



Superior Mesenteric Artery Syndrome: A Rare Cause of Duodenal Obstruction (Case Report)

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Authors' contributions

This work was carried out in collaboration among all the authors. Author FZB is the operating surgeon. Author FZB wrote the protocol and wrote the first draft of the manuscript. Author BD managed the documentary research, wrote the manuscript and proposed the work for publication. Authors AEB and KE worked on the documentary searches. Author AF oversaw all the work. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Superior mesenteric artery (SMA) syndrome or what is called Wilkie's syndrome is one of the rare etiologies of duodenal obstruction. It is due to decrease in Aortomesenteric angle and its incidence remains unknown. We report a case of a twenty-seven-year old male patient presented to our "Visceral Surgical Emergency Department, UHC ibn Rochd, Casablanca, Morocco" with an epigastric pain evolving for 2 days, associated with bilious vomiting. The diagnosis of Wilkie's syndrome was established by abdominal CT-scan. Transmesocolic Gastrojejunostomy was performed by laparotomy. After seven months follow-up, this patient was asymptomatic.

Superior mesenteric artery syndrome is a rare cause of duodenal obstruction that we must always think about. Persistent vomiting after history of weight loss should raise the suspicion of this diagnosis. Upper gastro intestinal endoscopy can exclude mechanical causes of duodenal obstruction. Contrast enhanced CT scan can confirm the diagnosis of Wilkie's syndrome.

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1. INTRODUCTION

Superior mesenteric artery syndrome (SMA) is one of the rare causes of duodenal obstruction. It is due to decrease in aortomesenteric angle that leads to duodenal obstruction [1]. Many factors are included for such a condition but the weight loss is the most significant one. diagnosis is difficult but should be suspected based on clinical presentation. Conservative treatment has place as first line, But if the conservative treatment fails the surgical treatment requires. The case report has been written in line with the SCARE criteria.

2. CASE PRESENTATION

A twenty-seven -year old male patient presented to our department with an epigastric pain evolving for 2 days, associated with bilious vomiting. The patient does not report similar symptoms in the history, and has no medical or surgical history clinical examination finds a skinny patient with normal vitals, signs of dehydration, abdominal examination showed a supra-umbilical abdominal distension with epigastric tympanic percussion and epigastric sensitivity, rectal touch shows an empty rectal ampoule without palpable mass. an abdominal ultrasound was performed in the emergency

room which revealed an important abdominal meteorism.

Abdominal CT-scan was done that revealed significant dilatation of the duodenum up to the level of the distal third part and a severely dilated stomach, second part of duodenum measures 46 mm (Fig. 1). Patient was hospitalized and started an intravenous rehydration and gastric decompression through nasogastric tube.

Oesophago gastro duodenal endoscopy showed an important fecaloid gastric stasis.

Thereafter a second Abdominal CT-scan that revealed a disparity in the size of the left renal vein in the angle formed by Superior mesenteric artery and Aorta, This vein is dilated to 11,2 mm, the Aorto mesenteric angle is calculated at 11,8°. (Fig. 2)

Gastroduodenal series showed an expanded narrowing at the second portion of the duodenum (Fig. 3).

A surgical procedure was decided; Surgical exploration showed an evident compression of D3 by the aorto-mesenteric clamp, a distension of D1 and D2 with stomach stasis, The operation consisted of a transmesocolic gastrojejunostomy.

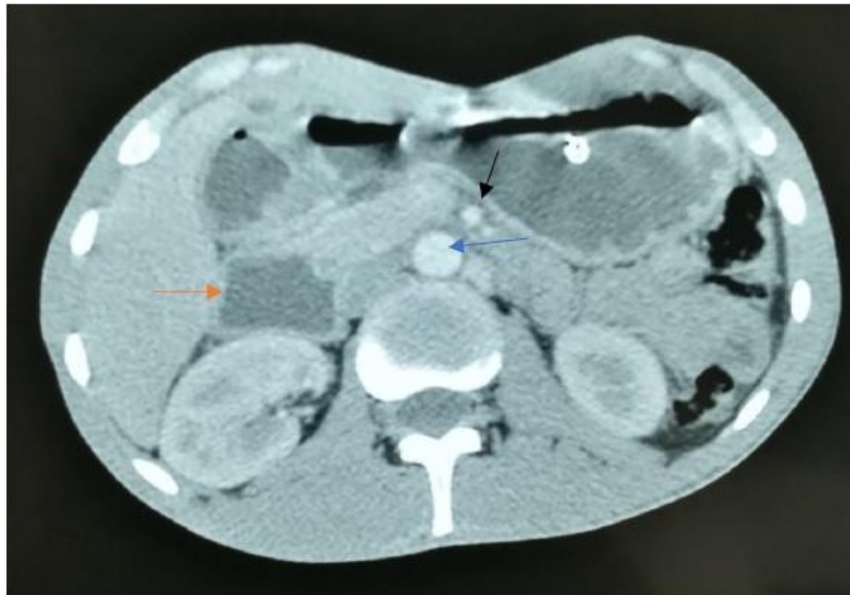


Fig. 1. Superior mesenteric artery (black arrow), abdominal Aorta (blue arrow), dilated duodenum (orange arrow)

