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Case 1

A 72-year-old Thai male presented for an annual medical checkup. CT scan of upper abdomen revealed an 8 mm. hypoechoic nodule at the body of pancreas. MRI of upper abdomen showed numerous lobulated cystic lesions scattering along the pancreas with connection to dilated main pancreatic duct (Figure 1). Radialarray EUS was performed. It demonstrated anechoic lesion measuring 19×13 mm. with thin internal septation without mural nodule at the head of pancreas (Figure 2) and another 21 mm. cystic lesion at the tail of pancreas (Figure 3). The main pancreatic duct was diffusely dilated measuring about 5 mm. at the body of pancreas (Figure 4).

Diagnosis

Branch duct type intraductal papillary mucinous neoplasm (BD-IPMN)

Discussion

IPMNs are divided into 3 types including main duct type (MD-IPMN), branch duct type and mixed type[1]. EUS provides the sensitivity and the specificity at 86% and 99% respectively for the diagnosis of IPMN[2]. MD-IPMN is demonstrated as diffusely or segmentally dilated main pancreatic duct (MPD) more than 5 mm. in diameter without obstruction[1]. BD-IPMN is shown as a well-defined pancreatic cystic lesion communicating with the MPD[1]. Unfortunately, connection between pancreatic duct and cysts cannot be demonstrated in all. Mural nodule, solid component and MPD larger than 10 mm. are features that suggestive for malignant transformation of IPMN[3].

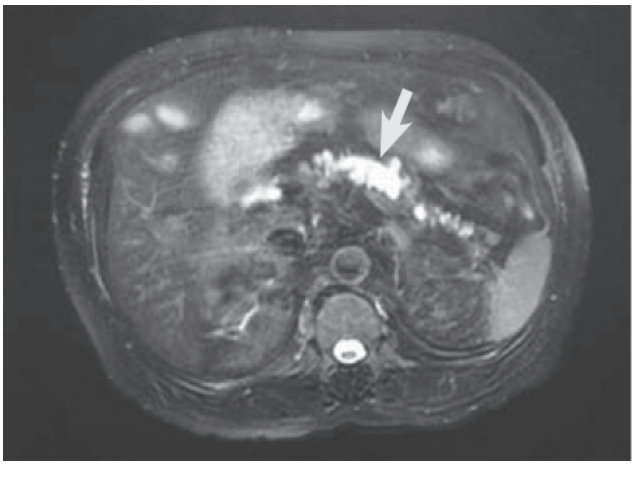

Figure 1. MRI (T2) showed numerous lobulated cystic lesions scattered along the pancreas (arrow). MRI (T2) showed numerous lobulated cystic lesions scattered along the pancreas (arrow).

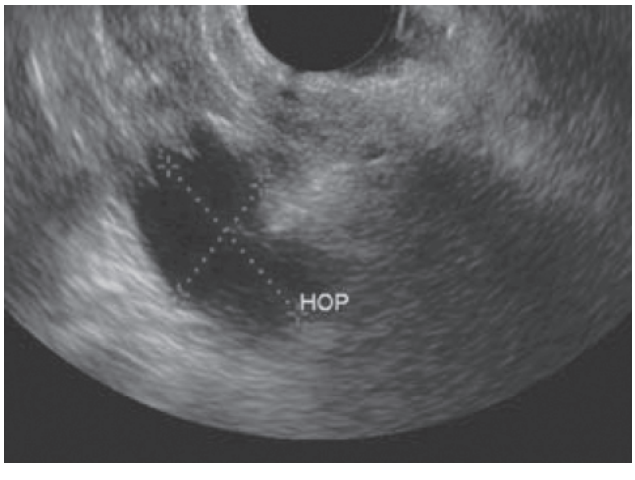

Figure 2. EUS showed anechoic lesion with internal septation at head of the pancreas.

