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.1 However, a subcapsular splenic hematoma is a very rare hemorrhagic complication of pancreatitis.2-7 We describe herein a case of pancreatic pseudocyst with a large subcapsular splenic hematoma successfully treated with US-guided percutaneous drainage.
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Section 1

A Case of Pancreatic Pseudocyst with a Large Subcapsular Splenic Hematoma

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 limits. However, there was a leukocytosis (16,200/mm³), 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 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.³ ⁵ ⁷ 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-
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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

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

LUQ, left upper quadrant; NA, not available.
aElapsing 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, infarction, 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, hemorrhagic complications of pancreatitis involving the spleen are very rare. There have been several possible mechanisms suggested that might explain how pancreatitis result in hemorrhagic splenic complications.
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. Mechanical effects of intra-splenic pseudocysts may also cause a subcapsular splenic hematoma. Furthermore, pancreatic exudative materials may dissect into the subcapsular space directly, and then, cause hemorrhage from the affected splenic parenchymal surface. 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, 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 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. 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.

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. Kuramitsu et al. 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, and distal pancreatitis may predispose patients to the development of diabetes mellitus.

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.

REFERENCES