

Solid Pseudopapillary Tumor of Pancreas (SPT): A Case Report with Imaging Features

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ABSTRACT

The solid pseudopapillary tumor of pancreas (SPT) is rare pancreatic tumor. There is a predilection for Asian and African-American women during the 2nd and 3rd decades of life. Clinical symptoms are usually slow-growing palpable mass, abdominal distension or incidentally discovered. Interestingly, diagnosis can be done with confidence by the classic imaging findings. In this report, we would like to present one case of young Thai female patient with the solid-cystic pancreatic mass demonstrating a well defined margin, internal hemorrhage and typical enhancing pattern.

Keywords: CT, pancreatic mass, pancreatic tumor, solid pseudopapillary tumor of pancreas

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INTRODUCTION

The solid pseudopapillary tumor of pancreas (SPT) is a rare benign tumor with low malignant potential, affecting mostly in young female patients. The tumor was first described by Franz¹ in 1959 as a “papillary tumor of the pancreas, benign or malignant.” In 1996, the World Health Organization renamed it as solid pseudopapillary tumor for the international histologic classification of tumor of the exocrine pancreas.^{2,3} We report one case of SPT with typical demographic and imaging patterns.

CASE REPORT

A 19 year-old Thai female had nausea / vomiting, radiating pain to the back and palpable abdominal mass at RUQ for 10 years. She complained about the slow progressive enlargement of this mass, although she never had underlying disease or significant weight loss. The physical examination revealed a non-tender fixed right upper

quadrant (RUQ) mass about 8 x 10 cms. Laboratory tests results showed slight increased level of CA 19-9 which was 57.09 (normal 0-39). The rest of laboratory tests and tumor markers including Carcinoembryogenic Antigen (CEA), alpha-fetoprotein (AFP), CA-125 and Beta HCG) were unremarkable. Abdominal ultrasonography revealed a large well circumscribed solid-cystic mass in her RUQ. An abdominal CT scan was later requested and performed following the pancreatic tumor protocol of Siriraj Hospital (this protocol includes non contrast, pancreatic arterial (30 sec) and portovenous (80 sec) phases). CT showed a huge well-defined solid-cystic mass in her pancreatic head with heterogenous arterial enhancement and progressive enhancement of the cystic wall and the solid portion. Non contrast CT revealed focal calcification at the most inferior portion and area of high density (HU=54) within the mass, representing internal hemorrhage. This large mass caused widening C-loops and displaced the 2nd part of her duodenum laterally. Pressure effect to superior mesenteric vein (SMV) was also observed, but there was no evidence of vascular invasion. No adjacent organ invasion was demonstrated. The patient underwent ultrasound guided core needle biopsy and elective surgery 2 months later (Pylorus-preserving pancreaticoduodenectomy with Roux-Y pancreato-jejunostomy, hepaticojejunostomy and duodenojejunostomy). The pathological result revealed a solid pseudopapillary neoplasm of pancreas about 14x9x8 cm.. No metastatic regional lymph node was found.

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Fig 1. Ultrasonographic image at epigastrium revealed a large well circumscribed mixed solid-cystic mass in RUQ.

DISCUSSION

The solid pseudopapillary tumor (SPT) is rare benign pancreatic tumor with low malignant potential and favorable prognosis which commonly occurs in young female patients. The patient demographics seem to have predilection for Asian and African-American women during their 2nd and 3rd decades of life. According to the slow growing nature of the tumor, patients usually present with palpable mass or abdominal discomfort from obstructive symptoms or incidentally discover the pancreatic mass from imaging study for other reasons. This was the same as the presentation in our patient, she complained about the slow growing nature of this mass and the symptoms including nausea/ vomiting and radiating pain to the back which likely resulted from the tumor compressive symptoms to the upper GI tract. No association between the serum tumor markers and SPT has been documented.^{2,4,5} However, our patient also had a slight elevation of CA19-9 level, similar to the reported case by Ulasan S, et al.⁴ This elevation of CA19-9 was believed to be helpful on follow-up.

