J Korean Radiol Soc 2003;49:301-303

Extramedullary Plasmacytoma of the Pancreas: Imaging Findings: Case Report[1]

Eun Jeong Choi, M.D., Kyeong Ah Kim, M.D., Cheol Min Park, M.D., Jean Hwa Lee, M.D., Jae Woong Choi, M.D., Hae Young Seol, M.D.

Extramedullary plasmacytoma involves organs outside the bone marrow, but involvement of the pancreas is very rare. We present the imaging findings of extramedullary plasmacytoma of the pancreas in a patient with multiple myeloma. Mixed echogenecity was noted at US, and marked enhancement at CT and MR.

Index words : Pancreas, CT
Pancreas, MR
Pancreas, neoplasms
Pancreas, US

Plasmacytoma usually affects the bone marrow, but the incidence of extramedullary plasmacytoma is 5% of all plasma-cell neoplasms. The vast majority of extramedullary plasmacytomas present as a tumor secondary to systemic myelomatosis of the bone marrow; extramedullary plasmacytoma involving the pancreas is very rare, and only 19 cases have been reported in the English-language literature (1). A few such reports have described the radiologic findings (1), but to the best of our knowledge, none have described the US, CT, and MR imaging findings in patients in whom multifocal involvement of extramedullary plasmacytoma and an initial diagnosis of multiple myeloma were simultaneous. We present the US, CT, and MR findings of pancreatic plasmacytoma in a patient with multiple myeloma.

Case Report

A 63-year-old man suffered asymptomatic chronic renal failure. On admission, the results of physical examination were unremarkable: liver function test results were within normal limits, with a total bilirubin level of 0.8 mg/dl; the hemoglobin (Hb) level was 8.7 g/dl, that of creatinine was 5.99 mg/dl, and the creatinine clearance ratio was 6.9 ml/min. During further evaluation, however, the IgG level was found to be 3550 mg/dl, and at immunoelectrophoresis, the presence of an abnormal band of IgG and two lambda-type bands was noted.

Abdominal US revealed that the pancreatic head contained a mixed echoic mass, 5 cm in diameter and with an internal hypoechoic component (Fig. 1A). Contrast-enhanced helical CT scanning of the abdomen, performed 70 seconds after the injection of contrast medium, demonstrated a poorly defined mass in the pancreatic head and body. Contour bulging and moderate contrast enhancement were noted (Fig. 1B). T1-weighted MR imaging indicated that the pancreatic head and body contained masses of low to intermediate signal intensity (SI) (Fig. 1C), and at gadolinium-enhanced MR imaging, these showed strong contrast enhancement (Fig. 1D). Multiple, moderately enhanced masses were also present in the thoracolumbar spine (Figs. 1C, D) and right retroperitoneum (Fig. 1E). After US-guided biopsy, a pancreatic extramedullary plasmacytoma was

[1]Department of Radiology, Guro Hospital, Korea University College of medicine
Received June 19, 2003 ; Accepted August 11, 2003
Address reprint requests to : Kyeong Ah Kim, M.D., Department of Radiology, Guro Hospital, Korea University College of Medicine, 97 Gurodong-gil, Guro-gu, Seoul 152-703, Korea.
Tel. 82-2-818-6183 Fax. 82-2-863-9282 E-mail: kahkim@korea.ac.kr

