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WILKIE SYNDROME MIMICKING CHOLELITHIASIS

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Abstract: Introduction: Superior mesenteric artery syndrome, also known as Wilkie syndrome (WS), is a rare and potentially serious condition characterized by compression of the duodenum by the superior mesenteric artery and aorta. This compression results in obstruction of the duodenum, often leading to symptoms such as vomiting, abdominal distension, and epigastric pain. The syndrome can be congenital or acquired. Conservative treatment, through dietary adjustments and positioning, is initially recommended, with surgery indicated when these methods fail or in cases with significant complications[1](,) [2]. **Case Report:** A 30-year-old female patient presented with a clinical picture of epigastric pain and heartburn for 3 months, with epigastric pain after eating, accompanied by a feeling of postprandial fullness. In addition, she reported anxiety disorder, insomnia, recent treatment for H. *pylori,* bilateral kidney stones, and cholelithiasis. Cholecystectomy was performed, but there was no improvement in symptoms. The patient was then treated with proton pump inhibitors, without success, and lost follow-up. Ten months after the onset of symptoms, she returned with persistent symptoms. An abdominal CT scan was performed, which showed gastric distension and a possible change in the aortomesenteric angle. Given the suspicion of WS, the patient underwent an angiotomography, which showed a reduced aortomesenteric angle of 15º and an aortomesenteric distance of 5.5 mm, confirming the syndrome. She started a high-calorie diet, but without success in obtaining remission of symptoms. Surgical treatment with duodenojejunostomy was proposed, but the patient refused due to the possibility of the surgery being performed via laparotomy. Given the refusal, as a minimally invasive alternative, it was decided to perform angioplasty of the superior mesenteric artery with *stent* placement in order to modify the angle of the superior mesenteric artery, which resulted in significant improvement of symptoms. **Discussion:** The symptomatic similarity between SW and cholelithiasis makes it necessary to perform imaging tests to rule out the main pathologies that cause abdominal pain in the upper abdomen, located in the upper right or epigastric quadrant, associated with postprandial fullness. [4] Conservative treatment, with a high-calorie diet and adjustment of body position, is effective in most cases[3], which was not the case in this patient. The literature recommends duodenojejunostomy as the most effective surgical approach, with a success rate of over 90%. Given the patient's refusal, a minimally invasive approach was chosen with *stent* placement in the superior mesenteric artery for treatment. Despite the success in treating this patient with the use of *a stent,* further research and clinical studies are needed to establish definitive protocols and evaluate the long-term efficacy of this therapeutic approach.

Keywords: Superior Mesenteric Artery Syndrome, Angioplasty, Intestinal Obstruction

Introduction

Superior mesenteric artery syndrome (SMA), also known as Wilkie syndrome, is a rare and potentially serious gastrointestinal condition. It occurs when the third portion of the duodenum is compressed between the superior mesenteric artery and the aorta, resulting in partial or complete obstruction. Patients may experience symp-

toms of gastrointestinal obstruction, including recurrent episodes of vomiting, upper abdominal distension, and discomfort. [1] The physiological angle between the superior mesenteric artery (SMA) and the aorta varies between 25° and 60°. However, in this syndrome, this opening is reduced. The decrease in this angle may occur due to congenital anomalies, significant weight loss, lumbar hyperlordosis, or after a restorative proctocolectomy with ileoanal anastomosis.

The diagnostic suspicion occurs after computed tomography of the abdomen shows gastric and duodenal dilatation. The diagnosis is confirmed by angiotomography and/or magnetic resonance angiography, which allow accurate assessment of the aortomesenteric angle and the distance between the structures involved.[2]

Conservative treatment is performed with adequate nutrition and positioning after meals. Surgery is used when conservative measures are ineffective or in patients with a long history of progressive weight loss or marked duodenal dilatation with stasis and complications. For the surgical procedure, duodenojejunostomy, Strong's operation, or gastrojejunostomy may be performed.

Case Report

A 30-year-old female from Minas Gerais reported diarrhea for 3 months, associated with epigastric pain and heartburn, with epigastric pain without lateralization, whose main triggering factor was food intake. She has a personal history of anxiety disorder, insomnia, *H. pylori* infection, cholelithiasis, and renal colic. Initially, a proton pump inhibitor and sucralfate were empirically prescribed. The treatment was omeprazole, sucralfate, and trimebutine.

About 10 months later, the patient returned to the office with increased epigastric pain, continuous and unrelated to eating, associated with postprandial fullness. She tested positive for lactose intolerance and was using proton pump inhibitors, but with no improvement: lactase was prescribed before meals, along with escitalopram.

The patient returned after 2 weeks, still experiencing pain. Physical examination revealed pain in the right hypochondrium and epigastric pain radiating to the left hypochondrium.

