Visceral vessel lesions are known complication of pancreatitis and it may cause gastrointestinal hemorrhage. We report a case of superior pancreatico-duodenal artery pseudoaneurysm caused by pancreatitis that was successfully treated by transcatheter arterial embolization using five coil-emboli. A 32-year-old male patient admitted due to sudden onset of hematemesis and passage of fresh bloody stool. He had previous multiple admissions due to alcoholic pancreatitis complicated with pseudocyst and abscess formation that was treated by percutaneous placement of drainage catheter. CT scan study revealed a well-demarcated homogeneously hypodense mass lesion at the region of pancreatic head that enhanced markedly in the post-contrast study, suggestive of pseudoaneurysm. The celiac angiography confirmed a pseudoaneurysm of the anterior superior pancreaticoduodenal artery. The selective transarterial embolization was carried out by using five coil-spring emboli. The bleeding stopped after the embolization. He was discharged six days later in an improved condition except with abdominal pain.

This paper describes a case of pseudoaneurysm secondary to pancreatitis presenting with gastrointestinal bleeding that was successfully treated with transcatheter arterial embolization.

**Key words:** Pancreatitis; aneurysm; gastrointestinal bleeding; arteries, embolization

Interventional radiology plays a major role in the management of the different sequelae of pancreatitis. Several procedures have been done not only for palliation but also for definite treatment thus avoiding unnecessary surgical intervention. The incidence of visceral arterial aneurysms detected by the angiography in the case of chronic pancreatitis was as high as 10% [1]. This vascular lesion may lead to gastrointestinal hemorrhage and carry a high morbidity and mortality. Imaging studies such as sonography and CT scan can detect the presence of this complication. Moreover, angiography not only demonstrates the definite locations of vascular lesions, but facilitates the transarterial embolization thereafter.

We report a case of a pseudoaneurysm at anterior superior pancreaticoduodenal artery secondary to pancreatitis that was successfully treated with embolization.

**CASE REPORT**

A 32-year-old male patient was admitted due to...
sudden onset of hematemesis and passage of fresh bloody stool. He had been diagnosed to have a chronic alcoholic pancreatitis complicated with alcohol withdrawal syndrome, pseudocyst formation, and splenic and portal vein thromboses. He had several previous admissions due to infectious pseudocyst and abscess formation as a sequela of pancreatitis that was managed by percutaneous drainage insertion.

On admission, he was febrile with body temperature of 39.4°C, pulse rate of 100 per minute, respiratory rate of 25 per minute, and blood pressure of 90/60 mmHg. His conjunctiva was not icteric but pale. The only significant physical finding was tenderness on the left upper quadrant of the abdomen. Laboratory examination results were as follows: WBC 14,200; hemoglobin 9.5gm/dl; hematocrit 35.2gm/dl; platelet 219,000; amylase 34, and lipase 443. CT scan study showed multiple pseudocysts formation with abnormal fluid collection at the anterior pararenal space and thickening of the Gerota’s fascia. A well-demarcated vascular density lesion about 5 cm in size was seen at the region of the pancreatic head (arrows), suggestive of pseudoaneurysm (Fig. 1). Splenic and portal veins thrombosis and marked collateral veins was also noted. Celiac angiography was then performed using a 5 Fr. co-axial catheter and confirmed the presence of pseudoaneurysm at the anterior superior pancreaticoduodenal artery (arrows). Splenic and portal veins thromboses

with cavernous transformation with marked collateral veins were depicted. Selective catheterization to the neck of the pseudoaneurysm through the gastroduodenal artery was made, and five pieces of coil spring emboli, diameter of 0.38-5-5 mm, (Cook, USA) were deployed at the distal to proximal part of the pseudoaneurysm. Post-embolization angiograms showed complete occlusion and non-opacification of the pseudoaneurysm (Fig. 3).

The gastrointestinal bleeding stoped after the embolization but abdominal pain was still persisted. He was referred to the anesthesiologist for celiac nerve block. The patient was addicted to Demerol and treated with placebo injection of normal saline. The patient was discharged in stable condition and was follow up at the outpatient clinic.

