



# Migrated lumen-apposing stent trapped within a pancreatic fluid collection: Forward-view EUS for the rescue!

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## BACKGROUND

EUS-guided drainage of pancreatic fluid collections (PFCs) using a lumen-apposing metal stent (LAMS) is an established therapeutic modality with high technical success.<sup>1</sup> Adverse events, though uncommon, can occur during a cysto-gastrostomy procedure, including stent maldeployment.<sup>2,3</sup> The stent maldeployment can be *partial* or *complete*. In the former, the center of the long axis of the LAMS is skewed, leading to significantly unequal lengths of the distal and proximal segments from the waist of the LAMS at placement. Conversely, complete maldeployment can be *external*—into the gastroduodenal lumen—or *internal*—into the cyst cavity.<sup>4</sup> The endoscopic removal of the internally migrated stent is technically challenging and may require surgery.

Here, we describe successful retrieval of a migrated LAMS into a walled-off necrosis (WON) using a combination of endoscopic techniques (Video 1, available online at [www.videogie.org](http://www.videogie.org)).

## CASE PRESENTATION

A 45-year-old man presented with chronic calcific pancreatitis complicated by an infected PFC. A CT scan showed a hypo-trophic pancreas with parenchymal calcifications and a large PFC within the pancreatic body and tail (Fig. 1). EUS confirmed this region's large WON (93 × 85 mm).

*Abbreviations:* FVE, forward-view echo-endoscope; LAMS, lumen-apposing metal stent; PFC, pancreatic fluid collection; WON, walled-off necrosis.

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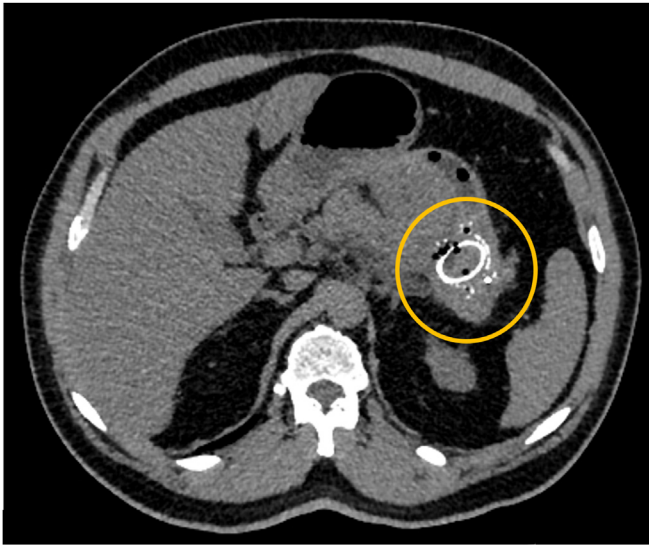
**Figure 1.** Abdominal CT scan showing atrophic pancreas with a large pancreatic fluid collection in the body and tail region (83 × 90 mm).

A cysto-gastrostomy with cautery-enhanced LAMS (Hot Spaxus, diameter 16 mm, length 20 mm; Taewoong, Busan, South Korea) was considered.

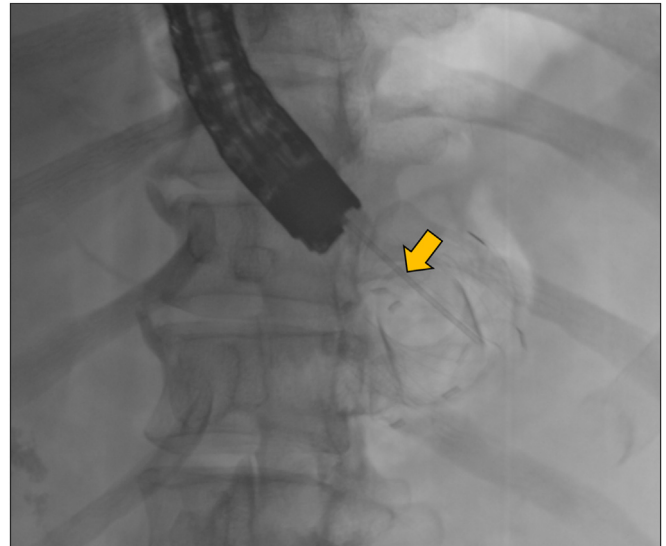
During the procedure, the stent was maldeployed, causing its complete migration into the WON cavity. Therefore, it was decided to salvage the drainage of WON by placing a naso-cystic tube over the guidewire. The next day, an attempt to retrieve the migrated stent was undertaken using a regular forward-view endoscope. However, no mucosal entry point to the collection after naso-cystic tube removal could be identified. A follow-up CT scan showed a residual PFC measuring 81 × 51 mm, with air pockets and an embedded LAMS (Fig. 2).

