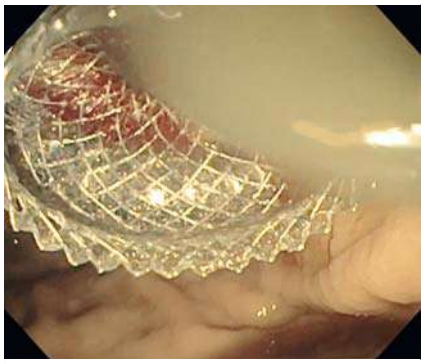
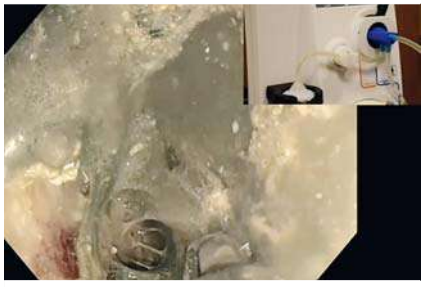
A novel endoscopic morcellator device to facilitate direct necrosectomy of solid walled-off necrosis



▶ **Fig. 1** Initial drainage of necrotic fluid from a pancreatic walled-off necrosis (WON) immediately after endoscopic ultrasound (EUS)-guided placement of a lumen-apposing metal stent (LAMS).



▶ **Fig. 2** Endoscopic morcellator device assisting in drainage of debrided necrotic tissue, through the suction device on the console (inset).

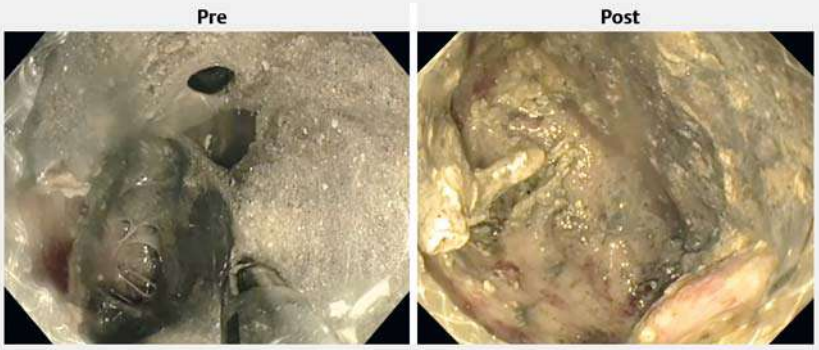
▶ **Fig. 3** Endoscopic morcellator device debriding solid debris within the pancreatic walled-off necrosis (WON).

Pancreatic walled-off necrosis (WON) is a feared late complication of acute necrotizing pancreatitis. Pancreatic WON is a well-demarcated, organized collection of necrotic tissue that can occur after severe pancreatitis. Surgical interventions for the treatment of WON have been associated with high morbidity and mortality rates. Endoscopic management including direct endoscopic necrosectomy has emerged as the treatment of choice for WON, with low complication rates, low costs, reduced time of hospitalization, and high rates of WON resolution [1 – 3].

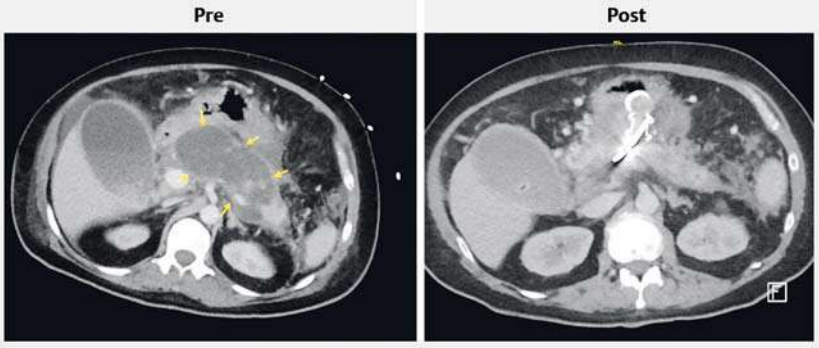
Direct endoscopic necrosectomy allows debridement of necrotic tissue through the gastric or duodenal wall [4]. This technique has demonstrated higher WON resolution rates when compared to endoscopic drainage alone, particularly in cases of WON with semi-solid necrotic material [5]. However, direct endoscopic necrosectomy may be challenging in cases where the WON is predominantly solid.

We present a case of a 70-year-old man with history of hypertension and chronic lymphocytic leukemia who presented to our hospital with severe acute necrotizing pancreatitis. After initial improvement, he developed fevers and leukocytosis on day 35 of his hospital admission. Computed tomography imaging revealed a 7 × 6-cm WON with a significant solid component (80 %). Given these findings, he underwent endoscopic cystogastrostomy using a lumen-apposing metal stent (LAMS) (▶ **Fig. 1**), followed by direct endoscopic necrosectomy with the assistance of a novel endoscopic morcellator device (▶ **Fig. 2**, ▶ **Fig. 3**, ▶ **Video 1**). This resulted in successful mechanical debridement and liquefaction of solid necrosis, which was followed by lavage with bacitracin–saline solution (▶ **Fig. 4**). After lavage, a 10-Fr double-pigtail plastic stent was placed within the LAMS into the WON. Imaging revealed complete resolution of the WON 6 weeks later, and both stents were successfully removed (▶ **Fig. 5**).

Video 1 Use of an endoscopic morcellator to debride solid debris within pancreatic walled-off necrosis (WON).



▶ **Fig. 4** Pre- and post-direct endoscopic necrosectomy using the morcellator device.



▶ **Fig. 5** Before (PRE) and after (POST) computed tomography (CT) images, revealing marked resolution of the pancreatic walled-off necrosis (WON) (arrows) after EUS-guided drainage, morcellator-assisted debridement, and pigtail catheter placement.

In summary, direct endoscopic necrosectomy can be difficult to accomplish when a WON is predominantly solid. Lavage of necrosis and manual tissue debridement can be lengthy and ineffective. This case demonstrates that a novel endoscopic rotating morcellator device can effectively liquefy solid necrosis during direct endoscopic necrosectomy.

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Competing interests

Dr. Thompson is a consultant for Boston Scientific, Olympus, Medtronic, Apollo Endosurgery, and USGI Medical.
All other authors have no conflict of interest.

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Bibliography
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