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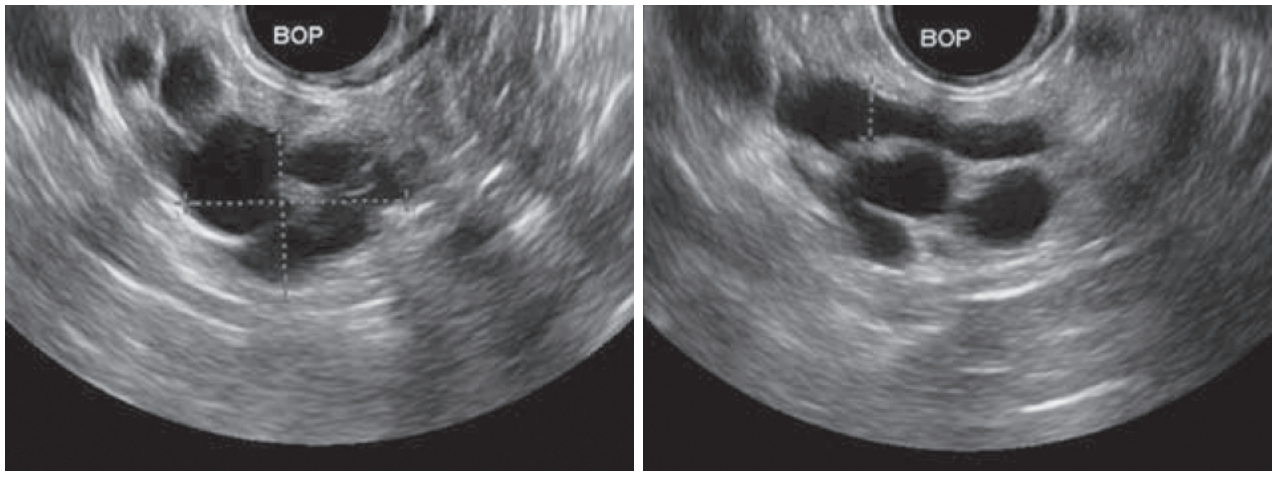

Figure 3 and 4. EUS showed anechoic lesion with internal septation at the tail of pancreas with connection to dilated main pancreastic duct.

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CASE 2

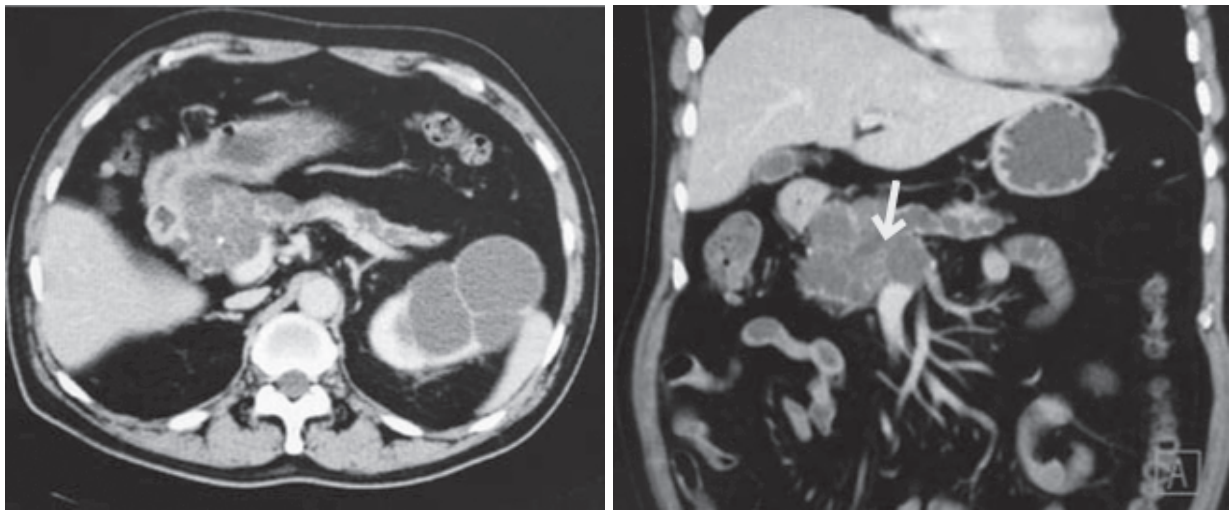
A 57-years-old male presented with an incidental pancreatic cyst. He had no history of abdominal pain, nausea/vomiting, weight loss, steatorrhea or jaundice. Computed tomography (CT) of abdomen showed a lobulated multiseptated, mixed hypo- and hyperdense solid cystic lesion measuring 6×5 cm. in diameter with central calcification involving the head and neck of pancreas causing dilation (5 mm.) of the upstream main pancreatic duct (Figures 1-2). The pancreatic parenchyma appeared atrophic without calcification. EUS revealed a multi-loculated cysts with honeycomb appearance located at the head to neck of pancreas. It measured 55×68 mm. in maximal diameter. It has both micro and macrocystic appearance and was not communicated with the main pancreatic duct (Figures 3-5). Fluid was aspirated for 1 mL and tested for a String test which resulted as negative. Cystic fluid CEA and amylase levels were reported as low.

