

# Tender Abdominal Mass from Colic Artery Pseudoaneurysm in a Patient with Chronic Pancreatitis

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## Abstract

This case presents an unusual etiology of a tender abdominal mass in a patient with a history of chronic alcoholic pancreatitis who presented to the emergency department with abdominal pain. The case underscores the importance of maintaining a wide differential diagnosis in recurrent pancreatitis so as to avoid a potentially lethal, if rare, complication. Appropriate imaging and consultation were essential to achieve a satisfactory result.

## Introduction

Chronic pancreatitis is frequently encountered in the emergency department. The usual presenting complaint is abdominal pain. Often, after multiple trips to the emergency department, evaluation and treatment are primarily focused on symptom control; detailed history and physical examination are usually lacking. Vascular complications of chronic pancreatitis are uncommon and frequently overlooked. The incidence rate of visceral pseudoaneurysms confirmed by angiography is estimated to be about 10%.<sup>1</sup> Pseudoaneurysm is a rare but serious complication of chronic pancreatitis. It is believed to be a result of auto-digestion of the vascular wall by pancreatic enzymes. Mortality rates can reach as high as 40%, depending on the site, characteristic, and therapeutic modality employed.<sup>2</sup> Mortality rates exceed 90% without treatment.<sup>4</sup>

## Narrative

A 61-year old man presents to the emergency department with a four-day history of dull upper abdominal discomfort that radiates to the back. The patient has a past medical history including coronary artery disease, chronic back pain, and recurrent

pancreatitis. Pancreatitis has been attributed to chronic heavy alcohol ingestion. Patient is a migratory worker and hence has had very poor and inconsistent medical follow-up. His physical examination includes normal vital signs. The abdominal examination revealed a tender, firm abdominal mass in the epigastric area. The mass is not pulsatile, and there is no clinical thrill or bruit. Stools were heme-occult positive. His lab values included WBC 6200 per cubic mm, hgb 10.8 gm/dl. Amylase and lipase were within normal limits. The abdominal mass was further investigated with post-infusion CT scan of the abdomen and pelvis. The scan showed a large, hypervascular lesion within the head of the pancreas that had characteristics suspicious of a pseudoaneurysm without a definite feeding vessel (Figure 1). Subsequently, an abdominal Doppler sonogram was performed, which revealed a pronounced arterial flow within the lesion. The lesion was believed to be a pseudoaneurysm originating from an artery or possibly an arteriovenous fistula. Patient was admitted to the hospital and subsequently underwent a selective angiogram of the celiac trunk and the superior mesenteric artery

**Figure 1: Pseudoaneurysm without definitive feeding vessel**



(Figure 2). No feeding pseudoaneurysm was seen in any of the branches of the celiac trunk. The superior mesenteric artery arteriogram revealed a large pseudoaneurysm of the colic branch of the superior mesenteric artery. It appeared to originate with 1 cm of the origin of the right colic artery. The neck of the pseudoaneurysm was ill defined; hence, it could not be engaged for selective embolization. Since the vessel supplied a large portion of the bowel, proximal/distal parent vessel embolization trapping technique ran a significant risk of bowel ischemia and was not performed. An EGD was performed to rule out any mucosal erosion from the pseudoaneurysm. It showed a small duodenal ulcer with no active bleeding. A final diagnosis of pseudoaneurysm of the colic branch of the superior mesenteric artery was thus established. Patient was referred to vascular surgery for further evaluation, as percutaneous embolization of the pseudoaneurysm could not be performed. Unfortunately, patient refused any further treatment and left the hospital against medical advice.

## Discussion

Pseudoaneurysm is a rare but serious complication of pancreatitis. The following three mechanisms account for pseudoaneurysms related to pancreatitis: 1) severe inflammation and enzymatic auto-digestion of a pancreatic or peri-pancreatic artery producing arterial disruption; 2) an established pseudocyst eroding into a visceral artery, resulting in conversion of a pseudocyst into a large pseudoaneurysm; 3) a pseudocyst eroding the bowel wall with bleeding from mucosal surface. Splenic artery is the most commonly involved in pancreatic pseudoaneurysm.<sup>3</sup> It may be due to the fact that it runs along the pancreatic bed before reaching the spleen and is most vulnerable to the erosive effects of pancreatitis. It accounts for almost 30-50% and is followed by gastroduodenal artery (10-15%) and the inferior and superior pancreatico-duodenal artery (10%). Other blood vessels mentioned in the literature include superior mesenteric artery, hepatic artery, gastric artery, dorsal pancreatic artery, gastroepiploic artery, middle colic artery, aortic artery, and portal vein.

Incidence of pseudoaneurysm is low in pancreatitis. However, in patients undergoing angiography there has been reported an incidence as high as 10%.<sup>1</sup> Most patients are males with a history of alcoholism (80-90%) with episodic chronic pancreatitis and secondary pseudocyst formation. Highly variable clinical symptoms include the following: 1) anemia of unexplained cause; 2) recurrent or intermittent hematemesis or hematochezia in patients who have pancreatitis, particularly when due to chronic alcohol abuse or trauma; 3) rapid enlargement of a pseudocyst or a pulsatile abdominal mass, especially in the presence of abdominal bruit and hyperamylasemia. Recognition of this rare complication is extremely important. It has a reported mortality of up to 40% with treatment and up to 90% without treatment.<sup>4</sup> The bleeding is usually brisk but varies from short, repeated, and self-limiting episodes to massive hemorrhage requiring emergency laparotomy. The frequency of bleeding from a pseudoaneurysm during an episode of pancreatitis is 5-10%. This rate is higher with pseudoaneurysm

**Figure 2: Angiogram of celiac trunk and superior mesenteric artery**



associated with a pseudocyst (15-20%). Other infrequent complications include arteriovenous fistula formation and extra-hepatic biliary tract obstruction.

Treatment of visceral pseudoaneurysm remains controversial. Various percutaneous<sup>5,6</sup> and open surgical techniques have been described with varying success.

## Conclusion

Pseudoaneurysm is a rare vascular complication of pancreatitis. In the literature review in MEDLINE over the past thirty years, I did not find any reported cases of pancreatitis-induced pseudoaneurysm of the right colic artery. Although this condition is rare, there are frequent grave complications; clinicians involved in the care of patients with pancreatitis need to be aware of this complication. This will enable a prompt diagnosis and definitive treatment.

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