Korean J Gastroenterol Vol. 58 No. 6, 357-360
http://dx.doi.org/10.4166/kjg.2011.58.6.357

CASE REPORT

정상 비장과 다른 조영 양상을 보여 췌장 종괴로 오인된 췌장 내 부비장 1예

박준석, 김완중, 정영규, 박윤선, 구현철, 이태일, 최교창[1], 김 숙[2]
순천향대학교 구미병원 내과, 영상의학과[1], 병리과[2]

A Case of Intrapancreatic Accessory Spleen Mistaken as a Pancreatic Mass due to Different Enhancing Pattern from Normal Spleen

Jun Seok Park, Wan Jung Kim, Yeong Gyu Jeong, Youn Sun Park, Hyun Cheol Koo, Tae Il Lee, Gyo Chang Choi[1] and Sook Kim[2]
Departments of Internal Medicine, Radiology[1] and Pathology[2], Soonchunhyang University Hospital, Gumi, Korea

Most cases of accessory spleen show similar features as normal spleen in imaging studies. However, some accessory spleen has unusual scan feature which can be misdiagnosed. We present a case of intrapancreatic accessory spleen that was discovered incidentally during a workup for abdominal pain in a 47-year-old woman. CT and MRI revealed a different enhancing pattern from that of the spleen. Further evaluation with endoscopic ultrasonography failed to identify the pancreatic mass. Therefore, it was surgically removed and diagnosed pathologically as an accessory spleen. **(Korean J Gastroenterol 2011;58:357-360)**

Key Words: Accessory spleen; Pancreas; Pancreatic neoplasms

INTRODUCTION

Although the tail of the pancreas is the second most common site for an accessory spleen, intrapancreatic accessory spleen (IPAS) is often not recognized or mistaken for other pancreatic lesions. IPAS exhibits a similar enhancing pattern as the spleen, but this can be altered in some clinical conditions. When IPAS presents an unusual enhancing pattern, it can be confused with other pancreatic tumors that have malignant potential and thus should be identified pathologically.

CASE REPORT

A 47-year-old woman presented to the hospital with right upper quadrant abdominal pain. She is sexually active and has had an intrauterine contraceptive device for 10 years. She had no other surgical history. She did not smoke or drink alcohol. She exhibited an acute ill-looking appearance and complained of right upper quadrant abdominal pain. Tenderness was noted in the painful area, but no rebound tenderness existed. Her total white blood cell count was 10,570/mm^3, 65% of which were neutrophils. Other laboratory parameters of blood, including glucose, transaminase, alkaline phosphatase, and bilirubin, were normal.

To evaluate the abdominal pain, CT with contrast enhance-

Received June 28, 2011. **Revised** August 24, 2011. **Accepted** August 30, 2011.

교신저자: 김완중, 730-030, 구미시 공단동 250, 순천향대학교 구미병원 내과
Correspondence to: Wan Jung Kim, Department of Internal Medicine, Soonchunhyang University Hospital, 250, Gongdan-dong, Gumi 730-030, Korea. Tel: +82-54-468-9053, Fax: +82-54-468-9051, E-mail: netstars@empas.com

Financial support: None. Conflict of interest: None.

