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Abstract

A 44-year-old man with alcohol-induced chronic pancreatitis was referred to our institute for evaluation of severe anemia. The hemoglobin was 2.6g/dl. The results of upper gastrointestinal and colonic examination were negative. Computed tomography and ultrasound examination revealed a pseudocyst in the head of the pancreas. A pseudoaneurysm of the anterior superior pancreaticoduodenal artery shown by angiography appeared to have caused gastrointestinal bleeding by rupturing into the pancreatic cyst connected to the main pancreatic duct. A pylorus-preserving pancreaticoduodenectomy was performed successfully.

KEYWORDS: chronic pancreatitis, hemosuccus pancreaticus, pseudoaneurysm

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A 44-year-old man with alcohol-induced chronic pancreatitis was referred to our institute for evaluation of severe anemia. The hemoglobin was 2.6 g/dl. The results of upper gastrointestinal and colonic examination were negative. Computed tomography and ultrasound examination revealed a pseudocyst in the head of the pancreas. A pseudoaneurysm of the anterior superior pancreaticoduodenal artery shown by angiography appeared to have caused gastrointestinal bleeding by rupturing into the pancreatic cyst connected to the main pancreatic duct. A pylorus-preserving pancreaticoduodenectomy was performed successfully.

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Pancreatic pseudocysts and pseudoaneurysms are not rare complications of chronic pancreatitis. However, gastrointestinal bleeding due to rupture of pseudoaneurysms is rare and may be overlooked in the differential diagnosis. The present case is one of such massive gastrointestinal bleeding in a patient with alcohol-induced chronic pancreatitis.

Case Report

A 44-year-old man with a 26-year history of alcohol abuse was referred to our institute for severe anemia on November 7, 1991. His problem began in March, 1988, when he was admitted to our hospital with ascites. Following puncture, blood was aspirated and a barium enema examination revealed an 8-cm narrow segment of the sigmoid colon. Mitomycin C (32 mg) was injected into the abdominal cavity under a presumptive diagnosis of peritonitis carcinomatosa. He did not return to our hospital in spite of recurrent episodes of melena until November, 1991, when he was referred for severe anemia. The hemoglobin was 2.6 g/dl and serum alcohol level 1.7 mg/

dl. Upper gastrointestinal endoscopy and colonoscopy failed to identify the bleeding site.

Ultrasound examination showed a 1-cm hyperechogenic mass with a hypoechogenic halo suggesting hemorrhage inside a pseudocyst situated in the head of the pancreas on November 11, 1991 (Fig. 1a). This lesion developed into a cystic lesion with a hyperechogenic halo indicating central lysis of the hemorrhage on December 26, 1991 (Fig. 1b). Computed tomography showed a 3.5-cm tumor with a 1-cm cyst in the head of the pancreas (Fig. 2). Angiography showed a pseudoaneurysm 8-mm in diameter at the bifurcation of the gastroduodenal artery into the right gastroepiploic and anterior superior pancreaticoduodenal arteries (Fig. 3). Endoscopic retrograde cholangiopancreatography showed an obstruction of the Wirsung's duct at 5-mm proximal to the ampulla of Vater and no communication between the pancreatic duct and cystic cavity. The obstruction was considered to be produced by clots filling the pancreatic duct. These findings and data from serial ultrasonograms suggested that the aneurysm had ruptured into the pseudocyst resulting in hemosuccus pancreaticus.

Transcatheter embolization was attempted, but selective catheterization of the gastroduodenal artery was unsuccessful. Surgical resection was conducted. On

