A rare and unusual cause of acute abdominal pain: A case of spontaneous isolated dissection of the celiac trunk

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Abstract

Spontaneous dissection of the celiac trunk is a rare and uncommon cause of acute abdominal pain. Risk factors, natural history and optimal treatment are still unclear due to the rarity of the disorder. Therapeutic strategies and follow-up procedures are based on limited observations, and the absence of guidelines warrants a patient-tailored approach. We report the case of a 50-year-old woman who presented to our emergency department for epigastric pain, nausea, and vomiting resulting from a spontaneous dissection of the celiac trunk, successfully treated with endovascular technique.

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Introduction

The diagnosis of abdominal pain is considered a challenge by all the emergency physicians. Isolated spontaneous dissection of the celiac trunk is a rare and unusual cause of epigastric pain that should always be considered in the differential diagnosis of patients presenting with persistent abdominal pain and unspecific clinical and laboratory findings.[1] We describe the case of a spontaneous celiac trunk dissection in a young female patient successfully treated with endovascular technique.

Case Report

A 50-year-old woman presented to our emergency department because of a 6-day history of epigastric pain associated with nausea and vomiting. She denied trauma, fever, and back pain. She had a history of a sliding hiatal hernia with reflux oesophagitis for several years for which she was taking proton pump inhibitors, but she reported a different kind of pain unresponsive to treatment. She had no cardiovascular risk factors, but her family history resulted positive for heart attack (the father) and splanchnic artery aneurysm surgically treated (the sister). On admission abdominal palpation revealed a mild tenderness over the epigastrium. Blood pressure, heart rate, peripheral oxygen saturation, respiratory rate and body temperature were 140/80 mmHg, 77 bpm regular, 98% while breathing in room ambient air, 16 breaths/min, and 36 °C, respectively. Point-of-care ultrasound (PoCUS) and an electrocardiogram (ECG) demonstrated no abnormalities. Laboratory data showed a slight increased white blood count (13.130/mm^3, neutrophils 10.540/mm^3) with normal value of C-reactive protein, coagulation time, hepatic and renal function. Troponin I was normal at two consecutive controls. Urine dipstick and gravindex resulted negative. After the administration of paracetamol (1 g iv) and delorazepam (1 g iv) she became asymptomatic, and she was admitted to our Observation Unit. The day after the admission the patient complained of a recurrence of more acute and intense epigastric pain. Blood exams resulted unchanged with stable and normal value of haemoglobin (12.8 g/dL). PoCUS and ECG were repeated, and both resulted normal. A contrast enhanced Computed Tomography (CT) of the abdomen was performed documenting a dissection at the origin of the celiac trunk extending along the course of the vessel for approximately 2 cm, with the concomitant presence of intra-mural haematoma (hyperdense already in the basic condition) more evident on the right side of the vascular

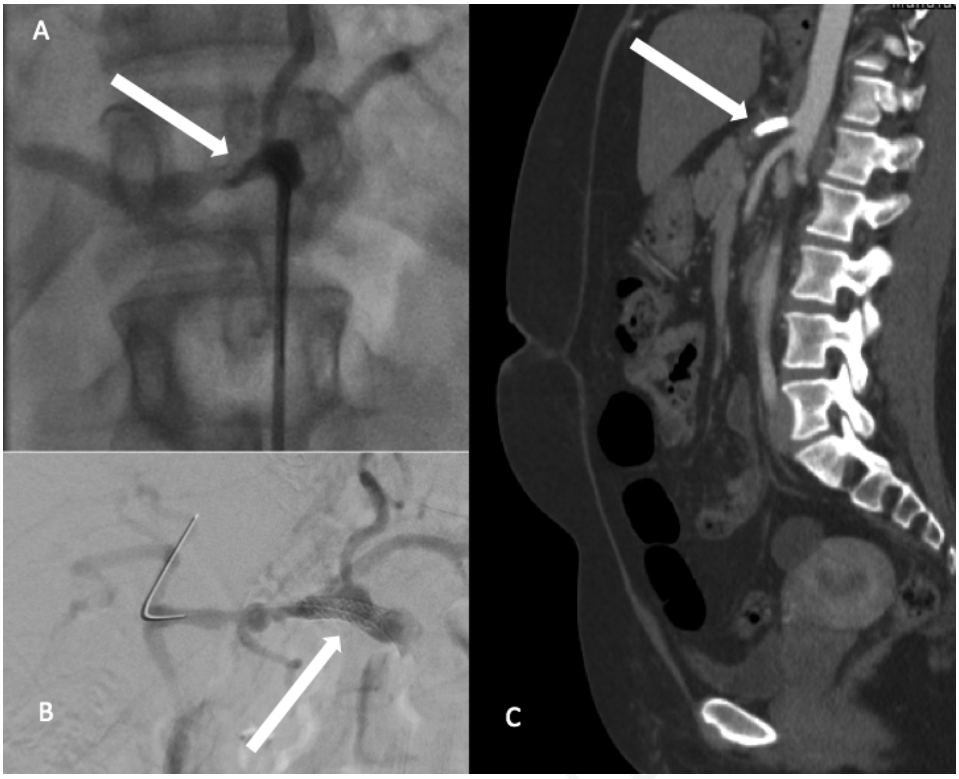

Figure 1. Abdomen CT scan without contrast showing celiac trunk hyperdensity consistent with intramural haematoma (arrow) (panel A). Arterial phase axial view (panel B) and arterial phase with sagittal view (panel C) showing narrowing of the true lumen (arrow).

