CASE REPORT

A Case of Pancreatic Pseudocyst with an Atypical Multilocular Appearance on Endoscopic Ultrasound

Jae Hyung Park*, Min Kyu Jung*, Chang Min Cho*, Gab Chul Kim[†], Hun Kyu Ryeom[†], Sang Geol Kim[‡], Young Kook Yoon[†], and Han Ik Bae[§]

*Division of Gastroenterology and Hepatology, Department of Internal Medicine, Departments of [†]Radiology, [‡]General Surgery, and [§]Pathology, Kyungpook National University Hospital, Kyungpook National University School of Medicine, Daegu, Korea

Pancreatic pseudocysts are focal fluid collections that develop as a result of inflammatory diseases of the pancreas. They are managed conservatively or with a drainage procedure. Their radiological appearance can mimic cystic neoplasms of the pancreas. Pancreatic cystic neoplasms include various neoplasms with a wide range of malignant potential. Here, we report a patient with a pancreatic pseudocyst that presented with macrocystic attributes on endoscopic ultrasound. (*Gut Liver* 2010;4:270-273)

Key Words: Pancreatic pseudocyst; Endoscopic ultrasound

INTRODUCTION

Pancreatic pseudocysts are focal fluid collection that develops as a result of inflammatory diseases of the pancreas. They are managed conservatively or with a drainage procedure. Their radiological appearance can sometimes mimic pancreatic cystic neoplasms (PCN).¹ PCN include a variety of neoplasms with a wide range of malignant potential.^{2,3} Serous cystic adenomas (SCA) are composed of multiple small compartments that are lined with a glycogen-containing cuboidal epithelium and almost always have a benign clinical course.⁴

Here we report a case with a pancreatic pseudocyst that was preoperatively misdiagnosed as SCA through endoscopic ultrasound (EUS) and intraoperative cystic fluid aspiration study. The correct diagnosis was confirmed by microscopic examination after surgical resection.

CASE REPORT

A 43-year-old man came with an intermittent abdominal pain that has dull nature, not related to oral intake, without back radiation or aggravating factors. Pain duration was no longer than 30 minutes. He did not have previous medical history, significant family history, alcohol history, or drug history. On physical examination, no mass was palpable in the abdomen. The laboratory tests showed that the serum amylase, lipase, carbohydrate antigen (CA) 19-9, and carcinoembryonic antigen (CEA) levels were all within normal limits. We did not check the serum lipid level.

The computed tomography demonstrated a 6.3×5.1 cm² mass in the body of the pancreas; the mass was encapsulated by thin walls without visible internal septation. Neither liver metastasis nor lymph node involvement around the pancreas was detected. There was an incidental hemangioma in segment 6 of liver (Fig. 1). EUS showed the structure of the tumor more clearly. It also showed multiple cysts of variable sizes resembling "honey-comb" appearance, which is a distinctive feature of SCA (Fig. 2). With the presumptive diagnosis of SCA, the patient underwent a simple enucleation procedure.

Intraoperative cystic fluid aspiration (CFA) was performed; it was dark serous fluid. The cystic amylase level was 79 U/L. Macroscopically, the tumor was round and well circumscribed, measuring 6.5×5×4.5 cm³. The cut surface showed a cystic lesion with internal fibroid septa (Fig. 3). However, the internal material could be easily swept. Microscopic examination revealed that the tumor

Correspondence to: Chang Min Cho

Department of Internal Medicine, Kyungpook National University Hospital, 50, Samduk-dong 2-ga, Jung-gu, Daegu 700-721, Korea

Tel: +82-53-420-5515, Fax: +82-53-426-8773, E-mail: whckd@medimail.co.kr

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Fig. 1. CT reveals cystic lesion in the pancreatic body (white arrow, arterial, venous, delayed phase).

was a round lesion without epithelioid cells (Fig. 4). Finally, the diagnosis was changed to pancreatic pseudocyst resembling SCA, that was successfully treated by enucleation.

The postoperative course was uneventful and the patient was discharged 21 days after the surgery.

DISCUSSION

Pancreatic cystic lesions (PCL) consist of inflammatory

Fig. 2. Endoscopic ultrasound showing variable sized multiple cysts (white arrow).

