

## The accidental discovery of pancreatic ductal adenocarcinoma on percutaneous cholangioscopy through a T-tube tract



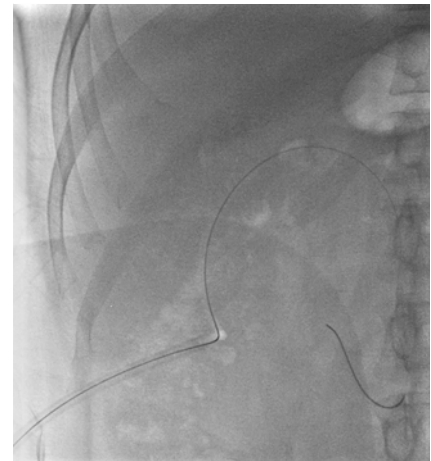
A 58-year-old man with pancreatitis underwent contrast-enhanced computed tomography and was found to have gallstones. He therefore underwent cholecystectomy and intraoperative choledochoscopy at his local hospital, during which some sediment-like stones were removed from the common bile duct (CBD), and a T-tube was left in place. Postoperative cholangiography through the T-tube showed obstruction in the distal CBD (► **Fig. 1**) and he was therefore transferred to our center for further diagnosis and treatment.

We had been intending to perform endoscopic retrograde cholangiopancreatography (ERCP) for this patient, but ended up conducting percutaneous cholangioscopy through the T-tube tract because the patient took food by mistake on the day of the operation. The procedure was performed as follows: first, a guidewire was inserted into the duodenum through the T-tube, which was confirmed radiographically (► **Fig. 2**); subsequently, a high definition cholangioscope (eyeMax, 9Fr; Micro-Tech) was inserted into the CBD and then the duodenum over the guidewire (► **Fig. 3**). We found circumferential villous structures in the distal CBD, and a biopsy taken under cholangioscopic guidance showed adenocarcinoma (► **Video 1**). The patient therefore underwent contrast-enhanced magnetic resonance imaging and a suspected lesion was found in the pancreatic head. The patient eventually underwent pancreaticoduodenectomy and the pathology turned out to be pancreatic ductal adenocarcinoma (PDAC) [1] invading the CBD.

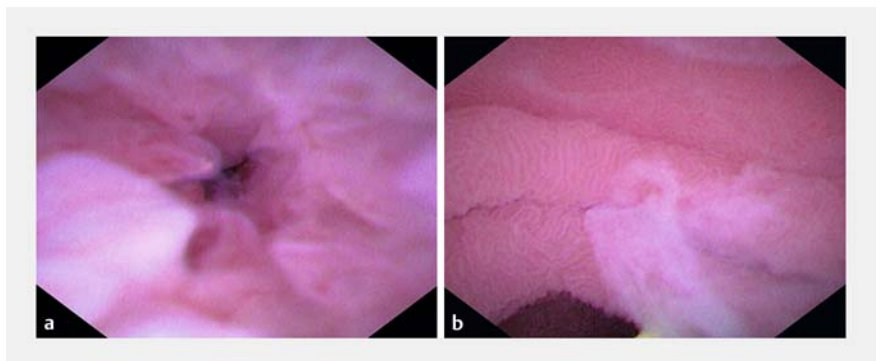
To date, reports focusing on the cholangioscopic features of PDAC invading the CBD are rare. This study showed the typical villous structures of PDAC invading the CBD (► **Fig. 4a**). Moreover, the differential diagnosis on cholangioscopic



► **Fig. 1** Postoperative cholangiogram through the T-tube showing obstruction in the distal common bile duct.



► **Fig. 2** Radiographic image showing a guidewire inserted through the T-tube and into the duodenum.



► **Fig. 3** High definition cholangioscopic image obtained after insertion of the cholangioscope over the guidewire into: **a** the distal common bile duct; **b** the duodenum.

imaging between cholangiocarcinoma and PDAC invading the CBD is an important issue. Based on our experience, cholangiocarcinoma tends to present as an obvious lesion with a pale bottom and red top with thick and tortuous vessels (► **Fig. 4b**). This study has also confirmed that a T-tube provides an alternative tract for cholangioscopy in certain circumstances.

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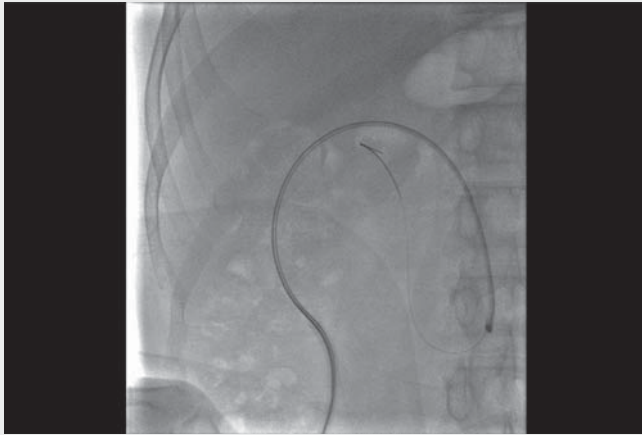
### Competing interests

The authors declare that they have no conflict of interest.

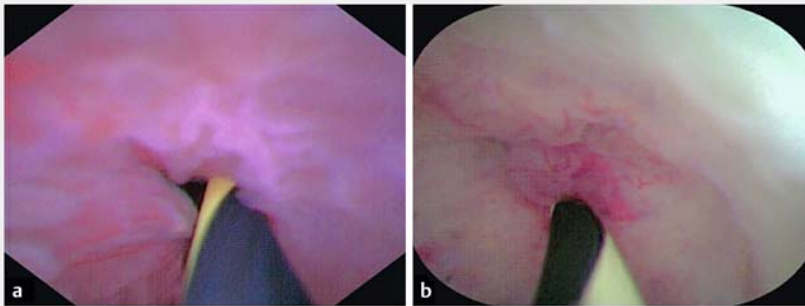
### The authors

Wengang Zhang<sup>\*</sup>, Ningli Chai<sup>\*</sup>, Yaqi Zhai, Huikai Li, Shengzhen Liu, Fei Gao, Enqiang Linghu

Department of Gastroenterology, The First Medical Center of Chinese PLA General Hospital, Beijing, China



**▶ Video 1** The features of pancreatic ductal adenocarcinoma invading the common bile duct on percutaneous cholangioscopy performed through a T-tube tract.



**▶ Fig. 4** Typical cholangioscopic appearances of: **a** pancreatic ductal adenocarcinoma invading the common bile duct; **b** cholangiocarcinoma.

## Bibliography

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## Corresponding author

### Enqiang Linghu, MD

Department of Gastroenterology, The First Medical Center of Chinese PLA General Hospital, 28 Fuxing Road, Haidian District, Beijing 100853, China  
[linghuenqiang@vip.sina.com](mailto:linghuenqiang@vip.sina.com)

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\* Joint first authors