We demonstrated this huge well-defined solid-cystic mass arising from her pancreatic head which is not an infrequent location for SPT.^{4,6} We also found the typical imaging characteristics of the SPT on both ultrasound and CT studies. Ultrasound showed the typical well-encapsulated cystic and solid mass which corresponded

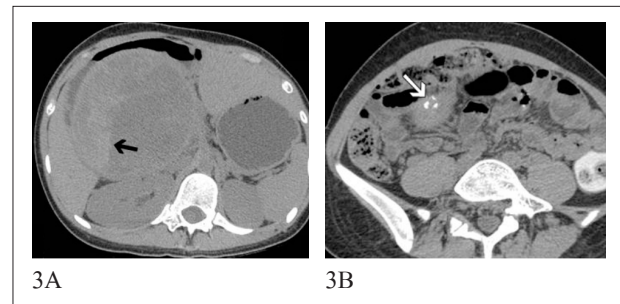


Fig 3A and 3B. Non contrast CT image showed focal calcification at the inferior portion of the mass (white arrow) and intralesional high density (measured about 54 HU) which could represent internal hemorrhage (black arrow).

to the findings of the pathologically proven cases of SPT described by Lee, et al.⁶ Also as commented by Lee, some masses may be solid-looking or have internal septa or calcification. On non contrast CT scan, the well-defined solid-cystic pancreatic head mass with internal hemorrhage and focal calcification was detected which was recognized as the characteristic findings of SPT described by Choi et al.³ Therefore, we suspected this rare tumor at the first glance. The differential diagnosis included cystic neuroendocrine tumor, cystic pancreatic tumor, pancreatoblastoma or exophytic hepatocellular carcinoma. About the enhancement pattern, this pancreatic mass showed heterogenous arterial enhancement and progressive filled on its portovenous phase. Choi et al, also described this similar pattern of enhancement on Gadolinium-enhanced dynamic MRI.^{3,7} As a result, this young female patient with the solid-cystic pancreatic mass with a well defined margin, internal hemorrhage and typical enhancing pattern was diagnosed with SPT with confidence by the typical imaging findings.

SPT of the pancreas is usually curative with surgical resection. However, recurrence after radical resection of a SPT can occur in 10%-15% of cases and the liver is the most common site, reported by Sperti et al, the tumor recurred in the liver on average 32 months after a R-0 resection.⁸ Thus, regular follow-up is still recommended

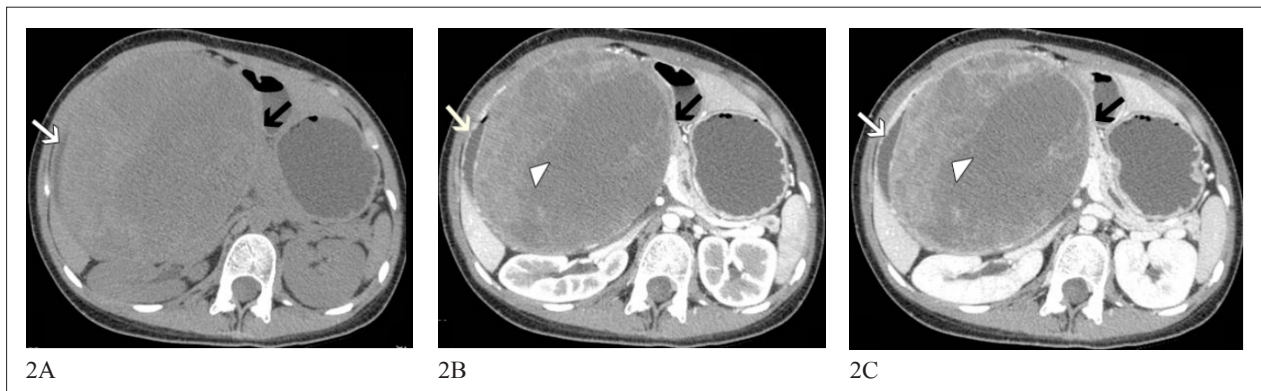


Fig 2. CT images at the same level as Figure 1. (A) non contrast (B) pancreatic and (C) portovenous phases showed a huge well-defined solid-cystic mass arising from head of pancreas (black arrow in A, B, C) The cystic wall and the solid portion revealed heterogenous arterial and progressive enhancement. (white arrowhead in B, C) Note the mass causing widening C-loops and displacing 2nd part of duodenum laterally (white arrow in A, B, C).

for this patient even with the curative resection. Also suggest by Sperti et al, particular attention should be paid to the patients with tumors larger than 5 cm in diameter and/or with histology suggesting a possible malignant behavior.⁸

CONCLUSION

Even though the SPT is the rare tumor, diagnosis of the SPT can be done with confidence in a young female patient with typical imaging findings.

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