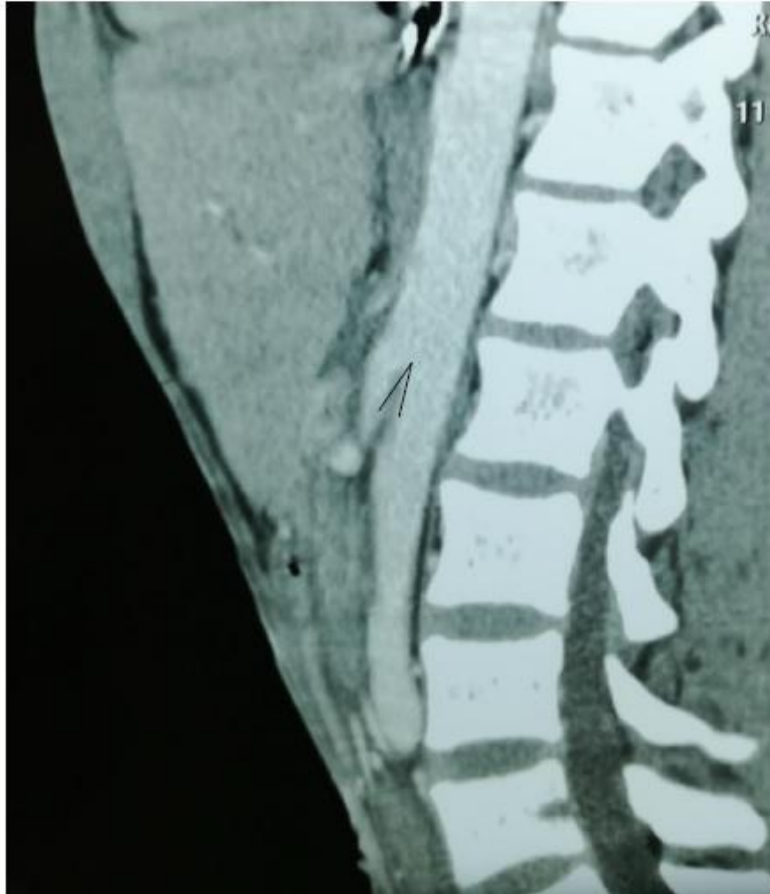


Fig. 2. Showed decreased Aortomesenteric angel (11,8°)

CT scan after 7 months showed the permeability of the gastrojejunostomy with aortomesenteric angle at 39° and aortomesenteric distance measured at 11 mm. (Figs. 4, 5).

The evolution was satisfactory with weight gain and a disappearance of vomiting and abdominal pain without transit disorders.

3. DISCUSSION

Wiklie's syndrome is one of uncommon causes of duodenal obstruction. In this syndrome, the 3rd part of duodenum (D3) will be compressed between abdominal aorta and superior mesenteric artery at its origin due to decreased angulation leading to partial or complete obstruction [1].

The aortomesenteric distance and the aortomesenteric angle is 10–28 mm and 25°–60°, respectively [1]. D3 courses posteroinferior in relation to SMA.

SMAS would be associated with certain predispositions, such as narrow aortomesenteric angle, a too thin body and asthenic habitus, and relatively low origin of the SMA [2,3]. However, none of these conditions is sufficient to cause SMAS, for that other causes are necessary for the manifestation of the clinical symptoms of SMA.

Two broad categories of these additional conditions; the first is postoperative changes in anatomical relationships, the second is severe weight loss and reduction in retroperitoneal and mesenteric fatty tissue.

Incidence of Wiklie's syndrome in some previous studies ranging from 0.1 to 0.3% however the true incidence is unknown.

The first condition includes hypercatabolic states, such as severe burn; wasting diseases, such as malabsorption or malignancies; eating disorders, such as anorexia nervosa or drug abuse; and even bariatric surgery [1].



