

Infectious Mimic of Suspected SMA Syndrome: Preventing Diagnostic Anchoring

Background:

Superior mesenteric artery (SMA) syndrome is a rare condition occurring when the third portion of the duodenum is compressed against the aorta by the SMA, resulting in proximal small bowel obstruction. Diagnosis may be challenging due to non-specific symptom presentation, including nausea, vomiting, early satiety, and abdominal distension. Additionally, narrowed SMA-aortic angles may appear in other non-SMA syndrome circumstances, such as scoliosis and low body mass index. While these conditions may predispose to SMA syndrome, some patients with narrow SMA-aortic angles may be asymptomatic. Infectious gastroenteritis can mimic SMA syndrome when associated with inflammation and duodenal edema that cause transient small bowel narrowing.

Case Presentation:

An adolescent patient with a rare genetic condition causing low BMI and scoliosis presented with acute onset nausea, non-bilious vomiting, abdominal pain, and significant gastric distension. CT with IV contrast showed a significantly narrowed SMA-aortic angle to 10 degrees, with duodenal and gastric distension proximal to the compression point initially concerning for SMA syndrome. However, further laboratory testing revealed leukocytosis and a more comprehensive history revealed foodborne illness in the family.

Intervention and Results:

The patient was initially treated with nasogastric decompression, antiemetics, and IV fluids alongside empiric antibiotics. Leukocytosis and the patient's sick contacts prompted a stool PCR, which returned positive for norovirus and *Clostridioides difficile*. The patient improved rapidly and was discharged two days later after tolerating oral intake. This recovery was much faster than expected for true SMA syndrome, which requires weight gain to establish a fat pad between the SMA and the aorta.

Discussion:

Although an extremely narrow SMA-aorta angle on imaging initially was concerning for SMA syndrome, the rapid improvement with rehydration therapy and antibiotics supported infectious gastroenteritis as the true diagnosis. A thorough history, obtained after the patient stabilized enough to provide one, as well as considering leukocytosis as reflective of the primary cause of obstruction rather than a simultaneous infection, was critical in avoiding diagnostic anchoring. Norovirus replication in enterocytes as well as *C. difficile* disruption of tight junctions may mediate inflammation and edema, a plausible cause of the small bowel obstruction in our patient.

Conclusion:

Infectious gastroenteritis with resulting inflammation and ileus may closely mimic SMA syndrome-related obstruction. Even when patients have risk factors for SMA syndrome, imaging should always be integrated with complete history to avoid diagnostic anchoring. By keeping multiple causes on the differential, clinicians may catch a rare presentation of a common condition masquerading as a common presentation of a rare condition.