



## Case Report

# Sustained Fever in a Patient with a History of Alcoholic Cirrhosis and Chronic Pancreatitis: A Diagnostic and Therapeutic Dilemma

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### Abstract

Chronic pancreatitis is an aseptic inflammatory medical condition that indeed it is characterized by numerous complications since continuous inflammation of the pancreatic gland leads to permanent damage of the pancreatic tissue. Pseudocyst formation, symptomatic obstruction of the bile duct or duodenum, splenic vein thrombosis, pancreatic ascites and pleural effusion, pseudoaneurysm formation, diabetes as well as pancreatic adenocarcinoma are the main clinical issues. Although pseudocyst formation is common as it occurs in about 10 percent of the patients with chronic pancreatitis, complicated pseudocyst; spontaneous infection with abscess or pseudoaneurysm formation is exceedingly rare. Herein, it will be presented a patient who admitted at the internal medicine department due to fatigue and he was eventually diagnosed with alcoholic cirrhosis and chronic pancreatitis. He received the appropriate medical treatment and he was finally discharged home. After a week, the patient re-admitted due to persistent high-fever. Thorough evaluation revealed that his chronic pancreatitis was complicated by an infected pancreatic pseudocyst.

**Keywords:** Chronic pancreatitis; Alcoholic cirrhosis; Pancreatic cyst; Pancreatic abscess; Percutaneous drainage of the cyst

### Introduction

One of the principal causes of chronic pancreatitis is alcohol use disorder. The amount of alcohol that is usually required for a person to develop chronic pancreatitis is equivalent to five drinks daily for at least five years, while moderate drinking and binge drinking do not cause chronic pancreatitis. The patients do initially present at the emergency department either with multiple episodes of acute pancreatitis, or with signs and symptoms of malabsorption [1]. They do have imaging compatible with chronic pancreatitis, eg, pancreatic calcification. Importantly, not all the heavy drinkers will develop chronic pancreatitis (less than 5 percent), suggesting that there are significant cofactors; these include diet, genetic background, ethnicity and coexistent smoking. Nonetheless, alcohol use disorder has a negative impact not only to the pancreas but to the liver as well [1]. Hence, there are not a few the medical situations where the clinician has to encounter two

“hits” in this patient subpopulation; liver cirrhosis and chronic pancreatitis. Liver cirrhosis patients are recognized through clinical and laboratory characteristics; icterus, ascites, palmar erythema, spider angiomas, splenomegaly and thrombocytopenia or even pancytopenia, hypoalbuminemia, hyperbilirubinemia, INR prolongation. On the other hand, chronic pancreatitis is represented by the following classic triad; pancreatic calcifications, steatorrhea and diabetes mellitus. However, only in advanced disease are present all of the three characteristics [1]. Additionally, chronic pancreatitis is accompanied by serious complications. Continuous inflammation of the pancreatic tissue causes irreversible damage of the gland and prompts to exocrine and endocrine dysfunction. Thence, there are numerous complications; pseudocysts that may be complicated by an infectious microorganism or cystic rupture. Bile duct or duodenal obstruction can also be the result of the dilated pancreatic glands, a result of inflammation and fibrosis in the head of the pancreas or of the compression from a pseudocyst. A relatively unusual manifestation is pancreatic ascites and pleural effusion. Either disruption of the pancreatic duct and fistula formation, or rupture of a pseudocyst are the main mechanisms

which elicit the development of pancreatic ascites and or pleural effusion. Pseudoaneurysm formation, splenic vein thrombosis leading to left-sided portal hypertension and gastric varices are also extremely rare phenomena. Endocrine insufficiency and pancreatic diabetes are seen in up to 30 to 50 percent of patients and may take years to be clinically evident. Finally, pancreatic adenocarcinoma may also be developed in the background of chronic pancreatitis [2,3]. Our Internal Medicine Team recently encountered a patient who was diagnosed with chronic pancreatitis due to alcohol use disorder and his clinical course was such complicated that the final diagnosis was not easily recognizable by expert and familiarized with the disease clinicians; pancreatic pseudocyst complicated by infection. The intriguing part of our case was not only the diagnosis but the therapeutic approach, since that part is debated between surgeons, gastroenterologists and radiologists.

