The Incidental Small Cystic Mass of the pancreas
Valérie Vilgrain
Department of radiology, Hopital Beaujon, Paris 7 Diderot University, France

Cystic lesions of the pancreas are common and are being detected more often as sensitive abdominal imaging tests are being used for multiple indications. Many of these patients in whom a small cystic lesion is detected are asymptomatic. On the other hand, these lesions have various origin and different natural history. Some are purely benign and others are either premalignant or malignant. The goal of imaging is fourfold: first to assess the cystic pattern, second to differentiate lesions that communicate with pancreatic ducts from others, third to propose a specific diagnosis, and fourth to show findings suggesting malignancy in lesions that can undergo malignant transformation. Combination of demographics and imaging is necessary for appropriate patient triage and management, as some lesions require surgical intervention or follow-up imaging, whereas others require no further action.

CT and MR imaging are the most useful imaging modalities and MR imaging has been shown to be superior to CT for demonstrating a cystic pattern and for showing communication with pancreatic ducts. MR is also helpful for showing internal features such as fluid, hemorrhage, septa, and enhancing soft-tissue components. The most common cystic lesions of the pancreas are pseudocysts secondary to pancreatitis. Diagnosis is usually easy because findings of acute or chronic pancreatitis are frequently seen in association with pseudocysts. On MR imaging, pseudocysts may have a various appearance, homogeneous or heterogeneous. They are surrounded by a thick pseudocapsule that can enhance. Serous cystadenomas are benign cystic neoplasms of the pancreas that predominantly occur in old women. Diagnosis is easy on MR imaging when the lesions have honeycomblike appearance. This typical feature is related to the numerous small cysts that are separated by septa formation which become thicker in the central part. The diagnosis is more challenging when serous cuystadenomas are oligocystic or even macrocystic because they mimic mucinous cystadenomas. Findings which suggest the serous component are lobulated contours, thin and no-enhancing wall.

Mucinous cystadenomas are usually observed in middle-age women. They often develop in the body or tail of the pancreas. Apart the pseudocysts, they represent the most common macrocystic lesions. On MR imaging, these lesions are unilocular or mildly septate cystic lesion. The wall of the cyst is typically thick and enhances at delayed contrast-enhanced MR imaging. Mucinous cystadenomas have malignant potential. Malignant transformation is suggested when hemorrhage, calcifications, and mural nodules are seen.

Intraductal papillary mucinous neoplasms (IPMNs) are different from the other entities as they arise from the pancreatic ductal epithelium. The mucin production by the neoplastic cells results in cystic dilatation of the pancreatic ducts. IPMNs may be seen in the branch ducts only, the main pancreatic duct only or both. IPMNs range from noninvasive neoplasms with varying degrees of epithelial dysplasia to foci of carcinoma in situ and invasive adenocarcinoma. Malignant transformation is mainly observed when main pancreatic duct is involved especially when its diameter exceeds 10 mm. MR imaging shows the cystic lesions and their communication with pancreatic ducts. Increase in size over time and presence of enhancing mural nodules should raise the possibility of malignant transformation.

Other cystic lesions are less common such as lymphoepithelial cysts. Last, solid pancreatic tumors with cystic degeneration may mimic true cystic lesions.

In conclusion cystic lesions of the pancreas represent a wide range of benign and malignant pathologic entities. MR imaging is very helpful for diagnosis and patient management.