Enhancing visualization with low echo reduction during endoscopic ultrasound-guided pancreatic duct drainage

Endoscopic ultrasound-guided pancreatic duct drainage (EUS-PD) is performed as an alternative when conventional endoscopic pancreatic duct drainage has failed [1]. Although accurately puncturing a narrow pancreatic duct remains challenging, contrast-enhanced EUS has been reported to be effective in puncturing poorly visible ducts [2, 3]. Low echo reduction (LER) mode, which is incorporated into a new EUS processor (EVIS EUS EU-ME3; Olympus, Tokyo, Japan), enhances visibility by suppressing low echo signals while maintaining high echo areas [4, 5]; this method may improve EUS-PD outcomes without using contrast media.

In a challenging case of pancreatitis due to pancreaticojejunal anastomotic stenosis after subtotal stomach-preserving pancreaticoduodenectomy (Fig. 1), balloon enteroscopy-assisted endoscopic retrograde cholangiopancreatography was unsuccessful due to postoperative adhesions. Hence, EUS-PD was performed using the echoendoscope UCT-260 (Olympus) and EUS processor EU-ME3. To ensure sufficient working space and stent placement distance, we attempted to puncture the upper stream of the pancreatic duct. With a pancreatic duct diameter of just 1.2 mm and poor visibility, puncturing proved challenging.

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By employing LER, the duct was depicted as a lower echo structure, emphasizing the echo brightness difference with the pancreatic parenchyma, improving visualization (▶ Fig. 2, ▶ Fig. 3a). Successful puncture of the pancreatic duct was achieved using a 22-gauge needle. The nearly perpendicular intersection of the puncture needle and the pancreatic duct posed a challenge in advancing the guidewire (▶ Fig. 3b). After re-evaluating the puncture location (▶ Fig. 4), a spot closer to the anastomosis was punctured, confirmed with contrast, and the guidewire was advanced. After substituting the needle for a catheter and dilating the puncture route (▶ Fig. 5), a 7 Fr × 14 cm plastic stent was placed from the stomach through the pancreatic duct to the jejunum.

Despite advances in interventional EUS, EUS-PD remains a complex procedure with a high complication rate. LER is a promising image-adjustment feature that may improve visibility and puncture success rates in EUS-PD (▶ Video 1).

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Conflict of Interest

A. Katanuma has received honoraria as a lecture fee from Olympus Co., Tokyo, Japan. H. Toyonaga, T. Hayashi, M. Motoya, T. Kin, and K. Takahashi declare that they have no conflict of interest.

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