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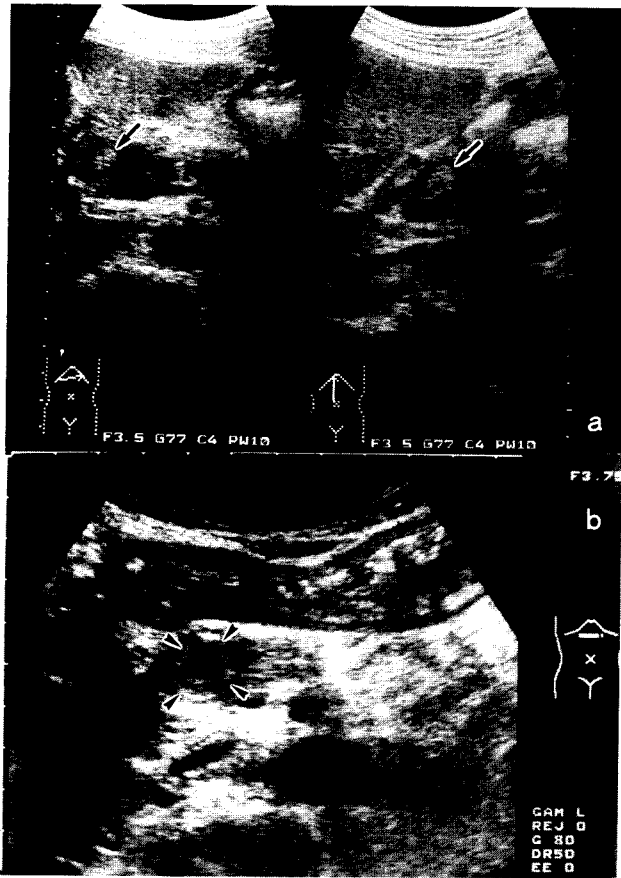


Fig. 1 Sonograph of acute (a) and subacute (b) hemorrhage. (a): The contents of the pseudocyst are hyperechoic, suggesting clot (arrow). (b): The contents of pseudocyst has become hypoechoic in the center, suggesting lysis of the clot (arrowheads).

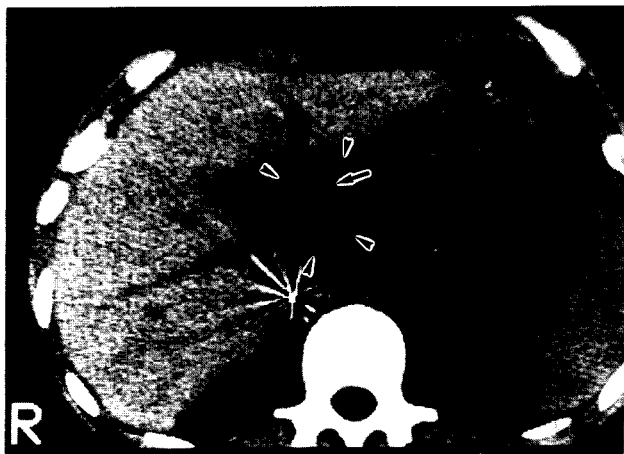


Fig. 2 Computed tomography: A 3.5-cm mass (arrowheads) with 1-cm cyst (arrow) in the head of the pancreas.

laparotomy, no intra-abdominal bleeding was found and it was difficult to detect the aneurysm due to peripancreatic fibrosis. We carried out a pylorus-preserving pancreaticoduodenectomy and removal of the pseudocyst and pseudoaneurysm on January 7, 1992. Repture of the aneurysm was shown after opening the gastroduodenal, right gastroepiploic and superior anterior pancreaticoduodenal arteries (Fig. 4).

Histological examination showed that the vascular wall was disrupted and the pseudoaneurysm was formed. The wall was consisted of adventitial and perivascular tissues



Fig. 3 Celiac angiography: An 8-mm pseudoaneurysm (arrow) at the bifurcation of the gastroduodenal artery into the right gastroepiploic and the anterior superior pancreaticoduodenal arteries.

