

Pseudoaneurysm and Splenic Infarction in Chronic Pancreatitis — A Case Report —

Hong-Sik Lee, M.D., Jong-Jae Park, M.D., Chang-Duck Kim, M.D.,
Ho-Sang Ryu, M.D., Jin-Hai Hyun, M.D.

Department of Internal Medicine, College of Medicine, Korea University, Seoul, Korea

Peripancreatic pseudoaneurysm and splenic infarction are rare but life-threatening complications of chronic pancreatitis. The incidence of pseudoaneurysm in patients who undergo angiography for pancreatitis is about 10 %. Clinically, pseudoaneurysm is hard to discover until rupture occurs. The authors have recently experienced a case of intact pseudoaneurysm and splenic infarction in chronic alcoholic pancreatitis. A bolus enhanced CT scan and angiography were essential to confirm these complications of pancreatitis. We managed these complications successfully by distal pancreatectomy and splenectomy

Key Words: Pseudoaneurysm, Splenic infarction, Pancreatitis

INTRODUCTION

Chronic pancreatitis, with or without pseudocyst can lead to fatal complications of peripancreatic pseudoaneurysm, splenic vein thrombosis and much less frequently, infarction-rupture of the spleen secondary to splenic vein thrombosis(El Hamel et al., 1991).

Pseudoaneurysms may be considered the most severe manifestation of a spectrum of vascular complications of chronic pancreatitis(Pantongrag-Brown et al., 1991). Rupture of a pancreatic pseudoaneurysm has an estimated mortality rate of about 50 %(Pitkäranta et al., 1991). Thus early detection when rupture can still be prevented is very important. The splenic infarction is another rare complication of pancreatitis. There has been few reported cases of

pseudoaneurysm in chronic pancreatitis, but the splenic infarction associated with pseudoaneurysm has not been reported so far as we know in Korea.

Recently, we experienced a case of unruptured splenic artery pseudoaneurysm and splenic infarction occurring in a man with chronic alcoholic pancreatitis.

CASE REPORT

A 43-year-old man with a history of chronic alcohol abuse was admitted because of epigastric and left upper quadrant abdominal pain lasting for 2 days. He had a history of acute pancreatitis 10 years ago. He had experienced intermittent epigastric pain which was aggravated by drinking alcohol for 2 years before admission. On admission, he was alert but chronically ill looking and mildly dehydrated. Vital signs were stable. Examination on admission revealed moderate tenderness on epigastric and left upper quadrant abdomen. The spleen was palpable 3 cm below the left costal margin with tenderness. Laboratory finding included hemoglobin 13.3 gm/dl, hematocrit 39.2 %, WBC 12,500/mm³ with 60 % segment neutrophil, 7

Address for correspondence: Hong-Sik Lee, M.D., Department of Internal Medicine College of Medicine Korea University Hospital 126-1, 5ka Anam-dong, Seoungbuk-gu, Seoul, 136-705 Korea. Tel: 920-5565.

% band form and 32 % lymphocytes, AST 24 IU/L, ALT 20 IU/L, alkaline phosphatase 57 U/L, total bilirubin 1.6 mg/dl, direct bilirubin 0.6 mg/dl, and serum amylase 146 U/L. Urinalysis and stool examination were normal.

Plain abdominal X-ray revealed an irregular shaped calcification on the left side of 11th and 12th thoracic spine. An ultrasound scanning of abdomen showed a well defined round hypoechoic mass in the tail of the pancreas (Fig. 1). Abdominal CT scan showed a round cystic lesion measuring approximately 8 × 7 cm in the tail of the pancreas and multiple wedge-shaped hypodense lesions in the spleen (Fig.

2). After an intravenous bolus injection of contrast material, an enhancing eccentric lesion (3 × 3cm) within the pancreatic cyst was seen (Fig. 3). Endoscopic retrograde cholangiopancreatography showed diffusely dilated main and branched pancreatic ducts. The main duct was abruptly cut off at the distal portion. The cholangiogram was normal (Fig. 4).

The celiac angiography revealed a pseudoaneurysm of the splenic artery at its origin and multiple areas of perfusion defects in the spleen (Fig. 5).

On the 5th hospital day, distal pancreatectomy and splenectomy were performed without complication.

