CASE REPORT | STOMACH



Chronic Ischemic Gastritis in a Patient With a History of Cancer and Atherosclerotic Disease

Ignazio Marzio Parisi, MD^1 , Claudia Vattiato, MD^1 , Vitantonio Caramia, MD^1 , Federico Sottotetti, MD^2 , Antonio Ciarfella, MD^2 , and Katerina Vjero, MD^1

¹Digestive Endoscopy Unit, Istituti Clinici Scientifici Maugeri IRCCS, Pavia, Italy ²Medical Oncology Unit, Istituti Clinici Scientifici Maugeri IRCCS, Pavia, Italy

ABSTRACT

Chronic mesenteric ischemia is an uncommon disease presenting with nonspecific symptoms. The large number of differential diagnoses may result in diagnostic delays and progression to acute mesenteric ischemia. A 74-year-old woman with a history of breast cancer and carotid atherosclerosis complained of postprandial abdominal pain, vomiting, and weight loss. Endoscopic examination showed active chronic gastritis *Helicobacter pylori* negative. Contrast-enhanced computed tomography revealed stenosis in the mesenteric arterial district. Chronic gastritis resistant to treatment in a patient complaining of postprandial abdominal pain and weight loss should be investigated for chronic mesenteric ischemia, although history of cancer could be a misleading factor.

KEYWORDS: chronic mesenteric ischemia; chronic ischemic gastritis; history of cancer; atherosclerotic disease

INTRODUCTION

Chronic mesenteric ischemia (CMI) is a condition caused by the failure to achieve postprandial intestinal blood flow resulting in an imbalance between the supply and demand for oxygen and other metabolites.¹ CMI is caused by either occlusive mesenteric ischemia or nonocclusive mesenteric ischemia. Atherosclerosis is the most common cause of occlusive CMI and is most frequently seen in female patients. Risk factors associated with atherosclerotic CMI are those of cardiovascular diseases such as smoking, hypertension, diabetes, coronary artery disease, peripheral artery disease, chronic renal insufficiency, and hyperlipidemia.^{2,3}

Clinical presentation is characterized by abdominal pain with postprandial worsening, starting 10–30 minutes after a meal and lasting 1–2 hours, weight loss resulting from fear of eating. Other possible symptoms are diarrhea, nausea, and exercise-induced pain.^{4,5} The combination of postprandial pain, weight loss, and an abdominal bruit is known as the classic triad but is present in only around 20% of patients.⁶ To rule out alternative diagnoses at least the following diagnostic tests must be performed: upper gastrointestinal endoscopy and abdominal imaging; colonoscopy is indicated in patients with diarrhea.²

Owing to a large number of differential diagnoses and nonspecific clinical presentation, the diagnosis is frequently delayed. In the literature, some authors describe how CMI can mimic cancer and the suspicion of malignancy could be a cause of diagnostic delay, leading to a loss of precious time by repeating endoscopic or radiological tests and increasing the risk of acute-on-chronic mesenteric ischemia and death.⁷⁻¹⁰ In our case, the patient's personal history of cancer associated with vague gastrointestinal symptoms could have led us to perform several tests in search of signs of recurrence. Fortunately, we made a timely diagnosis and the patient underwent endovascular revascularization with complete remission of symptoms.

CASE REPORT

A 74-year-old woman with a history of breast cancer, carotid atherosclerosis, smoking habit, and hypertension was admitted to Oncology department with a 5-month history of postprandial abdominal pain and vomiting associated with significant weight loss. Physical examination revealed sarcopenia; tenderness over the upper abdominal quadrants, particularly in the epigastrium; and

ACG Case Rep J 2024;11:e01542. doi:10.14309/crj.000000000001542. Published online: October 24, 2024 Correspondence: Ignazio Marzio Parisi, MD (ignaziomarzio.parisi01@universitadipavia.it).

absence of lower limb edema. Nothing relevant to the heart, lungs, head, and neck. Blood tests showed vitamin D deficiency, which was supplemented, and modest increase in transaminases, without other significant alterations. An abdominal ultrasound showed gallbladder calculus without signs of acute cholecystitis.

Considering the patient's personal history of cancer, an esophagogastroduodenoscopy (EGD) was performed to rule out malignancies. It showed diffuse hyperemia of the gastric mucosa with multiple ulcerative lesions and signs of recent bleeding (Figure 1). Histological examination reported chronic active gastritis *Helicobacter pylori* negative (Figure 2). The use of nonsteroidal anti-inflammatory drugs was excluded.

Subsequently, a total body contrast-enhanced computed tomography was performed revealing complete occlusion at the origin of the right common carotid artery, marked atheromasia of the abdominal aorta with aneurysmal dilations in the infrarenal aorta (maximum diameter 34 mm), celiac artery (CA), and superior mesenteric artery (SMA) stenosis (Figure 3).

The case was discussed by a multidisciplinary expert panel including gastroenterologists and interventional radiologists. The patient underwent percutaneous transluminal angioplasty with SMA stenting using 2 bare metal stents, one in the proximal segment and the other in the middle segment of the SMA (Figure 3). At control arteriography, a good procedural result is documented with valid flow in the SMA. Control EGD performed 1 week after the endovascular revascularization showed healing ulcers (Figure 1).

