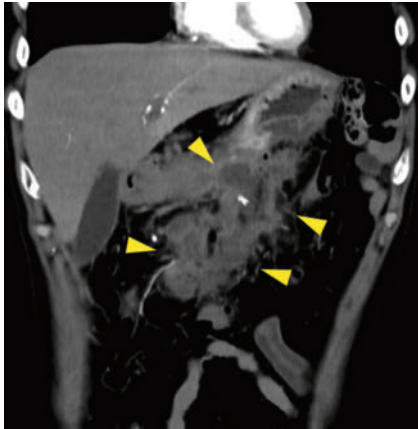


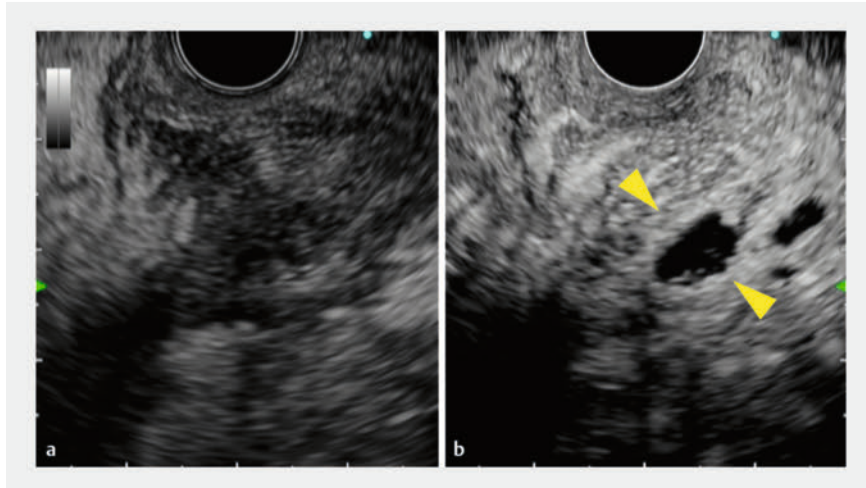
Successful endoscopic ultrasound-guided drainage using contrast-enhanced harmonic imaging



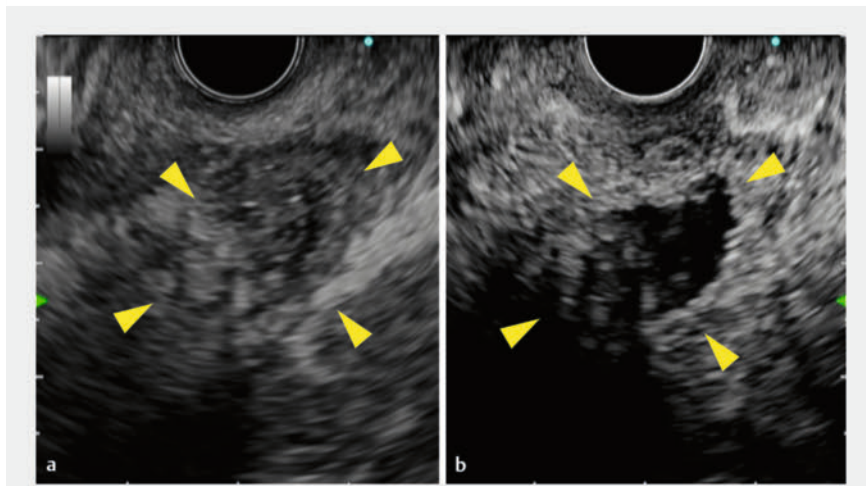
► **Fig. 1** Contrast-enhanced computed tomography showed large post-operative pancreatic fluid collection (yellow arrowheads).

Contrast-enhanced harmonic endoscopic ultrasound (CH-EUS) has been reported to be useful in the diagnosis of pancreatobiliary disease. CH-EUS facilitates the differentiation of the cystic component from the parenchymal component by assessing the presence of blood flow [1, 2]. Herein, we report a case of successful EUS-guided transluminal drainage (EUS-TD) for infected pancreatic fluid collection using CH-EUS.

A 56-year-old man who had undergone distal pancreatectomy for pancreatic cancer two months ago was admitted to our hospital because of fever. Contrast-enhanced computed tomography revealed a postoperative pancreatic fistula (POPF) with fluid collection around the pancreas (► **Fig. 1**) and EUS-TD was attempted. Initially, we scanned the lesion with fundamental B-mode ultrasound, but the POPF was not well-recognized (► **Fig. 2 a**). Consequently, CH-EUS was performed to identify the spread of the POPF cavity and its margins. The initially targeted location was recognized as only minimal avascular areas (► **Fig. 2 b**). However, as a large avascular area was identified at another location (► **Fig. 3**),



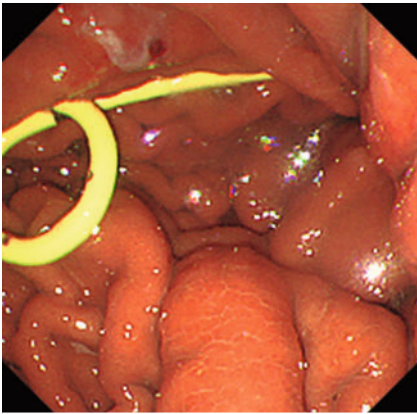
► **Fig. 2** Endoscopic ultrasound images. **a** The initially targeted region. Despite the absence of an anechoic lesion, a mixed hypo- and hyperechoic area around the pancreas was observed under fundamental B-mode. **b** The initially targeted region was recognized as only minimal avascular areas (yellow arrowheads) on a contrast-enhanced harmonic image.



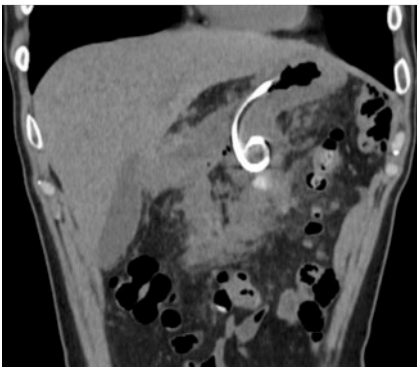
► **Fig. 3** Another location with a large avascular area (yellow arrowheads) was identified.

EUS-TD was successfully performed (► **Fig. 4**, ► **Fig. 5**; ► **Video 1**). After the procedure, the patient's symptoms resolved, and he was discharged five days later without any adverse events. A POPF is usually well recognized in fundamental B-mode because of its predominantly liquid component. However,

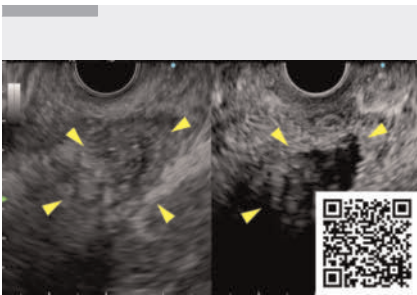
when it is composed mostly of solid components, such as necrosis, and has only a small liquid component, the boundary with the surrounding tissue is difficult to identify. In the present case, using CH-EUS the POPF cavity exhibited no enhancement owing to the absence of vascularity, whereas the surrounding tis-



► **Fig. 4** Endoscopy image showing 7-Fr double pigtail plastic stent.



► **Fig. 5** Computed tomography showed a successfully deployed 7-Fr double pigtail plastic stent.



► **Video 1** Successful endoscopic ultrasound-guided drainage for infected pancreatic fluid collection using contrast-enhanced harmonic imaging.

sue was enhanced. The application of CH-EUS may be useful in demarcating the boundary between the POPF cavity and its surrounding tissue in EUS-TD.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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