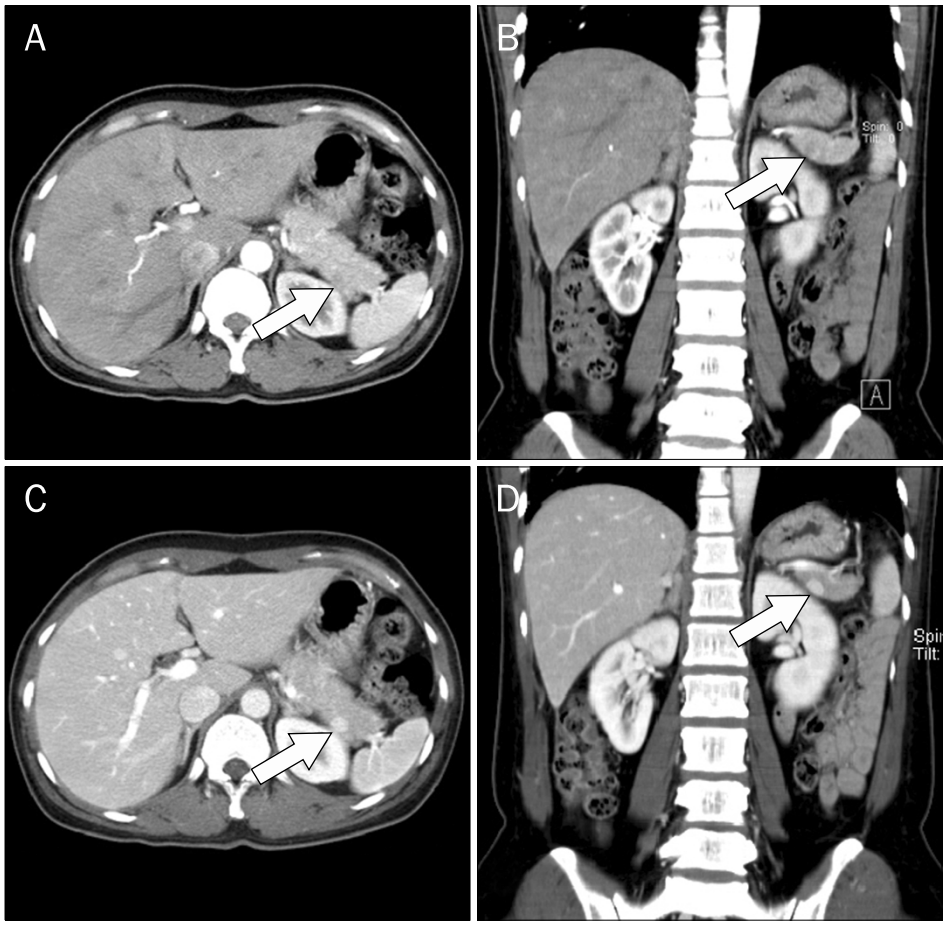

Fig. 1. CT with contrast enhancement of the patient. A 1 cm-sized, oval-shaped, and well-enhanced mass was detected in the tail of the pancreas. (A, B) The pancreatic tail mass exhibited a different enhancement pattern in the arterial phase compared to that of the spleen (arrows). (C, D) In the delayed phase, the pancreatic mass was highly enhanced and distinguished from the surrounding pancreatic parenchyma (arrows).

ment was performed. The liver exhibited pericapsular enhancement, and a small amount of fluid collection was in the pelvic cavity. These signs are indicative of Fitz-Hugh- Curtis syndrome and it seems to cause the patient's abdominal pain.

Through this diagnostic process a small ovoid mass was discovered incidentally in the tail of the pancreas, and it showed a different enhancing pattern from that of other organs such as the spleen (Fig. 1). No other specific lesion was detected. MRI with gadolinium enhancement and EUS were performed to differentiate the pancreatic mass. A 1 cm-sized pancreatic mass was enhanced in arterial phase on MRI (Fig. 2). The mass showed hyperechogenicity on EUS (Fig. 3). It should be distinguished from the pancreatic neoplasms like solid and pseudopapillary epithelial neoplasm (SPEN) or neuroendocrine tumor. Additional work up with EUS-guided fine-needle aspiration was considered. But the examination could not be performed because the pancreatic mass was located out of reach from the stomach wall.

The pancreatic mass could not be assured that had no malignant potential. The patient wanted to remove the mass, so we decided to perform surgical resection. Laparoscopic spleen-preserving distal pancreatectomy was performed. A 1×1.5×1.2 cm mass was removed with the tail of the pancreas (Fig. 4). Microscopic examination of the mass revealed a heterotopic splenic tissue. The patient was discharged without any complication on the twenty-ninth day of hospital admission.

DISCUSSION

A mass detected in the tail of the pancreas should be distinguished from SPEN, mucinous cystic neoplasm, neuroendocrine tumor, intraductal tubular carcinoma, and other metastatic tumors.[1,2]

A variety of nonneoplastic masses can exist in the pancreas. Up to 5% of surgically removed pancreatic masses prove to be nonneoplastic on pathologic examination. These nonneoplastic space-occupying lesions are called pseudotumors.[3]