We witnessed the clinical improvement of the patient. Her abdominal pain was completely relieved until she resumed her regular diet. A few weeks later, she was discharged home in good condition on dual antiplatelet therapy, statin, antihypertensives, and proton-pump inhibitor. An additional EGD was performed 45 days after the surgery. It revealed a marked improvement in gastritis with a single clean-based ulcer at body-antrum junction and some flat erosion in the context of hyperemic mucosa (Figure 1).

DISCUSSION

Arterial mesenteric circulation is provided by 3 aortic branches: CA, SMA, and inferior mesenteric artery. Stenosis or occlusion of 1 or more of the mesenteric vessels is the etiology of CMI. A wide collateral network connecting the CA, SMA, and inferior mesenteric artery is a protective factor against ischemia; therefore, symptoms are usually not present until at least 2 of the 3 mesenteric arteries are significantly stenosed or occluded. Single vessel atherosclerotic occlusion, however, can occasionally cause symptomatic disease. In patients with known atherosclerotic disease, the prevalence of CMI may range from 8% to 70%.¹¹ Furthermore, mesenteric artery stenosis is a frequent finding in autopsy studies with a prevalence correlating with aging and as high as 67% in persons aged 80 years or older.¹² We reported a case of CMI secondary to stenosis of the



Figure 1. First esophagogastroduodenoscopy showing diffuse hyperemia of the gastric mucosa with multiple ulcerative lesions and signs of recent bleeding (A1–A3). Control gastroscopy performed 1 week after endovascular revascularization showed healing ulcers (B). Gastroscopy performed 45 days after surgery revealing a single clean-based ulcer at body-antrum junction and some flat erosion (C1–C2).



Figure 2. Histological images (100×) revealing active chronic gastritis of the antrum (A) and fundus (B) with the typical neutrophilic epithelium infiltration.

CA and SMA. The patient's personal history of cancer and nonspecific gastrointestinal symptoms led us to perform EGD as the first test to rule out gastrointestinal malignancies. Despite the generic clinical presentation increased our concern regarding a cancer recurrence, our patient had risk factors of CMI; moreover, endoscopic findings could have been suspicious for ischemic etiology. Upper endoscopy is a sensitive method for detecting early ischemic changes.¹³ Findings reported in CMI are edema (35%), erythema (42%), atrophy of the duodenal mucosa, and gastric and duodenal ulcers that are not caused by Helicobacter pylori or nonsteroidal anti-inflammatory drugs.¹² Although the findings of ischemic gastritis, duodenitis, and colitis are somewhat nonspecific, they can be suggestive of CMI.¹

Imaging is also required due to wide differential diagnosis including abdominal malignancies, cholecystitis, and chronic pancreatitis. Computed tomography angiography (CTA) has replaced conventional angiography as the gold-standard imaging test for patients suspected of having CMI. Angiography should be reserved for therapeutic purposes only. CTA includes among its advantages the potential detection of alternative diagnoses or extravascular signs of possible acute mesenteric ischemia, such as bowel wall thickening and bowel lumen dilatation. Contrast-enhanced magnetic resonance angiography is a valid alternative due to its high sensitivity and specificity. However, it is considered the test of choice in patients with contraindications for CTA such as allergy to contrast agent or impairment of renal function.²

Our patient underwent percutaneous transluminal angioplasty with SMA stenting, and technical success, defined as $a \le 30\%$ residual stenosis by angiography, was achieved. The procedure occurred without complications. A review by Pillai et al reports high technical success rates for endovascular stent placement ranging from 85% to 100%, whereas success rates for balloon angioplasty alone are lower. The mortality rate for endovascular repair is between 0% and 19%, and the morbidity rate is between 0% and 31%. Access-site complications are the most frequent.¹⁴ Moreover, compared with surgical revascularization, endovascular



Figure 3. Preoperative contrast-enhanced computed tomography images show coeliac artery and SMA stenosis (black arrows) (A). Images of the SMA arteriography before (B) and after successful revascularization (C). SMA, superior mesenteric artery.

repair has been associated with lower in-hospital mortality rate, shorter hospital stay, and better cost-effectiveness.^{14,15}

Guidelines from the Society for Vascular Surgery recommend endovascular revascularization as the initial treatment for patients with CMI and suitable lesions; the SMA is the optimal target for revascularization, and revascularization of the SMA alone is usually sufficient.¹ The endovascular approach in patients with CMI may offer better early outcomes than open surgery, although open revascularization was associated with a lower risk of 3-year recurrence even though long-term mortality appears to be similar.³

In a patient with a history of cancer who complains of nonspecific symptoms such as weight loss, postprandial abdominal pain, diarrhea, and vomiting, after ruling out malignancies, we emphasize the importance of having high levels of suspicion for CMI especially in the presence of active chronic gastritis Helicobacter Pylori negative resistant to treatment and risk factors of atherosclerosis, to obtain a timely diagnosis and prevent lifethreatening outcomes.

DISCLOSURES

Author contributions: IM Parisi wrote the manuscript. C. Vattiato and V. Caramia provided the endoscopic data. F. Sottotetti and A. Ciarfella followed the patient during hospitalization and provided images. K. Vjero revised the manuscript and is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received May 16, 2024; Accepted September 23, 2024

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