CASE STUDY IN
GASTROENTEROLOGY & HEPATOLOGY

# Celiac Artery Aneurysmal Erosion into the Stomach: An Unusual Cause of Persistent Nausea

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A 79-year-old man was referred to our institution for evaluation of a large celiac artery aneurysm that had been found incidentally on computed tomography (CT) scan. The patient underwent a mesenteric angiogram, which confirmed the presence of a large celiac artery aneurysm. Attempts at celiac artery aneurysm embolization were made with multiple covered stents of the hepatic and celiac arteries. A complete exclusion of the aneurysm was unsuccessful. A follow-up aortogram revealed previously placed celiac stents in good position, with a freely patent hepatic artery. However, persistent filling of a large celiac artery aneurysm was noted. Embolization of the aneurysm sac was then performed using multiple coils.

One month later, the patient presented to an outside facility for substernal chest pain, abdominal pain, fever, postprandial nausea, and a 10-lb weight loss. Extensive cardiac work-up was unrevealing, and blood cultures were negative. An esophagogastroduodenoscopy revealed a 3.5-cm mass with necrosis of the posterior wall of the stomach and evidence of recent bleeding in the stomach at the junction of the body and fundus in the posterior wall (Figure). A CT scan revealed a thrombosed celiac artery aneurysm attached to the posterior wall of the stomach with no evidence of arterial filling after stenting/coiling. The aneurysm had increased in size since initial presentation and showed evidence of mass effect, as it was compressing the lesser curvature of the stomach. The patient was taken to the operating room, where a nonpulsatile and noninfected large aneurysm was visualized causing extrinsic compression of the stomach. There was ulceration of the posterior wall of the stomach and destruction of the wall of the aneurysm with exposed

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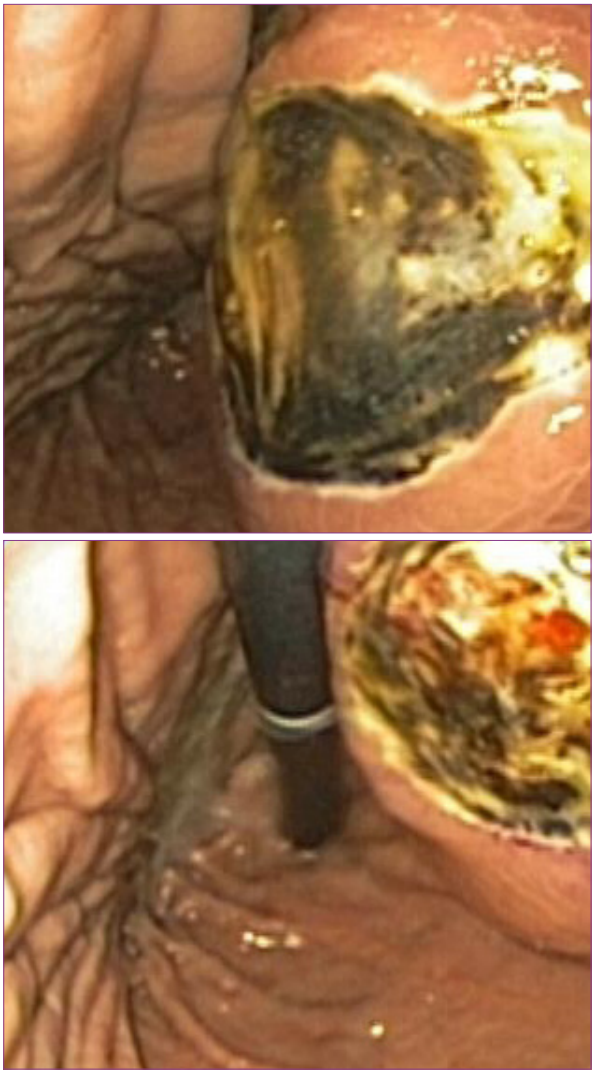

**Figure.** Retroflexed views of the stomach fundus reveal a celiac artery aneurysm eroding into the stomach.

luminal thrombus in the focal area where the stomach and aneurysm were intermittently adherent to each other. There was a 2- to 3-cm perforation of the stomach and an exudative fluid collection adhering to the external surface of the stomach. Wedge resection of the area of perforation at the lesser curvature was performed, and a Stamm gastrostomy and feeding jejunostomy were placed. The aneurysm appeared to be in close proximity and/or adherent to the pancreas; therefore, neither repair nor resection of the aneurysm was performed. Pathology of the exudate revealed *Peptostreptococcus*, and targeted antibiotic therapy was instituted. The patient eventually died due to pulmonary complications.

