Case Report

Atypical extensive pancreatic pseudocyst with hemorrhage in a hemodialysis patient✩✩,★

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A B S T R A C T

Pancreatic pseudocysts are a common complication of both acute and chronic pancreatitis. The complications of pancreatic pseudocysts include compression of abdominal great vessels, gastric or duodenal stenosis, cholestasis due to stenosis of common bile duct, infection, and hemorrhage into the cyst. Moreover, pancreatic pseudocysts most commonly occur around the pancreas; however, extension into the adjacent viscera including spleen, liver, transverse colon, anterior or posterior pararenal space, retroperitoneum and mediastinum does occur infrequently. Here, we report a rare case of atypical extensive pancreatic pseudocyst with hemorrhage in a hemodialysis patient.

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Introduction

Pancreatic pseudocysts represent 80% of benign pancreatic lesions and can appear after an acute pancreatitis by several different causes, but also associated with a chronic pancreatitis [1]. The prevalence of pancreatic pseudocysts in chronic pancreatitis is 20% to 40% and is most commonly revealed in alcoholic chronic pancreatitis [1]. The complications of pancreatic pseudocysts include compression of abdominal great vessels, gastric or duodenal stenosis, cholestasis due to stenosis of common bile duct, infection, and hemorrhage into the cyst [1,2]. Different treatments for pancreatic pseudocysts are possible: medical supervision, symptomatic treatment, percutaneous or endoscopic drainage or a surgery such as cystogastrostomy, cystojejunostomy, or sometimes pancreatectomy [1–3].

Here, we report a rare case of atypical extensive pancreatic pseudocyst with hemorrhage in a hemodialysis patient.

Case report

An 80-year-old man with end-stage renal disease on hemodialysis and chronic alcoholic pancreatitis presented

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with hypochondralgia. He had no history of trauma. The biochemical profile showed elevated levels of serum C-reactive protein (6.0 mg/dL; normal < 0.3) and amylase (1183 U/L; normal 37 to 125), and a reduced level of hemoglobin (7.4 g/dL; normal 13.1 to 16.3); results of testing for hepatic function were normal. Blood cultures were negative. Axial view of abdominal computed tomography showed hyperdense central area within mass consistent with retroperitoneal hematoma (Fig. 1, arrow). Conservative treatment including blood transfusion was initiated, however the patient’s symptom was not improved. After 2 weeks, the patient was admitted to our hospital. Abdominal computed tomography with contrast showed chronic pancreatitis (Fig. 2A, arrow heads) and a cystic lesion extended from right retroperitoneum to pancreas with intra-hypodense fluid (Fig. 2A–C, arrow). An upper endoscopy performed for suspicion of gastrointestinal hemorrhage could not detect the source of other active bleed-
ing, but did reveal only blood clots on the descending and third portion of duodenum (Fig. 3). Considering intra-cystic bleeding, the right retroperitoneal cystic lesion was drained by interventional radiology (Fig. 4A, arrow) to investigate and control intra-cystic bleeding. Total 300 ml fluid was drained, and drained fluid was bloody (Fig. 5). The fact that drained fluid was bloody suggested that the source of the blood clots on the duodenum might be intra-cystic bleeding. Furthermore, the cystic retention fluid analysis demonstrated significantly elevated levels of amylase (13742 U/L), suggesting a pancreatic pseudocyst. The patient was diagnosed as having a hemorrhagic pancreatic pseudocyst with atypical extension of pseudocyst. After drainage and conservative treatment, the size of pancreatic pseudocyst decreased (Fig. 4A, arrow head) and all symptoms were resolved. Moreover, hemoglobin and C-reactive protein levels gradually improved. One-year

**Fig. 1** – Axial view of abdominal CT on initial presentation showed hyperdense central area within mass in the dorsum of the right kidney and retroperitoneum.

**Fig. 2** – A: Axial view of abdominal CT with contrast on admission showed chronic pancreatitis and a right retroperitoneal cystic lesion with intra-hypodense fluid in the dorsum of the right kidney and retroperitoneum. B: Coronal view. C: Sagittal view.

**Fig. 3** – Upper endoscopy showed only blood clots on the descending and third portion of duodenum.
follow-up, pancreatic pseudocyst continued to get smaller and the extension into the dorsum of the right kidney and retroperitoneum was resolved (Fig. 4B and C).

**Discussion**

Pancreatic pseudocysts are defined as an encapsulated collection of fluid with a well-defined inflammatory wall usually outside the pancreas with minimal or no necrosis, and are a common complication of both acute and chronic pancreatitis [1,2]. In the present case, hemorrhagic pancreatic pseudocyst was revealed in hemodialysis patient and might be affected by anticoagulant used in hemodialysis. The incidence of hemorrhagic pancreatic pseudocyst in chronic pancreatitis is rare (6%-17%), but serious lifethreatening complication. Therefore, early recognition and management of this complication is imperative due to its mortality rate of 40% [1,4]. The intra-cystic bleeding might occur via autodigestion of an arterial wall by the proteolytic enzymes in the pseudocyst of severe inflammation during an episode of acute pancreatitis [5]. Fistula formation could occur between the pseudocyst and a viscus resulting in an upper or lower gastrointestinal bleeding. Hemorrhagic pseudocyst could also rupture into the retroperitoneum, biliary tract or peritoneum causing retroperitoneal bleeding, hemobilia, or hemosuccus pancreatitis [1,3,4]. Blood sticks on the descending and third portion of duodenum was thought to be originated from intra-cystic bleeding of pancreatic pseudocyst, and be excreted via pancreatic duct by increased internal pressure of hemorrhagic pancreatic pseudocyst in the present case.

On the other hand, pancreatic pseudocysts most commonly occur around the pancreas; however, extension into the adjacent viscera including spleen, liver, transverse colon, anterior or posterior pararenal space, retroperitoneum and mediastinum does occur infrequently [4,6,7]. In fact, the pancreatic pseudocyst showed not only rare extension into the dorsum of the right kidney and retroperitoneum, but also intra-cystic hemorrhage in the present case. Pararenal and retroperitoneal extension of pancreatic pseudocyst was thought to be caused by repeated rupture of the pancreatic duct posteriorly into the retroperitoneal space.

Finally, differential diagnosis in the present case is very important. When we face retroperitoneal and pararenal cystic lesion with abdominal pain and anemia, we should consider retroperitoneal abscess, retroperitoneal hematoma, pseudoaneurysm, retroperitoneal cystic neoplasm and atypical extension of hemorrhagic pancreatic pseudocyst [4].

In conclusion, this case should remind readers to consider hemorrhagic pancreatic pseudocysts as a rare cause of abdominal pain and acute anemia, even if cystic lesions are found in atypical locations.
Total 300 ml fluid was drained, and drained fluid was bloody. About 4 ml bloody fluid was in the tube.

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