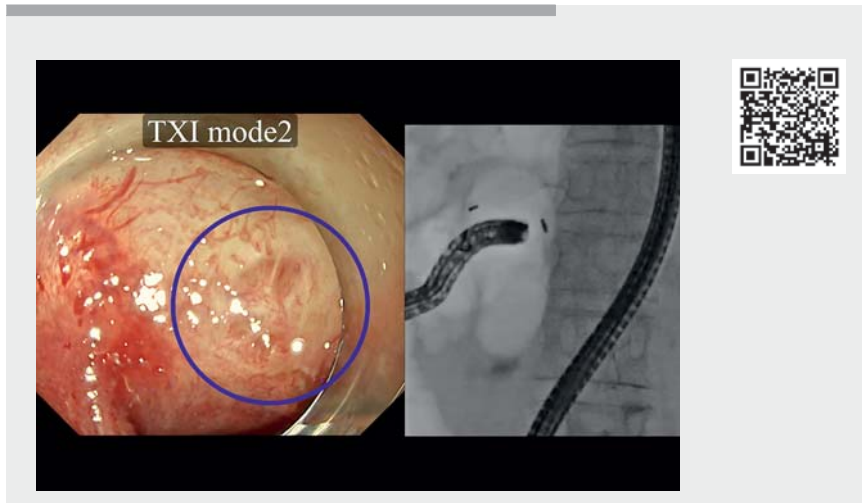
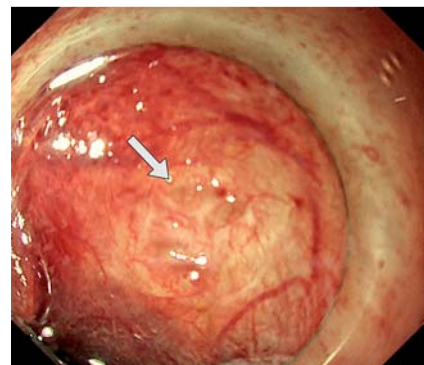


## Successful detection of choledochojejunal and pancreaticojejunal anastomotic strictures using a novel form of texture and color enhancement imaging

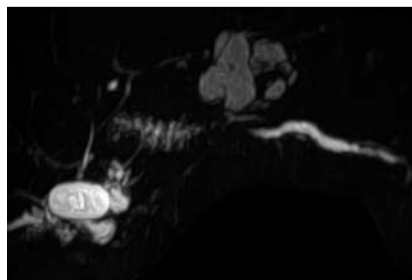
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▶ **Video 1** Texture and color enhancement imaging (TXI) is used to assist in detecting the sites of choledochojejunal and pancreaticojejunal anastomotic strictures, with the algorithm improving visualization of the endoscopic features by amplifying the visibility of subtle structural changes.



▶ **Fig. 2** Balloon enteroscopy image with texture and color enhancement imaging (TXI) of the choledochojejunal anastomotic stricture (arrow).



▶ **Fig. 3** Magnetic resonance cholangiopancreatography image of pancreaticojejunal anastomotic stricture in a patient who had undergone pancreaticoduodenectomy.

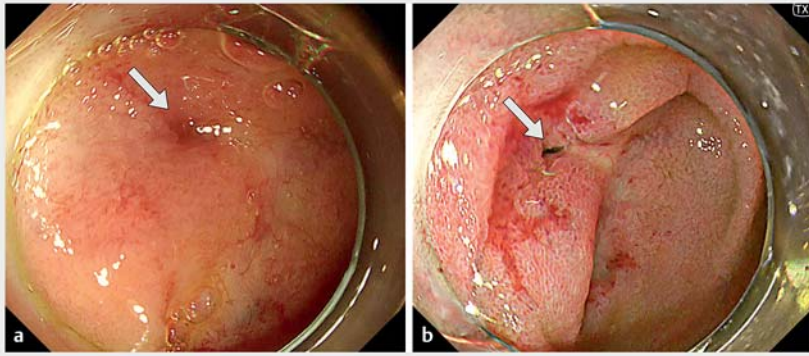
Although the effectiveness of image-enhanced endoscopy (IEE) has been widely reported in the management of gastrointestinal tract lesions [1], its effectiveness in the pancreaticobiliary region is not yet established. Recently, a novel IEE tool called texture and color enhancement imaging (TXI; Olympus, Tokyo,

Japan) has been launched; TXI has two modes: mode 1, which enhances brightness, texture, and color contrast; and mode 2, which enhances brightness and texture [2]. Herein, we report two cases in which we successfully detected the sites of choledochojejunal and pancreaticojejunal anastomotic strictures using TXI (▶ **Video 1**).



▶ **Fig. 1** Computed tomography and magnetic resonance cholangiopancreatography images of a choledochojejunal anastomotic stricture in a patient who had undergone liver transplantation.

A 76-year-old woman underwent endoscopic retrograde cholangiopancreatography using balloon-assisted enteroscopy (BE-ERCP) for cholangitis with intrahepatic stones due to a choledochojejunal anastomotic stricture after living-donor liver transplantation with Roux-en-Y reconstruction (▶ **Fig. 1**). We successfully reached the end of the Roux limb; however, we could not detect the anastomosis under white-light imaging (WLI) because of the obstruction at the anastomotic site. While observing the afferent limb under TXI, we noticed a subtle whitish scar, suggestive of the choledochojejunal anastomotic stricture (▶ **Fig. 2**). Biliary intervention was attempted at this site, and the intrahepatic bile duct stones were completely removed after balloon dilation of the choledochojejunal anastomotic stricture.



► **Fig. 4** Balloon enteroscopy image of the pancreaticojejunal anastomotic stricture on: **a** white-light imaging; **b** texture and color enhancement imaging (TXI).

A 61-year-old man underwent BE-ERCP for pancreatitis due to a pancreaticojejunal anastomotic stricture after pancreaticoduodenectomy (► **Fig. 3**). We reached the end of the Roux-en-Y limb and detected a reddish scar under WLI (► **Fig. 4**); however, a distinct hole was observed in the scarred tissue under TXI that we reliably identified as the pancreaticojejunal anastomotic stricture. After performing balloon dilation of the pancreaticojejunal anastomotic stricture, we were finally able to successfully place a 7-Fr plastic stent into the pancreatic duct. Choledochojejunal and pancreaticojejunal anastomotic strictures are delayed complications following hepaticopancreatobiliary surgery. Although BE-ERCP has been widely performed to treat such strictures [3], detecting the anastomotic site is sometimes challenging [4, 5]. TXI is a useful IEE method to detect choledochojejunal and pancreaticojejunal anastomotic strictures.

Endoscopy\_UCTN\_Code\_CCL\_1AZ\_2AZ

### Competing interests

A. Katanuma has received lecture fees from Olympus Co., Tokyo, Japan. T. Ishii, K. Iwano, T. Kin, R. Nakamura, K. Takahashi, and H. Toyonaga declare that they have no conflicts of interest.

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Endoscopy 2022; 54: E1062–E1063

DOI 10.1055/a-1899-8569

ISSN 0013-726X

published online 25.8.2022

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