### Case Presentation

A 46-year-old man transferred at the department of our internal medicine clinic from another hospital for further investigation and treatment of his newly diagnosed liver disease. A week ago, the patient was admitted to a different hospital due to persistent fatigue for the last two months. Initial laboratory work-up showed hemoglobin level at 5mg/dl and peripheral smear exhibited sprue cells. Abdominal ultrasound displayed liver cirrhosis. He had no significant past medical history and he was not taking any medication. He denies any allergies. Nonetheless, his social history was significant for alcohol use disorder. His vital signs were the following; blood pressure 110mmHg over 70mmHg, heart rate 72bpm, oxygen saturation 96% on room air and temperature of 36.7C. The patient was alert and oriented to time and place. Muscle strength and tone were reduced (4/5) due to profound sarcopenia. The cranial nerves were intact. The gait was steady and Romberg sign was absent. On cardiac auscultation, the heart sounds were audible, rhythmic and no murmurs or gallops were noted. Lung auscultation was normal, while abdominal examination revealed ascites, hepatomegaly and splenomegaly. Palmar erythema and spider angiomas were also present. 12-lead electrocardiogram showed sinus rhythm. On the chest X-ray no cardiomegaly was noted and the lung parenchyma was normal. Lifting of the right semicircle was present due to hepatomegaly. Computed tomography of the abdomen showed liver cirrhosis, splenomegaly, fluid in the abdominal cavity and a pseudocyst measuring 4cm in diameter, close to the tail of the pancreas. Diagnostic paracentesis of the ascitic fluid was indicative of portal hypertension while spontaneous bacterial paracentesis was excluded. Upper endoscopy of the gastrointestinal tract showed two small esophageal varices. The patient was started on diuretics;

furosemide 40mg and spironolactone 100mg orally, complexes of vitamin B, folic acid and low-dose propranolol. The fourth day of his hospitalization, the patient discharged at home since there was a clinical and laboratory improvement. Complete abstinence from alcohol was recommended. A week later, he re-admitted due to persistent high-fever. There was no infiltrate on chest-x-ray and no white blood cells in the urine analysis. Once again, through paracentesis of the ascitic fluid was excluded the SBP. Multiple blood cultures were obtained and transiently it was isolated *Enterococcus* spp. The abnormal laboratory findings were; WBCs 3.120, Hct 29.3, Hb 9 mg/dl, Na 135 mmol/L, gGT (CK) 209 U/L, C-reactive protein (CRP) 88 mg/L. Abdominal CT was ordered where it was shown that the already known pseudocyst has enlarged and extended adjacent to the spleen. Radiology consultation was asked in order to clarify the consistency of the pseudocyst; cystic material, pus or serous. Abdominal ultrasound with intravenous administration of iodine contrast displayed that the material of the pseudocyst was possibly pus, however its drainage would give us the definite answer. In the meantime, the patient started receiving intravenous treatment with piperacillin-tazobactam and daptomycin. Initially, it was asked gastroenterology consultation in order to drain the pseudocyst material through endoscopic ultrasound. It was concluded that this was not efficient since the patient had esophageal varices and the distance between the pseudocyst and the gastric or duodenal wall was more than 1 cm. Thus, it was concluded that percutaneous drainage inferior to the spleen, through ultrasound guidance, would be the appropriate treatment approach. Analysis of the fluid revealed multiple white blood cells and culture displayed *enterococcus faecium*, the same microorganism that was isolated from blood cultures. According to the antibiogram, the microorganism was sensitive to antibiotics that the patient was receiving; piperacillin-tazobactam and daptomycin, so this treatment regimen was continued. The inflammatory markers were markedly decreased after cystic drainage, however there was remained a substantial amount of fluid in the cyst adjacent to the pancreas. At that time drainage of that cyst was achieved through CT guidance since after the first drainage, there was created a "window" between the spleen and the kidney so the needle got directly into the remained pseudocyst. This meant the full drainage of the cysts. The patient remained afebrile, the inflammatory markers returned to normal and a repeated computed tomography showed no re-accumulation of fluid within the cyst. The patient has now returned to work and is following the surveillance program that all the cirrhotic patients should follow, according to European Association Study of the Liver (EASL) guidelines (Figures 1-5).

