Lumen-apposing metal stent use to maintain a surgical anastomosis

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Superior mesenteric artery syndrome (SMAS), describes small-bowel narrowing as a result of compression of the third part of the duodenum between the aorta and the superior mesenteric artery. Patients with SMAS present with a constellation of symptoms resembling that of bowel obstruction, including abdominal pain, nausea, vomiting, and bloating. The symptoms are often postprandial and are frequently alleviated by the patient lying in a fetal position. 1-3

**DIAGNOSIS**

Clinical presentation plays an important role in the diagnosis of SMAS, and the syndrome is confirmed using imaging. 2 Upper GI series, ultrasonography, CT angiogram or MRI angiogram, and endoscopy can be used to make a definite diagnosis. 1-3

**CASE REPORT**

A 17-year-old girl with a medical history of Dandy-Walker syndrome, cerebral palsy, seizure disorder, and cachexia was diagnosed with SMAS (Figs. 1 and 2). She was treated conservatively with rehydration, electrolyte correction, bowel rest, and total parenteral nutrition. A laparoscopic gastrojejunostomy was performed and resulted in symptomatic improvement. Three weeks postoperatively, the patient experienced recurrent symptoms; endoscopy

**MANAGEMENT**

Depending on acuity, the treatment for SMAS includes bowel rest and nasogastric decompression. 1 Weight loss and malnutrition can cause or complicate SMAS, so fluid resuscitation, correction of electrolyte imbalance, nasojejunal feeding, and parenteral nutrition are part of the management. 1-3 Various procedures have been used in managing SMAS, including duodenojejunostomy, gastrojejunostomy, and Strong’s procedure (ligament of Treitz division). Currently, the preferred procedure is laparoscopic duodenojejunostomy. 1,2,4,5

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**Figure 1.** CT scan showing a dilation of the stomach and a portion of the duodenum.

**Figure 2.** CT scan showing obstruction of the small bowel at the junction of the third and fourth part of the duodenum. Red asterisk shows the aorta; green asterisk shows the superior mesenteric artery; arrow shows the duodenum.
showed her gastrojejunostomy was narrowed, and endoscopic balloon dilation was performed with relief of symptoms. Three weeks after dilation, a lumen-apposing metal stent (LAMS) measuring 15 × 10 mm (Axios; Boston Scientific, Marlborough, Mass) was deployed, using a double-channel upper endoscope without fluoroscopy, which resulted in symptom resolution and weight gain (Video 1, available online at www.VideoGIE.org). The LAMS was removed 6 months later (Fig. 3). The anastomosis remained open 12 months after the procedure.

**DISCUSSION**

SMAS is rare, with a prevalence of 0.013% to 0.3%, which is higher in longer-term/chronic-care institutions. The syndrome is caused by a decrease in the thickness of the fat pad between the aorta and the superior mesenteric artery. The angle between the 2 vessels decreases, resulting in compression of the duodenum. The most common etiologies of SMAS are severe weight loss, burns, trauma, severe illness, spine and scoliosis surgery, and congenital anomalies. Management includes bowel rest and nutritional support, but surgical intervention, including laparoscopic gastrojejunostomy or duodenojejunostomy, may be needed.

LAMSs have been used in the creation of duodenal jejunostomy to facilitate bile duct clearance after a Roux-en-Y hepaticojejunostomy. We report a case of a patient with SMAS with a failed gastrojejunostomy salvaged nonoperatively with an Axios stent.

LAMSs are a novel endoscopic technology that has changed the approach to multiple endoscopic and surgical interventions. In this case report, we describe the use of LAMSs in the maintenance of a surgical anastomosis. After the use of a LAMS, the patient had clinical improvement without the need for surgical intervention.

Given its low invasiveness, we believe that LAMS use will grow with time to include other indications.

**DISCLOSURE**

All authors disclosed no financial relationships.

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