**DISCUSSION**

Pseudoaneurysm causing gastrointestinal bleeding is a recognized complication of pancreatitis. Clinical suspicions and early diagnosis is a must in order to reduce mortality. Sonography is a non-invasive but nonspecific procedure. It is not always possible to differentiate cystic pancreatic mass from vascular lesions. However, duplex doppler ultrasonography can demonstrate pulsatile arterial flow and can establish the diagnosis. CT scan with contrast enhancement is a useful modality
not only for demonstrating vascular lesions but also confirming the diagnosis of pancreatitis. Furthermore, it can depict fluid collection; determine the extent of the inflammatory process, and detect the presence of hemorrhage. If vascular lesions are highly suspected, angiography is then usually required for more precise demonstration of the specific vessels involved for definite treatment planning. Our patient showed a typical picture of pseudoaneurysm, but specific artery involved was only determined by angiography.

Lygidakis et al. [2] had compared the superselective hepatic artery embolization with surgical ligation for the treatment of hemobilia due to vascular lesions. They found out that superselective embolization resulted in lower morbidity and mortality rates than surgery. Embolization also resulted in a higher success rate in term of bleeding control and actual identification of the bleeding sites. Other authors also preferred transcatheter embolization to control bleeding from aneurysm because of high mortality associated with surgical management [2-3]. On the basis of surgical literatures, they found out that surgical ligation or resection of the aneurysm was effective in only eight of 17 cases, the remaining nine patients died postoperatively [3]. Surgery ligation of the aneurysm is not always possible due to anatomical inaccessibility, and associated inflammatory reaction.

Therapeutic transcatheter arterial embolization has many advantages for its simpler procedure than surgery. In experienced hands, it is safer than the surgical intervention.

Our patient is a case of alcoholic pancreatitis with a classic sequela of pseudocyst formation. Infected pseudocyst had been successfully managed by percutaneous placement of a pigtail drainage catheter. However, vascular complication of pseudoaneurysm had developed later which presented with gastrointestinal bleeding. Transcatheter arterial embolization was now an established procedure and therapy of choice in the management of the aneurysm. Embolization had replaced surgery especially the peripancreatic artery aneurysm because the operative mortality rate had been reported as 30-50%[4-6]. However, in embolization it must be remembered that the periduodenal and peripancreatic arteries are communicating vessels between the celiac and superior mesenteric arterial circulation. Therefore, blood flow remains if only either proximal or distal portion of the aneurysm has been embolized. In our case, five coils were deployed from the distal to the proximal part of the pseudoaneurysm to prevent collateral filling, which had been adopted by Yamagami et al [7] in treating two cases of ruptured pancreaticoduodenal artery aneurysm. Although the precise active bleeding point was not demonstrated by contrast medium extravasation in our patient, the definitive pseudoaneurysm was clearly opacified. We presumed that this was the cause of gastrointestinal hemorrhage. The bleeding stopped after the embolization. He became stable except with recurrent abdominal pain secondary to pancreatitis.

This report showed that one of the major complication of pancreatitis was pseudoaneurysm of the peripancreatic artery that will cause gastrointestinal bleeding. This lethal sequela must be kept in mind and angiography must be performed as soon as possible for definite diagnosis. Transcatheter arterial embolization must be carried out immediately. Embolization of the pseudoaneurysm at both ends of feeding arteries must be done to prevent collateral formation.

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胰臟癌引發之上胰臟十二指腸動脈偽動脈瘤的介人性栓塞術

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內臟血管病變是胰臟炎常見的後遺症，它甚至可能引起腸胃道出血，在此篇我們報告一例因胰臟炎引起上胰臟十二指腸動脈偽動脈瘤；經由動脈成功地以彈簧線圈栓塞偽動脈瘤。

此32歲男性病人過去曾經被診斷因酗酒引發胰臟炎，而且併發有偽囊腫和膿瘍產生，並經由表皮放置引流管治療成功。打完顯示劑後的電腦斷層檢查可以發現有一個界限很清楚的血管性病灶，令人聯想起是偽動脈瘤，腹部動脈血管攝影證實為前上胰臟十二指腸動脈瘤，而使用5個彈簧線圈後成功地將其栓塞。栓塞後出血即停止，雖然還有腹部疼痛，病人六天後因病情改善就出院了。

本文描述因胰臟炎引起偽動脈瘤，造成腸胃道出血，而且成功地經由動脈栓塞治療成功。

關鍵詞：胰臟炎；動脈瘤；消化道出血；動脈栓塞