

Pancreatic pseudocysts: a case report

Pseudoquistes pancreáticos: un reporte de caso

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ABSTRACT

A pancreatic pseudocyst is a fluid-filled sac in the abdomen that arises from the pancreas and may contain pancreatic tissue, enzymes, and blood. It is a rare local complication, usually due to rupture of the pancreatic duct in acute or chronic pancreatitis, trauma, or obstruction of the pancreatic duct. This study aimed to describe the importance of abdominal computed tomography (CT) as a confirmatory method for the diagnosis of pancreatic pseudocysts in a patient. A review of the available literature on pancreatic pseudocysts was conducted using the PubMed, Scopus, Google Scholar, and SciELO search engines. We present the case of a 41-year-old white male patient with a history of bronchial asthma, heavy smoking, and chronic alcohol abstinence for the past two months. Four years prior, he presented with acute pancreatitis and was hospitalized. He requested discharge without completing the tests or treatment. The patient presented with abdominal distension, food intolerance, diarrhea, and weight loss. Computed tomography (CT) diagnosed pancreatic pseudocysts. CT, as part of the diagnostic algorithm for suspected pancreatic disorders, provides detailed information on the location, size, and characteristics of the lesions to achieve a definitive diagnosis and guide the best treatment, preventing subsequent complications.

Keywords: *pancreatic pseudocyst, alcoholic pancreatitis, computed tomography scan, chronic pancreatitis.*

RESUMEN

Un pseudoquiste pancreático es un saco lleno de líquido en el abdomen que se eleva desde el páncreas y puede contener tejido pancreático, enzimas y sangre. Es una complicación local rara, generalmente debida a la ruptura del conducto pancreático en pancreatitis aguda o crónica, trauma u obstrucción del conducto pancreático. El objetivo de este estudio fue describir la importancia de la tomografía abdominal como método confirmatorio para el diagnóstico de pseudoquistes pancreáticos en un paciente. Se realizó una revisión de la literatura disponible sobre pseudoquistes pancreáticos utilizando los motores de búsqueda PubMed, Scopus, Google Scholar y SciELO. Se presenta el caso de un paciente masculino blanco de 41 años con antecedentes de asma bronquial, tabaquismo empedernido y abstinencia crónica de alcohol durante los últimos 2 meses. Hace cuatro años, presentó pancreatitis aguda y fue hospitalizado. Solicitó el alta hospitalaria sin completar las pruebas ni el tratamiento. El paciente presentó distensión abdominal, intolerancia alimentaria, diarrea y pérdida de peso. La tomografía computarizada (TC) diagnosticó pseudoquistes pancreáticos. La TC, como parte del algoritmo de diagnóstico ante la sospecha de trastornos pancreáticos, proporciona información detallada sobre la ubicación, el tamaño y las características de las lesiones para lograr un diagnóstico definitivo y orientar el mejor tratamiento, evitando complicaciones posteriores.

Palabras clave: *pseudoquiste pancreático, pancreatitis alcohólica, tomografía computarizada, pancreatitis crónica.*

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INTRODUCTION

Pancreatic pseudocysts (PP) are fluid-filled sacs in the abdomen that arise from the pancreas and may contain pancreatic tissue, enzymes, and blood. It is an uncommon local complication, usually resulting from rupture of the pancreatic duct in acute or chronic pancreatitis, trauma, or obstruction of the pancreatic duct. This leads to the accumulation of pancreatic juice, which is surrounded by a non-epithelialized wall over a period of 4 to 6 weeks, where the pseudocyst forms. The absence of an epithelial lining distinguishes it from neoplastic cysts, which may have malignant potential (Cha et al., 2010; Puerto et al., 2020; Szakó et al., 2021).

It has an incidence of 1 in 100,000/year and a prevalence of 6.0% to 18.5%. In order of frequency, it is caused by post-alcoholic pancreatitis in 70 to 78%, chronic pancreatitis in 20 to 40%, and biliary causes in 6 to 8%. Trauma is a rare etiology. In cancer patients, they develop in approximately 23.5% of cases and have been linked to PEG-asparaginase treatment (Santiago et al., 2016; El-Gohary et al., 2020).

