Pancreatic pseudocyst masquerading as renal injury on imaging studies

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In a patient with a prior history of pancreatitis or abdominal trauma, radiographic imaging may only show abnormalities in the urinary tract. When these patients are first seen with subcapsular or perinephric fluid collections, percutaneous drainage can be both diagnostic and therapeutic.

Key Words: pancreatic pseudocyst, urinoma, cortical defect

Introduction

An unusual case of renal pseudocyst formation after an episode of pancreatitis is reported. This pseudocyst gave the radiographic appearance of renal injury with subcapsular fluid collection. Thus, a high index of suspicion was necessary to identify and treat this condition. In this patient, resolution was accomplished with percutaneous drainage and endoscopic stent placement.

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Case presentation and management

A 24-year-old female with a history of recurrent acute pancreatitis was first seen in the Emergency department complaining of a 4-day history of left lower quadrant abdominal pain and left flank pain. She reported no fever, chills, nausea, or vomiting. One month before admission, she spent 6 weeks as an inpatient with acute pancreatitis, complicated by multiple cystic structures identified within the tail of the pancreas on magnetic resonance imaging (MRI). During that time, she was treated with bowel rest and total parenteral nutrition. An MRI before discharge showed resolution of the fluid collections visualized previously. However, the MRI did demonstrate fluid collections anterior to the left kidney and in the body of the pancreas. She was discharged to home with

narcotics for pain control and pancreatic enzyme replacement to be taken with meals. The patient was scheduled to undergo elective endoscopic retrograde cholangiopancreatography.

Her medical history was significant for acute pancreatitis, iron-deficiency anemia, anxiety, and migraine headaches. She had no history of trauma, urinary tract infection, or hematuria before presentation. The patient denied illicit drug use, but did state that she drinks alcohol occasionally and smokes cigarettes.

On examination, the patient was afebrile with stable vital signs. Mild abdominal tenderness to deep palpation in the left lower quadrant and left flank pain with deep palpation was noted.

Laboratory values included a normal complete blood count (CBC), basic metabolic panel, serum aspartate transaminase (AST), aspartate aminotransferase (ALT), amylase, and lipase. A clean catch urine sample was obtained, and urinalysis showed trace leukocyte esterase. A subsequent microscopic examination noted two WBCs/hpf. The computed tomography (CT) scan demonstrated a left upper quadrant fluid collection closely associated with the left kidney, Figure 1. The fluid collection was believed to be subcapsular, and there appeared to be an associated cortical defect in the upper pole of the left kidney. A CT urogram did not show extravasation of contrast into the fluid collection. The Hounsfield units (HU) of the fluid collection before contrast, after contrast, and during delayed images were 35 HU in all series, Figure 2. Upon review of the images, the fluid collection was thought to be most consistent with a urinoma.

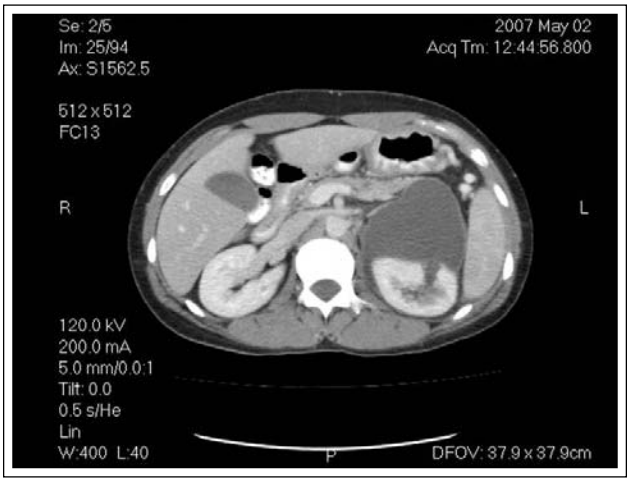

Figure 1. CT scan after administration of IV contrast shows a fluid collection anterior and medial to the left kidney with an associated parenchymal defect.

