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CT Appearance of Primary Pancreatic Lymphoma

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Abstract. Primary lymphoma of the pancreas is a rare neoplasm that may resemble pancreatic carcinoma on CT scans. Two cases with CT findings are presented.

Key words: Pancreas, primary lymphoma – Computed tomography, abdomen.

Primary pancreatic lymphoma is rare. In a recent review of 207 cases of pancreatic cancer, only 3 patients (1.5%) had lymphoma, each of a non-Hodgkin's type [1]. Computed tomography (CT) may show pancreatic lymphoma as a mass that mimics carcinoma of the pancreas [2–4]. Because lymphoma, unlike pancreatic carcinoma, may respond favorably to irradiation or chemotherapy, it is very important to differentiate these 2 neoplasms [2, 5]. We report 2 cases of primary pancreatic lymphoma with computed tomographic findings.

Case Reports

Case 1

A 68-year-old woman presented with a 4-week history of jaundice. Her total bilirubin level was 6.9 mg/100 ml; serum alkaline phosphatase level was 688 U/l; and serum aspartate aminotransferase (AST), 54 U/l. CT showed a homogeneous mass, 5 cm in diameter, in the head of the pancreas (Fig. 1 A). The pancreatic body and tail were normal in size and appearance. The intrahepatic and extrahepatic bile ducts, however, were dilated (Fig. 1 B). There was no encasement of the superior mesenteric artery and no evidence of lymphoma elsewhere. At surgery the tumor was found to be unresectable due to its fixation. A biopsy specimen revealed a mixed type of non-Hodgkin's lymphoma. The patient underwent a palliative choledochoduodenostomy and gastrojejunostomy. She refused postoperative radiation and chemotherapy and died 6 months later.

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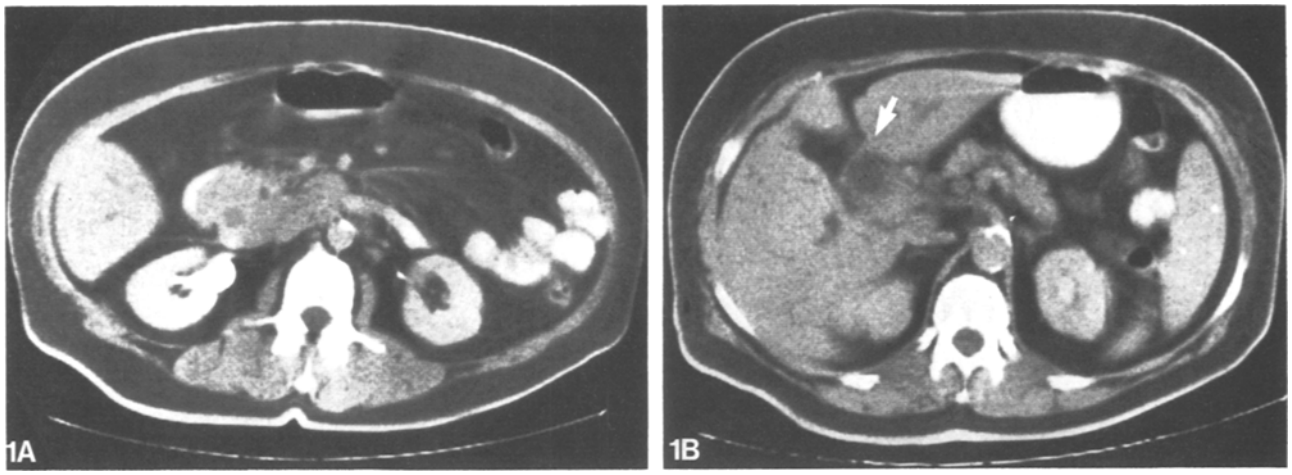
Case 2

A 78-year-old man presented with a 4-week history of severe, generalized abdominal pain and weight loss. Results of his liver function tests were normal. At CT, an 8 × 14 cm lobulated mass with a central low-density region of necrosis was seen in the head and body of the pancreas (Fig. 2). The proximal pancreatic duct was dilated and the tail was atrophic. There was no dilatation of the bile ducts, encasement of the superior mesenteric artery, or intraabdominal lymphadenopathy. The outside operative report confirmed the CT findings. A biopsy specimen showed a poorly differentiated lymphocytic lymphoma. Because the mass was believed to extend beyond the limits of resectability, the patient was treated with radiation and chemotherapy in his hometown, where he died about 1 year later.

