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CASE REPORT | PANCREAS

Pancreatitis Secondary to Celiac Trunk Dissection

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Abstract

Dissection of the visceral arteries happens infrequently, with the superior mesenteric artery being the most commonly affected. Isolated dissection of the celiac trunk is rare, and only a few cases have been reported in the medical literature. We report the case of a 51-year-old male who presented with abdominal pain and was subsequently diagnosed with a celiac trunk dissection with secondary pancreatitis and pancreatic infarction. The patient's symptoms improved with conservative medical management. We review the current literature involving celiac trunk dissection and its management, and provide discussion regarding this unrecognized complication of pancreatitis.

Introduction

Spontaneous visceral artery dissection is a rare event. The majority of dissections involve the superior mesenteric artery, but celiac trunk dissection can account for a minority of these cases, representing approximately 4% of visceral artery dissections.[1] Approximately half of celiac trunk dissections are symptomatic and present with abdominal pain but with unremarkable physical exam and laboratory findings.[2,3] Many patients are asymptomatic, but complications such as ischemia, infarction, and hemorrhage do occur. It is not routinely considered in the differential of acute abdominal pain, but is being diagnosed more frequently given advanced imaging modalities. Pancreatitis secondary to celiac trunk dissection is a complication that has only been reported a few times in the medical literature.[4] We report the case of a 51-year-old male who presented with abdominal pain, nausea, and vomiting, and was subsequently diagnosed with pancreatitis secondary to celiac trunk dissection.

Case Report

A 51-year-old African-American male with no significant past medical history presented to the emergency department with 1 day of acute epigastric abdominal pain, nausea, and vomiting. His abdominal pain was sharp, constant, and radiated into his left flank. His vital signs were normal on presentation and his physical exam was notable for mild epigastric tenderness, hypoactive bowel sounds, and no rebound or guarding. Initial laboratory work was notable for a normal complete blood count, renal function, and hepatic function. Amylase and lipase were elevated to 524 U/L and 3,473 U/L, respectively. The patient underwent a CT abdomen/pelvis (with oral and IV contrast), which revealed a celiac trunk dissection with a flap extending from the origin of the celiac trunk to the celiac trifurcation (Figure 1 and Figure 2). The CT scan was also notable for a 1.8-cm hypodense lesion in the tail of the pancreas with peri-pancreatic fat and soft tissue stranding (Figure 3). The lesion in the tail of the pancreas was consistent with a pancreatic infarct secondary to the dissection. His presenting symptoms were determined to be due to a combination of the dissection and secondary pancreatitis. The patient was managed conservatively with bowel rest, pain control, blood pressure control, and IV hydration. Other etiologies of pancreatitis such as alcohol use, medications, hypertriglyceridemia, and trauma were ruled out. His symptoms improved, his diet was advanced back to a normal diet, and he was discharged home after 6 days of hospitalization.

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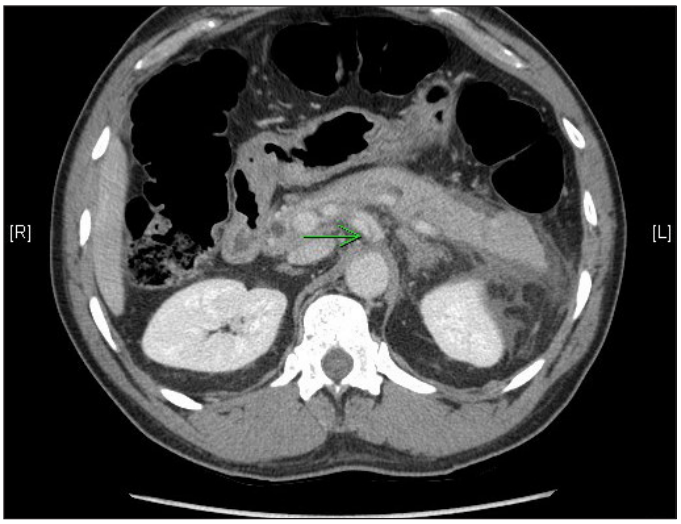

Figure 1. CT abdomen/pelvis showing dissection originating at celiac trunk origin.

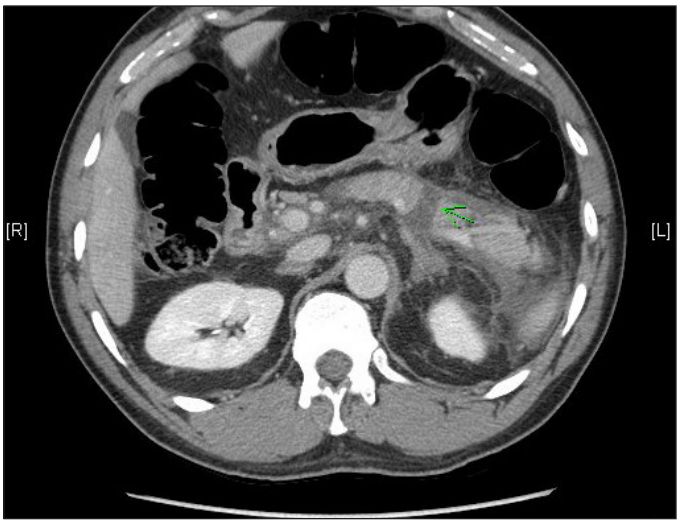

Figure 3. A 1.8-cm hypodense pancreatic infarct with peri-pancreatic fat stranding.

