

Superior Mesenteric Artery Syndrome [Wilkie's syndrome]: A Rare Cause of Intestinal Obstruction.

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Abstract: Superior mesenteric artery syndrome is an entity generally caused by the loss of the intervening mesenteric fat pad, resulting in compression of the third portion of the duodenum by the superior mesenteric artery. It is a life-threatening upper gastrointestinal disorder due to compression of duodenum as it poses a difficult diagnostic dilemma. Third part of duodenum is in fixed compartment bounded anteriorly by the root of mesentery and superior mesentery artery and posteriorly by the aorta and lumbar spine.

Keywords: Compression, third part of duodenum, Superior mesenteric artery, Aorta, Life threatening, diagnostic dilemma.

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I. Introduction

Superior mesenteric artery syndrome (SMAS) is a rare cause of small bowel obstruction, characterized by an extrinsic vascular compression of the third portion of the duodenum between the abdominal aorta and overlying superior mesenteric artery, due to loss of cushion of fat. Clinically, it presents with postprandial abdominal distension, pain, nausea, vomiting, and weight loss. Fasting, total parenteral nutrition, and gastric decompression constitute usual conservative treatment with a high success rate. Surgery if needed has a low failure rate and consists of creating a gastrojejunostomy or duodenojejunostomy with or without duodenal mobilization (known as the Strong's procedure).

II. Case Report

A 17 year young man was admitted into the emergency with the complaint of recurrent abdominal pain, epigastric fullness, and vomiting and weight loss. Abdominal examination revealed upper abdomen fullness, resonant note on percussion and hyper peristaltic bowel sounds on auscultation. Erect abdomen X ray revealed dilated stomach bubble with non visualization of rest of bowel loops. CT scan of the abdomen revealed dilatation of stomach, first and second part

of the duodenum proximal to the aorta-superior mesenteric artery angle. Laboratory investigations were normal.

Conservative management was tried for 15 days but to no avail.

Explorative laprotomy performed revealed compression of 3rd part of duodenum. The duodenal obstruction was bypassed by performing duodenojejunostomy. Post op recovery was uneventful.

III. Discussion

The superior mesenteric artery (SMA) arises from the anterior surface of the abdominal aorta, just inferior to the origin of celiac trunk, and supplies the intestine from the lower part of the duodenum through two thirds of the transverse colon, as well as the pancreas. Superior mesenteric artery syndrome is a rare cause of upper gastrointestinal obstruction [1], only 400 cases have been reported in medical literature [2].

Superior mesenteric artery syndrome was described for the first time by Rokitsky in 1842 and has an incidence of 0.013–0.3% in the general population with a mortality rate of 33% [3, 4]. Other names also used to indicate this clinical entity include Wilkie's syndrome [5], aortomesenteric artery compression [6], arterioesenteric duodenal compression [7], duodenal vascular compression [8], and cast syndrome [8].

The SMA usually forms an angle of approximately 45° (range, 38–56°) with the abdominal aorta, and the third part of the duodenum crosses caudal to the origin of the SMA, coursing between the SMA and aorta. Any factor that sharply narrows the aortomesenteric angle to approximately 6–25° can cause entrapment and compression of the third part of the duodenum as it passes between the SMA and aorta, resulting in SMA syndrome.

There are several factors that can decrease the acuity of the angle between the aorta and SMA; the most common is significant weight loss leading to loss of the mesenteric fat pad. As a result, SMA syndrome has most

often been described in patients with severe, debilitating illnesses, such as malignancy or malabsorption syndromes.

It has also been described in a variety of other disorders associated with extreme weight loss including anorexia nervosa, trauma or burns, spinal cord injury and paraplegia, and after prolonged bed rest (9,10). Other causes include high insertion of the duodenum at the ligament of Treitz, a congenitally low origin of the SMA and compression of the duodenum caused by peritoneal adhesions, due to duodenal malrotation (11, 12).

Diagnosis depends on high index of suspicion since symptoms can be non-specific. The syndrome usually affects young females (10 to 39 years). The symptomatology is commonly chronic, with epigastric pain, bloating after meals, and vomiting.

The clinical diagnosis can be confirmed by radiologic studies in 95% of cases (13). Historically, barium meal and arteriography were used as diagnostic tools (14) but more recently, CT, CT angiography and magnetic resonance imaging (MRI) have been used and shown higher diagnostic sensitivity (15).

Arteriographic criteria include a significantly decreased aorta-SMA angle of 6° to 25° (NL= 45°) and a shortened aortomesenteric distance of 2 to 8mm (NL=10 to 20mm) (16). Conservative management is the rule for acute cases (17). Conservative treatment includes adequate nutrition, G.I. decompression and proper positioning after eating.

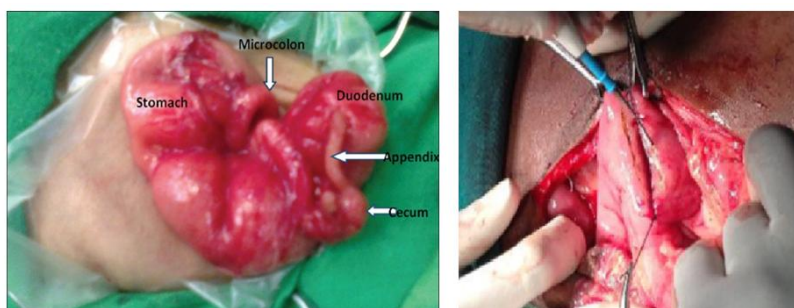
Prokinetic drugs like metoclopramide or cisapride may be helpful. Surgery is indicated for chronic cases and failure of conservative management.

The most common operation for SMA syndrome, duodenojejunostomy, was first proposed in 1907 by Bloodgood (18). This open surgery involves the creation of an alternate route between the duodenum and the jejunum, bypassing the compression caused by the AA and the SMA.

Laparoscopic duodenojejunostomy for the management of SMA has also been described in the literature (19).

IV. Conclusion

Superior mesenteric artery syndrome (SMAS) is a rare condition caused by compression of the transverse portion of the duodenum between the superior mesenteric artery (SMA) and the aorta. Symptoms are non-specific and the diagnosis depends on high index of suspicion. MRA, being not invasive, is rapidly replacing the arteriogram in confirming the diagnosis. Conservative management may be sufficient in early cases. Duodenojejunostomy is the surgical treatment of choice.



DILATED STOMACH AND DUODENUM DUODENOJEJUNOSTOMY FIG 1 FIG 2



CT SCAN FIGURE 3 showing dilated stomach and duodenum

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