

Microadenocarcinoma of the Pancreas : US and CT Findings¹

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Microadenocarcinoma of the pancreas is a very rare tumor, and we report one case of this malignancy. Sonography revealed a bulky mass with massive internal necrosis, while CT demonstrated a heterogeneously enhanced tumor with massive and irregularly marginated necrosis.

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

Microadenocarcinoma of the pancreas is a very rare pancreatic cancer, characterized by large tumor size, small glandular cells and large foci of necrosis(1-6). We report the sonographic and CT findings of one case, confirmed by pathology.

Case Report

A 57-year-old woman with a history of diabetes mellitus presented with a one-month history of indigestion and general weakness. Physical examination showed abdominal distension and pitting edema, and laboratory findings indicated elevated serum glucose levels (325 mg/dl). The results of other liver function tests were normal, and viral markers for hepatitis were negative. The level of serum CEA was 3.9 ng/ml; of serum alpha-fetoprotein, 44.4 ng/ml; and of serum CA19-9, 0 U/ml.

Sonography revealed an extensive mass involving the whole pancreas (Fig. 1A), and with internal necrosis. The superior mesenteric vein was filled with thrombus, and arterial phase spiral CT scanning with bolus injection (3 ml/sec by mechanical injector) of 120 ml of contrast material showed a bulky tumor mass extending throughout the entire pancreas (Figs. 1B and

C). The tumor was heterogeneously enhanced, and massive and irregularly marginated necrosis was seen within its mass. Ascites was seen, and the superior mesenteric vein was dilated and completely filled by thrombus.

The ascites was tapped, and the cytologic result of this was adenocarcinoma. Using an 18 gauge needle, we performed sono-guided gun biopsy of the tail portion of the pancreas; microscopic examination revealed a rather solid pattern, with small scattered glandular spaces (Fig. 1D). Tumor cell nuclei were round to oval, of intermediate to small size, and showed diffuse and heavy staining of nuclear chromatin. In the cytoplasm a moderate to small amount of pale staining was noted, and mitosis was present. The mass resembled a carcinoid tumor, but Grimelius and immunohistochemical staining for chromogranin A and neuron specific enolase were negative. The final pathologic diagnosis was microadenocarcinoma of the pancreas, and the patient received supportive treatment.

Discussion

On the basis of an evaluation of 15 cases, microadenocarcinoma of the pancreas was first described in 1975 by Cubilla et al. (1). Histologically, the neoplasm consisted of an intimate combination of two types of tissue: nests of small to intermediate-sized cells without glands, intervening stroma, or intercellular substance, and small glands. It had large foci

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Received August 14, 1998; Accepted September 23, 1998

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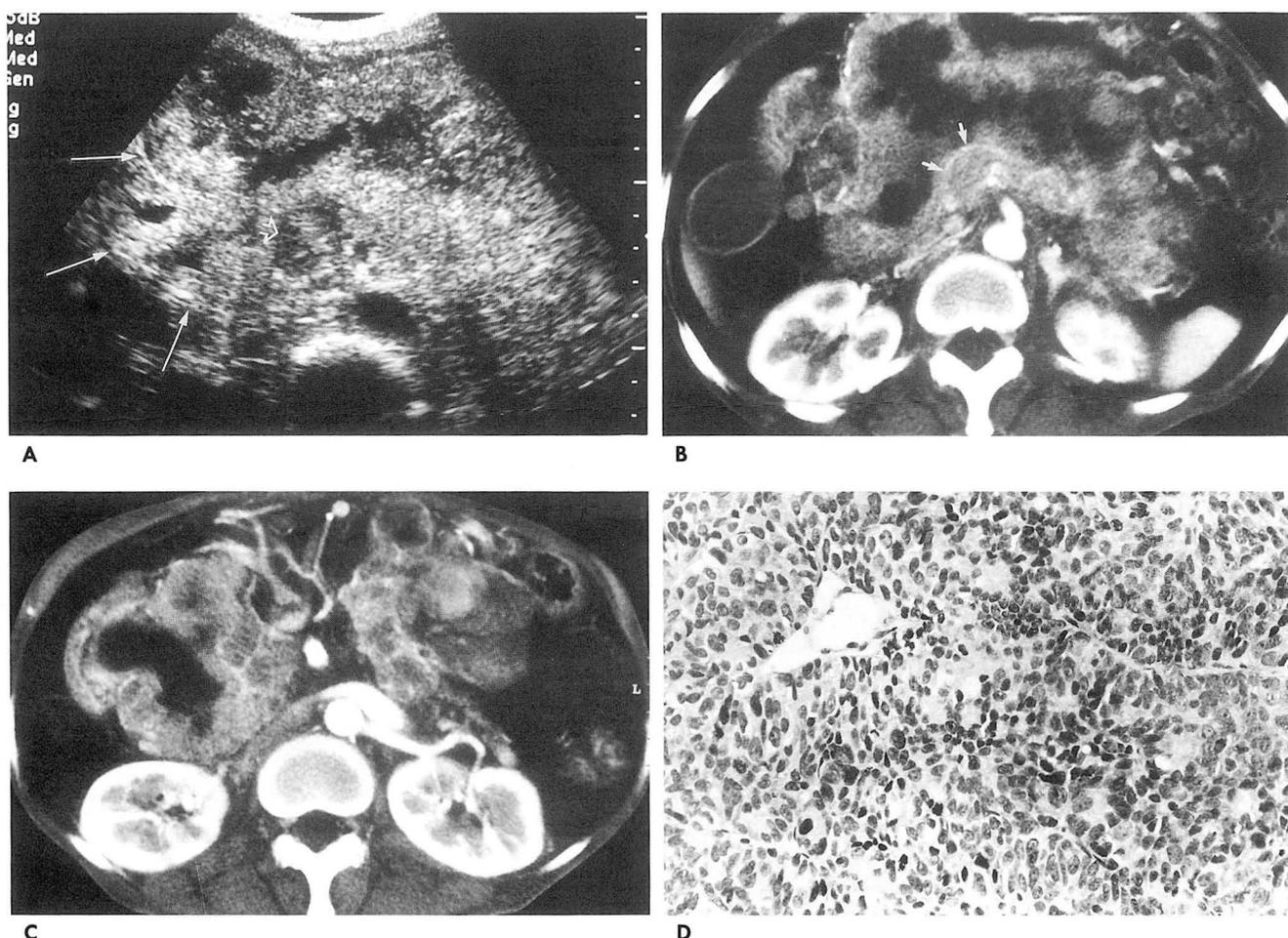


