

A CASE OF PANCREATIC PSEUDOCYST TREATED SUCCESSFULLY WITH ULTRASOUND-GUIDED PERCUTANEOUS DRAINAGE

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Abstract : This paper describes a case of pancreatic pseudocyst treated successfully with ultrasonography-guided percutaneous aspiration and drainage. A 43-years-old man was referred to our hospital because of left hypochondralgia. He was diagnosed as having chronic pancreatitis with a pancreatic pseudocyst, measuring approximately $10 \times 6 \times 5$ cm, located in the pancreatic tail. After three months of conservative medical treatment, the pancreatic pseudocyst was not decreased in size and the left hypochondralgia persisted. We performed percutaneous aspiration and drainage of the cyst guided by ultrasonography. A brownish fluid, 350 ml in volume, was aspirated and the cyst disappeared completely about one month later without any complications. There was no recurrence of the pseudocyst at the fourth month after drainage. On the basis of a review of the literature and our own experience, we believe that percutaneous drainage should be the first choice in the management of pancreatic pseudocysts that require interventional therapy.

Index Terms

chronic pancreatitis, pancreatic pseudocyst, percutaneous drainage

INTRODUCTION

We recently observed a case of pseudocyst treated successfully with ultrasonography-guided percutaneous drainage. Pseudocyst formation is a well-known complication of acute or chronic pancreatitis. Nearly one-third of pancreatic pseudocysts resolve spontaneously; however, some require interventional therapy¹⁾. Over the years, the therapy for symptomatic pancreatic pseudocysts has generally been surgical internal drainage with cystgastrostomy, cystduodenostomy, or cystjejunostomy. Recently, newer methods such as percutaneous drainage²⁾ and endoscopic cystenterostomy³⁾ have been established. Percutaneous drainage is inexpensive and has a low incidence of complications and a low mortality rate. In particular, a method of

percutaneous drainage of pancreatic pseudocysts using ultrasonography has been developed in recent years and is now being applied in clinical practice.

In this paper, we report a case of pancreatic pseudocyst and discuss ultrasonography-guided percutaneous drainage.

CASE REPORT

A 43-year-old man who was a heavy drinker was referred to our hospital because of left hypochondralgia and epigastalgia with consistently elevated levels of pancreatic enzyme. We made a diagnosis of chronic pancreatitis and began conservative medical treatment. He had frequent episodes of left hypochondralgia from April 1996. A computed tomographic (CT) scan of the abdomen performed in May 1996 revealed a pancreatic pseudocyst, measuring approximately $10 \times 6 \times 5$ cm, located in the pancreatic tail (Fig. 1). He was diagnosed as having chronic pancreatitis with a large pancreatic pseudocyst. After three months of medical treatment, the pseudocyst was not decreased in size and left hypochondralgia persisted. He was admitted to our hospital for interventional therapy of the pancreatic pseudocyst in July 1996. He had a history of distal gastrectomy and Billroth I anastomosis because of gastric ulcer at the age of 24 years. He lost 4 kg in weight during the three months before admission. Physical examination showed that his temperature was 36.2°C , pulse was 66/min, and blood pressure was 140/85 mmHg. There were no signs of anemia or jaundice. The head, neck, lungs and heart were normal. There was mild tenderness at the left upper quadrant. The extremities were normal. Urinalysis and blood biochemical examinations were normal except for elevated levels of

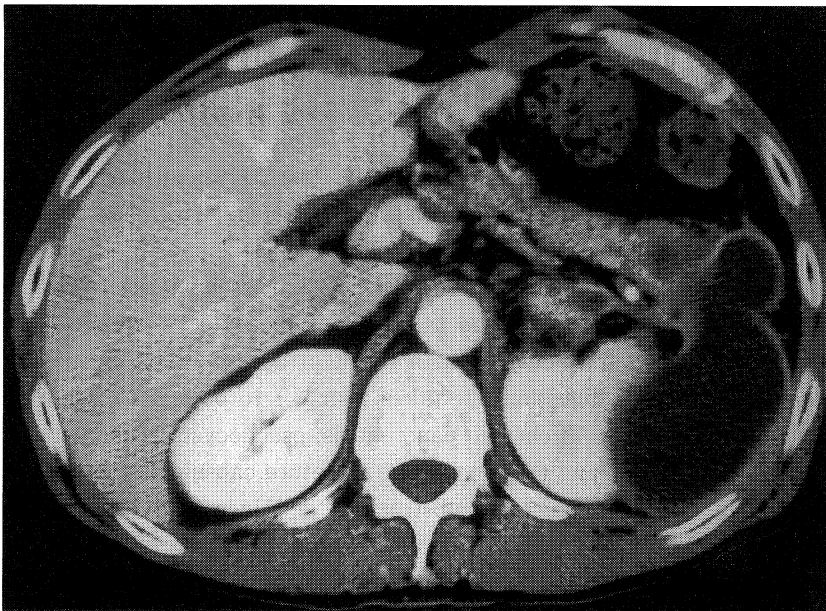


Fig. 1. A computed tomographic (CT) scan of the abdomen revealed a pancreatic pseudocyst located in the pancreatic tail.