Pathologic examinations showed chronic pancreati-

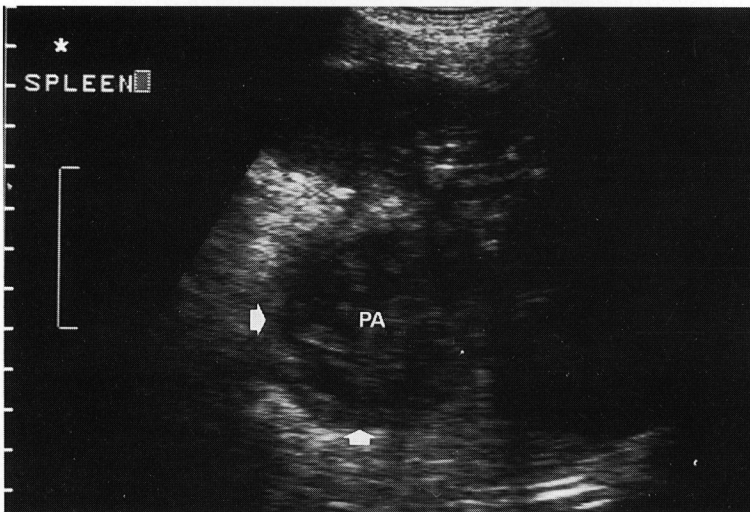


Fig. 1. Abdominal ultrasonography shows a well defined round hypoechoic mass (→) in the tail of pancreas. PA : Pseudo aneurysm

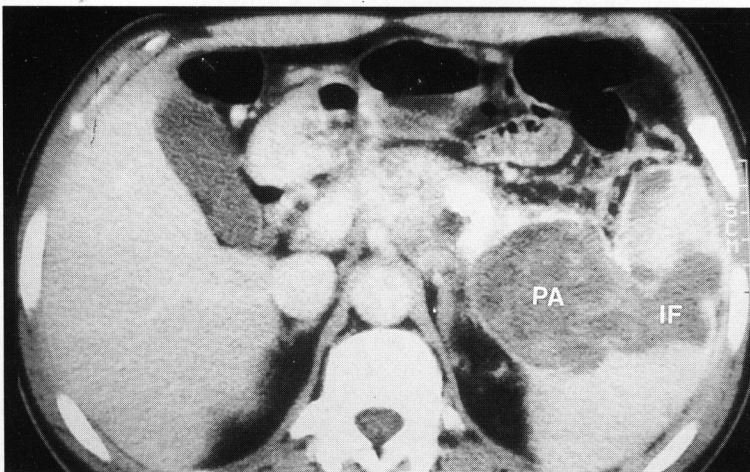


Fig. 2. Abdominal CT scan shows a round cystic lesion (PA) measuring approximately 8 × 7 cm in the tail of pancreas and multiple hypodense lesions (IF) in spleen. PA : Pseudo aneurysm, IF : Infarction

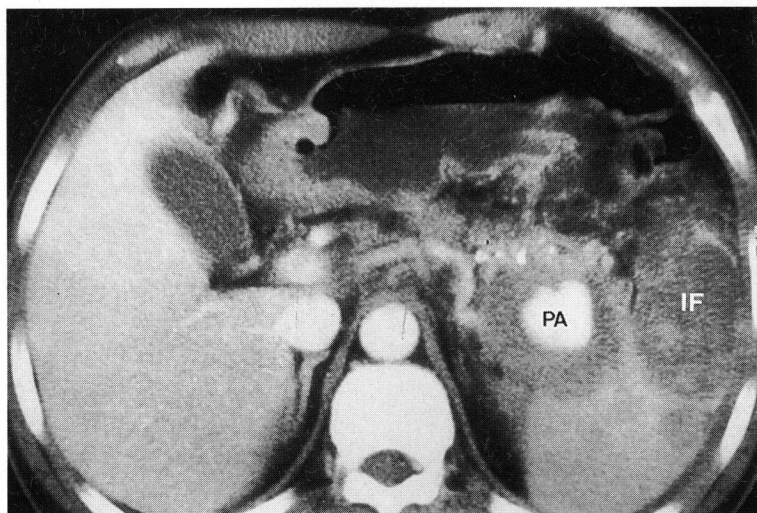


Fig. 3. After an intravenous bolus injection of contrast material, an enhancing eccentric lesion(3 × 3cm) within the cystic lesion(PA) of pancreas was seen. PA : Pseudo aneurysm, IF : Infarction

