A rare case of acute pancreatitis: a diagnostic conundrum and unusual complications

Bartłomiej Strzelec, Piotr Chmielewski, Martyna Strzelec, Renata Taboła

12nd Department of General and Oncological Surgery, Wroclaw Medical University, Wroclaw, Poland; Head: prof. Wojciech Kielan MD PhD
Division of Anatomy, Department of Human Morphology and Embryology, Faculty of Medicine, Wroclaw Medical University, Wroclaw, Poland; Head: Zygmunt Domagała MD PhD

ABSTRACT:
A 63-year-old man with a history of recurrent idiopathic acute pancreatitis (AP) was admitted to our surgical ward due to severe abdominal pain. He denied chronic excessive alcohol use. Other typical causes of AP, such as gallstones, hypertriglyceridemia, and trauma, were ruled out. After considering all possible etiologies, the most likely factor producing AP was medication that had been administered to him two weeks before the very first episode of the disease. Medication should always be considered as a possible trigger of AP especially if the first episode occurs shortly after drug administration and the etiology is unclear. During patient’s hospitalization, laboratory reports revealed significant fluctuations in the serum levels of pancreatic enzymes, which can be attributed to recurrent bacteremia. After the 30-day period of hospitalization and long-lasting antibiotic therapy, he was discharged in a good condition with normal levels of serum pancreatic enzymes.

KEYWORDS: bacterial translocation, idiopathic acute pancreatitis

ABBREVIATIONS
AIP – autoimmune pancreatitis
AP – acute pancreatitis
CP – chronic pancreatitis
CT – computed tomography
EEN – early enteral nutrition
PBMCs – peripheral blood mononuclear cells
WHO – World Health Organization

INTRODUCTION
Acute pancreatitis (AP) is an acute inflammatory process of the pancreas with variable involvement of adjacent tissues or remote organs which presents with abdominal pain and elevated serum levels of pancreatic enzymes [1]. AP requires urgent hospitalization, and patients often develop additional complications that can be local or systemic. Local inflammation of the gland and the cytokines that are released into the circulation contribute to the characteristic symptoms of AP. Based on international data, the annual incidence rate is about 13–45 cases per 100,000 adults [2], and the overall mortality is around 5% [3]. In interstitial (edematous) pancreatitis, the mortality is < 5%, while in necrotizing pancreatitis mortality rates are significantly higher. The most common triggers of AP are gallstones and chronic heavy alcohol intake. Less common causes include hypertriglyceridemia [4], trauma (including iatrogenic effects of ERCP), pancreatic or periampullary cancer, autoimmune diseases, malfunction of the parathyroid gland (hypercalcemia), infections, congenital pancreaticobiliary anomalies, such as pancreas divisum and stenosis of the sphincter of Oddi, idiopathic causes, and drugs [5, 6]. If the etiology is unclear, medication should always be considered as a possible cause of AP, especially if the first episode occurs shortly after drug administration [6].

CASE PRESENTATION
A 63-year-old man with a history of recurrent idiopathic AP was transferred from the internal medicine ward to our clinic because of severe abdominal pain and retention of gas and stool. Due to similar episodes, the patient had been hospitalized earlier four times within the period of three months and he also had been admitted to the emergency room on numerous occasions. On admission, laboratory tests showed anemia (Hg level was 10.7 g/dL, reference range, RR 13–18 g/dL), elevated levels of inflammatory markers (WBC count was 17,000/μL, RR 4,000–11,000; CRP 86.1 mg/L, RR < 5 mg/L), significantly increased level of procalcitonin (0.59 ng/mL, RR < 0.05 ng/mL), elevated levels of pancreatic enzymes (the level of amylase was 152 units/L, RR 25–125 units/L, the level of lipase was 262 units/L, RR 8–78 units/L), and mild-to-moderate increase in the level of pancreatic enzymes. During the remission period, an oral diet was administered, but due to frequent vomiting with reduced appetite he was additionally provided with parenteral nutrition. During patient’s hospitalization, routine medical tests were performed, including chest radiograph (normal), intravenous fluids, parenteral nutrition, analgesics and antispasmodic drugs were administered. The symptoms disappeared after conservative treatment, and there was a decrease in the level of pancreatic enzymes. During the remission period, an oral diet was administered, but due to frequent vomiting with reduced appetite he was additionally provided with parenteral nutrition. During patient’s hospitalization, routine medical tests were performed, including chest radiograph (normal), intravenous fluids, parenteral nutrition, analgesics and antispasmodic drugs were administered. The symptoms disappeared after conservative treatment, and there was a decrease in the level of pancreatic enzymes.
inflammatory markers and pancreatic enzymes (the level of amylase was 306 units/L, and the level of lipase was 589 units/L) was observed. His blood was collected for blood culture, and his test was positive for *Staphylococcus haemolyticus* and *Enterococcus faecium*. The patient was treated with intravenous vancomycin and his state improved gradually. The levels of pancreatic enzymes in the serum decreased significantly. However, during the following days, despite conservative treatment, his health was unstable with dramatic fluctuations in the serum levels of pancreatic enzymes. His poor condition was accompanied by recurrent bacteremia. After the 30-day period of hospitalization and long-lasting antibiotic therapy, he was discharged in a good condition with normal levels of serum pancreatic enzymes. The parameters of nutritional status, such as total protein, albumin, and phosphorus, were also within the normal limits.