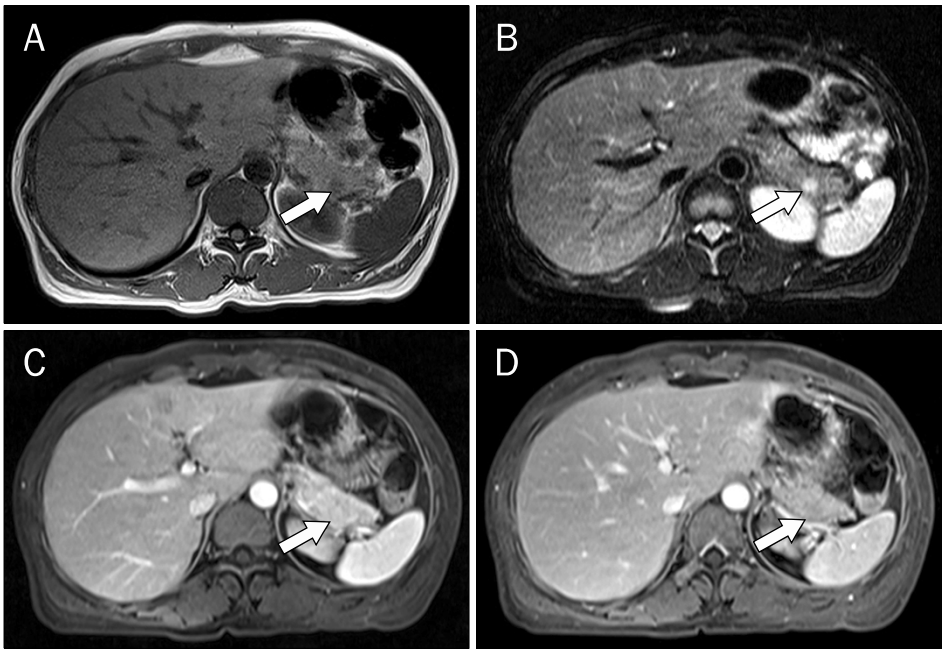

Fig. 2. Magnetic resonance imaging of the patient. A 1 cm-sized pancreatic mass was detected in the tail of the pancreas. (A) The signal intensity of the mass was lower than that of the pancreatic parenchyma in the T1-weighted image (arrow). (B) The mass had higher signal intensity than the pancreas in the T2-weighted image (arrow). (C, D) With Gadolinium enhancement, the mass was enhanced in the arterial phase and became isointense in the delayed phase. It exhibited different signal intensity from the spleen (arrows).

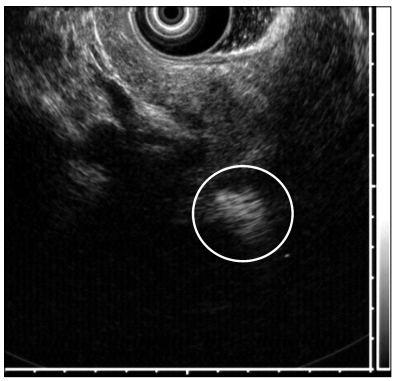

Fig. 3. Endoscopic ultrasonography imaging of the patient. The pancreatic mass exhibited heterogeneous hyperechogenicity (circle).

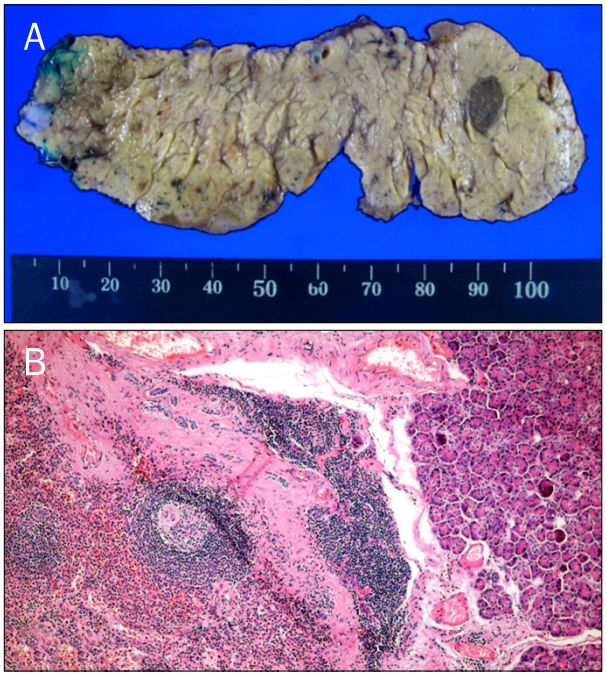

Fig. 4. Gross specimen and microscopic finding of intrapancreatic accessory spleen. (A) The pancreatic mass was surgically removed by laparoscopic spleen-preserving distal pancreatectomy. A relatively dark 1 cm-sized mass was detected in the tail of the pancreas. (B) The splenic tissue, on the left side of picture, was distinguished from the pancreatic tissue (H&E, ×100).