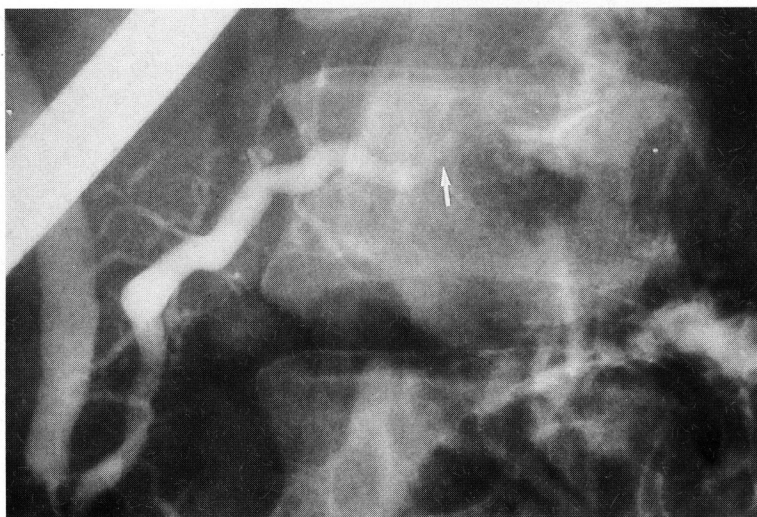


Fig. 4. ERCP reveals diffusely dilated main and branched pancreatic ducts and the main duct was abruptly cut off(→) at the distal portion.

tis features and a large intrapancreatic pseudocyst, measuring 10 × 10 cm and aneurysmal sac measuring 3 × 3 cm filled with blood clot with a splenic artery erosion within its wall. Diffuse hemorrhagic necrosis were found in the dissected spleen. The patient was discharged on postoperative day 12 without complication

DISCUSSION

Arterial pseudoaneurysms are an infrequent, but potentially catastrophic complication of pancreatitis

(Maus., 1993). The incidence of pseudoaneurysm in patients who undergo angiography for pancreatitis reportedly is 10 to 12 %. Hemorrhage from pseudoaneurysm is associated with a mortality of 25 to 100 % in patients with pancreatitis(White et al., 1976 ; Hofer et al., 1987).

Pseudoaneurysms may result from either autodigestion of the peripancreatic artery or erosion of a pseudocyst into the visceral artery and conversion of its cavity into a pseudoaneurysm(Stanley et al., 1976 ; Maus., 1993).

The location of a pseudoaneurysm occurring in

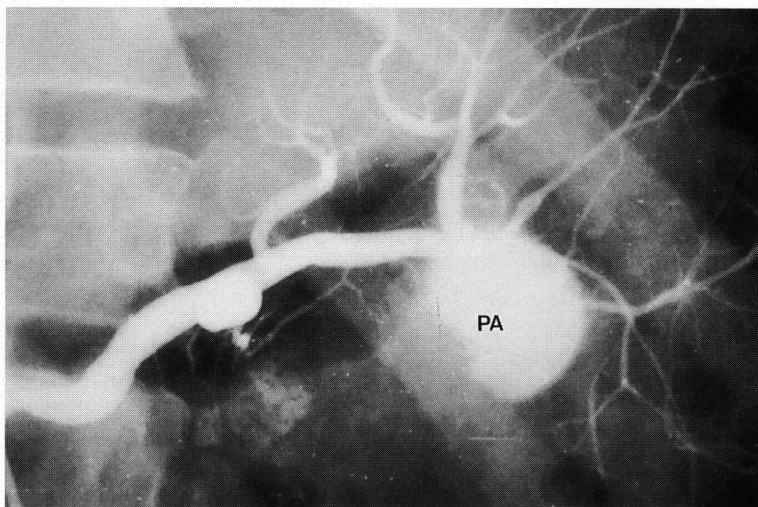


Fig. 5. Celiac angiography reveals a pseudoaneurysm(PA) of splenic artery at it's origin and multiple areas of perfusion defect in the spleen.

pancreatitis reflects the distribution of pseudocyst and fluid collections seen with the disease. Thus the splenic artery appears the most commonly affected artery, but gastroduodenal, dorsal pancreatic, right gastroepiploic arteries and the pancreaticoduodenal cascades may be affected(Stabile *et al.*, 1983 ; Lee *et al.*, 1991).