**DISCUSSION**

In this case, recurrent pancreatitis was diagnosed as idiopathic. Since abdominal ultrasounds and CT did not show any significant changes in the biliary tract, including the gallbladder, cholelithiasis was ruled out. GGTP concentration as well as the AST/ALT ratio were found to be within the normal range, the latter was < 2, therefore it was unlikely that chronic heavy alcohol consumption caused AP [7]. Similarly, trauma was ruled out as a trigger of AP in this patient. Nevertheless, his serum IgG4 concentration was not measured, so it is conceivable that not only medications but also an undiagnosed autoimmune disease could have produced AP. The probability of autoimmune pancreatitis (AIP) is, however, extremely low due to the lack of painless jaundice or symptoms of Sjögren’s syndrome or other autoimmune diseases [6]. Moreover, serum alkaline phosphatase levels were within normal limits. Thus, these findings weigh in favor of drug-induced AP, all the more so other causes were ruled out based on clinical observations and laboratory reports. Pancreatic cancer can mimic chronic pancreatitis (CP) along with attacks of AP and it can be suspected especially when the course of the disease is recurrent, and the pancreatic duct is slightly dilated. Therefore, the differential diagnosis between CP and cancer is often difficult [8]. In addition, the imaging methods that we used did not help in this diagnosis. However, cancer was very low on our list of differentials because of a relatively long history of recurrent AP in this patient and the lack of any other typical symptoms such as weight loss, jaundice, and a much more aggressive course of the disease. As stated above, the patient took ramipril and glucocorticoids, which can cause AP [5], and the very first episode of the disease occurred two weeks after drug administration, so there was a close relationship between these events. Since the patient developed the symptoms within a relatively short time after the commencement of treatment with ramipril and glucocorticoids and there were no other possible triggers of AP, these drugs are the most likely causes of the disease. A non-typical course of the disease along with numerous relapses and remissions poses the greatest conundrum. Taking into account the results of blood cultures and the fact that his state improved significantly after antibiotic therapy, the most likely cause of the observed fluctuations in the serum levels of pancreatic enzymes was bacteremia. The presence of bacteria in the blood may activate the white blood cell system, including peripheral blood mononuclear cells (PBMCs), which secrete cytokines that amplify the inflammatory process and thus may damage the pancreatic cells [9]. On the other hand, highly elevated levels of inflammatory markers and increased systemic inflammation, as observed during sepsis, usually do not cause symptomatic AP. In sepsis, increased levels of pancreatic enzymes are mainly due to centralization of circulation and pancreatic ischemia, and they do not result from systemic inflammation. They are not associated with any typical symptoms of AP, nor do they cause any changes in imaging tests that would suggest AP [10]. Nevertheless, bacteremia, which probably developed as a result of translocation of intestinal bacteria to the blood (as the results of blood cultures suggest), is definitely the most likely cause of these recurrent episodes of pancreatitis in this patient. This is very common in patients who receive parenteral nutrition for a long time. The patient received an oral and parenteral diet, but due to lack of appetite and vomiting, parenteral nutrition was the main form of food supply. Bacterial cultures that were grown from his blood represent the normal flora of the intestine. No signs of inflammation around the point of injection were observed. Thus, the source of infection is unlikely to be the catheter. To reduce the risk of translocation of intestinal bacteria
to the blood, which leads to bacteremia and further complications, early enteral nutrition (EEN) can be administered. It has important advantages as it is associated with better maintenance of the gut barrier and significantly reduced risk of bacterial translocation. In this case, however, EEN was not used due to patient’s refusal. According to the World Health Organization (WHO), the causality of drugs can only be confirmed if symptoms recur upon rechallenge, and rechallenging is the only definitive way to prove drug-induced pancreatitis [6]. We decided not to do this clinical trial because of numerous previous episodes of AP and a great risk arising from the poor condition of the patient. Prednisone was discontinued, and ramipril was replaced by another antihypertensive drug. After the last discharge, the patient was not admitted to our ward. It can be argued that this case is rare. First, common causes of AP were ruled out based on clinical history, physical examination, laboratory tests and imaging. Second, parenteral nutrition led to bacterial translocation. Consequently, other complications developed during hospitalization. Therefore, we suggest that a detailed drug history should be an integral part of assembling a patient’s medical history in subjects with pancreatitis of unknown etiology. Moreover, EEN should always be taken into consideration when feeding patients with AP who cannot take food orally. Parenteral nutrition might contribute to additional complications. Therefore, its use should be confined to patients with contradictions to EEN or oral nutrition.

REFERENCES


Cite this article as: Strzelec B., Chrimelewski P., Strzelec M., Tabola R.: A rare case of acute pancreatitis: a diagnostic conundrum and unusual complications; Pol Przegl Chir 2020; 92: 1–4; DOI: 10.5604/01.3001.0014.4876 (Advanced online publication)