

Review Article

SMA Syndrome – A Case Report and Review of Literature

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Abstract: Superior mesenteric artery (SMA) syndrome (Wiklie's syndrome) is one of the rare causes of small bowel obstruction. It's exact incidence is not known. It is due to decrease in aorto-mesenteric angle with resultant duodenal obstruction. Management is usually conservative but failure of conservative measures warrants surgical intervention. We present a case of 39 year old lady presented with SMA syndrome managed surgically.

Keywords: SMA syndrome, Wiklie's syndrome, duodenal obstruction.

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INTRODUCTION

The superior mesenteric artery (SMA) syndrome is a rare entity, usually presenting with acute or chronic upper gastrointestinal tract obstruction and weight loss, due to the compression of the third part of the duodenum between the abdominal aorta and the SMA itself [1]. It represents an atypical cause of proximal intestinal obstruction, which occurs most frequently in young patients presenting with an important weight loss [2]. An abnormal low insertion of the SMA or a high insertion of the angle of Treitz that dislocates the duodenum to a cranial position may support this condition. Among the most frequent causes of SMA syndrome, the best recognized are an acquired anatomic abnormality occurring after scoliosis surgery, spinal trauma, abdominal surgery (e.g., total proctocolectomy and ileal J-pouch anal anastomosis), burns (since causing a hypercatabolic state), anorexia nervosa, and finally neoplastic diseases and malabsorptive states, which may be related to prolonged wasting conditions [2-6]. Patients with SMA syndrome may present both acutely and insidiously, thus making the diagnosis of the SMA syndrome as challenging and often delayed. Furthermore, the optimal management of SMA syndrome also remains as a challenge. Conservative measures should be tried first, failure of which surgical intervention needed.

CASE REPORT

39 year old female patient presented to emergency department with complains of pain abdomen, abdominal distension and vomiting since 7days. Patient had history of recurrent pain abdomen and vomiting for long duration. Patient also complaint of abdominal fullness and was not able to take solid foods.

On general examination patient was pale and severely dehydrated. On systemic examination of abdomen found to be mildly distended with normal bowel sounds. Smooth globular swelling was seen in upper abdomen extending below the umbilicus. Swelling was soft with smooth surface. Clinically we delineated to be distended stomach and marked the greater curvature going below the umbilicus. Percussion and suction splash was positive.

Patient underwent CT abdomen on which it was observed that stomach was over-distended and filled with fluid. D1&D2 segments of duodenum were also dilated. The SMA angle was found to be 6 degree. The aorta mesenteric distance was 2 mm.

Ryle's tube was inserted and stomach decompressed. Approximately 3 litres of bilious fluid sucked out.



Fig 1: Clinical photograph showing distended stomach going well below the umbilicus

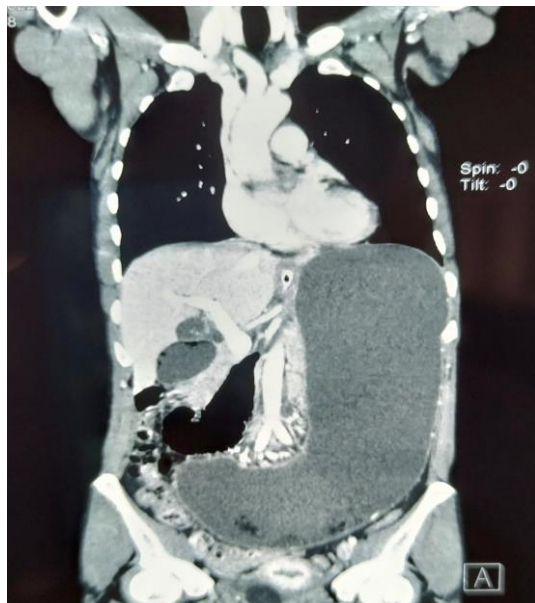


Fig 2: CT scan images showing hugely distended stomach filled with content



Fig 3: CT scan images showing hugely distended stomach filled with content

Patient was kept nil by mouth. Dehydration was corrected, blood transfusion and albumin transfusion was given and patient was optimised. After stabilizing the patient we gave her a trial of feeding but the attempt of feeding her solid food resulted in vomiting and abdominal distension after which gastric content had to be sucked out.

As patient was not able to take solid food we decided to do a bypass by doing gastrojejunostomy.

Mid line incision was given, we found stomach to be distended. We did a retrocolic, isoperistaltic loop gastrojejunostomy.