After cholecystectomy, the symptoms persisted.

Return after 6 months, with a diagnostic hypothesis of superior mesenteric artery syndrome (Wilkie's syndrome - aorto-mesenteric clamping). An examination is requested to evaluate the third and fourth portions of the duodenum, which are compressed between the abdominal aorta and the superior mesenteric artery.

Computed tomography angiography of the abdominal aorta

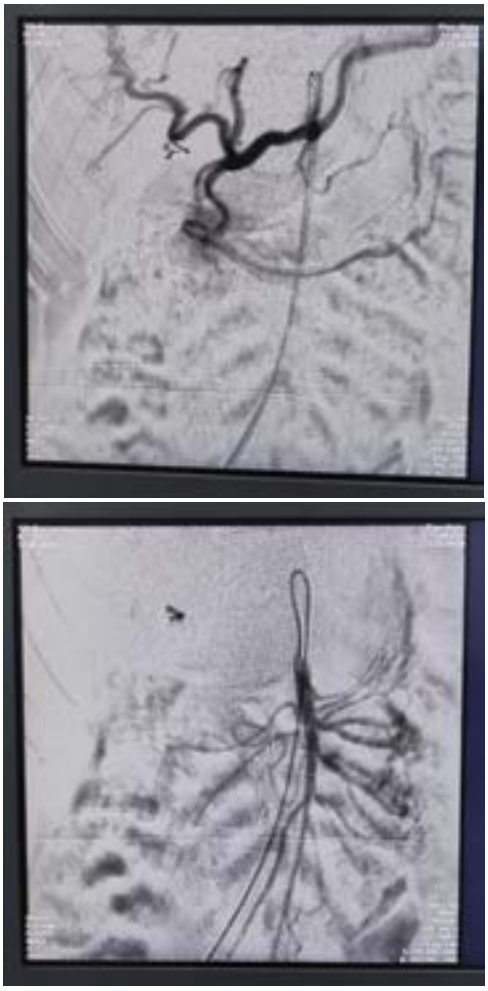
- Technique: Volumetric acquisition before and after intravenous contrast, with angiotomography protocol.

- Report: Permeable abdominal aorta, without focal dilations, stenoses, or dissections. Moderately tortuous common, internal, and external iliac arteries, with preserved calibers. Permeable celiac trunk and inferior mesenteric artery, without significant stenoses. Su-

perior mesenteric artery patent, with aortomesenteric angle reduced to 15º and aortomesenteric distance of 5.5 mm, suggestive of superior mesenteric artery syndrome. Renal arteries without significant stenosis.

Surgical Description

- Angioplasty of the superior mesenteric artery with puncture of the right femoral artery, introduction of a catheter, and placement of an expandable balloon stent to modify the angle of the superior mesenteric artery. Satisfactory control angiography, with use of angio seal in the femoral artery.



Discussion

Superior mesenteric artery syndrome (SAMS) was described by Von Bokitansky in 1861 and has since generated controversy among several authors, some of whom do not accept vascular compression as the cause of duodenal obstruction. It is known that retroperitoneal fat tends to keep the root of the mesentery and the superior mesenteric artery away from the aorta. In normal individuals, the angle between these two arteries varies between 25 and 60 degrees, while in patients with the syndrome, this angle can be reduced to between 6 and 15 degrees.

This syndrome can be congenital or acquired. The congenital type is less common and its symptoms are already present in childhood. In the acquired type, the reduction in the aortomesenteric angle is caused by a decrease in the perivascular fat surrounding the abdominal aorta and superior mesenteric artery. After diagnosis, the patient usually follows a high-calorie diet to increase perivascular adipose tissue; if this therapy fails, the patient undergoes surgery to remove the duodenal compression. [4]

According to Khodear Y, 2017, surgical treatment is only considered when conservative treatment fails or complications arise. Several surgical options are available, with duodenojejunostomy being the most common procedure with a good success rate (over 90%). A less commonly used surgical approach is gastrojejunostomy, due to blind loop syndrome and the persistence of symptoms due to non-decompression of the duodenum. Another surgical method is division of the Treitz ligament, which is less invasive, but its main disadvantage is the recurrence rate, which can be as high as 25%. [3]

The reported case and the publications surveyed bring to light the discussion of the treatment of a complex situation that is Superior Mesenteric Artery Syndrome. Conservative management is considered the standard for uncomplicated cases of Wilkie Syndrome (Elsevier*), but the team followed in the present study opted for surgical treatment due to persistent symptoms, which compromised the patient's quality of life. Despite the success in treating this patient with the use of *a stent,* further research and clinical studies are needed to establish definitive protocols and evaluate the long--term efficacy of this therapeutic approach.

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