As one of the pseudotumors, the accessory spleen arises from the failure of fusion of the splenic anlage during the fifth week of fetal life.[4,5] It is a relatively common defect observed in 10-30% of cases in postmortem studies.[5] The tail of the pancreas is the second most common location for accessory spleens, with an incidence of 16.8% (36 of 164) as reported in a previous study.[5] It is important to characterize IPAS non-invasively because it rarely causes a clinical problem and the treatment is only required in a complicated case.

IPAS is structurally identical to the normal spleen, consisting of red and white pulps. The red pulp is composed of numerous vascular sinuses. Between these sinusoidal structures, lymphoid follicles and reticuloendothelial systems (RES) form the white pulp. The heterogeneous enhancement features of IPAS result from these components and can be altered by their ratio.[6]

SPEN is an uncommon low-grade pancreatic neoplasm that has relatively larger size (mean diameter of 9 cm). It tends to show hemorrhage, necrosis with cystic change, and encapsulation on radiologic images.[7] Mucinous cystic neoplasm is more likely to be larger with a multiloculated cystic architecture and may contain cystic and hemorrhagic areas.[7] Most of the pancreatic endocrine neoplasms result hormone-related symptoms and they demonstrate ring-like enhancement.[7] Ductal carcinoma of the pancreas usually invades the ampulla and cause obstructive biliary symptoms.[7] So, the 1 cm-sized, solitary, solid, heterogeneously enhanced, and asymptomatic pancreatic mass in this case should be considered as an IPAS.

Superparamagnetic iron oxide (SPIO)-enhanced MRI can facilitate the diagnosis of IPAS. The SPIO-based contrast medium is specifically targeted to RES cells. IPAS exhibits a similar signal drop to that of the spleen in T2-wegited images.[6] It is distinguished from the surrounding pancreatic parenchyma that has lower signal intensity.

Radionuclide scan with Technetium-99m heat-damaged red blood cells or indium-labeled autologous platelets has been used to diagnose accessory spleen. They also can be used to diagnose IPAS. When trapped in splenic tissue, they help identifying an accessory spleen in the pancreas.[6]

But, those specific diagnostic tools described above were not feasible to our hospital, so they could not be performed on this case. If the mass were a SPEN or a neuroendocrine tumor, it had to be removed surgically. The mass was in the distal portion of the pancreatic tail, and it was easily removed via laparoscopic surgery. Spleen-preserving distal pancreatectomy was performed, and the mass was identified as an accessory spleen on pathologic examination.

Although the imaging modalities are improving regarding the diagnosis of pancreatic masses, these masses can be misdiagnosed in clinical practice. Here, we report a case of IPAS that did not exhibit sufficient radiological specificity, requiring pathological diagnosis made with laparoscopic surgery.

REFERENCES

1. Sica GT, Reed MF. Case 27: intrapancreatic accessory spleen. Radiology 2000;217:134-137.
2. Buetow PC, Buck JL, Pantongrag-Brown L, Beck KG, Ros PR, Adair CF. Solid and papillary epithelial neoplasm of the pancreas: imaging-pathologic correlation on 56 cases. Radiology 1996;199:707-711.
3. Adsay NV, Basturk O, Klimstra DS, Klöppel G. Pancreatic pseudotumors: non-neoplastic solid lesions of the pancreas that clinically mimic pancreas cancer. Semin Diagn Pathol 2004;21:260-267.
4. Movitz D. Accessory spleens and experimental splenosis. Principles of growth. Chic Med Sch Q 1967;26:183-187.
5. Halpert B, Gyorkey F. Lesions observed in accessory spleens of 311 patients. Am J Clin Pathol 1959;32:165-168.
6. Kim SH, Lee JM, Han JK, et al. Intrapancreatic accessory spleen: findings on MR Imaging, CT, US and scintigraphy, and the pathologic analysis. Korean J Radiol 2008;9:162-174.
7. Tozbikian G, Bloomston M, Stevens R, Ellison EC, Frankel WL. Accessory spleen presenting as a mass in the tail of the pancreas. Ann Diagn Pathol 2007;11:277-281.