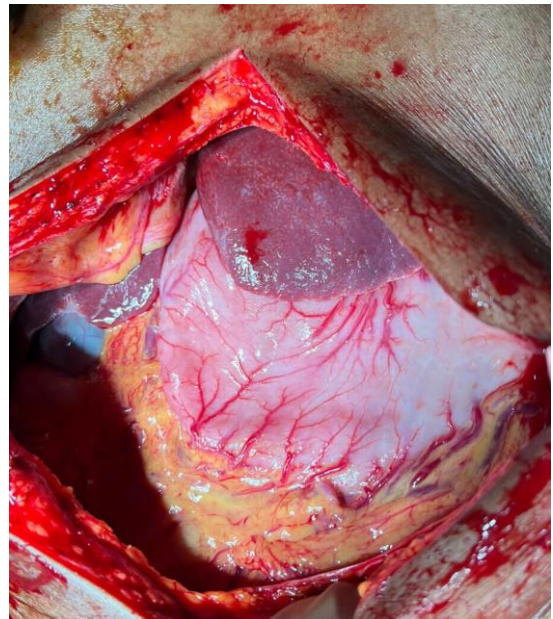


Fig 4: Operative picture showing distended stomach



Fig 5: Retrocolic loop gastro-jejunostomy done

Patient recovery was uneventful and was discharged in a healthy condition. Patient was educated regarding dumping syndrome and was advised to take small quantity of food frequently. Patient came for follow up after one month and she was having food normally without any symptoms.

DISCUSSION

Superior mesenteric artery (SMA) syndrome is one of uncommon causes of small bowel obstruction. In this syndrome, the 3rd part of duodenum will be compressed between SMA at its origin and abdominal aorta due to decreased angulation leading to partial or complete obstruction [7].

In normal anatomy the aorto-mesenteric angle and aorto-mesenteric distance is 25°–60° and 10–28 mm, respectively. Third part of duodenum courses postero-inferior in relation to SMA. Any loss in retroperitoneal fat might reduce that angle and leads to superior mesenteric artery syndrome [8, 9].

Incidence of superior mesenteric artery syndrome reported in some previous studies ranging from 0.1 to 0.3% however the true incidence is unknown [8]. Several factors are listed which have an effect on aorto-mesenteric angle. The most common is significant weight loss which leads to loss of retroperitoneal fat. Superior mesenteric artery syndrome is most commonly associated with severe debilitating illnesses, such as malignancy, malabsorption syndromes, AIDS, trauma and burns [10].

Weight loss is not the only factor responsible for SMA syndrome. Surgical intervention that distorts the anatomy can also lead to this syndrome. Corrective spinal surgery for scoliosis and esophagoectomy in some occasions are among the causes. Moreover, congenital short ligament of Treitz suspending the duodenum in an abnormally cephalic position has also been reported in literature as one of the causes [10].

Females aged between 10 to 40 years are more commonly affected [2]. Patient might present with acute symptoms of intestinal obstruction or more commonly with chronic symptoms as recurrent abdominal pain with cramps, early satiety and postprandial fullness. Sometimes pain will be aggravated with lying supine and get relieved in knee chest position, a maneuver increases the aorto-mesenteric angle with subsequent relief of bowel obstruction [11, 12]. Our patient presented in the emergency with vomiting, abdominal pain & distension. There was severe dehydration to accompany with. She gave history of recurrent such episodes.

SMA syndrome diagnosis is challenging and often delayed due to its insidious onset. The diagnosis should be suspected based in clinical presentation and supported by radiological tests. Barium studies might

show duodenal dilatation and sometimes gastric dilatation with slow gastroduodenojejunal transit. Contrast-enhanced CT or magnetic resonance angiography enable visualization of the vascular compression of the duodenum and precise measurement of the aorto-mesenteric angle and distance [13].

CECT criteria for the diagnosis of SMA syndrome include an aorto-mesenteric angle of less than 22° and an aorto-mesenteric distance of less than 8–10mm [14]. Usually, the aorto-mesenteric angle and distance significantly correlate with BMI in a normal population [15].

Treatment is usually conservative which include gastric decompression, fluid electrolytes imbalance correction and nutritional support either through total parenteral nutrition or post pyloric tube feeding (nasojejunal tube). Conservative treatment focuses on nutritional support aimed at restoration of retroperitoneal fat and weight gain. Posturing maneuvers during meals and motility agents may be helpful in some patients [2, 12].

If conservative treatment fails to relieve obstruction surgical procedures to bypass the obstruction should be considered. Duodeno-jejunostomy is the procedure of choice with success rate reach up to 90%. Another simpler operation called Strong's procedure which involves division of the ligament of Treitz with mobilization of the duodenum. Gastro-jejunostomy has also been reported in literature in treating such condition [2].

In our case, patient was unable to tolerate solid food. So after optimizing the patient we decided for surgical bypass. We chose to do retrocolic gastro-jejunostomy to relieve the duodenal obstruction. Patient educated regarding dumping syndrome and advised to take frequent small meals with lower carbohydrate content. She came for follow-up after one month. She was taking solid food normally, no complains of bloating or distension or vomiting.

CONCLUSION

Superior mesenteric artery syndrome is a rare cause of intestinal obstruction but should be kept in mind. Persistent vomiting after history of weight loss should raise the suspicion of this diagnosis. Patient may be severely ill due to dehydration and nutritional deficit which will require prompt attention. Upper GI endoscopy may be necessary to exclude other mechanical causes of duodenal obstruction. Contrast enhanced CT scan is useful in the diagnosis of superior mesenteric artery syndrome and can provide diagnostic information.

Ethical approval: Not Required

Conflict of interests: None

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