

Image Quiz

An Intriguing Cause of Intractable Nausea and Vomiting

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A 60-year-old lady with history of reflux disease and breast cancer status post-lumpectomy and lymph node dissection followed by chemotherapy and now in remission, was admitted with progressively increasing nausea and vomiting of 2 months duration. She also described episodic epigastric abdominal pain, which increased on food intake and led to vomiting, which brought her instant relief. She had lost about 80 lbs of weight during her chemotherapy, which stabilized for few months but was now again falling because of her inability to eat. There was no alteration in bowel habits, fever or any other associated symptoms. She had two previous admissions for similar problems at a local hospital where symptomatic relief was achieved with dobhoff tube placement. She had been tolerating the tube feeds well, however, for last 2 days her symptoms reappeared raising concern of obstructed dobhoff and hence a gastroenterologist was consulted for endoscopic evaluation. Her blood-work was normal. Barium swallow showed extrinsic compression of the 3rd portion of duodenum, at the level of superior mesenteric artery (SMA) crossing, causing partial obstruction as barium passes through the 3rd to 4th portion [Figure 1]. Computed tomography (CT) scan was obtained which was diagnostic [Figure 2]. Esophagogastroduodenoscopy revealed a patent 3rd part of duodenum.

QUESTION

Q1. What is the diagnosis?

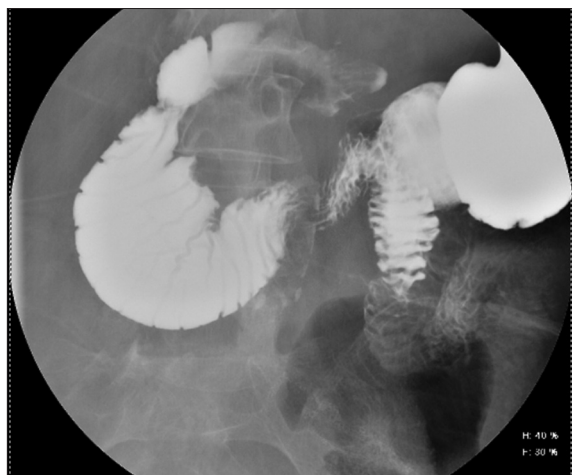


Figure 1: Barium swallow: Extrinsic compression of the 3rd portion of duodenum, at the level of superior mesenteric artery crossing, causing partial obstruction as barium passes through the 3rd to 4th portion



Figure 2: An aorta-SMA angle of less than 25° is considered diagnostic of SMA syndrome

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ANSWER

This CT image is the classical presentation of SMA syndrome. The normal angle between the aorta and SMA is 38-65°, but in SMA syndrome the angle is narrowed which results in compression of 3rd part of duodenum as it traverses between aorta and SMA causing functional obstruction.^[1] An aorta-SMA angle of less than 25° is considered diagnostic, in adjunct to shortened aorto-mesenteric distance (2-8 mm).^[2]

There may be several causes for decrease in this angle, including congenital abnormalities, but the most noteworthy is loss of intra-abdominal adipose tissue, which in healthy individuals prevents duodenal compression by maintaining distance between aorta and SMA. Patients with severe weight loss, irrespective of the cause, suffer from loss of this intra-abdominal fat and hence narrowing of the aorta-SMA angle.^[3] This is commonly seen in patients with malignancies, chronic medical conditions like malabsorption, and wasting syndromes like AIDS.^[3] It has also been reported with profound weight loss after bariatric surgery.^[4] A high-index of suspicion is the key to diagnosis of this relatively rare but important condition.

Treatment approach is usually conservative and includes nutritional support via naso-jejunal tube or total parenteral nutrition,^[5] with a hope of increasing body weight to restore the aorta-SMA angle. This approach is advocated in pediatric patients but often fails in adults with chronic conditions, who need surgical intervention eventually.

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