Early Detection of Pancreatic Cancer

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The change in the tumor size in the JPS Pancreatic Cancer Registry shows that TS2 tumors are steadily increasing in number, but even in the latest years TS1 (<2 cm) is diagnosed only in less than 10% of the patients. Early detection of pancreatic cancer is of paramount importance to improve prognosis of this disease. However, this is not an easy task as you all know.

Well known clues to the diagnosis of pancreatic cancer include dilation of the main pancreatic duct frequently accompanying hyperamylasemia, and diabetes mellitus. Another rather new clue to the diagnosis is intraductal papillary mucinous neoplasm of the pancreas. I would like to talk about our experience with these three diagnostic clues.

Main duct dilatation is an easy finding to see by US, CT, or MR. Chronic pancreatitis or localized fibrosis as well as pancreatic cancer may cause main duct stricture. Detailed analysis of radiologic signs visualized by balloon spot pancreatography revealed that severe stricture and marked upstream dilatation of the main duct were the only significant parameters to distinguish malignant stricture from benign stricture by multivariate analysis. These are not quite new and, therefore, we need a more reliable measure to diagnose malignant stricture.

Telomerase is an enzyme that elongates telomere portion of a DNA strand, making the cells immortal, and known to be rich in generative cells and cancer cells. We evaluated a variety of genetic markers and found that the sensitivity and specificity of the telomerase measurement in the pancreatic juice was higher than K-ras point mutation. Telomerase activity in the pancreatic juice is very promising to diagnose pancreatic cancer.2-6

The next clue to the diagnosis of pancreatic cancer is diabetes mellitus as widely recognized. We performed a prospective pancreatographic study in diabetic patients to evaluate the prevalence of pancreatic cancer. We selected patients meeting 6 criteria, including the onset of diabetes after the age of 55 without obesity, family history, or alcoholism, and increased glucose intolerance during follow-up of diabetes, etc. When these patients were studied by ERP, pancreatic cancer was found in 7.1%, a very high rate.7 The screening of diabetic patients is still ongoing, constantly yielding the prevalence of pancreatic cancer greater than 7 percent. Most of the pancreatic cancers found in 22 of 196 diabetic patients were more than 20 mm. However, the series included four 15-mm cancers, one 10-mm, and one 6-mm. We propose that every patient with recent-onset diabetes should undergo imaging studies of the pancreas, especially MRCP, to achieve the earlier diagnosis of pancreatic cancer.

The next new clue to the diagnosis of pancreatic cancer is intraductal papillary mucinous neoplasm (IPMN). IPMN is classified into two major types,
main duct type and branch duct type and is well known to show malignant transformation. In addition, even a benign branch duct IPMN may be associated with pancreatic cancer in a different site of the pancreas. In our series of 239 patients with IPMN, there were 22 patients with concomitant pancreatic cancer either synchronously or metachronously. All these patients had branch duct IPMN and the prevalence of concomitant pancreatic cancer was **10.8% in patients with branch duct IPMN**. We should always obtain cytology from a pancreas to be left after resection when we do pancreatectomy for IPMN to detect the possible presence of concomitant cancer. On the same line, CT or MR should be taken once every half a year in every patient on follow-up without resection or after resection to detect pancreatic cancer in a different site of the pancreas as early as possible.

In summary, recent onset diabetes and branch duct IPMN might be important clues to early diagnosis of pancreatic cancer.

References