

CASE REPORT

## 초음파유도하 경피적 배액술에 의해 성공적으로 치유된 비장피막하 출혈을 동반한 췌장가성낭종 1예

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### A Case of Pancreatic Pseudocyst with a Large Subcapsular Splenic Hematoma Treated Successfully by Ultrasonography-guided Percutaneous Drainage

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A subcapsular splenic hematoma is a very rare hemorrhagic complication of pancreatitis. We report here on a case of pseudocyst with a large subcapsular splenic hematoma in a 43-year-old man who presented with severe left flank pain for one week. Despite the initial conservative treatment consisting of pain control, bowel rest, intravenous fluids and antibiotics, the pain was not relieved. An abdominal computed tomography (CT) was performed, and it showed a pseudocyst that was increasing in size with a large subcapsular splenic hematoma measuring 6×13 cm compared to the images at admission. Ultrasonography (US)-guided percutaneous drainage was performed without any complications, and splenectomy was avoided. After the discharge, the patient remained asymptomatic for eight months. We suggest that percutaneous drainage of a large subcapsular hematoma complicating pancreatitis might be a useful treatment option in selected patients. (*Korean J Gastroenterol* 2011;57:258-261)

**Key Words:** Subcapsular splenic hematoma; Pancreatitis; Pseudocyst; Drainage

#### INTRODUCTION

A pancreatic pseudocyst is a relatively common complication of acute and chronic pancreatitis, and it may be associated with many splenic complications including massive hemorrhage into pseudocyst, sepsis with splenic infarction, and splenic vein thrombosis.<sup>1</sup> However, a subcapsular splenic hematoma is a very rare hemorrhagic complication of pancreatitis.<sup>2-7</sup> We describe herein a case of pancreatic pseudocyst with a large subcapsular splenic hematoma successfully treated with US-guided percutaneous drainage.

#### CASE REPORT

A 43-year-old man presented to the emergency room at Chonnam National University Hospital with severe left flank pain for one week duration that was increasing in intensity. The patient had no history of recent trauma. He quit drinking alcohol after two episodes of pancreatitis during the past 19 months. During the second episode of pancreatitis occurred 11 months after the first episode, a contrast-enhanced abdominal CT scan showed multiple pseudocysts with variable sizes at the tail of the pancreas compressing adjacent struc-

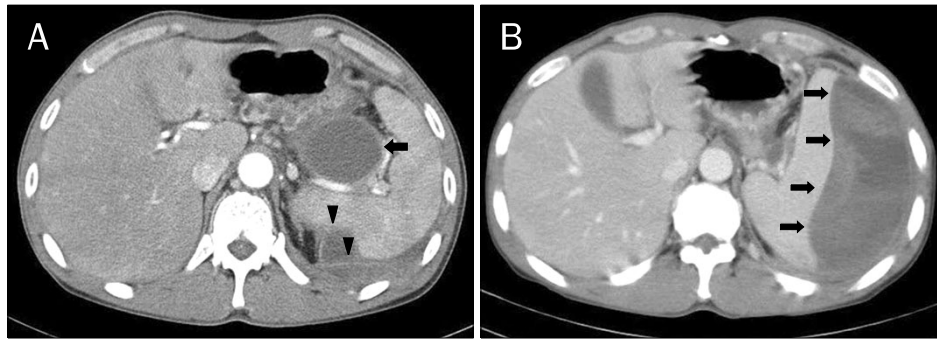
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**Fig. 1.** Computed tomographic (CT) scan images during the second episode of pancreatitis and in the emergency room. (A) Variable sized multiple pseudocysts in the tail of the pancreas compressed the adjacent structures including splenic vein, gastric fundus (arrow), and splenic parenchyma (arrow heads). (B) A CT scan showed increased size of the pseudocyst with a large subcapsular splenic hematoma (arrows) measuring 5×12 cm in the tail of pancreas.

tures including the splenic vein, splenic parenchyma and gastric fundus (Fig. 1A). A drainage procedure was not performed because he recovered after the conservative treatment consisting of pain control, bowel rest, intravenous fluids, and antibiotics.

When the patient arrived at the emergency room 12 months after recovery from the second episode of pancreatitis, his blood pressure, pulse rate and body temperature were 100/70 mmHg, 84 beats per minute and 37.0°C, respectively. On physical examination, there was marked abdominal tenderness and rebound tenderness at the left upper quadrant of the abdomen. The laboratory findings showed that the liver function tests, renal function tests and electrolytes were within normal limit. However, there was a leukocytosis (16,200/mm<sup>3</sup>), increased C-reactive protein (18.2 mg/dL), and decreased hemoglobin (11.7 g/dL) and hematocrit (35.9%). The serum amylase and lipase levels were 113 U/L and 71 U/L, respectively, which were slightly above the normal range. An abdominal CT was performed to rule out a surgical abdomen, and showed increased size of the pseudocyst with a newly developed large subcapsular splenic hematoma in the tail of pancreas measuring 5×12 cm (Fig. 1B).