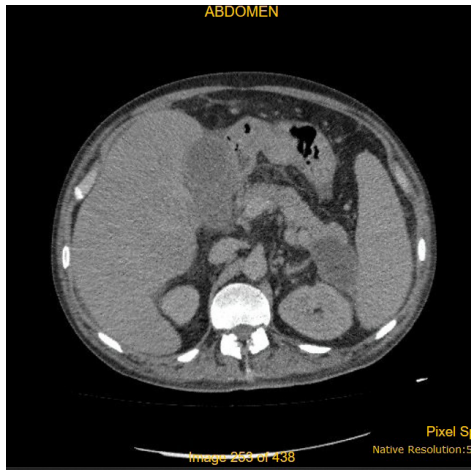


Figure 1: Pancreatic pseudocyst 2x2cm at the tail of the pancreas.

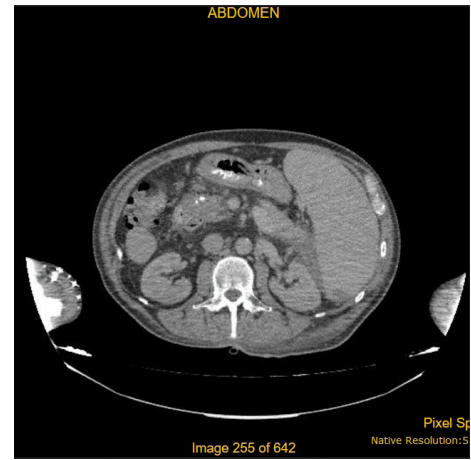


Figure 4: Disappearance of the cyst after successful transdermal drainage of it.

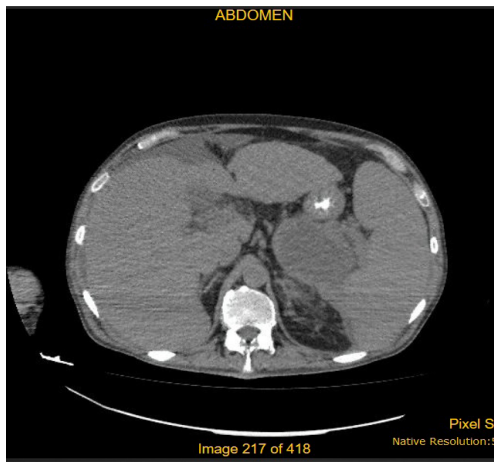


Figure 2: Pancreatic pseudocyst measuring 4x4cm, located at the tail of the pancreas.

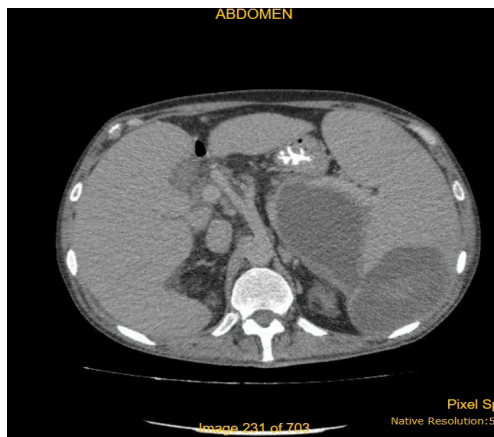


Figure 3: Enlargement of the pancreatic pseudocyst and extension adjacent and inferiorly to the spleen. It is visible that the cysts are communicating to each other.



