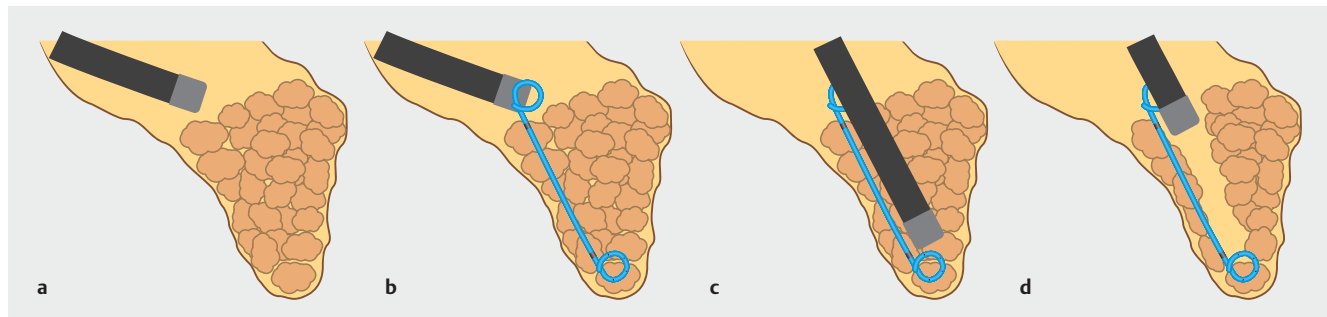
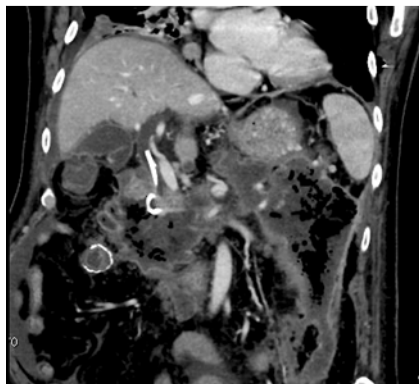


## Tunnel creation method in endoscopic necrosectomy for walled-off pancreatic necrosis

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► **Fig. 1** Schema of the tunnel creation method. **a** Visualization of the walled-off necrosis (WON). **b** After a guidewire is advanced to the deepest part of the WON under fluoroscopic guidance, a double-pigtail stent is deployed. **c** The endoscope is advanced alongside the stent to the deepest part of the WON under fluoroscopic guidance. **d** Following this procedure, the space through which the scope passed is dilated, providing a wide working space and securing a clear visual field during endoscopic necrosectomy.



► **Fig. 2** Contrast-enhanced computed tomography showed that a large amount of necrotic tissue remained after deployment of a lumen-apposing metal stent.



► **Fig. 3** Fluoroscopy after deployment of a double-pigtail stent.



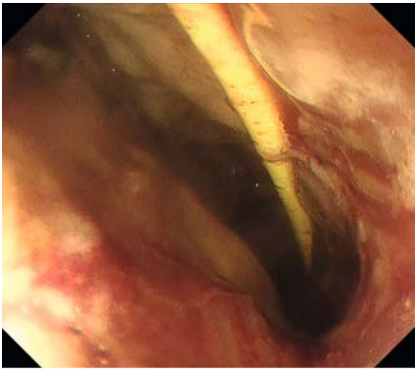
► **Fig. 4** Fluoroscopy after a scope was advanced alongside the stent to the deepest part of the walled-off necrosis.

Walled-off pancreatic necrosis (WON) is one of the most severe complications of acute pancreatitis, and endoscopic necrosectomy may be necessary to treat this complication [1, 2]. When treating a large WON, if only the shallow section is treated, the route to the deepest section may be closed, leaving a space wherein endoscopic necrosectomy cannot be performed [3]. It is important to identify the deepest section of the WON and secure the route by stent placement. Herein, we propose a novel “tunnel creation method” (TCM), which is an endo-

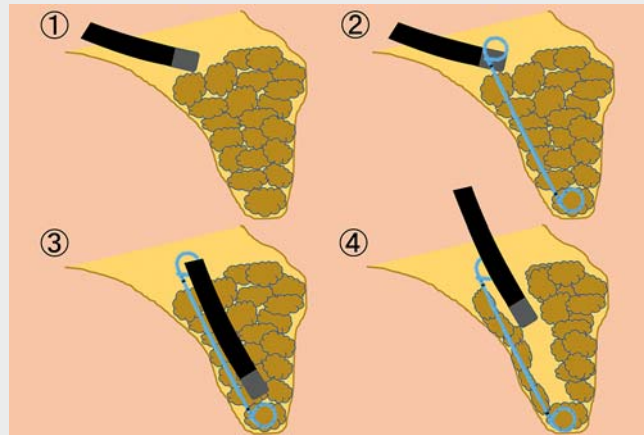
scopic bougie under fluoroscopy along the stent deployed at the deepest part of the WON that provides a wide working space and a route to the deepest part (► **Fig. 1**).

A 75-year-old man was transferred from another hospital for treatment of a large WON. Endoscopic ultrasound-guided transgastric drainage was performed using a lumen-apposing metal stent with a diameter of 15 mm (Hot AXIOS; Boston Scientific, Marlborough, Massachusetts, USA). Contrast-enhanced computed tomography 12 days after the procedure

revealed that a large amount of necrotic tissue remained (► **Fig. 2**). The left side of the WON was filled with necrotic tissue, making it difficult to secure a clear visual field during endoscopic necrosectomy. TCM was performed (► **Fig. 3**, ► **Fig. 4**, ► **Fig. 5**, ► **Video 1**). Following this procedure, the route through which the scope passed was dilated, providing a wide working space and securing a clear visual field during necrosectomy. The patient was discharged without any adverse events after six sessions of endoscopic necrosectomy.



► **Fig. 5** Endoscopic view after performing the tunnel creation method.



► **Video 1** The tunnel creation method during endoscopic necrosectomy for walled-off pancreatic necrosis.

It is sometimes difficult to visualize the entire WON, especially when it is large, as in this case. Using TCM, we could reach the deepest part of the WON at an early stage of treatment and visualize the whole WON, leading to more efficient treatment.

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### Competing interests

Akio Katanuma has received honoraria from Olympus Co., Tokyo, Japan. The remaining authors declare that they have no conflict of interest.

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