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Superior Mesenteric Artery Syndrome in an Adolescent With Anorexia and Suspected Pancreatitis

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A 17-year-old gender nonbinary patient presented with cachexia, nonbilious, nonbloody emesis, lower abdominal discomfort, and decreased oral intake for four days and 40 lb weight loss for 1 year. Emesis started 4 days before admission, and they denied prior episodes of vomiting. They were vegan and although their weight was 30.4 kg (<0.01%, z = –6.68), and BMI was 11.73 kg/m^2 (<0.01%, z = –7.92), they were satisfied with their weight. Initial workup at the outside emergency room was significant for elevated lipase of 4544 U/L, sodium 131 mmol/L, bicarbonate 32 mmol/L, BUN 56 mg/dL, creatinine 1.3 mg/dL, and a normal abdominal ultrasound. Ultrasound showed a normal pancreas and no evidence of cholelithiasis or choledocholithiasis.

Upon transfer to our institution for admission, they had persistent emesis, despite being on bowel rest. Due to concern about obstruction, CT abdomen and pelvis was performed, which showed a massively dilated stomach and duodenum with cutoff at the third portion of the duodenum, and the pancreas appeared homogenous and flattened secondary to the distended stomach (Fig. 1). During the exploratory laparotomy, findings were consistent with superior mesenteric artery (SMA) syndrome, and due to the severity of the obstruction, duodenojejunal anastomosis, and gastrostomy tube placement were performed. Adolescent medicine and psychiatry were consulted, and the patient admitted that their grandmother's health was a recent stressor. There was a strong family history of depression leading to suicide, and the patient was diagnosed with anorexia nervosa, anxiety, and mood disorder. Lipase was trended and normalized within 4 days upon admission. G tube feeds were gradually advanced, and the patient fully transitioned to oral feeding upon transfer to an eating disorder unit.

SMA syndrome is a rare cause of small bowel obstruction due to compression of the third part of the duodenum between the abdominal aorta and SMA. It can be diagnosed with an aortomesenteric angle <25 degrees or a distance <10 mm (1). It has been associated with weight loss, scoliosis correction, short ligament of Treitz, duodenal malrotation, aneurysm, and neurological injury. Initially, treatment is conservative with fluid resuscitation, electrolyte correction, total parenteral, or enteral nutrition (2). However, when conservative measures fail, patients may undergo laparoscopic duodenojejunostomy with good prognosis (3,4).

This case was instructive in several ways. The suspected cause of their SMA syndrome was from weight loss secondary to anorexia nervosa. The X-ray could have missed an obstruction due to lack of air fluid levels and poor delineation of a massively dilated stomach. The presence of nonbilious emesis despite duodenal obstruction, possibly from fecalization of gastric contents, may have further exacerbated gastric outlet obstruction. High lipase in the absence of other signs of pancreatitis should raise concerns for extrapancreatic sources, such as the stomach. Furthermore, when there is a mismatch between the clinical presentation and working diagnosis, the differential diagnosis should be broadened, since it can lead to lifesaving measures.

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The subject could not be reached for consent despite multiple attempts. Instead, the chief of the division provided the institution's ethical clearance for the publication of this case.

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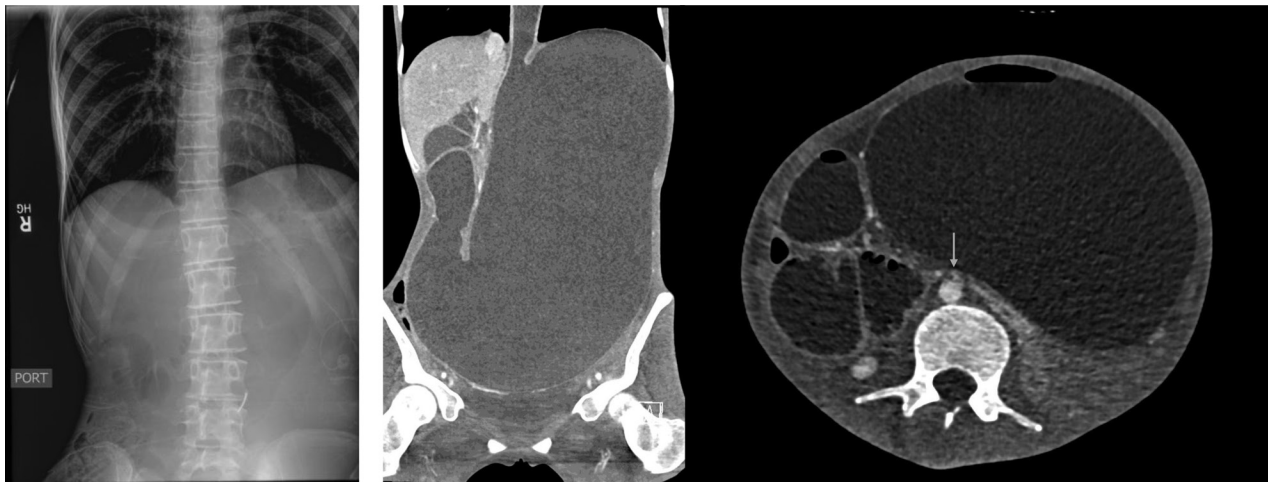

FIGURE 1. KUB (left) shows mild stool burden. CT abdomen (middle and right) demonstrates the massively distended stomach, first and second portion of the duodenum and narrowing at the level of the origin of the SMA (arrow). SMA = superior mesenteric artery.