Abstract.—Solid and papillary epithelial neoplasm of the pancreas (SPEN) is an encapsulated, slowly enlarging abdominal mass that generally shows no evidence of capsular invasion, regional lymph node involvement, or distal metastases. We present a 68 years old Hispanic male diagnosed with SPEN 5 years earlier that refused surgical excision. Presently he underwent a whole-body 18F-FDG PET/CT. Although tumor size, location and CT features did not seem to depict significant changes, FDG-PET was useful showing persistent tumoral activity. A brief review of the differential diagnosis as well as the usefulness of FDG-PET in SPEN (a slow growing pancreatic neoplasm) is presented.

KEY WORDS: fluorodeoxyglucose F18, pancreatic neoplasms, positron-emission tomography, tomography.

INTRODUCTION

Solid and papillary epithelial neoplasm of the pancreas (SPEN) is a clinico-pathological entity with unique and distinguishing pathological features. It has been reported in patients of all races at any age but occurs mainly in young women. SPEN develops in the tail of the pancreas and displays little aggressive behavior. Symptoms include abdominal discomfort and pain, with a gradually enlarging upper abdominal mass. We do not know previous cases in which a patient had refused the surgical excision at the time of diagnosis with a whole-body fluorine-18 deoxyglucose PET CT scan performed 5 years later. We herein report the PET/CT features of this uncommon pancreatic neoplasm.

CASE REPORT

Five years earlier, a 68 years old Hispanic male was diagnosed incidentally with a 15-centimeter long mass arising from the body of pancreas (sparing the head and tail) while undergoing an abdominal CT (figs. 1A-B). No regional lymph node involvement or distal metastases were reported. A pancreatic biopsy was scheduled and the histopathological examination reported SPEN. The patient refused surgery and any form of medication.

Presently the patient was referred to our hospital for an 18F-FDG PET/CT scan (PET/CT Biograph 16, Siemens Medical Solutions USA, Inc.; Malvern, PA; USA). PET scan was obtained from top head to proximal femur for 10 cm per bed position beginning 60 minutes after IV injection of 10 mCi (370 MBq) of 18F-FDG. A 3-phase multislice CT scan was performed (the arterial and venous phases were acquired...
20 sec and 60 sec after injection of contrast material only for the abdomino-pelvic region, oral contrast was not used only water).

The contrast-enhanced abdominal CT depicted a sharply defined, nonhomogeneous abdominal mass of uneven soft-tissue density. The enhancement were noted in the periphery, whereas areas of low attenuation were located centrally corresponding with central necrosis (figs. 2A-B). Manifestations of punctate calcifications, capsular invasion, encasing of vessels, regional lymph node involvement, or distal metastases were not depicted (figs. 2C-D). No significant changes in tumor size, location and CT features were found when compared the mass with the CT scan performed 5 years earlier (figs. 1A-B).

PET images depicted the mass in the left upper quadrant (figs. 1C-D). The fused PET/CT images showed increased FDG uptake with maximum SUV value of 16.5 in the periphery, reflecting areas of augmented metabolic activity that corresponded with those contrast-enhanced portions of the tumor observed in the abdominal CT (figs. 3A-F). The central portion of the mass show a maximum SUV value of 1.2 (figs. 3A-F). The patient refused again any surgical excision or medication, arguing he felt asymptomatic and he continues his follow up in the oncology unit.

DISCUSSION

SPEN has been defined as an encapsulated low-grade malignant tumor, that generally shows no evidence of capsular invasion, regional lymph node involvement, or distal metastases. Although our case did not present a septate pattern, multiple cystic components have been described.

Our first differential diagnosis was a pancreatic adenocarcinoma (age of the patient, absence of calcifications and cystic degeneration), however, it usually does not grow to the large size seen in this case.
The nonhyperfunctioning islet cell tumors have the female predominance observed in SPEN and may be large. However they are generally solid, appear cystic, contain calcification, demonstrate areas of internal hemorrhage, and develop liver metastasis.

Other differential diagnosis:

1. Microcystic adenomas, composed predominantly of microscopic cystic spaces and found in older women.

2. Mucinous cystic neoplasms contain larger cystic spaces and may look similar to the cystic SPEN. Fluid-debris levels with a hematocrit effect or MR images, suggesting hemorrhagic components, may be seen as well. The multilocularity and thin septations noted in these neoplasms, make the distinction, since they are not seen in SPEN.

3. Pancreaticoblastoma is an aggressive tumor often with cystic components owed to internal necrosis, but occurrence is in childhood with evidence of liver metastases at diagnosis.

4. Pancreatic pseudocysts may mimic SPEN, with peripheral calcifications secondary to internal hemorrhage. However, these patients have a history of pancreatitis.

5. Cystadenomas or cystadenocarcinomas may resemble papillary neoplasms.

The cross-sectional imaging features of SPEN include: Sonography, shows a large, diffusely echogenic or complex pancreatic mass with no evidence of through-transmission. CT, depicts a sharply defined, nonhomogeneous mass of uneven soft-tissue density undergoing central necrosis. Contrast F-FDG PET/CT evaluation at 5 years after diagnosis.
infusion produces peripheral but no central enhancement. Although ill-defined cystic components should be expected, a sharply outlined, septated appearance, central scarring, or calcification would be unusual. Retroperitoneal or liver metastases do not totally exclude the diagnosis but make it less tenable on statistical grounds. Angiography shows displaced and stretched vessels but not encased. Central necrosis will often be apparent. Surgical excision has led to an excellent prognosis, with no local recurrence or metastatic disease for the most part.

Imaging findings in SPEN are not specific but are highly suggestive: a large well-encapsulated mass that demonstrates central regions of hemorrhagic and/or cystic degeneration, with a long-standing evolution may suggest the diagnosis.

We do not have an explanation to the high SUV values observed (16.2) in the periphery of the mass, but it is possible a proof of the slow growing pattern of the tumor summed up with chronic active inflammation. The high SUV uptake could be related with an aggressive transformation of the tumor requiring follow up with PET/CT. Our experience is limited and preliminary; PET/CT usefulness is not limited only to detection of primary neoplasm, but also in the staging and guiding of fine-needle aspiration biopsy (avoiding zones of necrosis), and in the response to treatment evaluation. PET/CT lets the detection early of hemoperitoneum secondary to tumor rupture, liver metastasis and local intraperitoneal recurrence. Clinicians may apply PET/CT in patients with apparently no changes in imaging features observed in conventional diagnostic tools such as US and CT.

REFERENCES