

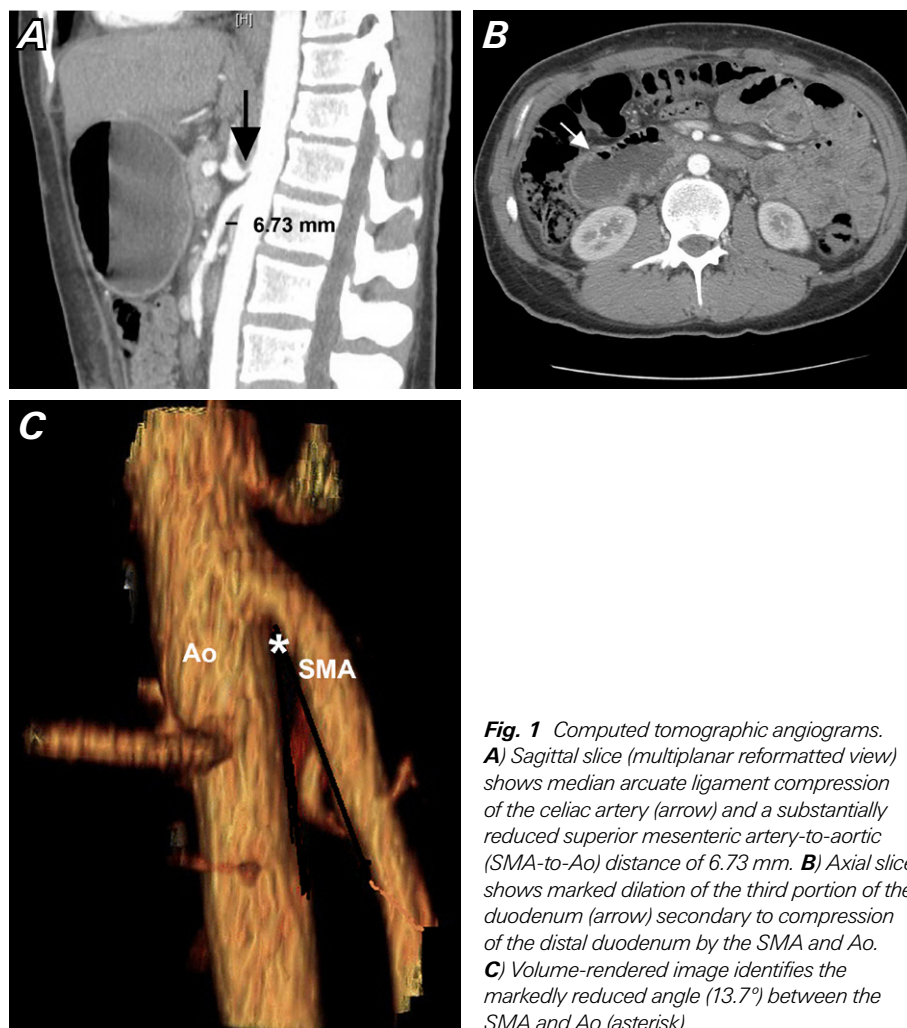
# Median Arcuate Ligament and Superior Mesenteric Artery Syndromes in a 28-Year-Old Man

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**A** thin 28-year-old man presented at the emergency department with upper abdominal pain, nausea, and vomiting of many months' duration. His records showed multiple visits to emergency departments to seek prescribed narcotics. A computed tomographic angiogram revealed median arcuate ligament syndrome with celiac artery compression (Fig. 1A). Secondary dilation of the first and second parts of the duodenum (Fig. 1B) resulted from an acute ( $13.7^\circ$ ) superior mesenteric artery (SMA)-to-aortic angle (Fig. 1C). The duodenal compression by the SMA was consistent with SMA syndrome. The patient declined admission for further evaluation and definitive treatment and never returned for follow-up.



**Fig. 1** Computed tomographic angiograms. **A** Sagittal slice (multiplanar reformatted view) shows median arcuate ligament compression of the celiac artery (arrow) and a substantially reduced superior mesenteric artery-to-aortic (SMA-to-Ao) distance of 6.73 mm. **B** Axial slice shows marked dilation of the third portion of the duodenum (arrow) secondary to compression of the distal duodenum by the SMA and Ao. **C** Volume-rendered image identifies the markedly reduced angle ( $13.7^\circ$ ) between the SMA and Ao (asterisk).

**Citation:**

Shutze RA, Shutze WP. Median arcuate ligament and superior mesenteric artery syndromes in a 28-year-old man. *Tex Heart Inst J* 2022;49(3):e176398. doi: 10.14503/THIJ-17-6398

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## Comment

Median arcuate ligament syndrome is an infrequent condition resulting from compression of the celiac artery by the diaphragmatic crura. Its incidence in the general population is unknown. Although anatomic compression occurs in 10% to 24% of individuals with the condition, only a few develop symptoms.<sup>1</sup> The syndrome occurs 4 times more often in women than in men. Patients usually present between 30 and 50 years of age and have a thin body habitus.<sup>1</sup> No specific diagnostic test exists for this condition; treatment is resection of the diaphragmatic crura and celiac nerve plexus. In most cases, celiac artery reconstruction by means of transluminal angioplasty, bypass, or stenting is necessary. Decompression can be performed through a trans-abdominal, laparoscopic, or robotic approach.

Superior mesenteric artery syndrome was first recognized in 1842.<sup>2</sup> It is diagnosed by an SMA-to-aortic angle of  $<25^\circ$ , a distance of  $<8$  mm between the SMA and aorta, and associated duodenal dilation.<sup>3</sup> The condition is not necessarily congenital; it is more likely due to a loss of retroperitoneal and periduodenal fat that diminishes the angle between the SMA and the aorta.<sup>3</sup>

Because of this, enteral jejunal tube-feeding and total parenteral nutrition have both been used successfully to treat this condition.<sup>3</sup> Among different surgical approaches, the best results have come after duodenojejunostomy.<sup>3</sup>

To our knowledge, this is the first report of these unusual pathologic conditions occurring concomitantly. We presume that the patient's median arcuate ligament symptoms led to substantial weight loss and the subsequent development of SMA syndrome.

**Published:** 28 June 2022

## References

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