CASE REPORT

A rare cause of acute pancreatitis: ischemia caused by free-floating intraluminal aortic thrombus.

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Abstract

Background/Aim: Acute pancreatitis is a common gastrointestinal condition worldwide with variable severity and complications. Alcohol and gallstones are the leading causes of acute pancreatitis, while pancreatic ischemia is uncommon. Although venous thrombosis, especially adjacent to the inflamed pancreas, is a common complication of acute pancreatitis, arterial thrombosis secondary to pancreatitis has rarely been described. On the other hand, arterial thromboembolic events, secondary to cardiovascular diseases, are a rare cause of pancreatic ischemia. Herein, we present an interesting case of acute ischemic pancreatitis secondary to aortic atheromatosis complicated with multi-organ infarcts.

Description of the case: An 80-year-old male patient presented with nausea, abdominal pain, and vomiting accompanied by peripheral edema and ascites. Clinical, laboratory, and imaging investigation showed acute moderate to severe pancreatitis with multiple splenic and renal infarcts. An intraluminal free-floating aortic thrombus, secondary to atheromatosis of the descending aorta, was the cause of the complications. A conservative approach was successfully implemented, including supportive measures, antiplatelets, and vasodilators.

Conclusion: Identification of acute pancreatitis' cause, especially in the setting of a systemic disease like atheromatosis, is a challenging task and of great importance, given the implications on treatment decision-making and prevention of recurrent episodes. HIPPOKRATIA 2021, 25 (3):138-140.

Keywords: Ischemic acute pancreatitis, aortic atheromatosis, arterial embolization, ischemic infarcts, prostaglandins

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Introduction

Acute pancreatitis (AP) is a common gastrointestinal inflammation of variable severity and prognosis. Cholelithiasis and alcohol are the leading causes of AP, accounting for 80 % of all cases. Less common causes include medications, infections, pancreatic masses, operations, hypertriglyceridemia, hypercalcemia, autoimmune diseases, cardiovascular diseases, and hereditary diseases[1]. Secondary to AP, splanchnic vein thrombosis and collapsed systemic circulation are commonly encountered[2]. On the other hand, acute ischemic pancreatitis is an uncommon entity, usually associated with hypoxia or circulatory dysfunction in critically ill patients of the intensive care units[3]. Herein, we describe a rare case of ischemic AP secondary to extensive aortic atheromatosis.

Case report

An 80-year-old male patient presented with nausea, abdominal pain, and vomiting, to the emergency department. His medical history included arterial hypertension, chronic kidney disease, and diabetes mellitus type 2. His vital signs on admission were unremarkable (blood pressure: 135/50 mmHg, heart rate: 62/min, O_2 saturation: 95 % and temperature of 36.7 °C). The electrocardiogram showed sinus rhythm. Physical examination revealed diffuse subcutaneous edema, abdominal distension, and tenderness with hypoactive bowel sounds. Laboratory tests on admission showed increased amylase (2,658 U/L) and lipase (264 U/L) levels with normal liver function tests. An acute on chronic kidney disease with hyperkaliemia (7 mEq/L) indicated temporary hemodialysis. Autoimmune, infectious, and malignant diseases were excluded. An abdominal computed tomography (CT) showed: ascitic fluid, findings of AP, no liver or biliary abnormalities, and multiple splenic and renal infarcts. Interestingly, a free-floating, intraluminal thrombus of the descending aorta was detected. The thrombus was partially attached to the wall of the descending aorta, which showed widespread mixed-density atherosclerotic

lesions with an irregular surface (Figure 1). Abdominal paracentesis revealed a serum ascites albumin gradient of 1.6 with increased amylase levels (2,000 U/L). Transthoracic echocardiography was unremarkable. The pancreatobiliary tree appeared normal on magnetic resonance imaging cholangiopancreatography. During the hospitalization, the patient presented acute pain and decreased temperature of his left lower limb, suggesting ischemia. Doppler ultrasound detected popliteal artery stenosis of 70-80 %. The patient was initially treated with acetylsalicylic acid, statin, and iloprost, followed by cilostazol 100 mg twice daily. In the first month after hospitalization, the patient remained asymptomatic while being treated with anticoagulative and antiplatelet agents. One-month follow-up abdominal CT angiography showed a resolution of the aortic thrombus, the underlying atherosclerotic lesions, and the absence of any intra-abdominal arteriovenous malformation (Figure 2).