Fig. 3. Gross morphology showing a multiseptated lesion filled with fluid.

pseudocysts and neoplastic lesions. Pseudocysts are the most common PCL; they are inflammatory fluid collections that develop in association with acute or chronic pancreatitis.¹ The fluid collections are not lined with epitheliums. Instead, the boundaries are composed of the serosa of adjacent organs, such as the stomach, the colon and the small intestine.³ Mature pseudocysts often are characterized by thick walls surrounding round fluid collections; whereas, early pseudocysts have thin walls containing complex fluid collections. The fluid aspirated from pseudocysts is usually dark in color, thin, and contains inflammatory cells.⁵

The accurate diagnosis of PCL is often difficult because the traditional cross-sectional imaging cannot provide diagnostic images.⁶ The distinction between different types

Fig. 4. Microscopically, there is a cyst of pancreas. However, epithelial lining cells of cyst are absent (A, H&E stain, $\times 40$; B, H&E stain, $\times 100$).

of PCL is especially difficult in patients without the history suggesting the particular diagnosis. This difficulty has been demonstrated in several studies.³ Some studies have shown that up to 40% of mucinous cystadenomas and up to 33% of SCA were misdiagnosed as pseudocysts and were inappropriately treated as a result.^{1,3,7,8}

EUS has many features that make the procedure an ideal tool for evaluation of PCL.⁹ Because the pancreas lies directly adjacent to the stomach, an EUS transducer can be placed close to the pancreas, and the whole gland can be easily observed. Providing high-resolution images of PCL, EUS is now widely used.^{5,10,11} Despite the advantages, however, EUS alone has not been able to accurately differentiate PCL.^{10,12} EUS imaging of SCA shows numerous small cysts with thin-walled septa, which have calcifications in its central portion.¹³ Although typical EUS imaging of pancreatic pseudocysts appears as unilocular fluid-filled cavities associated with parenchymal changes, such as calcifications and atrophy, EUS findings are diverse.¹⁴ In one study, up to 60% of patients with pseudocysts had a solid component visualized by EUS, and up to 30% had lymphadenopathy. If alcoholic or pancreatitis history is not given, macrocystic nature of EUS is difficult to distinguish between pseudocysts and SCA.^{12,15}

Our case without alcohol history appeared to be a simple cyst on CT. On the EUS, however, the simple cyst revealed multiple cysts of variable sizes with atypical “honey-comb” appearance. The patient did not suffer abdominal pain. However, when we saw the macrocystic nature of EUS, we had to determine if it is mucinous cystadenomas or not, which have malignant potential. So, we decided to resect the lesion. Before the surgery we did not perform EUS guided CFA; The surgeon, who pre-

operatively suspected pseudocysts, did not examine the intraoperative cystic CEA level. Intraoperative CFA only checked the amylase level. It was 79 U/L.

While EUS alone has limitations for obtaining a definitive diagnosis, when performed with CFA, it demonstrates somewhat greater utility for confirmation of a diagnosis. A normal amylase level and low levels of tumor markers (i.e., CEA and CA19-9) on CFA are typical findings of SCA. On the other hand, pseudocysts are associated with a high amylase level and low levels of tumor markers. In one study, the mean amylase level of pseudocysts was 7,218 U/L, higher than that of PCN.¹⁶ A large prospective study, the Cooperative Pancreatic Cyst Study, assessed many cyst fluid tumor markers, and concluded that CEA was most useful. By using receiver operator curve analysis, the optimal cut-off level of 192 ng/mL was 79% accurate for differentiating mucinous lesions from nonmucinous ones.¹⁷ The traditional treatment of pseudocysts of the pancreatic body is drainage or conservative management. For SCA, if patients have no symptoms, follow-up is appropriate.¹⁴ The most common complication of the surgical resection is a pancreatic-duct fistula, which occurs in about 10% of cases.¹⁸ Though EUS guided CFA may help to differentiate benign diseases from malignant ones, the morbidity of the cystic puncture is not zero. It has been reported to be from 1% to 4%.¹⁹ In our case, if EUS guided CFA was carried out before the surgery and CEA level was checked, the operation might have been avoided. We only examined the intraoperative cystic amylase level, so it was impossible to exclude other cystic diseases.

We look forward to more studies about differentiation of PCL, and hope to apply it in order to reduce the rate

of operations on similar cases in the future.

CONFLICTS OF INTEREST

The authors have no commercial association that might be a conflict of interest in relation to this article.

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