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Critical stenosis of the celiac trunk by the arcuate ligament, successfully treated by laparoscopic approach

Daniel Aliseda¹, Javier A. Cienfuegos¹,²,³, Isabel Vivas⁴, Fernando Rotellar¹,²,³

¹ Department of General Surgery. Clínica Universidad de Navarra, School of Medicine, University of Navarra, Pamplona, Spain.
² Institute of Health Research of Navarra (IdisNA), Pamplona. Spain.
³ CIBER Fisiopatología de la Obesidad y Nutrición (CIBERobn), Instituto de Salud Carlos III, 31008 Pamplona, Spain.
⁴ Department of Radiology. Clínica Universidad de Navarra, School of Medicine, University of Navarra, Pamplona, Spain.

*Author for correspondence
ORCID ID: 0000-0002-6767-0573

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A 56-year-old woman was referred to our department with a 5-month history of progressive abdominal pain related to physical exertion and copious meals.

The pain was located in the mesogastric region and the right flank and remitted when the patient lay in the recumbent position with knees bent. The patient reported nausea and a weight loss of 12 kg over the previous 10 years.

She had been diagnosed 18 years previously with hereditary leiomyomatosis and renal cancer and had undergone hysterectomy and partial nephrectomy.

Abdominal CT angiography revealed critical stenosis (>90%) of the celiac trunk by the Arcuate ligament, which increased with expiration (figure 1A), and post-stenotic dilation (figure 1B). The patient underwent laparoscopic surgery with division of the Arcuate ligament, resection of the pre-aortic celiac ganglia, thus releasing the anterior face of the aorta by 1 cm (figure 2).

The patient progressed favorably. Three months later, she reported the total disappearance of symptoms. A control CT angiography confirmed the normalization of the celiac trunk and reduced post-stenotic dilation (figure 3).

Celiac trunk compression syndrome is characterized by intense postprandial pain, nausea and vomiting and weight loss (1). The pathogenesis is ischemic and symptoms become more intense in situations where oxygen demand increases (food intake, exertion).

This patient presented two radiologic signs of a good response to the surgical treatment: a stenosis of >70% and the presence of post-stenotic dilation (2, 3). The treatment of choice is complete release of the celiac trunk achieved either laparoscopically or robotically.
References


Figure 1. A) A sagittal computed tomography angiography (CT-angiography) shows critical celiac axis stenosis (hook appearance) (arrow) and post-stenotic dilatation due to Arcuate ligament (AL) in expiration. 1. B) Three-dimensional CT-angiography imaging showing the hook-like stenosis, post-stenotic dilatation and superior mesenteric artery (SMA)
Figure 2. Sequence of intraoperative image showing the division of Arcuate ligament, releasing the celiac trunk (CA) and exposing the root on the aorta (*). LC left crura, RC right crura.

Figure 3. A) Postoperative control (three months) sagital CT-angiography shows the normalization of celiac axis (CA) and post-stenotic dilatation disappearance. B) Three dimensional CT-angiography imaging shows the normalization of celiac trunk (CA). SMA Superior mesenteric artery.