

## Superior Mesenteric Artery Syndrome: A Case Report

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### Abstract

### Case Report

**Introduction:** Superior mesenteric artery (SMA) syndrome or Wilkie syndrome is a rare cause of superior bowel obstruction caused by the compression of the third portion of the duodenum during the passage between the superior mesenteric artery and aorta. Clinically, it is characterized by vomiting, nausea and intermittent abdominal pain based on the degree of duodenal compression. Diagnosis is based on abdominal CT scan. First treatment is medical, but frequently surgery is required treatment. **Observation:** We report a case of superior mesenteric artery syndrome in a male patient aged 21 years with a history of chronic vomiting and weight loss. Abdominal CT scan found a D3stenosis with reduced aorto-mesenteric space related to a mesenteric artery syndrome. The management consisted of surgical treatment after failure of medical treatment with a favorable outcome. **Conclusion:** The mesenteric artery syndrome is a rare and benign disorder. The abdominal CT scan is of vital interest for the diagnosis in 90% of cases. Medical treatment is tried first but surgery is common.

**Keywords:** Superior mesenteric artery syndrome, duodenal occlusion, gastrointestinal anastomosis.

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## 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.

Several factors can lead to such a syndrome: rapid weight loss (anorexia nervosa, extensive burning, and malabsorption syndrome) decreasing fat mass protecting the duodenum, retro peritoneal hematoma, uterus pregnant or correction of a deformity of the spine by compression cast or by surgery [1].

The most characteristic symptoms of SMA are post-prandial epigastric fullness with pain, eructation, and bilious vomiting

## CASE PRESENTATION

A twenty-Four-year old male patient was transferred from the gastroenterology department for management of chronic vomiting with weight loss and epigastric pain progressing for then 6 months. Pain localized to the epigastric area with no relieving or aggravating factors. No significant previous surgical or medical problem. Examination revealed very thin patient with normal vitals. Abdominal examination

showed mild tenderness with fullness over epigastric area.

The biological impact assessment revealed the presence of ionic disorders: Na<sup>+</sup>: 128, k<sup>+</sup>: 3.2, disturbed nutritional assessment: albuminuria: 27, total protein: 50, with normal kidney function. The rest of the biological assessment is normal

Patient underwent CT scan abdomen and pelvis that revealed dilated stomach as well as significant reduction of the aorto-mesenteric angle (measuring 11°) and aorto-mesenteric distance measuring about 7,8 mm

The management consisted of a medical treatment based on postural treatment in Left lateral decubitus and renutrition by oral then parenteral route for 5 days. In Due to the non-improvement under medical treatment, a surgical diversion (gastro-entero-anastomosis) was performed by laparotomy without incident). Feeding was resumed on D3postoperative.

## DISCUSSION

First described by Rokitansky in 1861 and then studied in detail by Wilkie in 1921, Superior mesenteric artery syndrome is a rare cause of duodenal obstruction associated with a wide range of predisposing factors [3-1]. It is caused by extrinsic compression of the third

portion of the duodenum through the superior mesenteric artery or one of its branches against the aorto-rachidian plane. This obstruction may be partial or complete, acute or chronic, congenital or acquired [6-4]. The prevalence of aorto-mesenteric clamp syndrome varies between 0.013% and 0.78%. It occurs preferentially in young patients female. No racial and ethnic predisposition has still been identified [4-6]. Factors favoring the occurrence of this pathology are most often: weight loss rapid resulting in a reduction in the thickness of the fabric adipose in the aorto-mesenteric space, the correction of scoliosis, spinal hyperlordosis, cerebral palsy and anatomical abnormalities such as an enlarged or abnormally short Treitz ligament attracting the third duodenal portion to the top of the duodenojejunal angle and thus favoring the compression of the digestive segment via the superior mesenteric artery [6,7]. Nevertheless, 40.4% of cases occur without a factor triggering obvious [6]. The symptoms are variable and nonspecific.

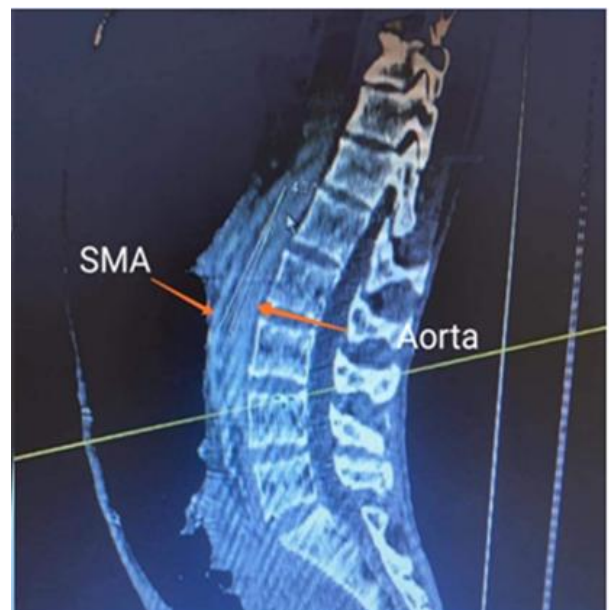
The installation can be acute or evolve insidiously according to the etiology and the importance duodenal obstruction. The most common clinical signs frequent are abdominal pain, vomiting bilious and nausea, often associated with distension epigastric. They are aggravated by meals and lying down dorsal, relieved by the left lateral decubitus and the seated. This symptomatology poses the problem of diagnosis differential with other pathologies such as pancreatitis, ulcer, and mega duodenum.

The diagnosis, suggested clinically, is confirmed by the abdominal CT angiography which shows a gastroduodenal dilatation up to the level of the third portion of the duodenum with extrinsic compression opposite of the superior mesenteric artery. The distance aorta-superior mesenteric artery is less than 8mm (figure 1) and the aorto-mesenteric angle is less than  $22^\circ$  [12] (figure 2). Support therapy is initially medical aimed at relieving symptoms of the obstruction. She understands decompression gastric by a nasogastric tube, the correction of hydro-electrolyte disturbances. Supplementation nutrition by parenteral or enteral route allows gain weight and restore aorto-mesenteric adipose tissue which, in normal individuals, displaces the superior mesenteric artery in front of the aorta thus avoiding duodenal compression. Hygienic-dietetic measures are fundamental and involve the division of meal, the left lateral decubitus or prone position post-prandial [11]. The patient should be monitored narrow and gradual oral feeding should be initiated as soon as symptoms begin to subside [12]. Surgery is indicated in the event of failure of conservative treatment or recurrence. Various interventions were proposed based either on a digestive derivation such a duodeno-jejunal or gastro-jejunal anastomosis, either on the modification of local conditions by section of the Treitz ligament and uncrossing of the duodenojejunal angle by positioning the jejunum to the right of the superior

mesenteric artery (Strong's procedure). Nowadays, all these operating methods can be carried out by laparoscopic. Its main advantages are pain less postoperative, a low risk of occlusion on the bridge, an excellent aesthetic result, early recovery of the intestinal peristalsis, and a longer hospital stay short [11, 12]



**Fig-1: Abdominal CT revealed distension stomach and distance aorta-SMA is 7.8mm**



**Fig-2: Sagittal CT-slice showing a narrowed aorto-mesenteric angle**

## CONCLUSION

Superior mesenteric artery syndrome is 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. 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. The establishment of appropriate conservative measures and the definition of surgical indications are essential for the prevention complications

### Ethical approval

Written informed consent was obtained from the patient.

### Consent

Written informed consent was obtained from the patient.

### Author contributions

All authors have approved the final article

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