Fig. 3. Dilated stomach severely

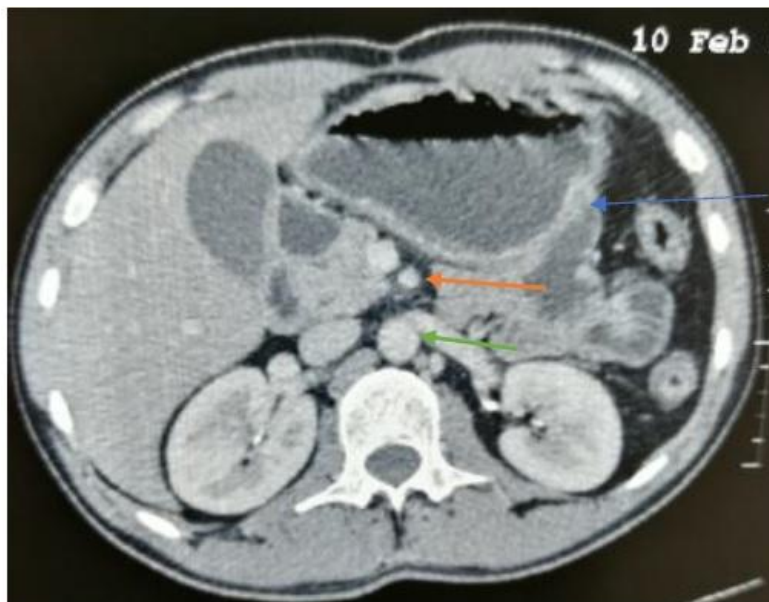


Fig. 4. Gastrojejunostomy (blue arrow), Superior mesenteric artery (orange arrow), abdominal Aorta (green arrow)



Fig. 5. Aortomesenteral angle at 39°

Regarding the second condition, a modification of the anatomy can lead to this syndrome such as a surgical intervention. Eosophagoectomy in some occasion are among the causes, corrective spinal surgery for scoliosis, and after pancreatic surgeries [4,5].

Patient might presents with acute symptoms of intestinal of duodenal obstruction as in our case but often with early satiety and postprandial fullness, chronic symptoms as recurrent abdominal pain with cramps. Sometimes pain will be relieved in knee chest position: A maneuver increases the aortomesenteric angle and get aggravated with lying supine [6].

Wiklie's syndrome diagnosis is difficult and often delayed. The diagnosis of wiklie's syndrome is suspected based in clinical presentation and supported by radiological tests. slow Upper gastrointestinal series might show duodenal dilatation and sometimes gastric dilatation. Contrast-enhanced CT or magnetic resonance angiography precise measurement of the aortomesenteric angle and distance and enable visualization of the vascular compression of the duodenum [7].

The first line of treatment is usually conservative which include gastric decom-pression, nutritional support either post pyloric tube feeding (nasojejunal tube) or through total parenteral nutrition [8]. The goal of this treatment is nutritional support aimed at restoring retroperitoneal fat and weight gain [9].

when conservative treatment fails, surgery should be offered to bypass the obstruction. The reported surgical treatments for Wiklie's syndrome include a duodenojejunostomy, gastrojejunostomy, mobilization of D3 (Strong's operation). Recently laparoscopic approach is desirable [6].

4. CONCLUSION

Wiklie's syndrome is rare cause of duodenal obstruction but that we must always think about. Weight loss and persistent vomiting should raise the suspicious of this diagnosis. Upper gastro intestinal endoscopy can exclude mechanical causes of duodenal obstruction. Contrast enhanced CT scan is useful in the diagnosis of Wiklie's syndrome [1].

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ali Salem, Labib Al Ozaibi, Suad Mohamed Maher Nassif, Rufaida Abdel Gadir Satti Osman, Nisreen Mohammed Al Abed, Faisal Mohmmed Badri. Superior mesenteric artery syndrome: A diagnosis to be kept in mind. *International Journal of Surgery Case Reports*. 2017;34:84–86.
2. Biswas A, Babu AA, Neelakantan S, Sarkar PS. Superior mesenteric artery syndrome: CT findings. *BMJ Case Rep*; 2016. DOI:<http://dx.doi.org/10.1136/bcr-2016-215885>
3. Sherry Scovell M, Allen Hamdan M. Superior mesenteric artery syndrome; 2015. Available:<E:\SMAasyndromereport\6-Superiormesentericartery syndrome.Uptodate.html> (Accessed 08/2016)
4. Su MC, Lee CH, Wang CC. Education and imaging. *Gastrointestinal: superior mesenteric artery syndrome initially presenting like reflux esophagitis*. *J Gastroenterol Hepatol*. 2010;25:645.
5. Hiroaki S, Toshiko T. Acute gastric dilatation due to superior mesenteric artery syndrome: An autopsy case. *BMC Gastroenterol*. 2014;14:3.
6. Meltem Ugras, Suat Bicer, Fatma Tugba Coskun, Endi Romano, Baki EK. Superior mesenteric artery syndrome: A rare but life threatening disease. *Turkish Journal of Emergency Medicine*. 2017;17.
7. Thomas Gerasimidis Fragandreas George. Superior mesenteric artery syndrome, 5th Surgical Clinic, Aristoteles University of Thessaloniki Medical School, Ippokrateion General Hospital, Thessaloniki, Greece. *Dig Surg*. 2009;26:213–214.
8. Biswas A, Babu AA, Neelakantan S, Sarkar PS. Superior mesenteric artery syndrome: CT findings, *BMJ Case Rep*; 2016.
9. Kaur A, Pawar NC, Singla S, Mohi JK, Sharma S. Superior mesentric artery syndrome in a patient with subacute intestinal obstruction: A case report. *J. Clin. Diagn. Res*. 2016;10(6):TD03–TD05.

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