Table 1. Laboratory data on admission

Urinalysis		s-AMY	975	IU/1
Protein	(—)	u-AMY	2,162	IU/1
Sugar	(—)	LDH	321	IU/1
Occult blood	(—)	CHE	263	IU/1
Hematology		TG	91	IU/1
RBC	420×10^4 / μ l	TP	6.3	g/dl
Ht	39.7 %	Alb	3.9	g/dl
Hb	13.4 g/dl	T-Chol	120	mg/dl
WBC	4,400 / μ l	Scr	0.7	mg/dl
Plt	13.1×10^4 / μ l	BUN	27	mg/dl
Biochemistry		FBS	85	mg/dl
T-Bil	1.1 mg/dl	Na	138	mEq/l
ALP	180 IU/l	K	4.1	mEq/l
GOT	17 IU/l	Cl	99	mEq/l
GPT	8 IU/l	CRP	0.4	mg/dl

urinary and serum amylase (2,162 and 975 IU/l) (Table 1). An ultrasonography of the abdomen showed a large cyst, approximately 10×6 cm in diameter, located in the left upper quadrant. We performed percutaneous aspiration and drainage of the cyst guided by ultrasonography. A brownish fluid, 350 ml in volume, was aspirated. The amylase concentration in the fluid was 31,630 IU/l. Cytologic examination of the fluid was negative (Papanicolaou class II) and the fluid cultures were sterile. Contrast examination of the cyst after puncture revealed no connection with the pancreatic duct. We administered antibiotics to prevent infection in the drain track. The left hypochondralgia began to diminish on the day after drainage and disappeared on the third day after drainage. About one month later, the cyst disappeared completely without any complications. There was no evidence of recurrence of the pancreatic cyst on CT scan at the fourth month after drainage.

DISCUSSION

1. Natural history of pancreatic pseudocyst

Alcohol is the leading cause of chronic pancreatitis. Pseudocyst formation is a well-known complication of pancreatitis. The main symptoms are epigastric mass and pain, nausea, vomiting, mild fever, leukocytosis, and persistent elevation in the level of serum amylase. The pathogenesis of pseudocyst is not clear. Several possibilities have been proposed, and the mechanism depends on the etiology of the pseudocyst. In acute pancreatitis (secondary to biliary tract disease), a cyst may develop as a result of accumulation of enzyme-rich fluid, blood, and products of tissue digestion. It takes nearly 4 to 6 weeks for an inflammatory capsule to develop. Sometimes in chronic pancreatitis, pseudocysts occur without identifiable episodes of acute pancreatitis, and they may have a mature capsule at the time of diagnosis. The pathogenesis is related to ductular obstruction and increased intraductular pressure occurring as a result of protein plugs, calculi, or stricture formation. Spontaneous resolution of pseudocysts has been reported in 7 to 85% of these patients⁴⁻⁶. This wide range in incidence can be attributed to many factors such as size, etiology, and multiplicity. Overall, nearly one-third of pancreatic pseudocysts resolve spontaneously. Most pseudocysts heal within 6 weeks,

but resolution may occasionally occur even after 28 months⁷). Infection, rupture and hemorrhage are the main complications of a pseudocyst. These complications occur in roughly 10% of patients.

2. Surgical intervention of pancreatic pseudocyst

Over the years, the therapy for symptomatic pancreatic pseudocyst has generally been surgical internal drainage with cystgastrostomy, cystduodenostomy, or cystjejunostomy. The selection of cystgastrostomy, cystduodenostomy, or cystjejunostomy was based on cyst location. Pseudocysts should be observed for 6 to 8 weeks before elective surgery to allow the wall to mature enough for an internal drainage procedure. Complication rates of these operations range from 10 to 65%, with a mean of 35%¹). Early complications include pneumonia, intra-abdominal sepsis, postoperative bleeding, and pancreatitis; late complications are onset of diabetes, chronic pancreatic fistula, and chronic pancreatic insufficiency. Recent studies of surgical internal drainage reported mortality rates ranging from 0 to 21%, with a mean of 8.5%¹). Although the mortality rate has been decreasing over the past few years, the prognosis of surgical internal drainage is unexpectedly poor. Therefore, we believe we made the correct decision regarding the treatment of our patient.

3. Percutaneous drainage of pancreatic pseudocyst

Recently, newer methods such as percutaneous drainage and endoscopic cystenterostomy have been used to treat pseudocyst. Since Hancke and Pederse²) successfully performed percutaneous drainage of a pseudocyst guided by ultrasonography, the method has been used quite widely. Needle aspiration alone is associated with a very high rate of recurrence of pseudocyst (63%). Percutaneous drainage has yielded impressive results. The rate of recurrence has now decreased to 7%¹) after percutaneous drainage. In addition, the complication rate was only 18%. The complications were similar to those of surgical internal drainage. The problems with percutaneous drainage were drain track infection and external pancreatic fistulas, which were associated with prolonged duration of catheter drainage. However, most fistulas closed spontaneously over the course of 2 to 6 weeks⁸). The mortality rate was only 2%. Thus, percutaneous drainage has a low incidence of complications and a low mortality rate. Examination of the characteristics of cystic fluid, amylase level, and cytological evaluation help in establishing the diagnosis of pancreatic cyst. Contrast examination of the cyst after puncture reveals its connection with the pancreatic duct. In more than one-third of patients with chronic pseudocyst, communication between the cyst and pancreatic duct was demonstrated⁹). In our case, contrast radiography of the cyst after puncture revealed no connection with the pancreatic duct. Infection of the cyst or connection with the pancreatic duct are not contraindications for percutaneous drainage. In our patient, insertion of the catheter was accompanied by dramatic pain relief and reduction of serum amylase; therefore, percutaneous drainage was effective. Pressure in the cyst is higher in patients with pain than in patients without pain^{10,11}). Many patients, like our case, have dramatic pain relief after drainage.

In conclusion, percutaneous catheter drainage is indicated in symptomatic mature cysts that fail to decrease in size after 6 to 8 weeks of conservative treatment. The presence of chronic pancreatitis is not a contraindication to percutaneous drainage, provided that ductal obstruction does not exist. We believe that percutaneous drainage should be the first choice in the

management of pancreatic pseudocysts that require intervention.

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