Diagnosis

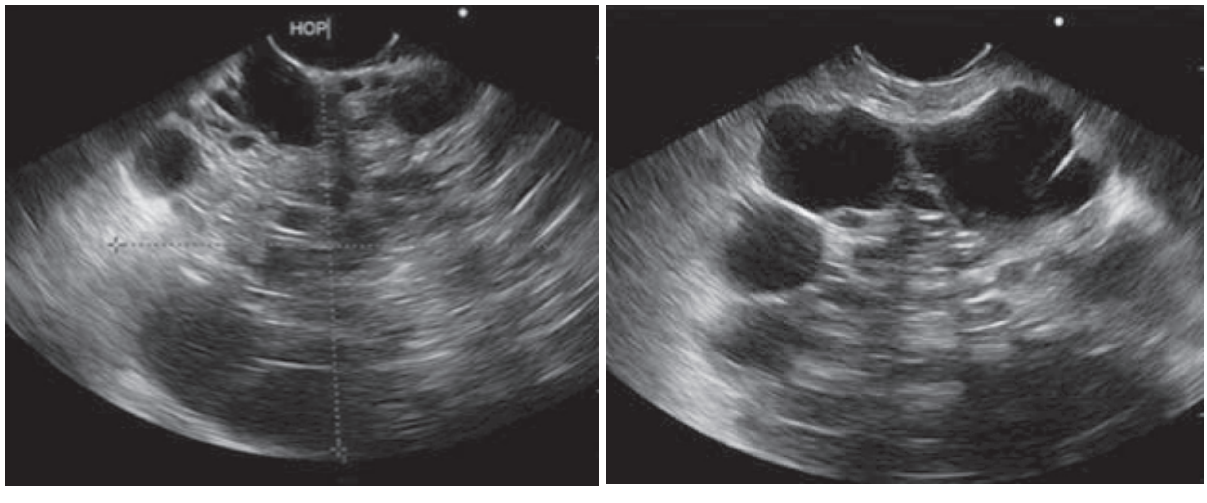
Pancreatic serous cystadenoma

Discussion

Pancreatic serous cystadenoma (SCA) is the most common cystic tumor of the pancreas and it is mostly benign in nature. SCA originates from centro-acinar cells which are lined by a simple, glycogen-rich cuboidal epithelium. It is commonly found in female at age 7th decades[1]. It comprises of multiple small fluid-filled cysts, and can arise in any region of the pancreas. Most patients are asymptomatic but may have non-specific symptoms including abdominal pain, nausea/vomiting and rarely jaundice or weight loss[1]. It is associated with Von Hippel-Lindau syndrome in certain cases[2]. SCA manifests typically as a microcystic or honeycombed lesion, however, 20% of them have macrocystic apperance[2,5]. The highly suggestive fea-



Figures 1-2. CT showed lobulated septated, solid-cystic mass measuring 6×7 cm. with central calcification at the head and neck of pancreas compressing the main pancreatic duct and causing upstream pancreatic duct dilatation. Pancreatic parenchyma was atrophic without calcification.