Discussion

The scarcity of the ischemic AP (<8 % of all cases) dictates the initial exclusion of more common causes of AP[4]. The differential diagnosis of pancreatic ischemia includes cardiac failure, sepsis, hemorrhagic shock, and occlusion of mesenteric vasculature[5]. In our case, the suspicion of mesenteric occlusion was confirmed by the patient's medical history and the exclusion of the commonest causes of AP via laboratory and radiological tests. Iatrogenic AP following cardiovascular operations or pancreatic transplantation has also been reported[6,7]. In our case, the patient presented multiple spontaneous thromboembolic events secondary to a free-floating intraluminal aortic thrombus after the spontaneous rupture of an aortic atheromatous plaque. Laboratory tests also excluded other possible causes of spontaneous thromboembolic events involving the pancreatic vasculature (e.g., vasculitides, disseminated intravascular coagulation). Generally, acquired or hereditary cardiovascular diseases (e.g., atherosclerosis, vascular malformations, aneurysms, and aortic dissection) may cause pancreatitis secondary to pancreatic hypoperfusion[8-11]. Aortic thrombosis-related AP has been described, although a clear causal association remains elusive. In our case, ischemic AP secondary to aortic thrombosis is a possible scenario considering the location of the atheromatous thrombus (descending thoracic aorta). The association of AP with the thrombosis of vessels adjacent to the pancreas has already been established[12]. To our knowledge, only two cases of multi-organ embolization secondary to aortic thrombosis have been described. Remarkably, the first case demonstrates impressive similarities to our case[13], while in the second case, the aortic thrombosis was secondary to hypercoagulable condition[14]. So far, international guidelines focus on making recommendations about the diagnosis and the management of biliary and alcoholic AP, which are the most frequent[1]. Although preserving the blood flow of pancreatic tissue is the standard of care, identifying and reversing the cause of pancreatitis remains crucially important and a challenging task[5]. Our case report highlights the gap in early differ-

