

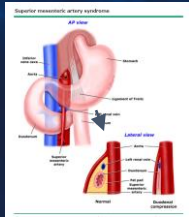


Small Bowel Obstruction Secondary to Superior Mesenteric Artery Syndrome: A Case Study Analysis

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Background

The superior mesenteric artery arises from the anterior aspect of the aorta at the level of L1 and normally creates an angle anywhere from 38-65 degrees. Superior Mesenteric Artery Syndrome (SMAS) is generally caused by a loss of the mesenteric fat pad that surrounds the artery; this contributes to the loss of the aortomesenteric angle. In SMAS, the junction between the aorta and SMA can be reduced to as little as 6 degrees. This usually occurs at the third portion of the duodenum. Compression of the duodenum can result in either partial or complete obstruction. Symptoms generally consist of abdominal pain, nausea, vomiting, fullness and weight loss. The most common causes of SMAS are significant weight loss, surgery leading to alterations in anatomic structure. In younger patients, it can occur after corrective spinal surgery for scoliosis as well as esophagectomy.



Introduction

M.H. is a 49 year old Caucasian male with a past medical history of irritable bowel syndrome, Celiac's disease, GERD, anxiety, insomnia, ADD and chronic lumbago who presented to Roxborough Memorial Hospital on 10/28/20 with the chief complaint of progressively worsening abdominal pain which began the day prior to admission. The pain was associated with 4-5 episodes of non-bloody, non-bilious vomiting as well as intermittent chills and diaphoresis.

ED Vitals: Temp 36.9C (98.5F) | BP 111/74 mmHg | HR 85 bpm | RR 19 | SpO2 97% on room air | BMI 20.6kg/m²

Results

Work up performed included a CT of the abdomen, esophagogastroduodenoscopy (EGD), CBC, CMP, Lipase and UA. General Surgery, Vascular Surgery and Gastroenterology were consulted on the case.

CT abdomen/pelvis revealed dilation of the stomach as well as the proximal and mid duodenum with collapse of the 4th portion of duodenum. Transition point appreciable in the duodenum where the aorta meets the superior mesenteric artery with an aortomesenteric angle of 13 degrees (normal 38°-65°, average ~45°).

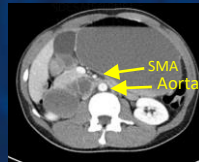


Figure 1. Axial View of the Abdomen



Figure 2. Coronal View of the Abdomen



Figure 3 & 4. Sagittal View of the Abdomen

Discussion

SMAS is a rare cause of a small bowel obstruction responsible for only 0.1-0.3% of cases. Majority of cases are attributed to weight loss leading to loss of retroperitoneal fat. An upper GI series can also be performed to identify delayed passage of contrast into the small bowel from the duodenum. Treatment is usually conservative involving gastric decompression, fluid electrolytes imbalance correction and nutritional support. If conservative treatment fails, surgery can be considered. Duodenojejunostomy has success rate up to 90%. A simpler operation known as the Strong's procedure involves division of the ligament of Treitz with mobilization of the duodenum can also be considered.

Conclusions

Patient was found to have a small bowel obstruction secondary to superior mesenteric artery syndrome. He was treated conservatively, with symptom management and NG tube placement, as recommended by Gastroenterology and General Surgery. Patient was noncompliant with the nasogastric tube, requiring multiple re-insertions and a prolonged decompression course. The patient, after 4 days of Nil Per Os (NPO), was successfully trialed on a clear liquid diet with advancement to a regular diet. Patient received an EGD while admitted, which showed gastritis and gastric body polyps. Due to resolution of abdominal pain and ability to tolerate a diet, the patient was discharged and scheduled for an outpatient colonoscopy in 2-4 weeks; small frequent meals; and General Surgery follow up for further workup. Unfortunately, patient was lost to follow-up.

References

1. Scovell, S., MD, FACS, & Hamdan, A., MD. (2020, November 25). Superior mesenteric artery syndrome. Retrieved April 12, 2021, from <https://www.uptodate.com/contents/superior-mesenteric-artery-syndrome>
2. Superior mesenteric artery syndrome. (2018, June 14). Retrieved April 06, 2021, from <https://rare-diseases.info.nih.gov/diseases/7113/superior-mesenteric-artery-syndrome>
3. Salem, A., Al Ozaibi, L., Nassif, S., Osman, R., Al Abed, N., & Badri, F. (2017). Superior mesenteric artery syndrome: A diagnosis to be kept in mind (case report and literature review). Retrieved April 12, 2021, from [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5379908/#:~:text=Superior%20mesenteric%20artery%20syndrome%20\(SMA,to%20loss%20of%20retroperitoneal%20fat.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5379908/#:~:text=Superior%20mesenteric%20artery%20syndrome%20(SMA,to%20loss%20of%20retroperitoneal%20fat.)