

## Superior mesenteric artery syndrome: A case report

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### Abstract

**Context:** Superior mesenteric artery syndrome 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. On barium contrast study and abdominal computerized tomography (CT) showed the dilatation of second part of duodenum and compression of the third part of duodenum between aorta and superior mesentery artery. **Case Report:** A 22 year young asthenic man admitted with the complaint of recurrent abdominal pain, epigastric fullness, and vomiting and weight loss. Abdominal examination revealed epigastric fullness and hyper peristaltic bowel sounds. Upper gastrointestinal barium study showed a dilated stomach with dilated second part of the duodenum and cut off at the third part of duodenum with no intrinsic mucosal abnormalities. There was no relief of obstruction in the left lateral decubitus or prone position. Conservative treatment was tried for one month but failed. Intra-operative findings confirmed the extrinsic obstruction of third part of duodenum with distension of 2<sup>nd</sup> part. A retrocolic duodenojejunostomy, side to side anastomosis done. In post-operative follow up, patient was symptom free. **Conclusion:** Superior mesentery artery syndrome is a life threatening disease. It should be treated as soon as possible. Conservative trial can be given but Surgery is the treatment of the choice.

**Keywords:** Chronic, duodenal ileus, superior mesentery, obstruction, cast syndrome, surgery.

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### Introduction

Superior mesenteric artery syndrome (SMAS) was first described in 1861 by Rokitansky [1, 2]. The syndrome mostly develops after a rapid and dramatic weight loss. The most characteristic symptoms are post-prandial epigastric fullness with pain, eructation, and bilious vomiting. It commonly occurs due to the compression of the third part of the duodenum between the superior mesenteric artery and the aorta [3]. As the diagnosis is generally problematic so its imperative to convincingly exclude other causes which can cause obstruction of the

duodenum. This syndrome can occur as an acute illness but patient generally has a longer history. The first proposed surgery for SMAS was described as duodenojejunostomy by Bloodgood [2].

### Case Report

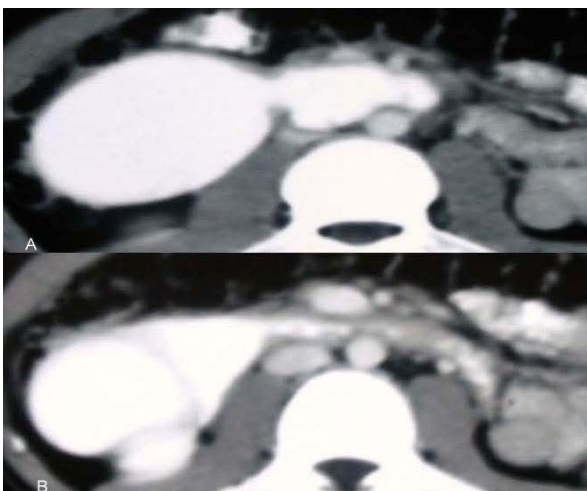
A 22 year young asthenic man admitted with the complaint of recurrent abdominal pain, epigastric fullness, vomiting and weight loss. Pain was colicky in nature since 8 months for which he was taking treatment from private practitioner. It was precipitating by eating food and

relieved after bouts of vomiting (undigested food). In past history, patient got treatment for intestinal obstruction about 1 month back which was relieved with conservative treatment only.

His vitals were stable. Abdominal examination revealed epigastric fullness and hyper peristaltic bowel sounds. Routine blood and urine examination were normal. Montoux and erythrocyte sedimentation rate (ESR) test were negative. Ultrasonography (USG) of the abdomen was normal. Upper gastrointestinal barium study showed dilated stomach with dilated second part of the duodenum and cut off at the third part of duodenum with no intrinsic mucosal abnormalities (Fig. 1). There was no relief of obstruction in the left lateral decubitus or prone position. Contrast enhanced computed tomography (CECT) showed distended stomach with dilatation of second part and constriction/extrinsic compression of the third part of duodenum between aorta and SMA (Figs. 2a,b).



**Fig. 1** Barium meal follow through X-ray showed dilatation of the second part of duodenum with compression of the third part.



**Figs. 2a & 2b** Contrast enhanced computed tomography of the abdomen revealed compression of third part of the duodenum between superior mesentery artery and aorta.

The clinical symptoms and signs with investigative

findings suggested the diagnosis of SMAS. Conservative treatment was tried for one month. The patient was told to take frequent small meals of nutritious liquid, advised to lie on left side/prone following meals. Metaclopramide was also advised but no relief of symptoms found, so surgery was planned.

Exploratory laparotomy through a midline incision was done. Intra-operative findings confirmed the extrinsic obstruction of third part of duodenum with distension of 2<sup>nd</sup> part. Peritoneal adhesions and small insignificant mesenteric lymph nodes were also present. The site of obstruction was further confirmed by nasogastric air-insufflations. Adhesions were separated. Mesenteric lymph nodal biopsy took. A retrocolic duodenojejunostomy, side to side anastomosis done. In post-operative follow up, patient was symptom free and started taking normal diet and added some weight.

**Discussion-** SMA syndrome was first described by von Rokitsanski in 1861 [1]. Wilkie later provided a more detailed anatomical, clinical and patho-physiologic description and named it chronic duodenal ileus [2]. Wilkie later published one of the largest series, total 75 cases in 1927 [3]. The incidence of this condition varies from 0.013-0.3% of the barium series of the upper GI tract [3, 6, 8]. Normally the aorto-mesenteric angle and aorto-mesenteric distance is 25°- 60° and 10 to 28 mm respectively. Both parameters are reduced in SMAS, with values of 6° to 15° and 2 to 8 mm respectively. Other causes include an abnormal high, fixed position of ligament of Treitz, unusually low origin of the SMA, a short ligament of Treitz and decrease of the aorto-mesenteric angle causing compression of 3<sup>rd</sup> part of duodenum by peritoneal adhesions and is due to loss of retroperitoneal fat which normally acts like cushion around the SMA [5-7]. Patient predominantly presented with weight loss and vomiting depending on the cause and degree of duodenal compression. Generally literature says that, the symptoms are relieved by lying prone/ left lateral decubitus, but there was no relief in our case.

The diagnosis of SMAS is based mostly on clinical symptoms and radiologic evidence of obstruction by Barium studies and CT scan. Surgical findings in our case were compression of third part of duodenum due to extrinsic compression with insignificant mesenteric lymph nodes. Conservative treatment failed so surgery was performed. Presently, surgical treatment (either laparoscopic or open method) is the only accepted way of managing SMAS, as conservative treatment is rarely successful. On fourth post-op day, patient took orally liquids and later on accepted normal diet. Patient responded very well to surgery. Success rate reported is 90 %.

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