Figures 3-4. EUS revealed a multi-loculated pancreatic cysts measuring 55×68 mm. in diameter with honeycomb appearance located from the head through the neck of pancreas.

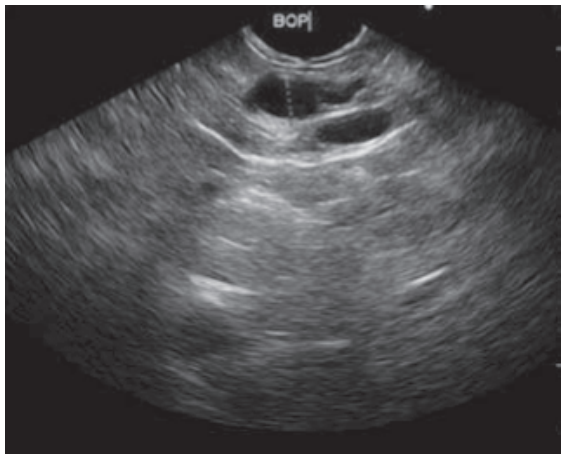
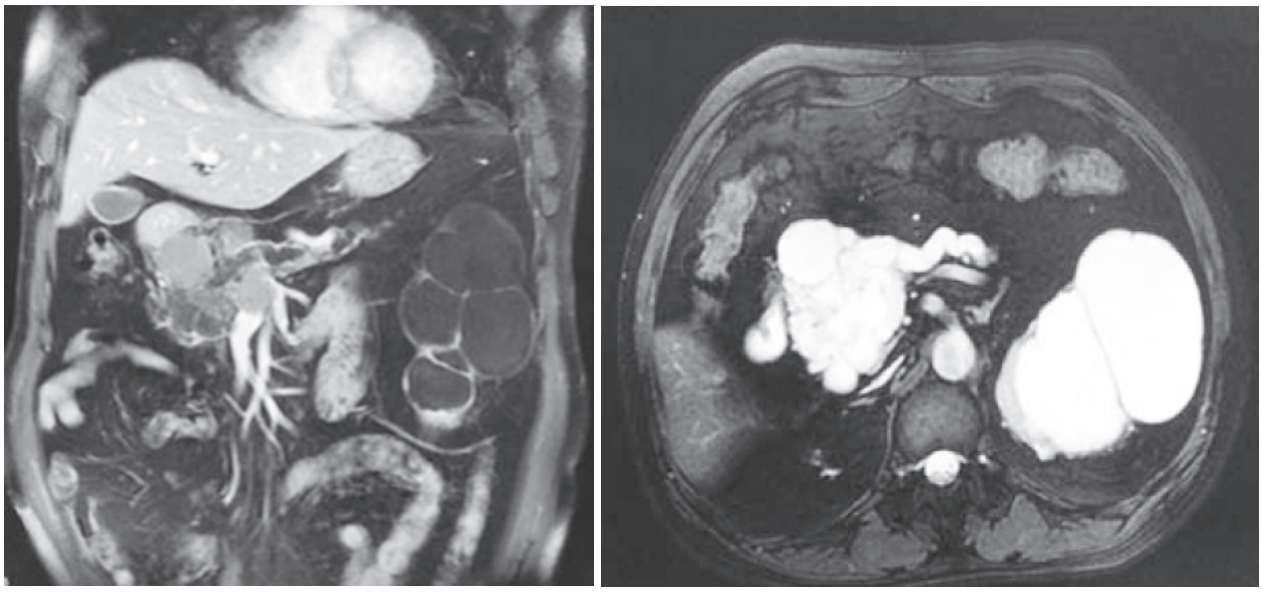


Figure 5. EUS showed a dilated main pancreatic duct measuring 6 mm. in diameter.

ture on CT scan or MRI of SCA is a focal, well- dermarcated lesion with central scar or "sunburst" calcification, which found in only 20% of SCA[2]. EUS typically reveals a lobular multimacro and/or micro-cystic lesion in the pancreas with posterior acoustic enhancement reminiscent of a honeycomb without connecting to the main pancreatic duct. The cystic fluid appeared thin, clear, non-mucinous and/or bloody appearance. Cystic fluid analysis of CEA level <4 ng/mL has 100% and 93% in the sensitivity and the specificity, respectively[2-4].