## Discussion

Celiac artery aneurysms are exceedingly rare and represent only 3.6% to 4% of splanchnic artery aneurysms.[1,2] The estimated incidence of celiac artery aneurysms ranges from 0.005% to 0.01%.[3] The incidence, presenting symptoms, and clinical outcome of celiac artery aneurysms have changed significantly with advances in imaging techniques. Most patients present with acute onset of epigastric pain. Death is usually the outcome of aneurysmal rupture, and diagnosis is most frequently made at autopsy.[4]

Over the past few decades, the incidence of rupture has decreased secondary to increased use of ultrasound, CT scan, CT angiography, and arteriography. Because most of these visceral aneurysms are asymptomatic, they are often found incidentally on diagnostic imaging undertaken for other purposes. When symptomatic, these aneurysms present mostly with epigastric abdominal pain, nausea, and vomiting and as a pulsatile mass or an abdominal bruit. For patients who present with aneurysmal rupture as vascular emergencies, the aneurysm may rupture into the peritoneal cavity, retroperitoneum, or thorax. Other presentations are gastrointestinal bleeding from erosion of an aneurysm into the duodenum or jaundice from obstruction of the bile duct.[5,6] The acute onset of worsening abdominal pain can indicate acute aneurysm expansion; however, in the current case, the cause of abdominal pain appeared to be secondary to aneurysmal erosion into the stomach. There have been reports of celiac artery aneurysm dissection with resulting end-organ infarction.[7,8] Unusual presentations of celiac artery aneurysms include extrinsic compression of the pancreatic duct, palpable mass, bleeding gastric varices as a result of splenic vein compression, and hepatic and portal obstruction as a result of extrinsic compression.[9]

Embolization of these aneurysms is the accepted method of treatment to replace surgical options. The accepted endovascular approach is by coil embolization of the aneurysmal lumen, proximal or distal aneurysmal neck, or both. Formation of blood clots around the coils helps block the flow of blood into the aneurysm and prevents the vessel from rupture or leakage.[10] Our patient presented with a celiac artery aneurysm with a thrombosed vascular mass lesion following coil embolization and a resultant destruction of the wall of the lumen with erosion and bleeding into the stomach. Erosion of the gastric wall appeared to be the cause of persistent nausea in this patient. The vascular mass that was adherent to the posterior wall of the stomach could have led to the ulceration and necrosis of the stomach wall due to pressure from extrinsic compression. Embolization with metallic coils within the previous blood-flowing portion of the large celiac artery aneurysm predisposes the thrombosed vessel to infection.[10] Although initial cultures were negative, laparotomy revealed evidence of a purulent fluid collection. In this case, a combination of extrinsic compression and infection led to the ulceration and necrosis of the gastric wall.

*The authors have no relevant conflicts of interest to disclose.*

## References


1. Deterling RA Jr. Aneurysm of the visceral arteries. *J Cardiovasc Surg (Torino).* 1971;12(4):309-322.

2. Stanley JC, Whitehouse WM Jr. Splanchnic artery aneurysms. In: Rutherford RB, ed. *Vascular Surgery.* 6th ed. Philadelphia, Pa: Elsevier Saunders; 2005:1565-1581.

3. Laipply TC. Syphilitic aneurysm of celiac artery. *Am J Sci.* 1943;206:453-457.

4. Shanley CJ, Shah NL, Messina LM. Common splanchnic artery aneurysms: splenic, hepatic, and celiac. *Ann Vasc Surg.* 1996;10(3):315-322.

5. Connell JM, Han DC. Celiac artery aneurysms: a case report and review of the literature. *Am Surg.* 2006;72(8):746-749.

6. White RA, White GH, Klein SR, Wilson SE. Billiary and portal obstruction by celiac artery aneurysm. *J Cardiovasc Surg (Torino).* 1987;28(1):42-44.

7. Bret PM, Partensky C, Paliard P, Delaye J, Bretagnolle M. Dissecting aneurysm of the celiac trunk and the hepatic artery [in French]. *Presse Med.* 1985;14(12):698.

8. Matsuo R, Ohta Y, Ohya Y, et al. Isolated dissection of the celiac artery—a case report. *Angiology.* 2000;51(7):603-607.

9. Risher WH, Hollier LH, Bolton JS, Ochsner JL. Celiac artery aneurysm. *Ann Vasc Surg.* 1991;5(4):392-395.

10. Syed M, Shaikh A, Neravetla S. Celiac artery aneurysm embolization by coil occlusion. *Ann Vasc Surg.* 2005;19(1):113-119.