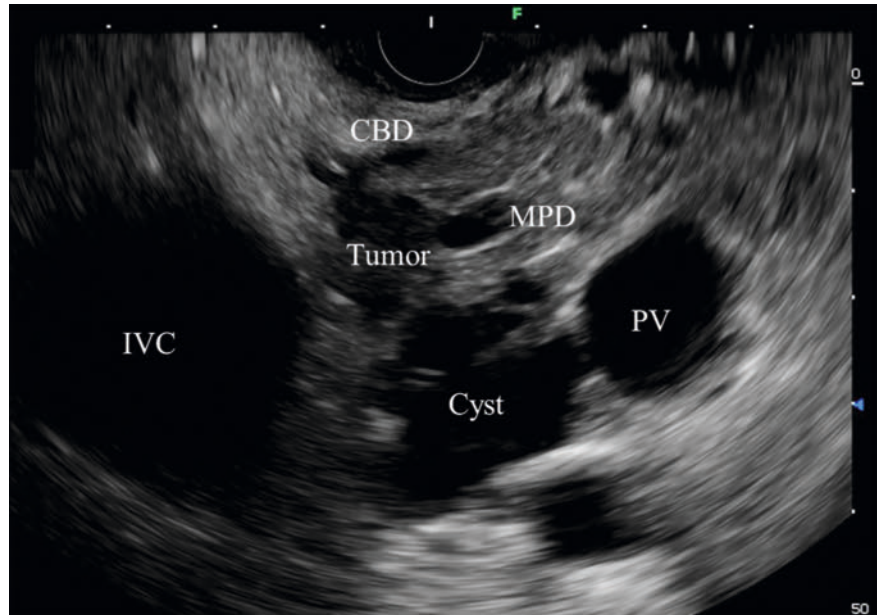
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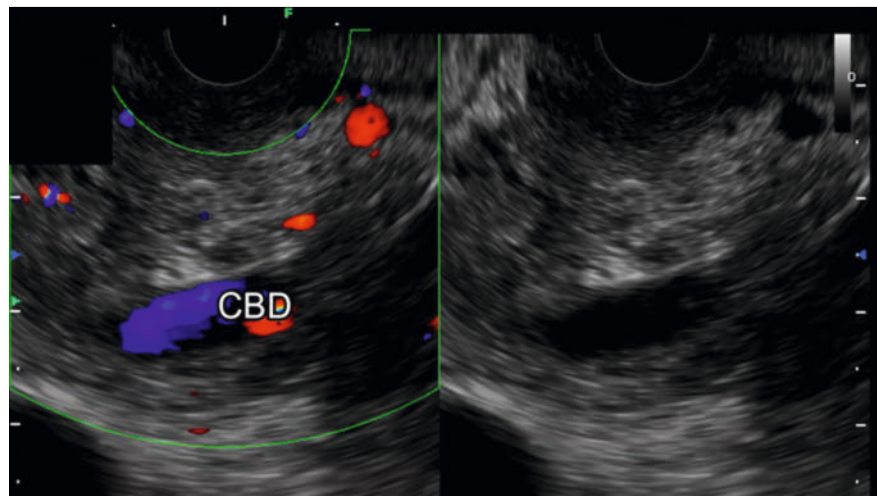
► **Fig. 1** Computed tomography shows a cystic lesion in the pancreatic head (red arrow).

A 71-year-old man presented to our department with an elevated serum amylase level of 695 IU/L. Computed tomography revealed a cystic lesion measuring 26 mm in diameter in the pancreatic head (► **Fig. 1**). Endoscopic ultrasound (EUS) identified a hypoechoic tumor measuring 15 mm in diameter adjacent to this multilocular cyst. The common bile duct (CBD) was compressed by the tumor without proximal dilation (► **Fig. 2**). We performed EUS-guided fine needle aspiration (EUS-FNA) using a 22-gauge Franseen needle from the duodenal bulb in the long scope position. After three punctures, Doppler imaging revealed a turbulent flow signal in the CBD (► **Fig. 3**). Subsequently, we confirmed bleeding from the papilla endoscopically (► **Fig. 4**). Additionally, hyperechoic clots in the gallbladder were observed endosonographically (► **Fig. 5**). The patient remained stable, with a gradual reduction in the turbulent flow signal. Thereafter, we performed endoscopic biliary drainage using a 5-Fr nasobiliary catheter to monitor hemobilia and found no rebleeding. The pathological diagnosis was adenocarcinoma. (► **Video 1**).

The incidence of iatrogenic hemobilia is reportedly increasing [1]. However, hemorrhage is a rare complication during EUS-FNA [2], and only two case reports of hemobilia after EUS-FNA have been



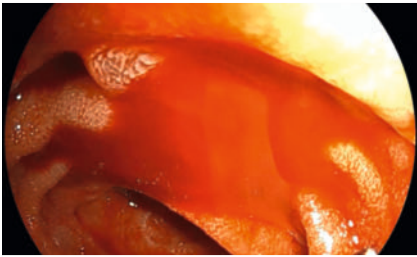
► **Fig. 2** Endoscopic ultrasound shows a hypoechoic tumor adjacent to the multilocular cyst.



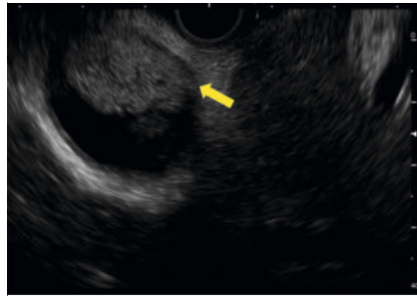
► **Fig. 3** A turbulent flow signal was observed in the common bile duct after endoscopic ultrasound-guided fine needle aspiration.

documented [3,4]. In our case, an impressive video of the turbulent flow signal by Doppler imaging was captured as a sign of hemobilia. Fortunately, hemobilia stopped spontaneously in this case. If the bleeding was severe, interventional

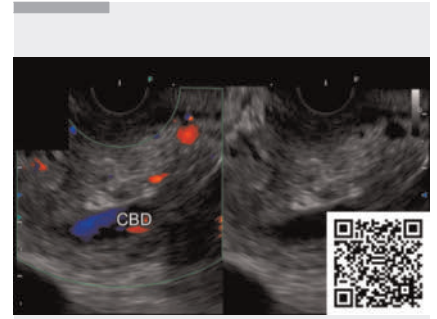
radiology might have been needed. Despite taking precautions to determine a puncture route to avoid injuring intervening vessels and organs by B-mode and Doppler imaging, small arteries adjacent to the CBD might remain undetectable



► **Fig. 4** Bleeding from the papilla was observed endoscopically.



► **Fig. 5** Hyperechoic clots were seen in the gallbladder (yellow arrow).



► **Video 1** Hemorrhage into the bile duct was detected as a turbulent flow signal by Doppler imaging after endoscopic ultrasound-guided fine needle aspiration for a pancreatic head tumor.

due to scope compression. To ensure early detection of adverse events following EUS-FNA, it is essential to assess for hemorrhage both endosonographically and endoscopically.

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Conflict of Interest

The authors declare that they have no conflict of interest.

The authors

Kazuya Miyaguchi¹, Suguru Mizuno¹, Satoshi Mochida¹

¹ Department of Gastroenterology and Hepatology, Saitama Medical University Faculty of Medicine, Saitama, Japan

Corresponding author

Suguru Mizuno, MD

Department of Gastroenterology and Hepatology, Faculty of Medicine, Saitama Medical University, 38 Morohongo, Moroyama-cho, Iruma-gun, Saitama 350-0495, Japan
smizuno@saitama-med.ac.jp

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