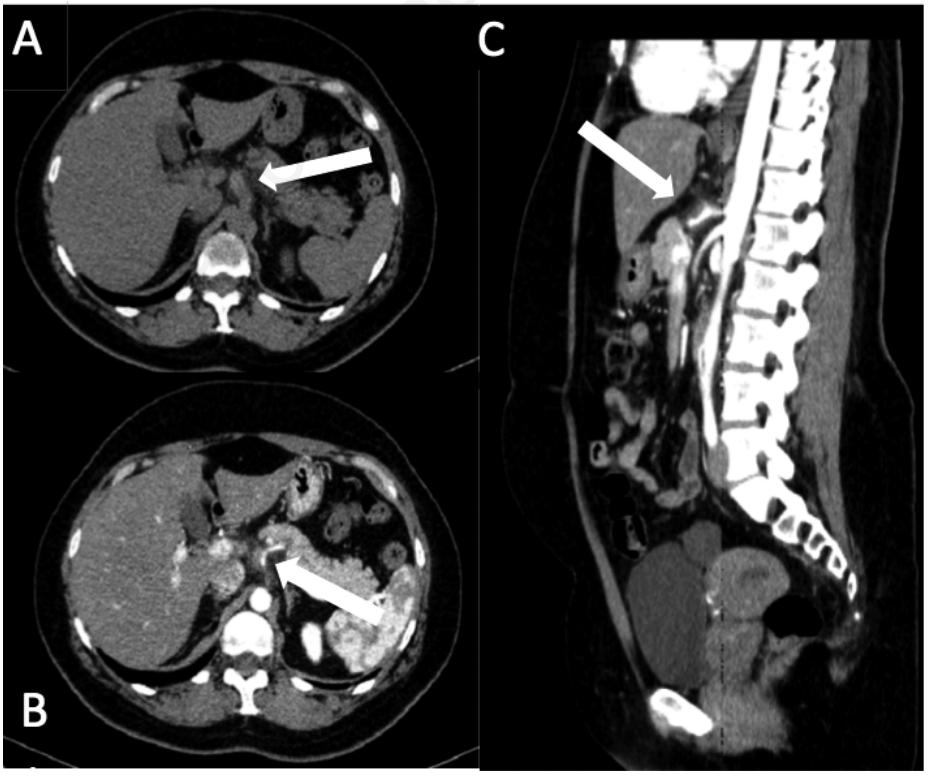

Figure 2. Fluoroscopic images confirming dissection of celiac trunk (arrow in A), treated with endovascular stent-graft (arrow in B). Arterial phase CT in sagittal view of the stented celiac trunk (arrow in C).

lumen, with a thickness of about 4 mm. The celiac trunk appeared dilated overall, with a diameter of 11 mm and a reduced residual lumen of 3 mm (Figure 1). A diagnosis of isolated spontaneous dissection of celiac trunk was done. Selective angiography of the celiac tripod confirmed the presence of dissection involving the hepatic artery (Figure 2 A). The patient was immediately treated with endovascular stent-graft placement without complication (Figure 2 B-C), and then admitted to the vascular surgery unit. The patient's postoperative course was uneventful, hepatic laboratory tests remained always normal, and the CT-angiography performed before her discharge confirmed the regular patency of the stent and tripod division branches. The patient was discharged completely asymptomatic 4 days later. A combined antiplatelet therapy (acid acetylsalicylic 100 mg and clopidogrel 75 mg daily) was started and continued for three months with no recurrence of symptoms. On follow-up ultrasound imaging performed 3 months postoperatively, the graft remained patent, and there was no evidence of endoleak or celiac artery aneurysm. A regular 6-month follow-up has been planned in the outpatient vascular surgery clinic.

Discussion

Spontaneous isolated dissection of the celiac trunk is an uncommon visceral artery dissection, rarely considered in patients presenting with acute onset of epigastric pain. Since it can be completely asymptomatic and detected incidentally for other conditions, the true incidence of this disease in unknown, even if an increased number of case reports have been reported in literature in the last decade.[2,3] The most common presenting symptoms are abdominal pain, nausea, and back pain, but also chest pain, syncope and jaundice have been reported.[3] When dissection of the celiac trunk is suspected, CT angiography is the best diagnostic technique. The risk factors, causes, and natural history of spontaneous isolated visceral artery dissection are still unclear. Median Arcuate Ligament Syndrome (MALS) can contribute to the aneurysmal celiac trunk dissection. MALS is a chronic pathogenic process occurring when the median fibrous arcuate ligament and muscular diaphragm fiber have a relatively low insertion, causing extrinsic compression and luminal narrowing of the celiac trunk.[4] In view of its rarity, the management of the spontaneous isolated dissection of the celiac trunk still remains a matter of debate and there is no consensus on the optimal management. Treatment with open surgery, endovascular stenting, or anticoagulation therapy has been proposed. In a systematic review by Wang *et al*. conservative treatment, including medical therapy and observation, is recommended for asymptomatic patients.[1] Although there is no consensus on the duration of conservative therapy, treatment with anticoagulant or antiplatelet agents from 3 weeks to 6 months with a target international normalized ratio of 2.0 to 3.0, has been reported to achieve good outcomes.[5] If abdominal pain is persistent, endovascular stenting may stabilize or improve the pain, and surgical reconstruction can be done for aneurysmal degeneration or occlusion, both unusual events.[6] If the patients had bowel infarction or necrosis, peritonitis, or aneurysm rupture, open surgery was reported to be the initial treatment.[1] Liver function tests may be helpful in determining if there is hepatic malperfusion and ischemia due to the involvement of the hepatic artery, that might prompt more aggressive management. In conclusion, in absence of guidelines a patient-tailored approach is recommended, and in case of conservative medical treatment, cardiovascular risk factor modification, limiting the propagation of the dissection and reducing the risk for rupture, must be warranted.

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