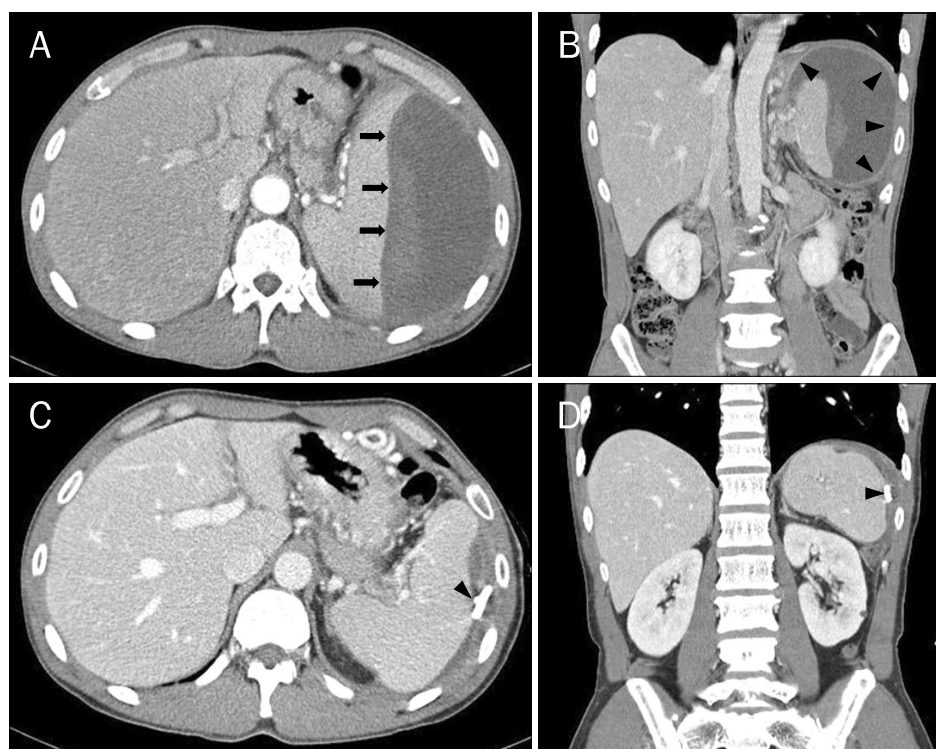
During the first 5 days of hospitalization, the pain was significantly relieved after initial treatment with intravenous analgesics, antibiotics, fluids and bowel rest. However, on the sixth day, the patient complained of a sudden onset of severe left flank pain not relieved by analgesics, and the hemoglobin levels were decreased (9.7 g/dL). However, there was no hypotension. Another abdominal CT was performed, and it

showed an increase in the size (6×13 cm) of the pseudocyst at the tail of the pancreas with a large subcapsular splenic hematoma (Fig. 2A, 2B). Immediate surgical treatment was considered, but the patient refused due to the fear of complications. Therefore, US-guided percutaneous drainage of the hematoma was performed, immediately. About 300 mL of dark colored fluids was drained via a catheter, initially. There were no procedure-related complications.

After the percutaneous drainage, the pain subsided dramatically. Because the amount of the drained fluid decreased markedly and the size of pseudocyst with a subcapsular splenic hematoma was markedly decreased on a follow-up abdominal CT scan (Fig. 2C, 2D), the catheter was removed three weeks after the procedure. There were no other complications or symptoms after the catheter was removed, and the patient was discharged and has remained asymptomatic at the 8-month follow-up.

## DISCUSSION

In the present case, a subcapsular splenic hematoma complicating pancreatic pseudocyst at the tail of the pancreas was successfully treated with US-guided percutaneous drainage, and surgical procedures such as a splenectomy and distal pancreatectomy were avoided. Prior to the present case, three cases have been reported to be successfully treated by percutaneous drainage of a subcapsular splenic hematoma. Table 1 shows the three cases.<sup>3,5,7</sup> The patients in the cases were all male, had no history of trauma. They all had a history of recent episodes of acute or chronic pan-



**Fig. 2.** CT scan images on hospital day 6 and 3 weeks after US-guided drainage. (A and B) increased size (approximately 6×13 cm) of the pseudocyst with subcapsular splenic hematoma is shown (arrows and arrow heads). (C and D) CT images 3 weeks after US-guided percutaneous drainage, the size of the pseudocyst with subcapsular splenic hematoma was markedly decreased. A drainage catheter is shown (arrow head).

