Research Article

Sma Syndrome- A Rare Phenomenon

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Abstract

Introduction: Superior Mesenteric Artery (SMA) syndrome is a rare digestive condition. It happens when the top artery of the mesentery presses on the third part of the duodenum. It leads to obstructive features. It often comes from fast weight loss that removes fat padding around the blood vessels. The main symptoms of SMA are pain in the upper belly after eating, early satiety, vomiting, fast and heavy weight loss, feeling better when lying on the side or pulling knees to the chest.

Case report: A twenty-three-year-old female patient presented to our hospital with diffuse abdominal pain postprandially for last three months. She was admitted and on the day admission, her routine blood work, including amylase, lipase, liver function tests and serum IgATTG antibody test for ruling out wheat allergy was unremarkable. Abdominal ultrasound showed no gallstones, pancreatitis, or free fluid. Pain persisted despite analgesics. Symptoms intensified postprandially, manifested by sharp epigastric pain after meals, without vomiting or diarrhea. An endoscopy under sedation was non-contributory. In view of diagnostic dilemma, we ordered contrast- enhanced CT (CECT) of the whole abdomen. The report, demonstrated dilatation of D2-D3 segment with abrupt narrowing of D3, as it is crossing under SMA with aorto-mesenteric angle of 13.2 degrees and aorto-mesenteric distance of 2.48 mm. The final impression given by radiologist was SMA syndrome. The patient was managed symptomatically with proton pump inhibitors, dietary modification (small, frequent meals), and pain medication, but symptoms persisted. Finally, the patient was referred to a gastro surgeon for further management.

Conclusion: SMA syndrome is rare phenomenon but should be always kept in differentia diagnosis of refractory pain abdomen, especially post -prandial one. It is diagnosed on radiological investigations

Keywords: Superior mesenteric artery syndrome, duodenal compression, pain abdomen, vomiting, CT angiography.

Introduction

Superior mesenteric artery (SMA) syndrome is a rare cause of upper gastrointestinal obstruction. The defining feature of this syndrome is the compression of the third part of the duodenum between the SMA anteriorly and the aorta posteriorly leading to upper gastrointestinal obstruction. Marked weight loss, external compression of the abdomen, anatomic variation, and surgical alterations of anatomy have been described as causative factors in SMA syndrome. [1] The most characteristic symptoms of SMA are post-prandial epigastric fullness with pain, eructation, and bilious vomiting. Acute gastric dilation, which is rarely seen, may result in several complications like dehydration, metabolic alkalosis, gastric necrosis and systemic circulatory failure. [2] In SMA syndrome, the third portion of duodenum becomes tightly compressed between the SMA and the abdominal aorta. Normally, the presence of fat and lymphatic tissues around the SMA provides protection to the duodenum against compression. The protection of SMA is diminished among cachectic patients who have decreased fatty tissue around SMA resulting in angulation and reduction in the distance between the aorta and the SMA. [3-5]

Case Report

A twenty-three-year-old female patient presented to our hospital with diffuse abdominal pain postprandially for last three months. She was admitted and on the day admission, her routine blood work, including amylase, lipase, liver function tests and serum IgATTG antibody test for ruling out wheat allergy was unremarkable. Abdominal ultrasound showed no gallstones, pancreatitis, or free fluid. Pain persisted despite analgesics. Symptoms intensified postprandially, manifested by sharp epigastric pain after meals, without vomiting or diarrhea. An endoscopy under sedation was non-contributory. In view of diagnostic dilemma, we ordered contrast- enhanced CT (CECT) of the whole abdomen. The report, demonstrated dilatation of D2-D3 segment with abrupt narrowing of D3, as it is crossing under SMA with aorto-mesenteric angle of 13.2 degrees and aorto-mesenteric distance of 2.48 mm. The final impression given by radiologist was SMA syndrome. The patient was managed symptomatically with proton

pump inhibitors, dietary modification (small, frequent meals), and pain medication, but symptoms persisted. Finally, the patient was referred to a gastro surgeon for further management.

Figure 1: CECT scan abdomen showing decreased distance of SMA and Abdominal aorta

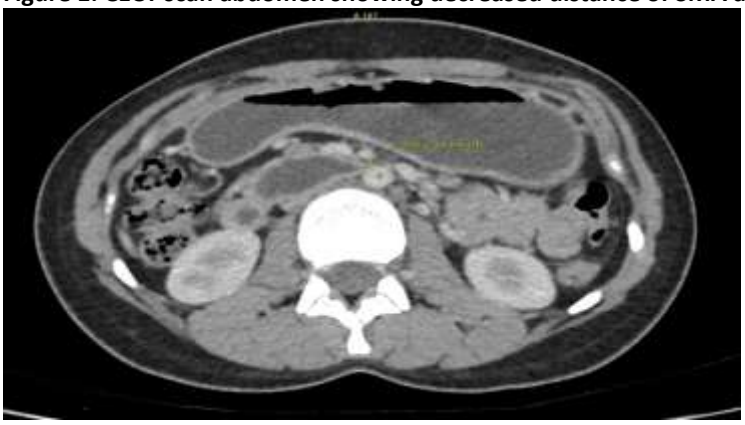


Figure 2: CECT scan abdomen showing decreased angle and distance between SMA and Abdominal aorta