Figures 6-7. T1-weighted magnetic resonance (MR) with gadolinium showed an enhancement of the thin septations that radiate from a central scar. T2-weighted MR showed a homogeneously hyperintensity lesion and dilation of the proximal part of pancreatic duct.

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CASE 3

A 61-year-old male presented with acute confusion for 1 day. He had had a recent history of transient psychomotor retardation a month ago. Blood test showed a low level of sugar, high insulin level, and normal C-peptide concentration. CT scan of upper abdomen revealed a 1.0×0.6 cm. arterial enhancing lesion at the pancreatic body (Figure 1). EUS revealed a well-defined homogenous slightly hypoechogenic mass measuring 8×7 mm. in diameter at the neck of pancreas and not compressing the main pancreatic duct (Figure 2). Patient subsequently underwent a successful surgical enucleation. Surgical pathology was consistent with pancreatic neuroendocrine tumor (PNETs); insulinoma.

Diagnosis

Insulinoma of the pancreas

Discussion

Previously, gastroenteropancreatic neuroendocrine tumors (GEP-NETs) were rare with an incidence of 0.5% of all neoplasms[1]. However, the incidence has been increased because of the advancement in radiological imaging. PNETs are clinically classified as either non-functioning or functioning PNETs. The functioning PNETs are usually small due to their early pre-

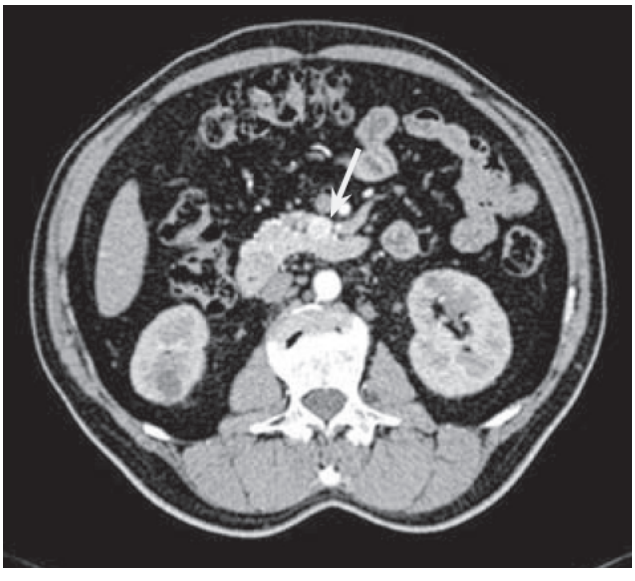

Figure 1. A 1×0.6 cm. arterial enhancing lesion at the pancreatic body detected by CT scan.

sentation from an over production of hormone (s). EUS is very helpful to locate this small tumor. Potential pitfalls of EUS for the identification of insulinoma are its isoechoic appearance, small size, multiplicity, and pedunculated lesions at the pancreatic tail[2,3].

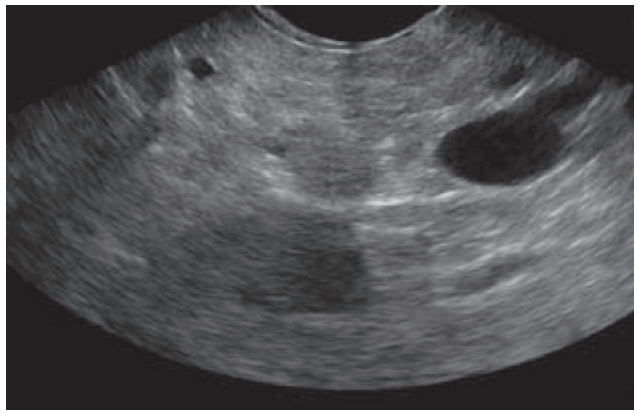

Figure 2. A well-defined homogenous hypoechoic mass measuring 8×7 mm. was identified at the neck of pancreas.

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