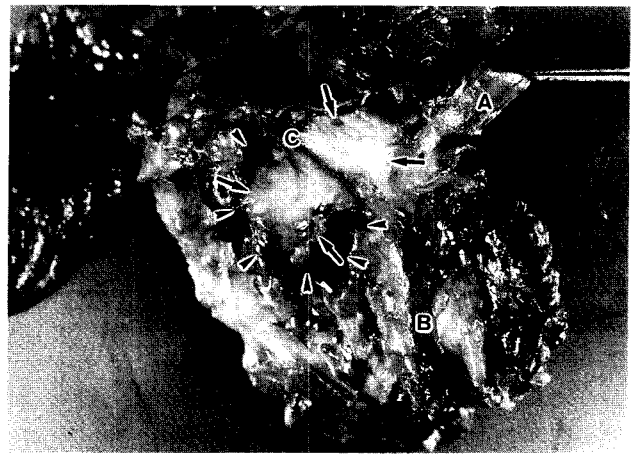


Fig. 4 Resected specimen. Pseudoaneurysm of the anterior superior pancreaticoduodenal artery (arrows) is surrounded by the pseudocyst (arrowheads). A: gastroduodenal artery. B: right gastroepiploic artery. C: anterior superior pancreaticoduodenal artery

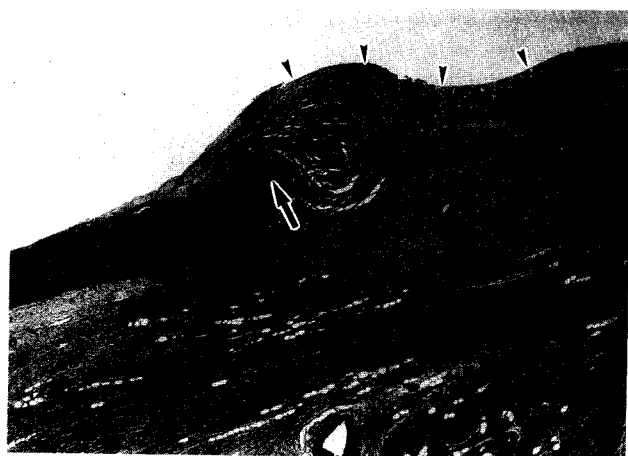


Fig. 5 Histologic picture. The fibrous wall (arrowheads) has resulted from rupture of the vessel (arrow) and consists of adventitial and perivascular tissues. (HE, $\times 40$)

(Fig. 5). Following the pylorus-preserving pancreaticoduodenectomy, the patient's postoperative course has been uneventful without any further episodes of bleeding.

Discussion

This patient is considered to represent a rare case of gastrointestinal bleeding from a pseudoaneurysm induced by chronic pancreatitis and pancreatic pseudocyst. Palmer found only a single case out of 1,300 patients with chronic pancreatitis (1). Thus it is liable to be overlooked in the differential diagnosis of gastrointestinal bleeding. However, White *et al.* reported a 10% incidence of pseudoaneurysm in a series of 73 unselected patients undergoing arteriography for pancreatitis (2). The incidence of pseudoaneurysmal bleeding associated with a pancreatic pseudocyst is reported to be 8–17% (3, 4, 5).

Gastrointestinal bleeding may arise from direct rupturing of the pseudoaneurysm into the gastrointestinal tract or into the pancreatic duct system, that is, hemosuccus pancreaticus. In the present case, the latter pathway is most probable since aneurysmal rupture into the cyst and a communication of the cyst with the pancreatic duct were recognized.

It is easy to suspect but difficult to verify the presence of bleeding aneurysms. Barium studies do not appear useful in diagnosing pseudoaneurysms and bleeding cysts.

Upper gastrointestinal endoscopy is mandatory to exclude other common causes of upper gastrointestinal bleeding. However, bleeding coming out of the ampulla of Vater has been rarely shown (6). Arteriography is considered the best means of diagnosing pseudoaneurysms and bleeding cysts and of deciding suitable therapy. However, to document active bleeding through the ampulla of Vater, angiography should be performed during an attack of pain, since this is the time when bleeding actually occurs (7). Bolus computed tomography is considered ideal for detecting pseudoaneurysms in nonenhanced pseudocysts, although such reports are few (8). Ultrasound examination is widely conducted owing to its noninvasive nature and low cost. For follow-up of patients with pancreatitis, ultrasound examination is better than angiography and computed tomography. The echogenicity of hemorrhagic pancreatic fluid changes with clot aging. Hashimoto *et al.* visualized acute hemorrhage as a well-defined homogeneous mass, while subacute hemorrhage was observed as a mass containing cystic and solid elements or septate cysts. Remote hemorrhage was seen as a simple cyst (9). In the present study, echogenicity changed from a hyperechogenic mass with a hypoechogenic halo into a cystic lesion with a hyperechogenic halo, reflecting the clinical course of the bleeding pseudoaneurysm. Pancreatic proteolytic enzymes breach the arterial wall, so that blood eventually enters the cyst. Bleeding can be stopped by the clot effecting pressure on the ruptured wall. However, pancreatic enzymes can lyse the clot sealing the leak with subsequent rebleeding. This can occur repeatedly (7).

