

Season 1 Finale

Problem Representation

A 66-year-old man with a remote history of prostate cancer presented with poorly localizing, sudden-onset abdominal pain, found on imaging to have severe narrowing of the celiac artery and its branches with negative inflammatory markers.

Schemas

The CPSers' schema for abdominal pain (described in Episode 10) divides the various causes into 4 buckets: life-threatening etiologies, pathology of the intra-abdominal organs, pathology of extra-abdominal organs, and imaging-negative causes of abdominal pain.

Diagnosis

An MRA of the chest and abdomen demonstrated stable filling defects in the celiac artery in addition to new irregularities of the superior mesenteric and right renal arteries. An unrevealing workup for cardioembolic disease, negative inflammatory biomarkers, and the predominance of celiac artery involvement made segmental arterial mediolysis (SAM) the working diagnosis. His subsequent spontaneous improvement was felt to be confirmatory.

Teaching points

- Elements of the patient history are crucial to the diagnosis of various abdominal pain syndromes¹. Specifically, the acuity of onset and severity of pain can help to narrow the differential diagnosis, with acute severe pain being more associated with vascular and luminal catastrophes (e.g., ruptured abdominal aortic aneurysm, acute mesenteric ischemia, and perforated viscus).
- Acute mesenteric ischemia² most commonly results from embolic occlusion to abdominal vasculature (40-50%), while thrombotic occlusions of previously stenotic vessels (20-35%) and occlusion due to arterial dissection or inflammation (5%) occur less commonly. Occasionally, patients may experience acute mesenteric venous thrombosis that results in ischemia due to impaired venous drainage. The classic manifestations of acute mesenteric ischemia include abdominal pain that is acute in onset and appears "out of proportion" to abnormalities noted on examination.
- Segmental arterial mediolysis³ (SAM) is a rare noninflammatory vasculopathy affecting medium-sized abdominal arteries (with a predilection for the celiac artery and its branches). It is thought to result from degeneration of smooth muscle cells in the arterial media that then can lead to the formation of dissecting aneurysms and/or intramural hematomas. Clinically, this most commonly manifests as nonspecific abdominal or flank pain, but severe presentations can include catastrophic intra-abdominal hemorrhage or mesenteric ischemia. Imaging features include irregularities of the arterial lumen, aneurysms, or arterial occlusion.

Clinical Reasoning Pearl

Dr. Hollander described the "pivot point" as a finding that is (1) clearly abnormal, & (2) felt to be compatible with the presenting history. Identifying a pivot point can provide a specific finding on which to refocus our differential and thereby advance our thinking in a given case.

For example:

Dr. Hollander correctly identified the involvement of the celiac axis as being a highly unusual finding and one that was compatible with his hypothesis about a vascular etiology of the patient's symptoms.

References

1. Natesan S, Lee J, Volkamer H, Thoureen T. Evidence-Based Medicine Approach to Abdominal Pain. *Emerg Med Clin North Am.* 2016 May;34(2):165-90.
2. Clair DG, Beach JM. Mesenteric Ischemia. *N Engl J Med.* 2016 Mar 10;374(10):959-68.
3. Pillai AK, Iqbal SI, Liu RW, Rachamreddy N, Kalva SP. Segmental arterial mediolysis. *Cardiovasc Intervent Radiol.* 2014 Jun;37(3):604-12.