Discussion

Pancreatitis is inflammation of the pancreas and has multiple well-known causes, including gallstones, ethanol, hypertriglyceridemia, trauma, infection, autoimmune, medications, and post-ERCP complications. Ischemia is a rare cause of pancreatitis, in part due to the multiple vessels that supply blood to the pancreas. The head of the pancreas is supplied by the superior pancreaticoduodenal artery (from the common hepatic artery) and the inferior pancreaticoduodenal artery (from the superior mesenteric artery). The neck, body, and tail of the pancreas receive blood from the pancreatic branches of the splenic artery. The celiac trunk has three main branches (common hepatic artery, splenic artery, and left gastric artery; Figure 4). A dissection of the celiac trunk leads to a disruption in the perfusion of the pancreas with subsequent development of ischemia, inflammation, and infarction of pancreatic tissue. Given the multiple branches of the celiac trunk, complications such as splenic infarction, intestinal ischemia, and intraperitoneal hemorrhage can also be seen. To date, there have only been 2 case reports in the medical literature reporting pancreatitis as a result of celiac trunk dissection.[4,5]

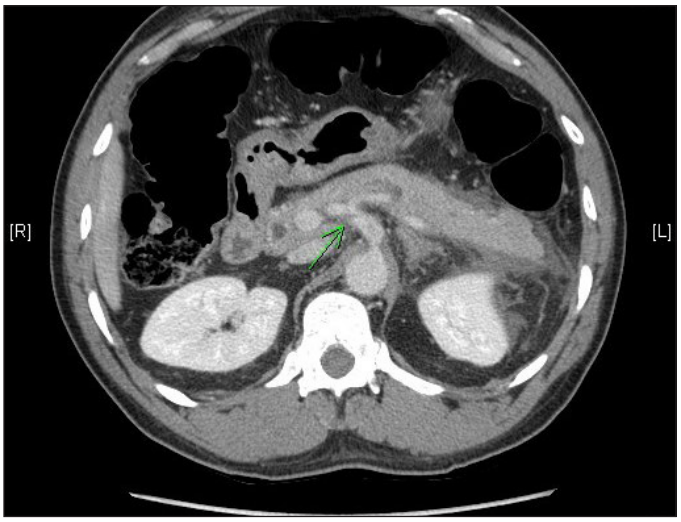

Figure 2. CT abdomen/pelvis showing dissection extending to the trifurcation of celiac trunk.

The first reported case of spontaneous visceral artery dissection was by Baurersfeld in 1947.[6] Celiac trunk dissection is an uncommon form of visceral artery dissection, with one report estimating it to account for 4% of all visceral artery dissections.[1] Since Baurersfeld's original report, there has been a paucity of cases reported in the medical literature, with one recent study quoting 33 reported cases of celiac trunk dissection based on a Medline database search.[4] Spontaneous arterial dissection is more common in males (5:1) with an average age of 55 years.[7] Causes of arterial dissection include hypertension, atherosclerosis, trauma, pregnancy, iatrogenesis, syphilis, vasculitis, cystic medial degeneration (Marfan's syndrome), and other congenital disorders of the vascular wall (e.g., Ehler's-Danlos syndrome).[8] Our patient had none of these risk factors.

CT angiogram is considered to be the diagnostic modality of choice, given that this method can provide details of the mesenteric vasculature.[7] Management strategy is often based on the presence of complications. Conservative medical therapy with pain control and hypertension management is recommended in patients without intestinal ischemia or hemorrhage.[4] Some authors advocate for anticoagulant therapy for 3–6 months given the risk for thromboembolic complications associated with visceral artery dissection.[9] Surgery and endovascular procedures may be considered

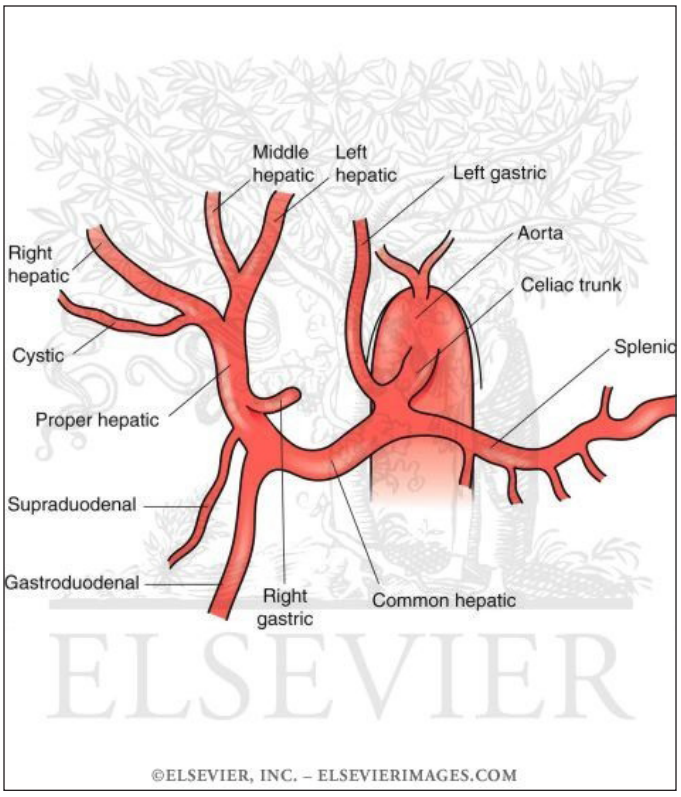

Figure 4. Celiac trunk anatomy. ©Elsevier, Inc.

when a patient is hemodynamically unstable, has persistent abdominal pain, when medical therapy fails to control blood pressure, and when the dissection is progressing.[10] Although rare, celiac trunk dissection is now more frequently reported due to improvement in imaging modalities and should be considered in the differential of unexplained abdominal pain and pancreatitis of unclear etiology.

Disclosures

Author contributions: All authors contributed equally to the preparation of this manuscript. RA Burbridge is the article guarantor.

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Informed consent was obtained for this case report.

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