Figure 5: Pus that was drained from the pancreatic pseudocyst, using a continuous vacuum drainage system.

## Discussion

Pancreatic pseudocysts are the result of acute as well as chronic pancreatitis. Pseudocysts due to acute pancreatitis usually develop within four weeks from the initial episode while the course of pseudocysts that are related to chronic pancreatitis, is more indolent. It has been documented that pancreatic pseudocysts most commonly arise in patients with alcoholic chronic pancreatitis (70% to 78%), as it happened with the patient presenting in this

case report [3]. However, pancreatic pseudocyst was not the “real problem” of our patient, since most of the pancreatic pseudocysts measuring less than 4 cm do regress spontaneously, thus requiring no treatment as long as they are asymptomatic. The sustained fever that could not be linked with other “focus”; pulmonary or urinary tract, central nervous system, spontaneous bacterial peritonitis, enteral infection, etc., raised the suspicion of infected pancreatic pseudocyst. Radiographic evaluation could not verify the “character” of cyst material; pus or serum. Nonetheless, there was present a strong criterion that was very indicative for the treatment of pancreatic pseudocyst; pseudocyst >5cm, without any regression but indeed expansion and almost duplication of the cyst after more than 6 weeks of observation. Hence, given the aforementioned criterion along with the high suspicion of septic focus within the cyst, it was decided that therapeutic intervention of the pancreatic pseudocyst was imperative. Various methods are used for the treatment of pancreatic pseudocysts; percutaneous catheter drainage (PCD), endoscopic transpapillary or transmural drainage, laparoscopic surgery, or open pseudocystoenterostomy. Definitely, less invasive approaches; endoscopic- and image-guided PCD are preferred [4,5]. Thus, abdominal ultrasound with intravenous contrast demonstrated two cyst cavities, one at the tail of the pancreas and the other under the inferior part of the spleen, that were communicating each other. A detailed discussion regarding the better treatment approach; drainage through endoscopic ultrasound or percutaneous drainage, was made. Surgical treatment was forbidden for this patient, since he was a non-compensated cirrhotic patient, putting him at high risk for post-procedural complications. Gastroenterologists examined the possibility of endoscopic drainage. Due to the fact that most of the pancreatic pseudocysts lie adjacent to the stomach, the endoscopic approach seems reasonable. However, they concluded that this could not be performed because the distance between the pseudocyst and the gastric or duodenal wall was more than 1 cm [6]. Therefore, percutaneous drainage of the cyst immediately inferior to the spleen was conducted. The fluid that was drained was macroscopically pus and that was confirmed with the analysis of it, which showed white blood cells. Two days later, the culture of the pus revealed the presence of enterococcus faecium, the same species that was isolated from blood cultures. Due to the fact that the cyst was substantially large, it could not be drained all the cystic material at once. Hence, continuous vacuum drainage

system obtained and the results were fantastic. All the cyst content was evacuated leading to reduced recurrence rate.

## Conclusion

According to this case presentation, as clinicians should we suspect complicated pseudocyst in a patient with a history of chronic pancreatitis and alcoholic cirrhosis. The best treatment plan is successful drainage of the cyst, in order to avoid lethal complications. Surgical drainage of the cyst is now “an old remedy” and the take home message from this case is that infected cysts should be drained, either endoscopically or percutaneously through image-guidance. Besides, the patient presented here is a patient with a significant comorbidity; decompensated cirrhosis, which means that any surgical intervention could have lethal outcomes [7]. Recognizing the treatment modalities and knowing their pros and cons, assists the clinicians to make the right decision each time they have to encounter such clinical vignettes. Consequently, a step-wise approach is meaningful in order to benefit the patient instead of harming him.

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