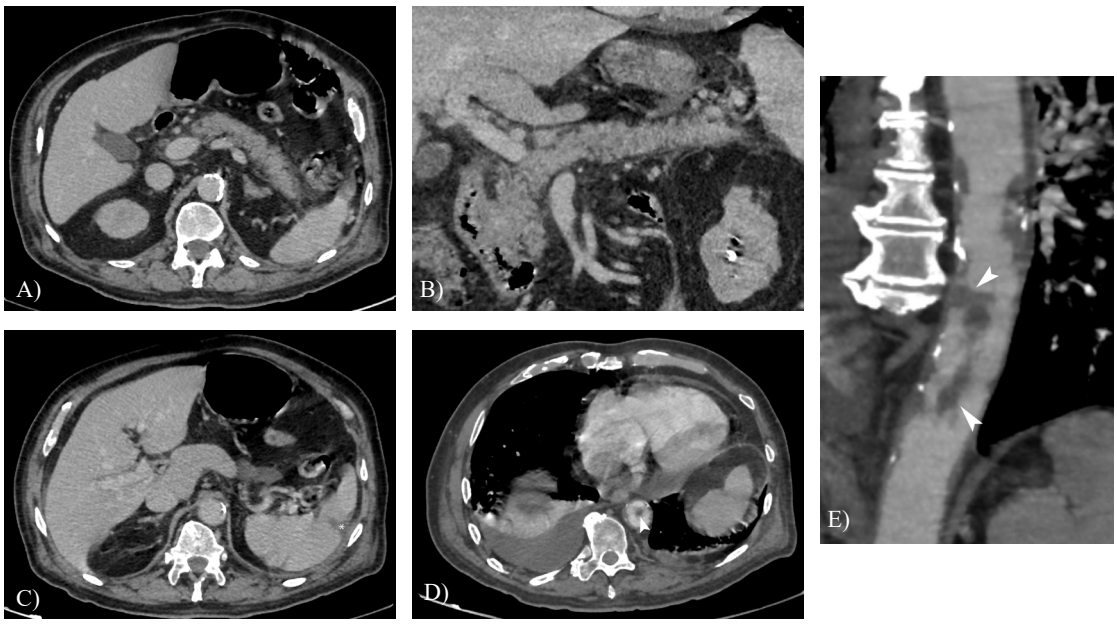

Figure 1: Contrast-enhanced computed tomography of the abdomen at presentation. A) Axial image through the pancreas showing fat stranding and fluid collection in keeping with pancreatitis. B) Curved multiplanar reconstructed image (CMPR) along the pancreas showing fat stranding and fluid collection with a renal infarct (arrowhead). C) Axial image through the spleen showing a wedge-shaped hypodense area suggestive of an infarct (asterisk). D) Axial image through the descending aorta showing an intraluminal filling defect representing thrombus (arrowhead). E) Curved multiplanar reconstruction of the descending aorta confirmed the presence of a free-floating intraluminal thrombus (arrowheads), partially attached to the underlying atherosclerotic lesions (superior arrowhead).

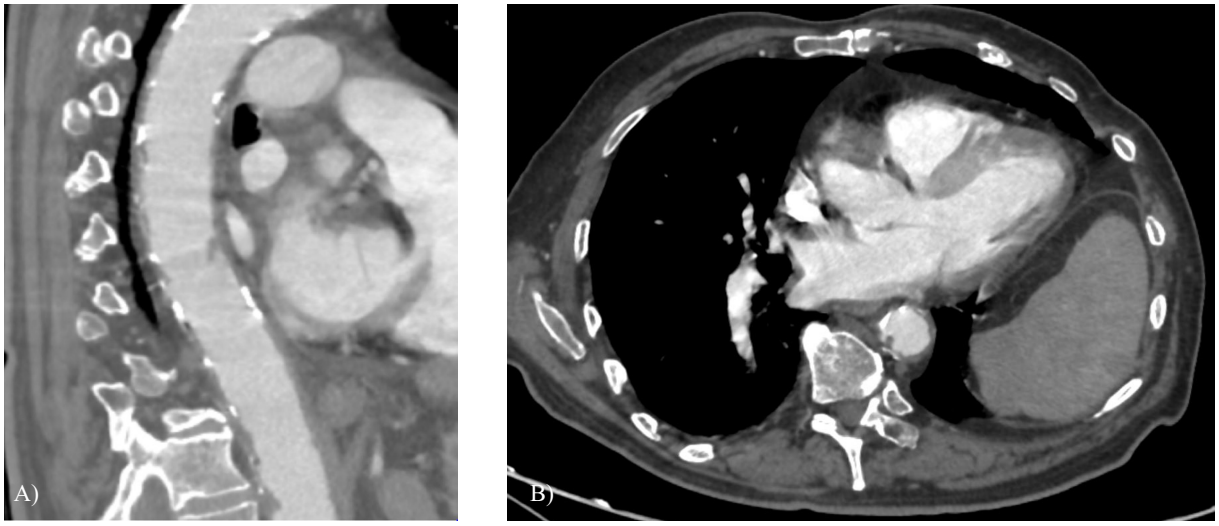

Figure 2: Aortic computed tomography angiography following one month of conservative treatment. A) Curved multiplanar reconstruction demonstrating the thrombus's complete resolution while the underlying atherosclerotic lesions are still visible. B) Axial image at the level of thrombus confirming the findings.

ential diagnosis of the cause regarding the management of AP in everyday clinical practice. Clinicians managing patients with AP should be aware of the uncommon causes, starting from the first episode of AP when the more usual causes have been excluded. A recent systematic review and meta-analysis concluded that delineating early the etiology of the AP is associated with better outcomes[15]. In our case, the origin of AP was identified early, allowing for immediate treatment of the condition and the patient's complete recovery.

Conflict of Interest

None declared by authors.

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