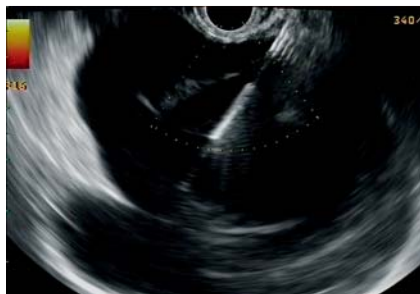


## Massive pneumoperitoneum during endoscopic ultrasound-guided drainage of a pancreatic cyst lesion, treated with an enteral self-expanding metal stent and paracentesis



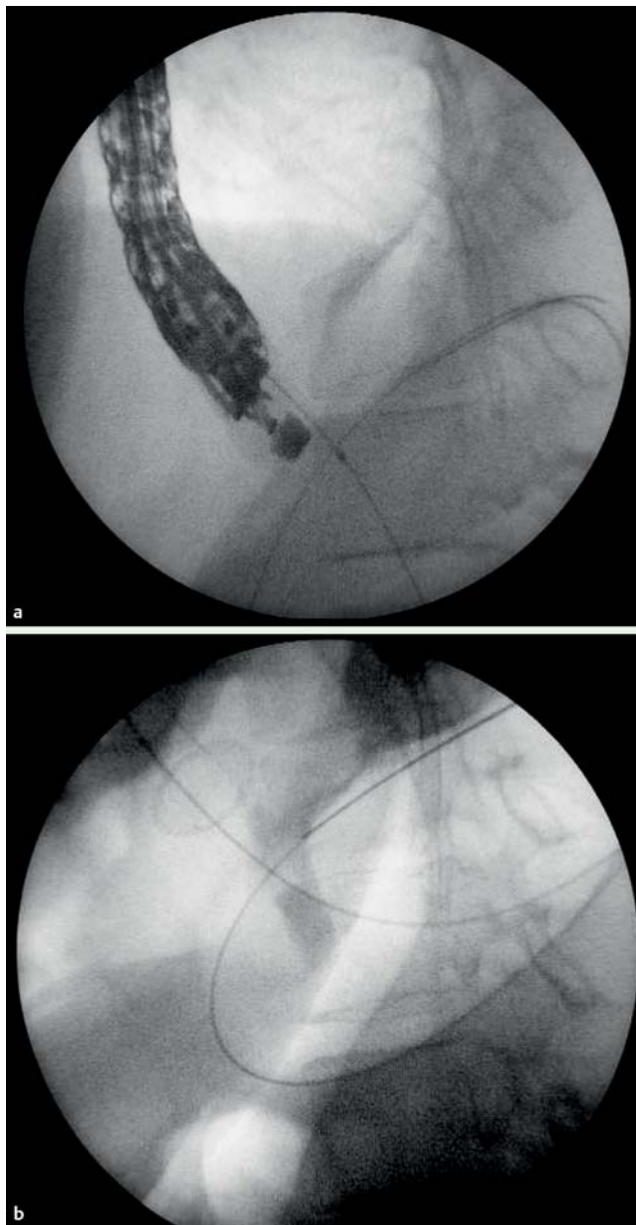
**Fig. 1** Endoscopic ultrasound (EUS) image of a cystic lesion located in the pancreatic tail.

A 54-year-old patient with a supposed 9-cm pseudocyst located in the pancreatic tail was referred to our unit for endoscopic ultrasound (EUS)-guided transmural drainage (▶ **Fig. 1**). The fluoroscopic image showed the immediate creation of a pneumoperitoneum when the cystotome was used, because the cystic lesion was not adherent to the gastric wall (▶ **Fig. 2a**). First, we attempted to seal the ostomy (or iatrogenic perforation), with the purpose of preventing leakage of fluids to the peritoneal cavity, by using a 'diabolo'-shaped self-expanding metal stent (SEMS) (AXIOS 10mm×10 mm; Xlumena, Mountain View, California, USA), without success (▶ **Fig. 2b**). Finally, a successful rescue maneuver was done in which a fully covered SEMS (60mm×16mm, Hanaro; MI-Tech, Seoul, Korea) was delivered coaxially with the first and migrated stent (▶ **Fig. 3a, b**). Computed tomography (CT) showed a sealed perforation without leakage of fluid, and a massive pneumoperitoneum (▶ **Fig. 4**, ▶ **Video 1**).