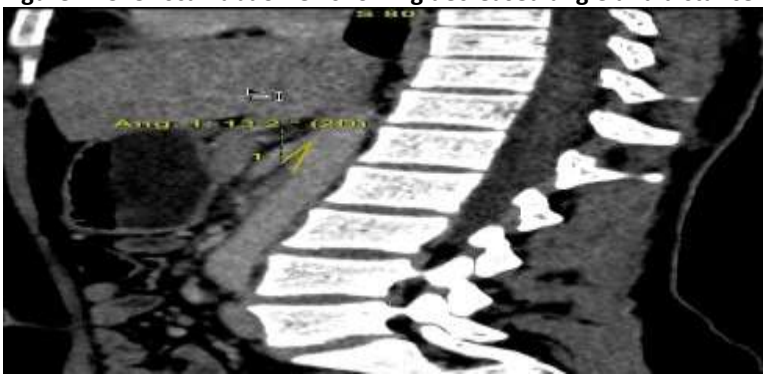
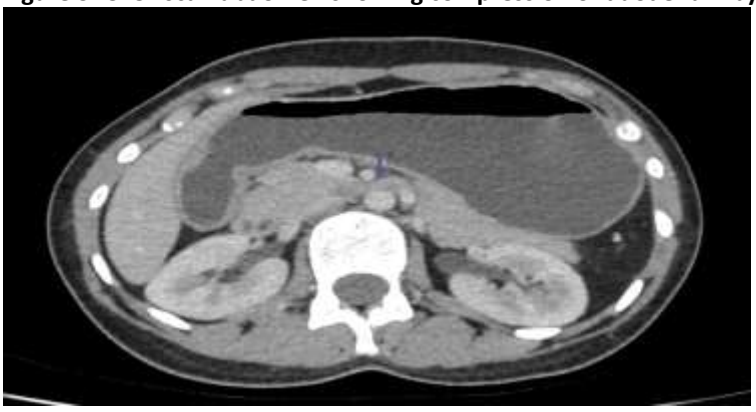


Figure 3: CECT scan abdomen showing compression of duodenum by SMA



Discussion

Superior mesenteric artery (SMA) syndrome (also known as Wilkie's syndrome, cast syndrome, or aorto-mesenteric compass syndrome) is an obstruction of the duodenum caused by extrinsic compression between the SMA and the aorta. The median age of patients is 23 years old (range 0-91 years old) and predominant in females over males with a ratio of 3:2. The symptoms are variable, consisting of postprandial abdominal pain, nausea and vomiting, early satiety, anorexia, and weight loss and can mimic anorexia nervosa or functional dyspepsia. Because recurrent vomiting leads to aspiration pneumonia or respiratory depression via metabolic alkalosis, early diagnosis is

required. The useful diagnostic modalities are computed tomography as a standard tool and ultrasonography, which has advantages in safety and capability of real-time assessments of SMA mobility and duodenum passage. The initial treatment is usually conservative, including postural change, gastroduodenal decompression, and nutrient management (success rates: 70%-80%). If conservative therapy fails, surgical treatment (i.e., laparoscopic duodenojejunostomy) is recommended (success rates: 80%-100%). [6,7] Superior mesenteric artery syndrome (SMAS) is a rare condition that occurs when the superior mesenteric artery compresses the third part of the duodenum. This compression can cause obstructive symptoms and weight loss. SMAS can be caused by a variety of factors, including abnormal anatomy, rapid weight loss, and previous abdominal surgery. It is most commonly seen in young, thin females, but can occur in males and people of any age or body type. In conclusion, although vomiting and abdominal pain are frequently seen in minor gastrointestinal diseases including acute gastroenteritis or viral syndrome, less commonly seen diseases such as SMA syndrome should be remembered among patients resistant to medical therapy. In other words, SMA syndrome may present with acute or chronic symptoms, which may be misdiagnosed as gastroenteritis, duodenal or gastric ulcer and chronic mesenteric ischemia.

Conclusion

SMA syndrome is rare phenomenon but should be always kept in differentia diagnosis of refractory pain abdomen, especially post -prandial one. It is diagnosed on radiological investigations. Our report highlights how timely vascular imaging can avert misdiagnosis in unexplained pain especially relevant for gastroenterologists.

Conflict of Interest

The authors declare that there was no conflict of interest, no financial support was taken and proper consent was taken from the patient before publication of this case report.

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