



Endoscopic Ultrasound-Guided Gastroenterostomy for Malignant Distal Duodenal Obstruction from Pancreatic Adenocarcinoma

Manjakkollai Veerabagu, MD ¹, Marissa Jansen, BS ^{2*}

1. Affiliated Associate Professor at Medical University of South Carolina
2. Medical Student at Medical University of South Carolina.

***Correspondence to:** Marissa Jansen, BS, Medical Student at Medical University of South Carolina.

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Abstract:

Endoscopic ultrasound-guided gastroenterostomy (EUS-GE) has emerged recently as the minimally invasive procedure for gastric outlet obstruction due to malignancies. It has been preferred to surgical gastrojejunostomy (SGJ). We present a patient with distal duodenal obstruction due to pancreatic cancer who was palliated by this procedure. The reduced length of stay, time to oral intake, adverse events and least disruption to chemotherapy have helped to bring this procedure to the forefront in place of surgical alternative.

Keywords: endoscopic ultrasound, gastroenterostomy, surgical gastrojejunostomy.

Case History

The patient is a 48-year-old male who was diagnosed with metastatic pancreatic cancer in November 2023. The primary cancer was from the body of the pancreas with metastatic disease to the liver and lymph nodes. He developed severe duodenal obstruction and was unable to eat or drink. The CT scan showed obstruction at the duodenojejunal junction. The computed tomography showed upstream dilation of the stomach and duodenum (Figures 1 and 2). He was evaluated for EUS-GE.

The procedure involved passing a guide wire beyond the obstruction using a gastroscope using contrast dye under fluoroscopy. Then the 8.5 Fr nasobiliary cannula (Boston Scientific, Marlborough, MA) was passed over the guide wire beyond the luminal obstruction and to achieve that a balloon extraction catheter (Boston Scientific, Marlborough, MA), was used since the length of the cannula was not adequate (Figure 3). Then using a linear array echoendoscope (Olympus, Center Valley, PA) from the stomach a suitable jejunal segment beyond the obstruction was selected by passing the diluted contrast agent through the cannula. Using both the images from the echoendoscope and fluoroscope 20 mm x 10 mm lumen apposing metal stent (LAMS) Axios (Boston Scientific, Marlborough, MA) was successfully deployed (Figures 4, 5, and 6).

The patient tolerated the procedure well and there was no immediate complication. He started on a clear liquid diet the next day. His nausea and vomiting completely resolved and he was able to go home in two days.