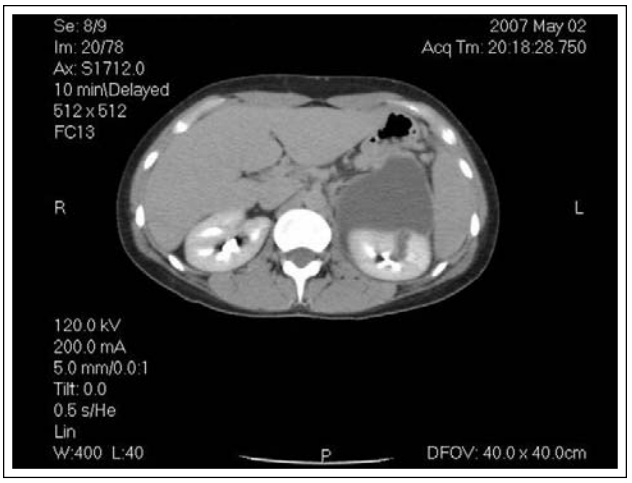

Figure 2. Ten minutes after administration of IV contrast, no extravasation of contrast into the fluid collection was noted.

The patient underwent CT-guided aspiration of the fluid collection by interventional radiology without placement of a percutaneous drain. Gross examination of the fluid showed dark-colored liquid. Fluid chemistries indicated a creatinine level of 0.5 mg/dL and an amylase level of 63462 U/L. Cytology of the aspirate was negative for malignant cells, and gram stain and cultures were negative as well. The patient's symptoms resolved after aspiration of the fluid collection.

Following analysis of the left perinephric fluid collection, diagnosis of a pancreatic pseudocyst was made. The patient underwent endoscopic retrograde cholangiopancreatography (ERCP). She was noted to have papillary stenosis of the pancreatic duct and underwent dilation with temporary stent placement. One month after stent removal, the patient was asymptomatic, and follow-up magnetic resonance imaging (MRI) of the abdomen showed complete resolution of the fluid collection.

Discussion

Pancreatic pseudocysts may result from either acute or chronic pancreatitis or pancreatic trauma.[1] They are fluid-filled collections that lack an epithelial lining and usually contain digestive enzymes caused by extravasation from a disrupted duct.[2] When the enzymes drain along fascial planes, they can invade surrounding tissues to form pseudocysts at other sites. Pseudocysts have been noted in locations from the mediastinum[3] to the groin.[4] Although uncommon, the urinary tract may also be involved by pseudocyst

formation. Ureteral obstruction with subsequent hydronephrosis can occur.[5,6] Rare reports of renal pseudocyst formation from extension into Gerota's fascia have been reported.[7-12] In addition, pseudocysts may invade the collecting system.[13]

Not all pancreatic pseudocysts require intervention. Some pancreatic pseudocysts resolve during surveillance without complication, others can be drained by endoscopic, percutaneous, or surgical methods.[14] In previous reports, renal pseudocysts have been treated by drainage.[9-13] In this patient, resolution of the pseudocyst by percutaneous drainage, along with endoscopic dilation and stent placement across the stenotic pancreatic duct, was noted. Interestingly, this patient had a well-defined fluid collection in a subcapsular location with an associated defect in the renal parenchyma. Therefore, a urologic cause was initially suspected for development of the fluid collection even though she had no history of trauma, urinary tract instrumentation, or distal obstruction. The diagnosis of urinoma was less likely after obtaining a negative CT urogram, but the definitive diagnosis was made after fluid drainage with chemical analysis. A high index of suspicion is necessary to identify this possible complication in a patient first seen with a perinephric or subcapsular fluid collection after an episode of pancreatitis or abdominal trauma.

Renal pseudocyst formation should be considered in any patient with a prior history of pancreatitis or abdominal trauma when imaging suggests urinary tract abnormalities. Concomitant evaluation by a urologist and gastroenterologist is critical in identifying and managing this complication appropriately. □

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