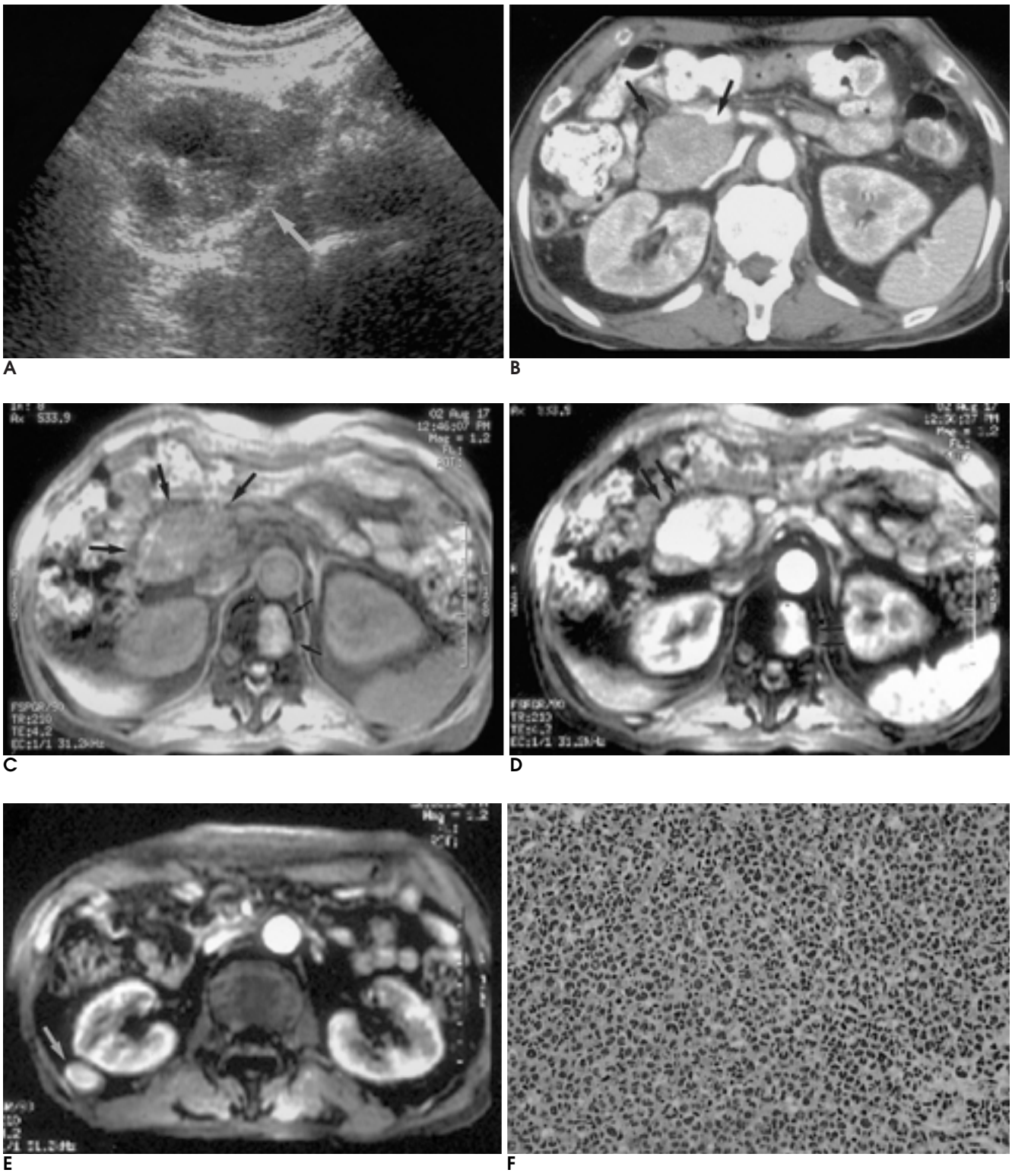

Fig. 1. A 63-year-old man with extramedullary pancreatic plasmacytoma.
A. Transabdominal ultrasound shows mixed echoic mass (arrow) in the pancreatic head.
B. Cotrast-enhanced CT scan shows a enhancing mass in pancreatic head (arrows).
C. T1-weighted MR image shows pancreatic masses (large arrows) and multiple masses (small arrows) on the vertebrae.
D. Gadolinium-enhanced MR image shows enhancing masses on the pancreas (large arrows) and vertebrae (small arrows).
E. Gadolinium-enhanced MR image shows enhancing mass on the right side peritoneum (arrow), just abut the right kidney.
F. Pathologic finding shows prominent vascular structures interrupting sheets of plasma cells of varying degrees of differenciation. A minimal stromal component is also seen (H-E stain, ×400).

diagnosed, and pathologically confirmed (Fig. 1F).