The incidence of bleeding from pseudoaneurysm is unknown. If rupture occurs, life-threatening hemorrhage may occur into the gastrointestinal tract, peritoneal cavity, pancreatic duct, or retroperitoneum(Bivins *et al.*, 1978 ; Grisendi *et al.*, 1991).

It is hard to consider pseudoaneurysm until rupture of pseudoaneurysm has occurred. Our patient who presented without hemorrhage had abdominal pain. But the pain may have been related to pancreatitis or pseudocyst, and in these conditions the pseudoaneurysm was fortuitously discovered. Clinically, pseudoaneurysmal bleeding can manifest as silent anemia with melena or as intermittent massive bleeding into the gastrointestinal tract or abdominal cavity(Pitkä ranta *et al.*, 1991). But gastrointestinal hemorrhage occurring in patients with chronic pancreatitis secondary to alcohol abuse is usually caused by non-pancreatic pathology, such as peptic ulcer disease, gastritis and esophageal varices. therefore, a diagnosis of ruptured pseudoaneurysm as the cause of GI bleeding may be delayed(Pantongrag-Brown., 1991 ; Perez *et al.*, 1993). Bleeding pseudoaneurysm should be considered in patients with repeated episodes of GI bleeding who have pancreatitis, ; particularly due

to chronic alcohol abuse or pancreatic trauma, and in patients with increasing abdominal pain or an enlarging, pulsatile abdominal mass, an abdominal bruit, and hyperamylasemia. These signs and symptoms should be evaluated for prompt appropriate clinical and radiologic evaluation(Vujic., 1989).

Several imaging procedures may have complementary roles in the diagnosis. Ultrasonography is usually the first examination performed if a complication of the pancreas is suspected. The sonographic finding that suggest vascular involvement are 1) rapid enlargement of a cystic pancreatic mass ; 2)sudden change in the echogenicity of a cystic mass ; and 3) presence of a pancreatic mass containing a cystic component. These sonographic finding may be nonspecific(Vujic., 1989). In our case, unfortunately the diagnosis remained unsuspected but, we found multiple hypoechogenic area in the spleen. Recently, duplex Doppler ultrasonography may facilitate the diagnosis of pseudoaneurysm(Lim *et al.*, 1989 ; Kim *et al.*, 1992 ; Yoon *et al.*, 1994). CT scan has been said to be an excellent screening test for pseudoaneurysm however dynamic bolus contrast material administration is necessary(Hofer *et al.*, 1987 ; Pantongrag-Brown., 1991). Pseudoaneurysms appear as a rapidly enhancing mass similar in density and washout to the adjacent arteries and aorta as in our case. Angiography is then usually required for more precise demonstration of the specific vessel involved, particularly if surgery is planned, or for treatment with transcatheter embolization(Vujic., 1989 ; Wood *et al.*,

1995). In our case we confirmed intact pseudoaneurysm and splenic infarction by selective celiac angiography.

Splenic infarction is another rare complication of pancreatitis. Splenic infarction results from constriction of the splenic vessels by the fibrotic pancreas, tortuous aneurysm, or splenic vein thrombosis (Belli et al., 1990). In this case, splenic vein thrombosis was not found in angiogram. So, we postulated that embolism from pseudoaneurysm resulted in multiple splenic infarction.

Surgical therapy is the definitive procedure to control bleeding and to treat the underlying pseudocyst. Distal pancreatectomy is recommended to treat a bleeding lesion situated in the tail of the pancreas (Bender et al., 1995). Recently, some authors have recommended that transcatheter embolization of feeding vessel represents the best first-line therapy (Mandel et al., 1987; Heath et al., 1992). But, when bleeding is from the main hepatic or splenic artery, angiographic control is more difficult to achieve (Rattner and Warshaw, 1995). In this case, splenic artery pseudoaneurysm associated pseudocyst and splenic infarction were treated by distal pancreatectomy with splenectomy without complication.

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