

Chapter 11

CT AND MR IMAGING OF NEOPLASTIC SOLID LESIONS OF THE PANCREAS

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The most prominent neoplastic lesions of the pancreas include adenocarcinoma, solid pseudopapillary and neuroendocrine tumors, pancreatoblastoma, lymphoma and metastases to the pancreas. CT and MRI has been used for accurate diagnosis. Correct diagnosis is important for future treatment. Solid pancreatic lesions can be observed in patients with suspected pancreatic disease or can be detected incidentally during an unrelated clinical workup. In this chapter, imaging features of pancreatic neoplastic solid lesions using CT and MRI will be discussed.

PANCREATIC ADENOCARCINOMA

Pancreatic adenocarcinoma makes up 85-95% of all pancreatic cancers and is a major contributor to death associated with cancer. The majority of the patients are males between the ages of 60-80 years (1,2).

Lesions are usually in the pancreatic head; and also may occur in the body and tail, respectively. Diffuse involvement occurs in 15% of cases. Many pancreatic cancer cases are already in the advanced stages when diagnosed. Identification and staging are important for the determination of surgery benefit in unresectable disease states. The criteria for resectability status of pancreatic adenocarcinoma are reported in Intergroup, NCCN 2016 and JPS classification 7th edition with some differences (3-6).

Dual-phase imaging is done in pancreatic (at 40 to 50 seconds) and portal venous phases (at 65-70 seconds) of contrast enhancement to evaluate the presence of pancreatic adenocarcinoma (7,8). The majority of the tumors found are hypodense and are on average 2-3 cm in size. Portal phase imaging is ideal for liver metastasis identification and for vein assessment. Some of the lesions may be isodense to the pancreas on CT scans (9). If the primary mass cannot be found using CT, other imaging features including pancreatic or common bile duct ob-

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poor definition, similar to features of acute pancreatitis. The diffuse form has low T1- and T2-weighted signal intensity on MRI with homogeneous contrast enhancement.

METASTASES TO THE PANCREAS

Pancreatic metastasis makes up approximately 2 to 5 percent of malignant neoplasms (32-37). These tumors metastasize from renal cell carcinoma and lung carcinoma, and also may metastasize from breast, colorectal carcinoma and melanoma (32-38). Metastases can be solitary or multifocal and is normally well margined (34,38). The tumor mass may be hypodense or isodense at the non-enhanced CT. The metastasis has a low signal intensity on T1 weighted MR images, and high signal intensity on T2 weighted MR images. At contrast-enhanced CT and MRI, pancreatic metastases are similar to primary carcinoma. Small metastases show uniform enhancement but large lesions show ring enhancement (32,39,40).

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