

Superior Mesenteric Artery Syndrome in an Otherwise Healthy Female

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Learning Objectives

- Define SMA Syndrome and identify conditions that may increase risk for SMA syndrome.
- Demonstrate that SMA syndrome may present in a patient without known comorbidities and discuss the case findings.
- Summarize the diagnostic tools and treatments for SMA syndrome.

Background

- Superior Mesenteric Artery (SMA) Syndrome is caused by narrowing of the space between the aorta and superior mesenteric artery, which can compress the duodenum.
- Clinically, SMA syndrome in adults is associated with conditions, such as extreme weight loss, malignancy, trauma, or corrective spinal surgeries.

Case Description

- 41-year-old female presented with a 30-year-history of post-prandial epigastric pain and acid reflux. She also reported early satiety, frequent belching, nausea, and constipation. Physical examination revealed epigastric tenderness to palpation. Laboratory studies were unremarkable.
- Upper endoscopy showed patchy erythema and few erosions in the antrum. Colonoscopy, gastric emptying study, and abdominal ultrasound were unremarkable. CT abdomen and pelvis showed nondilated bowels without thickening.
- Magnetic resonance angiography abdomen showed narrowing of the aortomesenteric distance at 5 mm, decreased aortomesenteric angle at 23 degrees, and mild narrowing of the left renal vein as it passes between the aorta and superior mesenteric artery.
- She was started on metoclopramide 10mg TID. Symptoms improved but experienced side effect of fatigue.
- Metoclopramide decreased to 5mg daily due to drug intolerance.
- On metoclopramide 5mg daily, symptoms remained improved and no longer experienced side effects.
- She experienced subsequent improvement of her acid reflux by 90 percent and resolution of her epigastric pain.



Figure 1. Contrast-imaged superior mesenteric artery with decreased aortomesenteric angle, prompting diagnoses of SMA Syndrome

Figure 2. Reconstructed imaging of descending aorta and its branching

Discussion

- A normal aortomesenteric angle is 38 to 65 degrees. However, decreasing the angle less than 25 degrees will decrease the distance to less than 10 mm and cause compression to the third part of the duodenum.
- Duodenal compression is usually due to the loss of the intervening mesenteric fat pad between the aorta and SMA, which results in a narrower angle between the vessels.
- Incidence of superior mesenteric artery syndrome is from 0.1 to 0.3%.
- SMA Syndrome may present with acute or chronic symptoms as recurrent abdominal pain with cramps, early satiety and postprandial fullness.
- Diagnosis is challenging. Its insidious and non-specific signs and symptoms can lead to delayed diagnosis, and therefore significant morbidity and mortality related to bowel obstruction
- CT or magnetic resonance angiography allows visualization of the vascular compression.
- Conservative treatment focuses on nutritional support. Prokinetic pharmacotherapy agents and posturing maneuvers during meals may be helpful in some patients to increase the aortomesenteric angle with subsequent relief of bowel obstruction. The use of agents such as metoclopramide is not labeled for SMA syndrome.
- If conservative management fails, surgical correction with duodenojejunostomy may be needed.

Conclusion

- We report a case of SMA syndrome in a patient without comorbidities to alert clinicians to consider SMA syndrome in select patients who present with symptoms suggestive of small bowel obstruction when gastrointestinal studies are unrevealing.

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