Surgery or transarterial embolization is currently available for the treatment of such aneurysmal bleeding. In most cases, the transarterial approach has been used as a temporary measure when surgery is not feasible. Recently, however, longstanding effective treatment of bleeding by embolotherapy has been reported (11). We, therefore, consider that embolotherapy should be conducted first, but selective catheterization is sometimes difficult in chronic inflammation. The present patient represents such a case, necessitating surgical interventions. Surgical management of bleeding aneurysms is arterial ligation or pancreatic resection. Pitkäranta *et al.* reported that in four out of five patients treated with arterial ligation, reoperation was required. None of eight patients treated by pancreatic resection needed reoperation (8). Resection should thus be preferred to arterial ligation. The present patient, therefore, was treated by a pancreaticoduodenectomy along with removal of the cyst and

aneurysm.

This case was diagnosed as peritonitis carcinomatosa 4 years ago based on bloody ascites, but in retrospect the bloody ascites was most probably due to pseudoaneurysm rupturing into the abdominal cavity.

In summary, hemosuccus pancreaticus should be included in the differential diagnosis of gastrointestinal bleeding of obscure origin, particularly in patients with a history of alcoholic abuse and chronic relapsing pancreatitis and in those with known pancreatic pseudocysts.

References

1. Palmer ED: Upper Gastrointestinal Hemorrhage. Springfield, Ill (1970) pp 6-22.
2. Wite AF, Baum S and Buranasiri S: Aneurysms secondary to pancreatitis. *Am J Roentgenol* (1976) **127**, 393-396.
3. Kiviluoto T, Kivisaari L, Kivilaakso E and Lempinen M: Pseudocysts in chronic pancreatitis: Surgical results in 102 consecutive patients. *Arch Surg* (1989) **124**, 240-243.
4. Frey CF: Pancreatic pseudocyst: Operative strategy. *Ann Surg* (1978) **188**, 652-662.
5. Hoffmeister AW and Reiter J: Spontane Arrosionsblutungen in Pankreaszysten. *Chirurgia* (1979) **50**, 375-378.
6. Bretagne JF, Heresbach D, Darnault P, Raoul JL, Gosselin M, Carsin M and Gastard J: Pseudoaneurysms and bleeding pseudocysts in chronic pancreatitis: Radiological findings and contribution to diagnosis in 8 cases. *Gastrointest Radiol* (1990) **15**, 9-16.
7. Clay RP, Farnell MB, Lancaster R, Weiland LH and Gostout CJ: Hemosuccus pancreaticus: An unusual cause of upper gastrointestinal bleeding. *Ann Surg* (1985) **202**, 75-79.
8. Pitkäranta P, Haapiainen R, Kivisaari L and Schröder T: Diagnostic evaluation and aggressive surgical approach in bleeding pseudoaneurysms associated with pancreatic pseudocysts. *Scand J Gastroenterol* (1991) **26**, 58-64.
9. Hashimoto BE, Laing FC, Jeffrey RB and Federle MP: Hemorrhagic pancreatic fluid collections examined by ultrasound. *Radiology* (1984) **150**, 803-808.
10. Steckman ML, Dooley MC, Jaques PF and Powell DW: Major gastrointestinal hemorrhage from peripancreatic blood vessels in pancreatitis: Treatment by embolotherapy. *Dig Dis Sci* (1984) **29**, 486-497.

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