



EUS-guided gastroenterostomy for duodenal obstruction secondary to superior mesenteric artery syndrome

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Superior mesenteric artery syndrome (SMAS) is a rare condition in which the superior mesenteric artery (SMA) impinges on the third portion of the duodenum leading to symptoms of gastric outlet obstruction.¹ When conservative management fails, surgical intervention may be required. In patients who are not surgical candidates or who decline surgery, EUS-guided gastroenterostomy (EUS-GE) using a cautery-enhanced lumen-apposing metal stent (LAMS) has been reported as a safe and effective option, but there is otherwise a paucity of data on the approach.^{2,3} Here, we report on a case of SMAS successfully palliated by using EUS-GE.

CASE

The patient was an 80-year-old man who presented to the hospital with a several-month history of oropharyngeal dysphagia, anorexia, and weight loss. CT of his abdomen with contrast showed a markedly distended stomach and duodenum up to the point where it passes beneath the SMA (Fig. 1). A nasogastric tube was placed for decompression. Subsequently, EGD revealed severe extrinsic compression in the transverse duodenum. The standard gastroscope was unable to bypass the severe stenosis. Examination using the linear echoendoscope showed compression of the third duodenum by the SMA. An 18-mm fully covered self-expandable metal stent was deployed across the compressed area and sutured in place, resulting in improvement of obstructive symptoms.

Two weeks later, he was readmitted to the hospital with recurrent nausea and vomiting and was found to have proximal migration of the enteral stent into the stomach. The previously placed enteral stent was removed. Surgery was not an option because of the patient's frailty. After extensive discussion of the risks, benefits, and alternatives with the patient, EUS-GE was successfully performed using the 15-mm × 10-mm electrocautery-enhanced LAMS (Video 1, available online at www.giejournal.org). The patient tolerated a low-residue diet by the time of discharge.

Three months after LAMS placement, the patient was tolerating a regular diet and gaining weight. Follow-up EGD showed the LAMS remained patent. Seven months after LAMS placement, repeat EGD demonstrated a patent

LAMS, but with extrinsic compression from the SMA. At this juncture, we determined the patient would likely require the LAMS long term; thus, the 15-mm LAMS was empirically upsized to a 20-mm × 10-mm LAMS to provide the maximal diameter.

Nineteen months later, he continued to do well clinically without any dietary restrictions. On EGD, the endoscope passed through the patent LAMS with little to no resistance. The existing LAMS was removed and not replaced. Two 10F × 3-cm double-pigtail stents were placed across the gastroenterostomy to maintain patency in case of a need to replace the LAMS.

Three months after removal of the LAMS, he was readmitted to the hospital with symptoms of recurrent SMAS.



Figure 1. Coronal CT scan of abdomen. The *yellow arrow* points to the superior mesenteric artery as it compresses the transverse duodenum. The duodenum and stomach are dilated proximally.

He underwent repeat EGD, which showed the plastic stents had migrated with nearly complete closure of the duodenal lumen. A 20-mm × 10-mm LAMS was subsequently placed. Two weeks later, he was contacted by telephone and reported again tolerating a regular diet. Given the recurrence of symptoms with LAMS removal, the decision was made to keep the LAMS in situ long term, with plans for the patient to return for yearly stent exchanges. Given his advanced age and comorbidities, this was believed to be the best plan of action.

This video case report shows that EUS-GE is a safe and effective option in patients with SMAS. In addition, this case shows that rapid closure of the lumen may occur after LAMS removal, even after remaining in place for nearly 2 years.

DISCLOSURE

Dr Watson is a consultant for Boston Scientific. Dr Binmoeller is a consultant for Boston Scientific and an inventor of Axios stent and electrocautery delivery system. Dr Nett is a consultant for Boston Scientific. Dr Hamerski is a consultant for Boston Scientific. All other authors disclosed no financial relationships.

Abbreviations: EUS-GE, EUS-guided gastroenterostomy; LAMS, lumen-apposing metal stent; SMA, superior mesenteric artery; SMAS, superior mesenteric artery syndrome.

REFERENCES

1. Lee CS, Mangla JC. Superior mesenteric artery compression syndrome. *Am J Gastroenterol* 1978;70:141-50.
2. Sobani ZA, Rustagi T. Endoscopic ultrasound-guided gastrojejunostomy for the management of superior mesenteric artery syndrome. *Am J Gastroenterol* 2020;115:634-5.
3. Xu MM, Dawod E, Gaidhane M, et al. Reverse endoscopic ultrasound-guided gastrojejunostomy for the treatment of superior mesenteric artery syndrome: a new concept. *Clin Endosc* 2020;53:94-6.

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