Pseudocysts are usually rounded or oval in shape. Ninety percent of them are single, but after alcoholic pancreatitis, multiple pseudocysts are more common (Gabrielli et al., 2018). Excessive alcohol consumption and smoking are risk factors for this disease. When PP is suspected, the differential diagnosis should include retention cysts, acute peripancreatic necrotic collections, and pancreatic cystic neoplasms (Lira-Treviño et al., 2022). The objective of this study was to describe the importance of abdominal computed tomography (CT) scan as a confirmatory method for the diagnosis of pancreatic pseudocysts in a patient.

CLINICAL CASE DESCRIPTION

This is the clinical case of a 41-year-old white male patient with a history of bronchial asthma, a longtime smoker, and chronic alcohol withdrawal for two months. Four years ago, he developed acute pancreatitis and was hospitalized awaiting treatment and further testing because an ultrasound revealed a diffuse image in the head of the pancreas. He decided to leave without completing his studies or treatment. A week ago, he began experiencing abdominal distension associated with dyspepsia (food intolerance) and diarrhea. He also reported a weight loss of approximately 13.6 kg in one month. For these reasons, it was decided to hospitalize him for further studies and treatment.

A physical examination of the abdomen revealed ascites with a positive Tarral maneuver and tenderness on palpation in the left hypochondrium. Edema was observed in both lower limbs. Vital signs were within normal parameters, with no neurological alterations. In the presence of ascites with abdominal pain and lower limb edema, a series of laboratory tests available at the center were indicated: leukocytes 7.7×10^9 , polymorphonuclear cells 0.63, lymphocytes 0.34, eosinophils 0.01, and hematocrit 0.30; platelet count 210×10^9 ; blood glucose 4.9 mmol/L; triglycerides 0.63 mmol/L; urea nitrogen 3.0 mmol/L; creatinine 69.0 mmol/L; cholesterol 3.6 mmol/L; uric acid 259 mmol/L. Amylase analysis was not available. Endoscopic examination revealed no esophageal varices, and chest X-ray showed no obvious abnormalities.

Microbiological analysis of the ascitic fluid showed no bacterial growth. Cytological examination revealed no neoplastic cells, and cytochemical analysis characterized the fluid as a transudate. Abdominal ultrasonography demonstrated a heterogeneous pancreatic texture, with a rounded, heterogeneous, hypoechoic lesion located in the pancreatic head, measuring approximately 30×26 mm, associated with moderate ascites.

CT of the abdomen with contrast (liver of normal size, without focal lesions. Spleen, kidneys, and renal glands without alterations. Atrophic pancreas with a 7 mm duct, with several cystic images at the level of the head and uinate process, the largest measuring 52 mm without contrast enhancement. Peripancreatic lymphadenopathy. Moderate amount of free abdominal fluid, greatest in the hypogastrium. Normal intestinal gas pattern. No bone lesions).

Initially, taking into account the patient's history and clinical manifestations, and without performing a computed tomography, it was decided to admit the patient with suspected liver cirrhosis, a possible pancreatic head tumor, or pancreatic pseudocyst. He is treated in the ward with furosemide and spironolactone (one tablet daily), omeprazole, and paracentesis. The patient shows clinical and radiological improvement. Follow-up includes surgery and gastroenterology consultation. There were no complications, and the approach was expectant. Outpatient evaluation continued after 6 weeks, with notable improvement.

DISCUSSION

PP develops after an episode of acute pancreatitis or an exacerbation of chronic pancreatitis. Among several causes, stress, which is one of the most widespread health problems

in today's society, can increase the risk of pancreatitis if it becomes chronic. In cases without complications, the initial approach is expectant, unless the lesion is larger than 4-5 cm in diameter and the clinical picture worsens (Rasch et al., 2017; Sierra et al., 2021).