Discussion

Involvement of the pancreas with lymphoma is uncommon. It is found in less than 1% of patients at staging laparotomy [6, 7]. In contrast to Hodgkin's disease, in which involvement outside the lymphatic system is unusual, non-Hodgkin's lymphomas are frequently characterized by extranodal disease. This is thought to be due to the haphazard spread of non-Hodgkin's lymphoma through direct extension, along lymphatic pathways, and by hematogenous dissemination [6, 7]. In 1 series, 2,194 of 8,767 (24%) non-Hodgkin's lymphomas were extranodal in origin [6]. The gastrointestinal tract, skin, and cardiopulmonary tissues are most frequently affected [7]. Pancreatic involvement is seldom an isolated finding; usually it is associated with lymphoma in other locations.

There are few published descriptions of the CT features of pancreatic lymphoma. Glazer et al. reported 2 cases in which CT showed a large, soft-tissue mass in the head of the pancreas with asso-



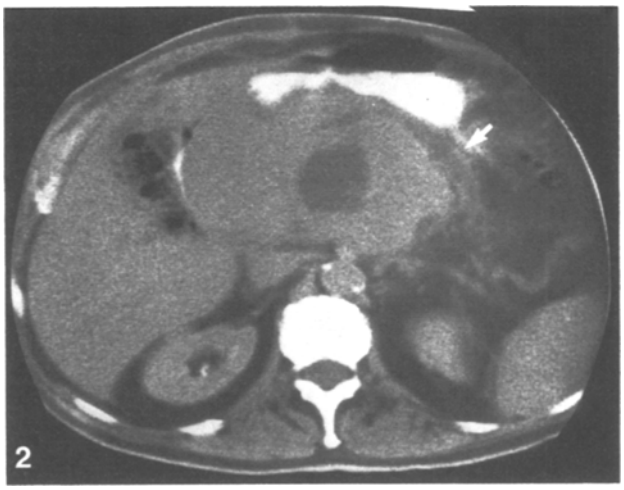


Fig. 1. *Case 1.* **A** 5-cm mass in the head of the pancreas, which is homogeneous except for dilated common bile duct (obstructed just below the level of this scan) and dilated branch of pancreatic duct to uncinate process. **B** Scan at higher level shows normal-appearing body and tail of pancreas. The common hepatic duct (*arrow*) and intrahepatic ducts are dilated

Fig. 2. *Case 2.* 8 × 14 cm lobulated mass in head of the pancreas with a central region of low density, presumably due to necrosis. The main pancreatic duct is dilated within the atrophic tail of pancreas (*arrow*)

ciated biliary obstruction [3]. These findings are similar to those of our 2 patients.

If patients with pancreatic lymphoma are to be offered the appropriate therapy, it is essential that this disease not be mistaken for pancreatic adenocarcinoma. On CT scan, the size of the mass may provide a clue that one is not dealing with the common type of pancreatic cancer. In a recent review of the CT findings in 100 cases of ordinary (ductal) adenocarcinoma of the pancreas, Ward et al. found no tumor that exceeded 10 cm in maximum diameter; 60% were between 4 and 6 cm [8]. Thus, by virtue of its size alone, the mass in our second patient was considered unlikely to be an adenocarcinoma. On the other hand, as was true in our first patient, there may be nothing about the CT features of pancreatic lymphoma to differentiate it from carcinoma.

Occasional diagnostic difficulties can be caused by peripancreatic lymphoma or by pancreatic involvement in generalized lymphoma [2, 3]. These conditions can usually be differentiated from pancreatic carcinoma on the basis of CT findings and clinical correlation. A mass of lymphomatous nodes lying adjacent to the pancreas can sometimes blend imperceptibly with the pancreas on CT images, but most such lesions can usually be recognized by their appearance as being of nodal rather than pancreatic origin. Often there will be additional lymphadenopathy beyond the vicinity of the pancreas. Likewise, when pancreatic involvement is only 1 component of widespread lymphoma, there will commonly be evidence of the disease elsewhere in the abdomen. Moreover, it is likely that the diagnosis of lymphoma in such a case will have been established before the pancreatic mass is discovered.

In this report we call attention to lymphoma as a possible cause of a pancreatic mass revealed by CT. Pancreatic lymphoma may or may not have CT features to differentiate it from carcinoma of the pancreas. Biopsy of the lesion is necessary to establish the precise diagnosis and thereby allow proper management.

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