The patient had a favorable outcome from decompression paracentesis. The cystic fluid analysis showed high carcinoembryonic antigen (CEA) levels, identifying

### Video 1

Massive pneumoperitoneum during endoscopic ultrasound (EUS)-guided drainage of a pancreatic cyst lesion, treated by using an enteral fully covered self-expanding metal stent (FCSEMS).

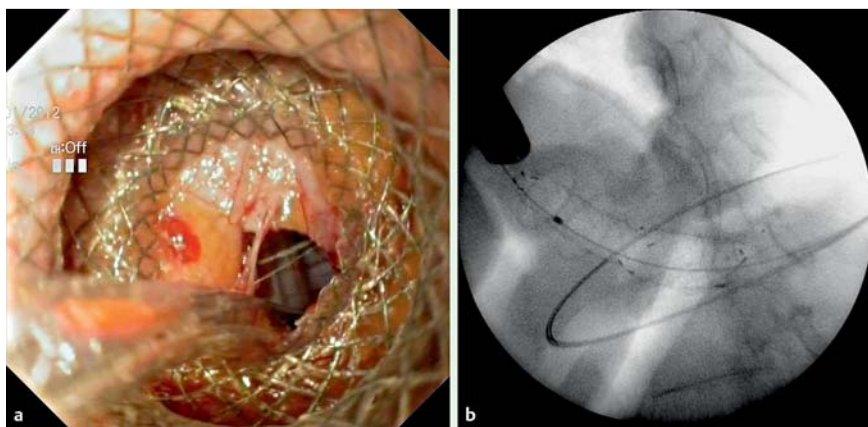


**Fig. 2** Fluoroscopic images showing: **a** Creation of a pneumoperitoneum caused by the use of a cystotome in a pancreatic lesion that was not adherent to the gastric wall. **b** Failed attempt to seal the perforation using a 'diabolo'-shaped self-expanding metal stent (SEMS).

the lesion as a cystic tumor. To date, 1 year later, the patient is well and awaiting elective surgical resection.

Endoscopic management is now considered to be the first-line therapy for pancreatic fluid collections. With improvement of the available equipment and development of new metallic stents, EUS transmural drainage techniques have become easier and less time-consuming.

Even so, before drainage, evaluation of the lesion is necessary to rule out intervening vessels, to determine the adherence of the lesion, and to confirm that the nature of the lesion is other than inflammatory (i.e., a cystic tumor). The present report emphasizes the point that excellent pre-assessment is essential to avoid the mistake of confusing a cystic neoplasm with a pseudocyst [1–3].



**Fig. 3** **a** Endoscopic view through the stent of the perforation, and a catheter balloon. **b** Fluoroscopic image of the stent-in-stent rescue maneuver: a longer enteral fully covered self-expanding metal stent (FCSEMS) was delivered coaxially with the first (and migrated) stent.



**Fig. 4** Emergency computed tomography (CT) showed that the perforation was well sealed without leakage of fluid, and a massive pneumoperitoneum.

In the case of massive pneumoperitoneum, the previously described rescue technique, of delivering a long enteral FC-SEMS and performing an emergency paracentesis, can be helpful [4,5].

Endoscopy\_UCTN\_Code\_CPL\_1AL\_2AD

**Competing interests:** None

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## Bibliography

**DOI** <http://dx.doi.org/10.1055/s-0034-1377222>  
*Endoscopy* 2014; 46: E330–E331  
 © Georg Thieme Verlag KG  
 Stuttgart · New York  
 ISSN 0013-726X

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