

# **UCLA**

## **Proceedings of UCLA Health**

### **Title**

Chronic Mesenteric Ischemia

### **Permalink**

<https://escholarship.org/uc/item/2b50q6g9>

### **Journal**

Proceedings of UCLA Health, 24(1)

### **Authors**

Kaushal, Rajinder

McEnerney, Laura

### **Publication Date**

2020-04-24

## CLINICAL VIGNETTE

# Chronic Mesenteric Ischemia

Rajinder Kaushal, MD and Laura McEnerney, MD

Chronic mesenteric ischemia (CMI) diagnosis requires a high index of suspicion. Patients older than 60 years who presents with unexplained abdominal pain, diarrhea and weight loss should have mesenteric ischemia considered as a cause of symptoms. We present a case of CMI and review symptoms, diagnosis and treatment.

### Case Report

A 75-year-old male was seen for a second opinion. He had three months of generalized abdominal pain that was more intense in the epigastric area. Pain was worse on eating, so much so that he was afraid of eating. He also complained of diarrhea, usually about a half hour after eating. He had lost 30 lbs in three months. His outside physician had performed esophagogastroduodenoscopy with biopsy, colonoscopy with biopsy, CT scan abdomen and pelvis, ultrasound of gallbladder, HIDA scan, cholecystokinin gallbladder excretion test, gastric emptying study and a PET scan. The patient was advised to undergo cholecystectomy for possible acalculous cholecystitis. He presented to discuss whether that was the right treatment option for him.

The patient had a long standing history of hypertension and hyperlipidemia and prior CABG 18 years before. About 14 years ago he had repair of abdominal aortic aneurysm (AAA). He is a former smoker who quit smoking after his CABG.

On physical examination, he was crying and emotionally distraught. He felt he was going to die because he could not eat and was losing weight. Exam was remarkable for scars from his previous CABG and AAA repair. His examination, in particular his abdominal examination, was otherwise completely unremarkable. Abdomen was non-distended, with normal BS and no abdominal bruits. There was no organomegaly or tenderness.

Based on his history and symptoms, a diagnosis of mesenteric ischemia was entertained and an abdominal MR angiogram was obtained (Figure 1). This revealed proximal high-grade stenosis of the celiac trunk and superior mesenteric artery; occlusion of inferior mesenteric artery; aorto biiliac graft repair with mild to moderate stenosis at the level of the proximal graft anastomosis, and high-grade stenosis of proximal internal iliac artery bilaterally. Mesenteric angiogram demonstrated focal high-grade stenosis in the proximal superior mesenteric artery (SMA) and occlusion of the proximal celiac artery. He underwent success-

ful angioplasty and stent placement of the proximal SMA stenosis, with no residual hemodynamically significant stenosis (Figure 2).

Patient returned to the office 4 days after his angioplasty and stent placement. The night before the office visit, for the first time in three months, he was able to eat a bowl of pasta without any abdominal pain, diarrhea, or any other GI symptoms. He had gained 11 lbs since his angioplasty.



Figure 1. Top vessel: occluded celiac artery with retrograde flow in the splenic artery. Lower vessel: High grade stenosis of Superior Mesenteric Artery



Figure 2. Image demonstrates reconstitution of flow in celiac branches through branches of SMA.

## Discussion

### Intestinal arterial supply

Three major arteries supply the mesenteric gastrointestinal tract. The celiac artery supplies the liver, spleen, stomach, and duodenum. The superior mesenteric artery (SMA) supplies the jejunum, ileum, right colon, and transverse colon. The inferior mesenteric artery (IMA) supplies the distal transverse colon, left colon, and rectum. There are extensive collaterals among these arteries.

### Mesenteric ischemia

Mesenteric ischemia can be acute or chronic. Acute mesenteric ischemia may be due to occlusive arterial blood flow resulting from embolism or thrombosis or due to non-occlusive arterial blood flow in low-flow states as seen in vasoconstriction from low cardiac output or the use of vasopressors. Acute mesenteric ischemia can also result from venous obstruction of the intestinal outflow tract such as in hypercoagulable states or from secondary causes including malignancy or prior abdominal surgery.

CMI is most commonly due to mesenteric atherosclerosis causing episodic intestinal hypoperfusion related to eating.<sup>1</sup> Atherosclerotic narrowing occurs at the origins of the celiac or superior mesenteric arteries. Up to 18 percent of individuals over 65 have significant stenosis of the celiac or superior mesenteric artery without any known symptoms.<sup>2</sup> Compression of the celiac artery from the median arcuate ligament of the diaphragm (median arcuate ligament syndrome) and vasculitis are other causes of CMI. Patients with a history of smoking, coronary heart disease, cerebrovascular disease, or lower extremity peripheral artery disease are more prone to CMI.<sup>3</sup> CMI is three times more common in women than in men<sup>4</sup> and usually manifests in patients over 60 years of age.