Risk factors for the development of PP include excessive alcohol consumption, which is one of the main causes of pancreatitis (Pila et al., 2021; Mendoza, 2024). Primary health care is a fundamental pillar in the prevention of these diseases, with the promotion of community activities and regular screenings. Patients with these risk factors must be closely monitored for early detection and appropriate treatment of PP.

In most cases, they are found as single lesions, but they can present as multiple lesions. It is also reported that pseudocyst formation occurs within 4 to 6 weeks and usually results in surgical treatment (Liu et al., 2020). In this case, a watchful waiting period was maintained, with no complications or need for surgical treatment, and a subsequent favorable evaluation.

The patient's clinical presentation is interesting; when the PP is larger than 4 cm, it usually causes epigastric pain or pain radiating to the waist, nausea, vomiting, and anorexia, or symptoms of hollow visceral obstruction with abdominal distension or jaundice (Torres et al., 2005). In this patient, after 4 years, diagnosed with acute pancreatitis without treatment, he was reported to return to secondary care services with ascites, without jaundice or pain radiating to the waist.

The diagnosis of PP is primarily made through imaging techniques such as computed tomography (CT) and endoscopic ultrasound with fine-needle aspiration, which aid in differentiating pseudocysts from other pancreatic lesions (Rasch et al., 2017; Sunkara et al., 2024). After a CT scan, and considering the patient's history and clinical presentation, a pancreatic pseudocyst secondary to chronic pancreatitis was diagnosed.

This requires close monitoring for early detection of devastating complications, such as pancreatic abscess if infected, compression of adjacent organs, intestinal and biliary tract obstruction, bleeding, and rupture, among others (Martínez et al., 2023). This highlights the importance of appropriate and specific treatment for each patient. In the studied patient, treatment was continued with furosemide, spironolactone, and omeprazole. In addition to outpatient follow-up by gastroenterology and surgery, he showed clinical improvement.

Chronic pancreatic disorders may also influence gastrointestinal homeostasis and nutritional status, highlighting the importance of a comprehensive clinical approach that considers digestive function and associated systemic effects (Barcia et al., 2024). Oxidative stress has been recognized as an important mechanism involved in pancreatic inflammation and tissue injury (Coman et al., 2025). Therefore, maintaining an adequate antioxidant balance through nutritional factors (Forbes-Hernández et al., 2020) may represent a complementary aspect in the comprehensive management of patients with chronic pancreatic disorders, although further clinical evidence is required.

This case highlights the importance of CT in the diagnostic algorithm for suspected pancreatic complications. It provides detailed information on the location, size, and characteristics of the lesions to obtain a definitive diagnosis and guide the best treatment, avoiding complications. Furthermore, it highlights the competence of physicians and the healthcare team in general, where sometimes the lack of certain diagnostic resources does not represent an impediment to reaching a definitive diagnosis.

CONCLUSIONS

Pancreatic pseudocyst is a rare complication of pancreatitis that requires timely diagnosis to prevent severe outcomes. In this case, abdominal computed tomography confirmed the diagnosis, characterized the lesions, and provided support for appropriate clinical management. The combination of clinical history, symptoms, and imaging findings was essential for differentiating this condition from other pancreatic disorders. This case underscores the significance of CT as a vital diagnostic tool and emphasizes the importance of ongoing monitoring of patients with a history of pancreatitis to ensure effective treatment and prevent complications.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: Jorge C. Cairo and Dailen Vega. **Data curation:** Dailen Vega. **Formal analysis:** Jorge C. Cairo. **Investigation:** Jorge C. Cairo. **Methodology:** Jorge C. Cairo and Dailen Vega. **Resources:** Dailen Vega. **Supervision:** Jorge C. Cairo. **Validation:** Jorge C. Cairo. **Visualization:** Jorge C. Cairo. **Writing – original draft:** Jorge C. Cairo. **Writing – review & editing:** Jorge C. Cairo and Julio C. Cairo.

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