Discussion

Multiple myeloma is a disease in which a malignant proliferation of plasma cells typically involves medullary bones. Myelomatosis, a solitary bone myeloma, or an extramedullary plasmacytoma are all possible, but involvement of the retroperitoneum is rare (2). Most extramedullary plasmacytomas are solitary, but occasionally they disseminate, usually in conjunction with systemic myelomatosis (3). Extramedullary plasmacytoma involving the pancreas is very rare.

The CT imaging findings of plasmacytoma of the pancras have been described as an isodense mass (1, 4, 5), of low SI at T1WI and high SI at T2WI (6), or diffuse pancreatic enlargement suggestive of pancreatitis (7). This same report noted that at dynamid MR, a pancreatic plasmacytoma showed poor enhancement compared to normal pancreatic parenchyma. In our case, however, the opposite was true.

The differential diagnosis of pancreatic plasmacytoma must determine whether autoimmune pancreatitis and pancreatic lymphoma, primary or secondary, are present. At CT, an extramedullary plasmacytoma which occupies the retroperitoneal space may appear similar to a lymphoma (8), and without a clinical history of multiple myeloma, the diagnosis of extramedullary plasmacytoma at preoperative imaging may be very difficult. Differential diagnosis has included primary or secondary pancreatic tumor, lymphoma, and pancreatic inflammation.

In our case, the diagnosis of pancreatic plasmacytoma and simultaneous multiple myeloma was confirmed by percutaneous US-guided biopsy, the importance of which, according to several published reports (1-5), lies in its minimal invasiveness. So far published in which the US, CT, and MR findings of pancreatic plasmacytoma are described ; in our study, complete initial imaging studies - other than angiography - were performed.

Although the imaging findings of extramedullary plasmacytoma of the pancreas are nonspecific, differential diagnosis is required when a pancreatic mass is present in a patient with a plasma cell-neoplasm. Because of the high radiosensitivity of this tumor, unnecessary surgery can be avoided.

References

1. Hirata S, Yamaguchi K, Bandai S, Izumo A, Chijiiwa K, Tanaka M. Secondary extramedullary plasmacytoma involving the pancreas. *J hepatobiliary Pancreat Surg* 2002;9:111-115
2. Twomey BP, Katz D. Computed tomography in the diagnosis of extramedullary plasmacytoma. *J Comput Tomogr* 1983;7(4):407-408
3. Akiyama H, Krigel RL. Metastatic extramedullary plasmacytoma: a case report and review of the literature of a rare pseudocarcinoma. *Am J Hematol* 1988;27(2):115-117
4. Fukuya T, Yoshimitsu K, Kitagawa S, Murakami J, Masuda K, Nakamura K. Plasmacytoma of the pancreatic head. *Gastrointest Radiol* 1989;14:226-228
5. Olson MC, Kalbhen CL, Posniak HV. Pancreatic plasmacytomas in a patient with multiple myeloma: CT and ultrasound findings. *Abdom Imaging* 1993;18:323-324
6. Balliu E, Casas JD, Barluenga E, Guasch I. Multifocal involvement of the pancreas in multiple myeloma: sonographic, CT, and MR imaging findings. *AJR Am J Roentgenol* 2003;180:545-546
7. Scheiman J, Elta G, Francis I. Biliary obstruction secondary to an extramedullary plasmacytoma of the pancreas: confusion with pancreatitis on computed tomography. *Pancreas* 1987;2:237-239
8. Watanabe N, Morijiri M, Shimizu M, et al. A case of retroperitoneal extramedullary plasmacytoma with multiple metastases. *Clin Imaging* 2000;24:365-367

대한방사선의학회지 2003;49:301-303

췌장에 발생한 골수외 형질세포종의 영상소견: 증례 보고[1]

[1]고려대학교 의과대학 진단방사선과학교실

최은정 · 김경아 · 박철민 · 이진화 · 최재웅 · 설혜영

골수외 형질세포종은 골수이외의 전신장기 어디에나 발생할 수 있지만, 췌장을 침범한 경우는 매우 드문 것으로 보고되고 있다. 저자들은 다발성 골수종환자에서 췌장을 침범한 골수외 형질세포종이 초음파상 혼재성 에코이고 CT와 MR에서 조영증강이 잘 되는 소견을 보였던 증례에 대해 보고하고자 한다.