## ENDOSCOPIC METHODS

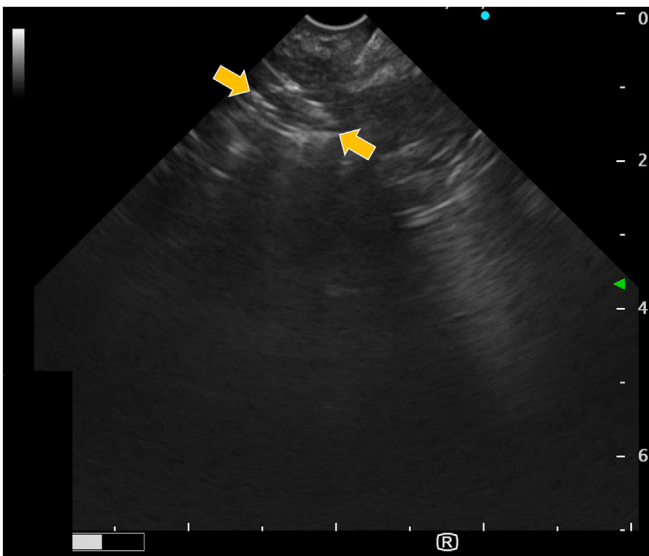
On the following day, a linear echoendoscope was passed, with the aim of regaining access to residual WON. During the EUS, adequate alignment to visualize the central lumen of the LAMS was unsuccessful. A forward-viewing EUS (TGF-UC180J; Olympus, Tokyo, Japan) provided better end-on visualization of the opened flange of LAMS (Fig. 3), which



**Figure 2.** Abdominal CT scan showing a residual pancreatic collection measuring 81 × 51 mm, with air pockets and an embedded lumen-apposing metal stent (*circle*).



**Figure 4.** Fluoroscopic image of straight-view echo-endoscope puncturing the residual pancreatic fluid collection with a 19-gauge needle (*arrow*).



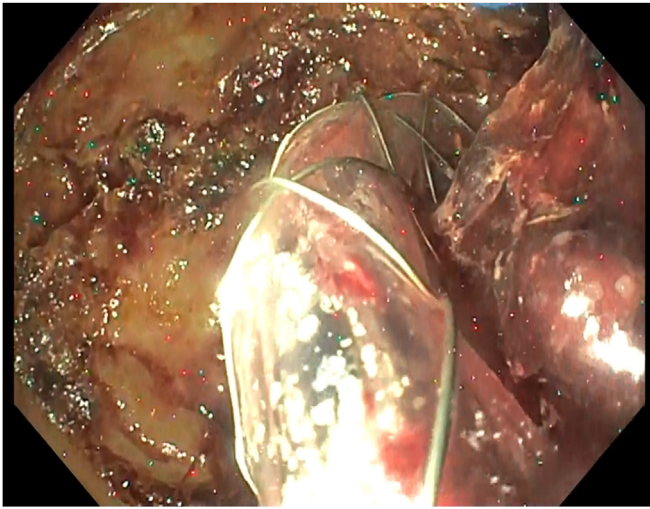
**Figure 3.** Forward-view EUS image showing the opening of the trapped lumen-apposing stent (*arrows*) within the residual pancreatic fluid collection.



**Figure 5.** Fluoroscopic image of dilatation of the cysto-gastric fistula with a 12-mm balloon.

was targeted and punctured using a 19-gauge needle (Fig. 4). A guidewire was passed and coiled inside the cavity. The cysto-gastric fistula was dilated with a 12-mm balloon (Fusion Titan Dilation Balloon; Cook Medical, Bloomington, Ind, USA) (Fig. 5). An attempt to extract the migrated LAMS using a standard gastroscope through the gastro-cystic fistula was unsuccessful. Therefore, the fistula was dilated again with a controlled radial expansion balloon up to 15 mm (Boston Scientific, Marlborough, Mass, USA). A 7F × 4-cm double-pigtail plastic stent was placed transmurally (Cook Medical). Finally,

an ultra-slim gastroscope was passed beside the plastic stent into the cavity (Fig. 6), and the trapped LAMS was captured with grasping forceps and successfully removed. As the PFC had reduced significantly, a new stent was not placed in the cavity. The procedure time was 52 minutes. The patient remained asymptomatic and was discharged after 24 hours. Abdominal imaging at 3 months showed no residual PFC.



**Figure 6.** Endoscopic image using an ultra-thin nasal gastroscope in the pancreatic collection with a visible lumen-apposing stent.

## DISCUSSION

The present case highlights the crucial role of the novel forward-view echo-endoscope (FVE) in providing access and successfully retrieving a completely internally migrated LAMS into a PFC.

A previous randomized controlled trial showed no difference in safety, diagnostic efficacy, or procedural time between the oblique- and forward-view echoendoscopes in draining PFCs.<sup>5</sup> However, we demonstrated that in a technically challenging situation where proper angulation to the region of interest cannot be achieved with an oblique-

viewing scope, the FVE might be helpful. In the presented case, a direct puncture targeting the trapped LAMS was possible because of the FVE scope's straight view and working channel. The puncture provided crucial wire access to the residual collection, followed by successful endoscopic interventions to remove the internally migrated LAMS. However, limited access to this novel device is still a constraint to its widespread use in clinical practice.

## DISCLOSURE

The authors disclosed no financial relationships relevant to this publication.

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