The majority of patients with atherosclerotic mesenteric disease are asymptomatic. The typical symptom of CMI is abdominal pain after eating, also called intestinal angina.

Patients usually develop fear of eating resulting in weight loss.<sup>5</sup> Patients may also complain of diarrhea, rectal bleeding, nausea and vomiting. Physical examination is usually unremarkable, except for evidence of weight loss. An epigastric bruit is present in about fifty percent of patients. Diagnosis requires a high index of suspicion in a patient with unexplained abdominal pain, diarrhea, and weight loss. CT mesenteric angiography<sup>6</sup> is the initial best test. MR mesenteric angiography can also be performed to diagnose mesenteric ischemia. Duplex ultrasonography can also be used for diagnosis. Because of extensive collateral circulation between celiac, superior, and mesenteric arteries, two of these three arteries have to demonstrate high-grade stenosis or occlusion for the patient to develop mesenteric ischemia.

## Management

If the patient is asymptomatic, life style modifications such as smoking cessation, weight control and proper management of cholesterol and diabetes should be recommended.<sup>7</sup> Antiplatelet therapy can also be used.<sup>8</sup> Symptomatic patients need revascularization which can be surgical or endovascular. Surgical revascularization includes bypass grafting, endarterectomy, and/or mesenteric reimplantation. Endovascular methods including mesenteric angioplasty and stent placement are now the preferred treatment of symptomatic CMI. Goals of intervention are symptom relief and prevention of future bowel infarction.<sup>9</sup>

## Conclusion

Mesenteric ischemia should be considered in older patients presenting with unexplained weight loss, especially with vascular risk factors and intestinal angina leading to fear of eating.

## REFERENCES

1. **Acosta S.** Epidemiology of mesenteric vascular disease: clinical implications. *Semin Vasc Surg.* 2010 Mar;23(1):4-8. doi: 10.1053/j.semvascsurg.2009.12.001. Review. PubMed PMID: 20298944.

2. **Hansen KJ, Wilson DB, Craven TE, Pearce JD, English WP, Edwards MS, Ayerdi J, Burke GL.** Mesenteric artery disease in the elderly. *J Vasc Surg.* 2004 Jul;40(1):45-52. PubMed PMID: 15218461.
3. **Veenstra RP, ter Steege RW, Geelkerken RH, Huisman AB, Kolkman JJ.** The cardiovascular risk profile of atherosclerotic gastrointestinal ischemia is different from other vascular beds. *Am J Med.* 2012 Apr;125(4):394-8. doi: 10.1016/j.amjmed.2011.09.013. Epub 2012 Feb 3. PubMed PMID: 22305578.
4. **Thomas JH, Blake K, Pierce GE, Hermreck AS, Seigel E.** The clinical course of asymptomatic mesenteric arterial stenosis. *J Vasc Surg.* 1998 May;27(5):840-4. PubMed PMID: 9620135.
5. **White CJ.** Chronic mesenteric ischemia: diagnosis and management. *Prog Cardiovasc Dis.* 2011 Jul-Aug;54(1):36-40. doi: 10.1016/j.pcad.2011.04.005. Review. PubMed PMID: 21722785.
6. **Brandt LJ, Boley SJ.** AGA technical review on intestinal ischemia. American Gastrointestinal Association. *Gastroenterology.* 2000 May;118(5):954-68. Review. PubMed PMID: 10784596.
7. **Zeller T, Rastan A, Sixt S.** Chronic atherosclerotic mesenteric ischemia (CMI). *Vasc Med.* 2010 Aug;15(4):333-8. doi: 10.1177/1358863X10372437. Epub 2010 Jun 28. Review. PubMed PMID: 20584821.
8. **Okamura K, Morizumi S, Kawata M, Suematsu Y.** Conservative therapy as a primary treatment for spontaneous isolated dissection of the superior mesenteric artery. *Ann Vasc Surg.* 2014 Nov;28(8):1939-45. doi: 10.1016/j.avsg.2014.06.062. Epub 2014 Jul 15. PubMed PMID: 25048807.
9. **Oderich GS.** Current concepts in the management of chronic mesenteric ischemia. *Curr Treat Options Cardiovasc Med.* 2010 Apr;12(2):117-30. doi: 10.1007/s11936-010-0061-1. PubMed PMID: 20842551.