**Table 1.** Cases of Successful Percutaneous Drainage of Subcapsular Splenic Hematoma in the Literature

	Vyborny CJ, et al. <sup>3</sup>	Siu TL. <sup>5</sup>	Tseng CW, et al. <sup>7</sup>
Published year	1988	2004	2008
Sex	Male	Male	Male
Age (year)	58	38	32
Previous trauma history	None	NA	NA
Previous episodes of pancreatitis	Yes	Yes	Yes
Presence of pseudocyst	Yes	Yes	NA
Number and largest size of pseudocyst	Multiple, 2.5 cm	1, 3.5 cm	NA
Elapsing time <sup>a</sup>	1 month	11 days	2 weeks
Presenting symptoms	Nausea, early satiety, postprandial emesis, LUQ discomfort	LUQ pain	Intermittent epigastric pain with radiating back pain
Serum amylase	NA	366 U/L	266 U/L
Serum lipase	NA	1505 U/L	473 U/L
Size of hematoma on abdomen CT scan	NA	8×5×13 cm	15.0×13.0×9.5 cm
Follow-up	Asymptomatic at 2 years follow-up	Pain free 6 months after the procedure	Asymptomatic at 1 year follow-up

LUQ, left upper quadrant; NA, not available.

<sup>a</sup>Elapsing time between the recent episode of pancreatitis and the identification of a subcapsular splenic hematoma.

creatitis, and two of them had single or multiple pancreatic pseudocysts previously. After the percutaneous drainage, there were no procedure-related complications and recurrence. The clinical course of the case reported here was similar to the previous reports.

Although splenic complications such as splenic vein thrombosis, intra-splenic pseudocysts, splenic rupture, in-

farction, necrosis and splenic hematoma may occur during the course of acute or chronic pancreatitis, because of the close anatomical location of the pancreatic tail to the hilum of spleen,<sup>8</sup> hemorrhagic complications of pancreatitis involving the spleen are very rare.<sup>2-7</sup>

There have been several possible mechanisms suggested that might explain how pancreatitis result in hemorrhagic

splenic complications. A direct erosion of pancreatic enzymes into the splenic parenchyma and subsequent disrupted splenic hilar vessels by pancreatic enzymes may lead to intra-splenic bleeding or subcapsular hematoma.<sup>6,9</sup> Mechanical effects of intra-splenic pseudocysts may also cause a subcapsular splenic hematoma.<sup>10</sup> Furthermore, pancreatic exudative materials may dissect into the subcapsular space directly, and then, cause hemorrhage from the affected splenic parenchymal surface.<sup>3</sup> In the case reported here, there was a history of two episodes of pancreatitis, and a CT scan performed during the second episode showed variable sized pseudocysts at the tail of the pancreas compressing the splenic vein and parenchyma. Therefore, we assume that direct erosion into the splenic parenchyma or disruption of the splenic vein might have led to a subcapsular splenic hematoma in this case. In addition, a subcapsular splenic hematoma in this case might have resulted from pancreatitis; this patient, like another case,<sup>6</sup> had no history of trauma but marked elevations of the amylase and lipase levels. Furthermore, the time between the recent episode of pancreatitis and the identification of the subcapsular hematoma was 12 months in this case, longer than previous cases,<sup>3,5,7</sup> suggesting possible chronic slow progression of the subcapsular hematoma.

Because the patient in this case was hemodynamically stable, had no signs of infection, refused surgical treatment due to the fear of complications, US-guided percutaneous drainage was performed to alleviate the abdominal pain and decompress the expanding subcapsular splenic hematoma. Vyborny et al.<sup>3</sup> suggested that patients with a slowly developing (over weeks or months) post-traumatic hematoma and hematomas not associated with other complicating features of co-existent pancreatitis might be candidates for percutaneous drainage. The hematoma in this case had these features. Prompt relief of symptoms, a short recovery time, avoidance of rupture and spleen preservation are the benefits of percutaneous drainage.<sup>3,5,7</sup>

Despite the benefits of percutaneous drainage, many investigators have recommended surgical treatment such as the resection of the pseudocyst by splenectomy and, if necessary, distal pancreatectomy because of the risk of splenic rupture, infection and recurrence with drainage alone.<sup>4,8,11-13</sup> Kuramitsu et al.<sup>2</sup> suggested that a large splenic hematoma, larger than 5 cm, complicating pancreatitis should be treated

with pressure reduction by percutaneous drainage at an early stage or a laparotomy, even if the clinical course had temporarily improved. However, the serious complications associated with surgical treatment such as bleeding and infections,<sup>12</sup> and distal pancreatitis may predispose patients to the development of diabetes mellitus.<sup>4</sup>

In conclusion, US-guided percutaneous drainage was a useful treatment option for the subcapsular splenic hematoma complicating a pancreatic pseudocyst in a patient with multiple episodes of pancreatitis. This procedure is less invasive and preserves the spleen.

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