Fig. 1. 57-year-old woman with microadenocarcinoma of the pancreas.

A. Transverse sonogram of pancreas shows huge mass involving whole pancreas. The outer margin is lobulated (arrows), and the tumor contains sonolucent necrosis. Superior mesenteric vein is dilated with thrombus (open arrow).

B. Arterial-phase spiral CT scan shows bulky and lobulated tumor mass. The tumor is heterogeneously enhanced, and massive necrosis is seen within the tumor mass. Superior mesenteric vein is dilated and completely filled by thrombus (arrows). Ascites is seen.

C. Spiral CT scan 3.2 cm caudal to **B** shows lobulated masses at head and tail of the pancreas. The tumor is heterogeneously enhanced, and necrosis is seen within the tumor of pancreatic head portion.

D. Microscopic examination shows sheets of small oval or round cells interspersed with small glands. Mitoses are also seen (H & E stain, $\times 100$).

of necrosis.

Various studies showed that microadenocarcinoma accounted for 0.8–4.0% of exocrine pancreatic carcinoma(1, 3, 4). Tumors were relatively large (mean diameter, 14 cm) with a less desmoplastic response than duct cell adenocarcinoma(2, 5, 6). They were composed of rosette-like glands smaller than those of duct cell carcinoma, and with solid cellular regions separated by fine fibrous septa(2, 3). Mucin was commonly seen in the cell cytoplasm(5), and there was less fibrosis and more prominent areas of necrosis than in duct carcinoma(5). Histologically, this tumor resembled a carcinoid tumor(1, 5), though its prognosis was unclear. Friedman et al. (2) stated that it tended to oc-

cur in younger age groups, and that the prognosis was better than that for duct cell adenocarcinoma. In the series of Lonardo et al. (7) and Cubilla et al. (5), however, the prognosis was extremely poor, with a median survival period of two months.

Friedman (6) reported one case of pancreatic microadenocarcinoma in which CT demonstrated a large enhanced mass in the body with a few small low-density areas that did not invade the retroperitoneum. Angiography showed a hypervascular mass without major vessel encasement. In our case, spiral CT scanning showed a bulky and heterogeneously enhanced tumor mass extending throughout the entire pancreas and with massive

internal necrosis.

With regard to the existence of microadenocarcinoma of the pancreas, there has been some debate(1, 7, 8). It was characterized by Cubilla et al. as a variant of duct adenocarcinoma(1), but Kloepfel suggested that because of its resemblance to a pancreatic endocrine tumor, with its glandular pattern and a few neurosecretory granules, seen on electron microscopy (8), it was an endocrine rather than exocrine tumor(8). Using immunohistochemistry, Lonardo et al. recently reevaluated 12 cases in their original series and found that most could be reclassified as other types of pancreatic carcinoma. They concluded that the term 'microadenocarcinoma' should be dropped from the classification scheme for pancreatic neoplasms.

In our case, however, the images differed from the usual patterns of duct cell adenocarcinoma. The tumor was bulky and involved the whole pancreas, and sonography and CT revealed massive internal necrosis. The pathologic specimen obtained by gun biopsy showed small tumor cells resembling those of a carcinoid tumor, but the stains for neuroendocrine markers were negative. This tumor was therefore different from duct cell adenocarcinoma and endocrine tumor.

We concluded that our case was a microadenocarcinoma of the pancreas.

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췌장의 미세선암: 초음파 및 전산화단층촬영 소견¹

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췌장에서 발생한 미세선암은 매우 드문 질환으로 알려져 있다. 저자들은 췌장에 생긴 미세선암을 경험하였기에 보고한다.

췌장의 미세선암은 초음파검사상 매우 큰 종괴 내부에 많은 부위의 괴사를 형성하였고, CT검사상 불균일하게 조영증강되는 종괴였고 내부에 불규칙한 변연을 갖는 다량의 괴사를 함유하였다.

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이 제도는 우리나라 방사선의학의 발전과 학술진흥에 크게 기여하리라 믿으며 아래 내용을 참고하시어 많은 신청 있으시길 바랍니다.

- 아 래 -

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