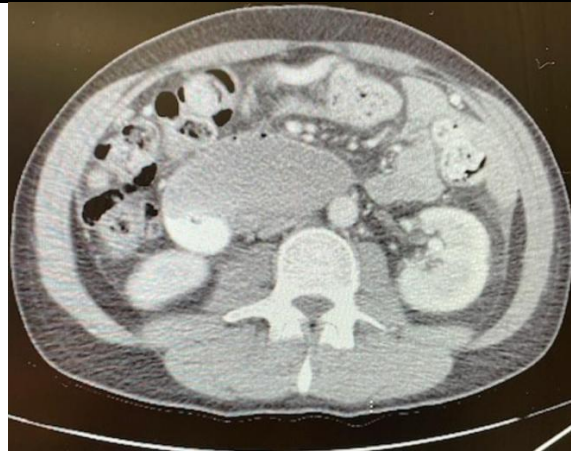


Figure 1. Showing duodenal obstruction from pancreatic body cancer

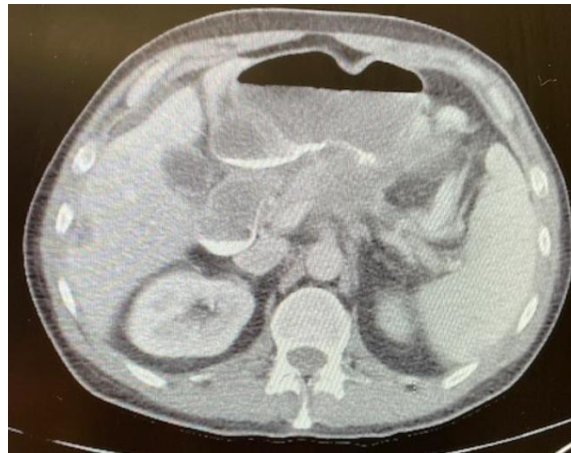


Figure 2. Distended duodenum and stomach due to obstruction



Figure 3. Nasobiliary catheter in jejunum

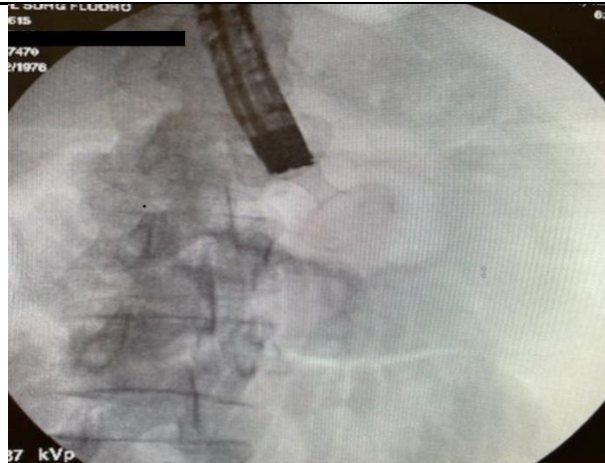


Figure 4. Successful deployment of LAMS

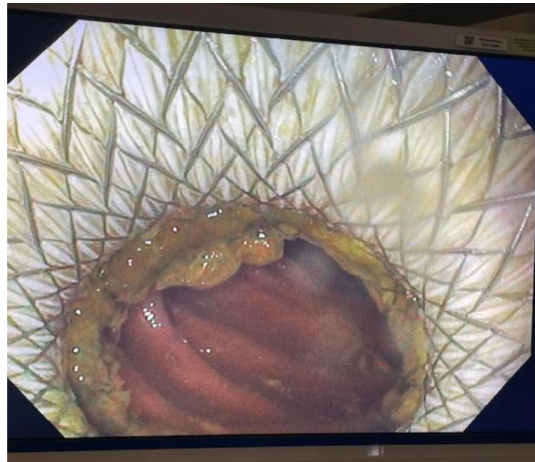


Figure 5. Successful deployment of stent

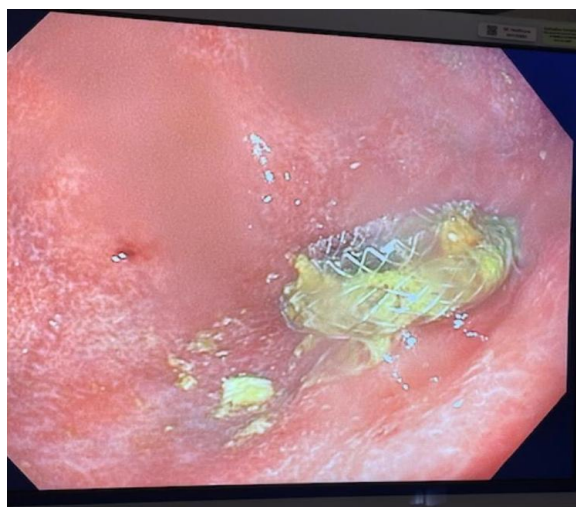


Figure 6. Successful deployment of stent

Discussion

Gastric outlet obstruction is a common complication of both pancreatic and gastric cancers. EUS-GE is a relatively new technique and has emerged as a minimally invasive non-surgical treatment option for gastric outlet obstruction.⁽³⁾ This is largely due to the development of the lumen-apposing self-expandable fully covered metal stent.⁽²⁾

Up until the introduction of this endoscopic procedure, the traditional approach was done by surgical gastrojejunostomy (SGJ) or endoscopic duodenal stents. Duodenal stents occlude much more commonly, and it happens much sooner compared to LAMS gastroenteric stents. Although SGJ provides long-lasting palliation and symptomatic relief, it is associated with a high morbidity and some mortality, especially in nutritionally deficient patients. Additionally, prolonged recovery is often associated with a delay in chemotherapy and treatment of the underlying cancer, which can generate further anxiety for patients.⁽¹⁾ However, recent comprehensive reviews have found that EUS-GE have comparable success rate to surgical GJ but shorter procedure time, lower adverse events, and post-procedure length of stay, less disruption of chemotherapy have made it much more desirable option.⁽⁴⁾

Patients experiencing malignant gastric outlet obstruction experience significant decline in their quality of life, with symptoms such as nausea, vomiting, early satiety, and abdominal pain. Additionally, obstructions can cause nutritional deficiencies and dehydration, which results in disruption of chemotherapy.⁽¹⁾ The primary goal for palliation of gastric outlet obstruction is to relieve the obstruction as quickly as possible, allowing the patient to resume oral intake and cancer treatment. Most of the pancreatic adenocarcinomas involve the head of the pancreas, causing gastric outlet obstruction, in our patient the obstruction was at the duodenojejunal junction, making EUS-GE slightly more complex, but modifying the technique made it possible.

In this case report, we highlight how EUS-GE is valuable even in patients with distal duodenal obstruction from pancreatic cancers in the body and tail. Additionally, we corroborate that utilizing this endoscopic approach patients can resume oral intake immediately, spend the least amount of time in the hospital and able to continue the chemotherapy in few days without much interruption.

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