



CLINICAL CASE

## Drug-Induced Acute Pancreatitis and Pseudoaneurysms – An Ominous Combination

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### PALAVRAS-CHAVE

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Pancreatite/induzida  
quimicamente

**Abstract** Rupture of pseudoaneurysms is rare but can be life-threatening complications of acute or chronic pancreatitis, usually due to enzymatic digestion of vessel walls crossing peri-pancreatic fluid collections. We report the case of a 40 year-old female, with multisystemic lupus and anticoagulated for prior thrombotic events, admitted for probable cyclosporine-induced acute pancreatitis. Hemodynamic instability occurred due to abdominal hemorrhage from two pseudoaneurysms inside an acute peri-pancreatic collection. Selective angiography successfully embolized the gastroduodenal and pancreatoduodenal arteries. The hemorrhage recurred two weeks later and another successful embolization was performed and the patient remains well to date. The decision to restart anticoagulants and to suspend cyclosporine was challenging and required a multidisciplinary approach. Despite rare, bleeding from a pseudoaneurysm should be considered when facing a patient with pancreatitis and sudden signs of hemodynamic instability.

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### Pancreatite Aguda Medicamentosa e Pseudoaneurismas – Uma Combinação Tenebrosa

**Resumo** Os pseudoaneurismas são complicações raras mas graves da pancreatite aguda ou crónica. São causados pela digestão enzimática de artérias que atravessam colecções inflamatórias. Descreve-se o caso de uma doente do sexo feminino, de 40 anos, com lúpus sistémico e anticoagulada por trombose venosa profunda, admitida por pancreatite aguda associada à ciclosporina. Apresentou sinais de hemorragia abdominal causada por dois pseudoaneurismas

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dentro de uma colecção peri-pancreática. Foi então realizada angiografia com embolização da artéria gastroduodenal e pancreatoduodenal. Houve recidiva duas semanas depois, com necessidade de nova embolização bem-sucedida. A decisão de suspender a ciclosporina e reintroduzir anticoagulantes nesta doente de alto-risco é controversa. Apesar de raros, os pseudoaneurismas devem ser considerados perante um doente com pancreatite e sinais de hemorragia.

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## 1. Introduction

Most cases of pancreatitis are mild and have a favorable prognosis. However they can also be present with a severe form and have ominous complications. Vascular events range from asymptomatic venous thrombosis to severe life-threatening arterial bleeding.<sup>1</sup> Hemorrhage from pseudoaneurysms is considered a quite rare complication of acute or more commonly chronic pancreatitis, which is thought to be caused by leakage of pancreatic enzymes that erode the wall of adjacent visceral arteries. The vessel wall may also be damaged by ischemia and compression by inflammatory or necrotic collections. A pseudoaneurysm may also occur after biliopancreatic surgery.<sup>2</sup> The most frequently involved vessels are the splenic artery in about 30–60%, the gastroduodenal artery in 20–25% and the pancreatoduodenal artery in 10–15% of the cases. Involvement of the hepatic or left gastric arteries is even less common.<sup>3</sup> Bleeding may occur into the gastrointestinal tract and present as melena or hematochezia through the main pancreatic duct (*hemosuccus pancreaticus*), into a pseudocyst/peripancreatic collection or into the peritoneal cavity. Pseudoaneurysm hemorrhage may occur from a few days to several years after the onset of pancreatitis.<sup>4</sup>

When this diagnosis is suspected, contrast-enhanced CT angiography is an excellent modality for identifying and locating the pseudoaneurysm as well as it can demonstrate features of chronic pancreatitis. It may show simultaneous opacification of an aneurysmal artery and pseudocyst or penetration of contrast within a pseudocyst after the arterial phase.<sup>5</sup> This is necessary for subsequent selective angiography, the gold standard method for definitive diagnosis and treatment of pseudoaneurysms. Proximal embolization with coils is the preferred technique and has replaced surgical ligation of the damaged artery as the best method for treatment.<sup>6</sup> Injection of a haemostatic gelatin sponge (spongostan®), cyanoacrylate, thrombin or placement of covered stents may also be useful. Published case series include a relatively low number of cases, but show that embolization is a safe method with high success rate and relatively low risk of recurrence or ischemia.<sup>7,8</sup> To the best of our knowledge, there is only one other case report of a pseudoaneurysm complicating a probable drug-induced acute pancreatitis.<sup>3</sup>

According to Badalov classification,<sup>9</sup> cyclosporine is a class III drug concerning the risk of inducing acute

pancreatitis, which means that there are at least two known cases in medical literature, but with no consistent latency time between exposure to the drug and ensuing symptoms or evidence of positive rechallenge. Those cases occurred in post-transplant setting.<sup>10</sup> Despite the paucity of clinical reports about cyclosporine-induced acute pancreatitis, there is an experimental model that suggests a deleterious role for the drug in pancreas transplant recipients, causing pancreatitis more often than tacrolimus.<sup>11</sup> Since rechallenge is not an option due to obvious medical and ethical concerns, diagnosis of drug-induced pancreatitis relies on careful history taking and high index of suspicion.

## 2. Case report

We present the case of a 40 year-old female patient with a medical history of severe Systemic Lupus Erythematosus (SLE) and secondary anti-phospholipidic syndrome, with past episodes of venous thrombosis (pulmonary and deep venous thrombosis in 2008) that led to placement of a filter in the inferior vena cava and in the right iliac vein. The patient was anticoagulated with warfarin. She was also taking prednisolone, hydroxychloroquine, ramipril, sertraline and alprazolam. Due to lupus reactivation, she was recently medicated with cyclosporine. There was no history of alcohol consumption, familial history of pancreatitis, cholelithiasis or hypertriglyceridemia. There were also no previous endoscopic or surgical abdominal interventions. Two weeks after being prescribed with 150 mg of cyclosporine, she was admitted to the emergency room with acute epigastric abdominal pain with lumbar irradiation, fever, nausea and vomiting that started four days before admission. Elevated levels of amylase and lipase (more than three times above the upper normal limit) supported the diagnosis of acute pancreatitis. There were no Ranson criteria at admission, BISAP score (bedside index for severity in acute pancreatitis) was zero and there were no signs of organ failure or SIRS (systemic inflammatory response syndrome). Three days after admission, the patient suffered a lipothymia and a brisk fall in her hemoglobin levels was noticed (from 119 g/L to 64 g/L). An abdominal CT was conducted revealing a peripancreatic acute fluid collection with active bleeding within (Figs. 1 and 2). The collection developed about a week after disease onset. It was located close to the bifurcation of the gastroduodenal

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