

Why is EUS-guided cyst-gastrostomy more common than cyst-duodenostomy: A disease state or endoscopist preference

Dear Editor,

Endoscopic transmural drainage has become the first-line therapy for pancreatic fluid collections (PFCs) over the last decade.^[1-4] The selection of the optimal route for PFC access and drainage may be related to the location of the PFC, local anatomy, stent specifications, physician preference, or physician experience. Rarely addressed in the literature is the method of selection between transgastric *vs.* transduodenal approaches for cystenterostomy creation.

Two studies on EUS guided drainage have noted that about 25% of PFCs are in the region of the pancreatic head and uncinate process as opposed to 75%, which are located around the pancreatic body and tail.^[4,5] However, these same studies showed a lower percentage of patients treated by cyst-duodenostomy (<20%) *vs.* cyst-gastrostomy. The proximity of the PFC to the gastric or duodenal wall is essential as, in the United States, the currently available lumen apposing metal stents (LAMS) (Axios, Boston Scientific, Natick MA) have a saddle length of only 10 mm.^[6]

We sought to identify factors related to the location of cystenterostomy placement. We identified 59 patients who were planned to undergo placement of a LAMS for drainage of PFCs. Forty-five patients (76.3%) had fluid collection located in the body/tail region, while in 14 patients (23.7%) the fluid collections were located in the head/neck region.

Fifty-two patients (88.14%) underwent transgastric drainage, and 7 (11.86%) underwent transduodenal drainage.

The maximum diameter of the fluid collection in the transduodenal group ranged from 4.3 cm to 9.8 cm, with an average of 7.2 cm. The transgastric group fluid collections ranged from 4.3 cm to 31.5 cm, with an average of 11.43 cm maximum diameter.

Technical success with the deployment of LAMS was documented in 6 of 7 (86%) patients in the transduodenal group. The cystgastrostomy group had technical success in 51 of 52 patients (98%). There was a documented resolution on follow-up imaging for 6/7 (86%) patients with cyst-duodenostomy compared to 47 (90.4%) cystgastrostomies.

One patient who underwent cystduodenostomy for a 6 cm fluid collection had failed deployment of LAMS but was successfully managed by the placement of transmural plastic stents. That same patient developed pneumoperitoneum, which resolved with conservative treatment.

In the cystgastrostomy group, two patients experienced stent migration, one had immediate gastrointestinal bleeding, three had delayed gastrointestinal bleeding, three patients had gastroduodenal artery bleeding, and one developed an intrabdominal infection. The patient with immediate bleeding had failed deployment of 15 mm LAMS followed by successful placement of a cystduodenostomy LAMS, the patient was sent to interventional radiology (IR) for embolization and went on to have a clinical resolution of cyst. Four cystgastrostomy patients with delayed complications died after endoscopic PFC drainage. Two of the deaths were procedure related including pneumoperitoneum with the intra-abdominal infection that occurred few days after cystgastrostomy and bleeding from gastro-duodenal artery pseudoaneurysm following endoscopic necrosectomy.

In our review of patients with EUS guided drainage of PFCs it does appear the trans-duodenal approach has neither more complications nor more technical failures when compared to the trans-gastric approach but appears to be less popular. This is in contrast to data on EUS-guided gallbladder drainage, where transduodenal access appears to be the preferred route. The average size of the PFCs noted in the head of the pancreas was smaller compared to those in the body and tail regions. Despite the finding that 23.7% of our patients had PFCs located in the head/neck region in only 11.86% was cystduodenostomy the procedure of choice for drainage, demonstrating what appears to be a preference among endoscopists for draining PFCs via the transgastric route even if the transduodenal route was technically feasible.

Although there is no objective guidance on when to choose transgastric or transduodenal approach for cystduodenostomy, gastric anatomy appears to be perceived to be favorable for endoscopists performing transmural PFC access and drainage. The wider gastric lumen with larger surface area allows for better maneuvering of the scope, with more options for the site of drainage to avoid vascular structures. The duodenal lumen is smaller, with major blood vessels running in the peri-duodenal space, including the gastroduodenal artery. The thicker gastric wall may provide a sense of safety as it is less likely to tear when dilating the lumen of the LAMS to perform necrosectomy. It can also play a role in the spontaneous healing of the cystenterostomy site after stent removal.

Overall our data suggest a preference for EUS-guided cystgastrostomy over cystduodenostomy among endoscopists performing transmural access and drainage of PFCs. Our data are in contrast to the published literature of EUS-guided gallbladder access and drainage, which often favors a transduodenal route, suggesting a realization that some lesions are better approached from certain locations as compared to others.

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**Moamen M. Gabr¹, Taylor Frost²,
Praneeth Kudaravalli³, Gregory S. Bills¹,
Shista Priyadarshini¹, Stephanie McDonough²,
Douglas G. Adler²**

¹Division of Digestive Health and Nutrition, University of Kentucky, Lexington, Kentucky, USA; ²University of Utah School of Medicine, Gastroenterology and Hepatology, Salt Lake City, Utah, USA; ³Department of Internal Medicine, Division of Hospital Medicine, University of Kentucky, Lexington, Kentucky, USA

Address for correspondence

Dr. Douglas G. Adler,
University of Utah School of Medicine, Gastroenterology and
Hepatology, Salt Lake City, Utah, USA.

E-mail: douglas.adler@hsc.utah.edu


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REFERENCES

1. Elmunzer BJ. Endoscopic drainage of pancreatic fluid collections. *Clin Gastroenterol Hepatol* 2018;16:1851-63.e3.
2. Adler JM, Sethi A. Interventional endoscopic ultrasonography in the pancreas. *Gastrointest Endosc Clin N Am* 2018;28:569-78.
3. Bang JY, Hawes RH, Varadarajulu S. Lumen-apposing metal stent placement for drainage of pancreatic fluid collections: Predictors of adverse events. *Gut* 2020. pii: gutjnl-2019-320539.
4. Xu MM, Andalib I, Novikov A, et al. Endoscopic therapy for pancreatic fluid collections: A Definitive Management Using a Dedicated Algorithm. *Clin Endosc* 2019;53:355-60.
5. Gambitta P, Maffioli A, Spiropoulos J, et al. Endoscopic ultrasound-guided drainage of pancreatic fluid collections: The impact of evolving experience and new technologies in diagnosis and treatment over the last two decades. *Hepatobiliary Pancreat Dis Int* 2020;19:68-73.
6. Siddiqui AA, Kowalski TE, Loren DE, et al. Fully covered self-expanding metal stents versus lumen-apposing fully covered self-expanding metal stent versus plastic stents for endoscopic drainage of pancreatic walled-off necrosis: Clinical outcomes and success. *Gastrointest Endosc* 2017;85:758-65.

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