

LETTER

Solid Serous Microcystic Tumor of the Pancreas

Riccardo Casadei¹, Marielda D'Ambra¹, Raffaele Pezzilli², Claudio Ricci¹, Lucia Calculli³, Stefania Lega⁴, Nicola Antonacci¹, Francesco Monari¹, Francesco Minni¹

Departments of ¹Surgery, ²Digestive Diseases and Internal Medicine, ³Radiology, and ⁴Pathology, University of Bologna, S. Orsola-Malpighi Hospital. Bologna, Italy

Dear Sir:

it is known that pancreatic serous cystic tumors are uncommon pancreatic tumors. Grossly, they are more frequently microcystic or oligocystic [1]. The solid form is rarely described in literature. To our knowledge, only four cases of solid serous neoplasms have been described [2, 3, 4, 5] (Table 1). Herein, we present the fifth case of solid serous cystic neoplasm of the pancreas. She was a 59-year-old woman who was admitted at our institute for abdominal pain in the upper right quadrant. Her past medical history was not significant. Laboratory tests, including pancreatic tumor markers, were normal (CEA: 1.40 ng/mL, reference range: 0-7 ng/mL; CA 19-9: less than 6 U/mL reference range: 0-37 U/L). Abdominal ultrasonography showed a well circumscribed hypoechoic mass, 4 cm in diameter, in the tail of the pancreas. A CT scan confirmed the presence of a well defined solid mass in the tail of the pancreas, contiguous with the

splenic vein. The mass showed marked contrast-enhancement in the early phase, it was disomogeneous with an hyperdense capsule (Figure 1). Preoperatively, diagnosis of solid mass of the tail of the pancreas was made. The differential diagnosis included pancreatic neuroendocrine tumor, solid pseudopapillary tumor and metastatic carcinoma. The diagnosis of ductal adenocarcinoma was not considered because this tumor does not show contrast-enhancement in the early phase and it does not present tumor capsule. The patient underwent surgery and a distal pancreatectomy with splenectomy was performed. Postoperative course was uneventful and the patient was discharged on postoperative day 12.

On gross examination the resection specimen showed a solid, well circumscribed, encapsulate mass, 4 cm in diameter, of the pancreatic tail. The cut surface of the tumor contained a thick fibrous band without necrosis or hemorrhage (Figure 2). The

Table 1. Literature review of solid serous mycrocistic adenoma of the pancreas (the present case is also shown).

Author/Year	Age	Sex	Symptoms	Location	Enhancement	Size	Operation
Perez-Ordenez, 1996 [5]	70 years	Female	Abdominal pain	Tail	Not mentioned	4 cm	LP and splenectomy
Kosmahl, 2004 [6]	50 years	Male	None	Head	Not mentioned	2.5 cm	PPPD
Reese, 2006 [7]	69 years	Male	None	Head/body	Yes	4 cm	PPPD
Stern, 2007 [8]	62 years	Male	Abdominal pain	Head/body	Not mentioned	4 cm	LP and splenectomy
Present case	59 years	Female	Abdominal pain	Body	Not mentioned	4 cm	LP and splenectomy

LP: left pancreatectomy

PPPD: pylorus preserving pancreaticoduodenectomy

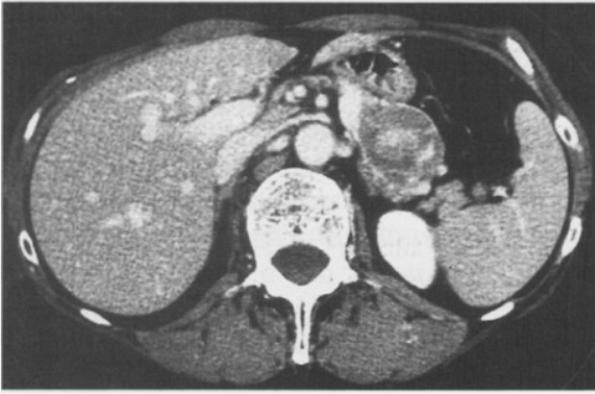


Figure 1. Computed tomography. Presence of a well-defined solid mass in the tail of the pancreas, contiguous with the splenic vein. The mass shows marked contrast-enhancement in the early phase and it is disomogeneous with an hyperdense capsule.

surrounding pancreatic parenchyma was normal and surgical margins were negative. Histologically, on hematoxylin-eosin stain, the architecture of the mass was solid with cell arranged in nest and small acini, separated by thick, hypocellular fibrous bands. Small cystic areas were seen microscopically (Figure 3). The tumor was formed by a homogeneous population of polygonal cell with central, small round nuclei and well defined cell borders. These cells also contained abundant clear cytoplasm which was PAS-positive and diastase-sensitive suggesting the presence of glycogen. No pleomorphism or mitotic activity was identified. Immunohistochemically the cells showed positive staining for cytokeratin. Histochemical and immunohistochemical features allowed diagnosis of solid serous microcystic adenoma of the pancreas.

Six months after surgery the patient is alive, well and disease free.

Solid serous microcystic adenoma of the pancreas is a very rare tumor. Usually solid tumors of the pancreas are ductal adenocarcinoma or neuroendocrine tumors. Thus the main problem of a solid serous microcystic adenoma of the pancreas is the diagnosis and, subsequently, the proper treatment.

Regarding the diagnosis, preoperatively the tumor appears as a solid mass: its morphological characteristics (well circumscribed, encapsulate mass, 4 cm in diameter without vascular involvement) are

different from the radiological findings of the ductal adenocarcinoma but are similar to neuroendocrine tumor, solid pseudopapillary tumor and metastatic carcinoma. In particular abdominal CT scan shows some similar important features among these tumors as well as the marked contrast-enhancement in the early phase and the presence of an hyperdense capsule. Pathological diagnosis is very difficult, too. The solid serous microcystic adenoma of the pancreas presents some pathological characteristics that have to be recognized. On hematoxylin-eosin stain, it is very important to recognize the architecture of the mass, in particular the presence of solid areas and small cystic areas, and the characteristics of the cells that are polygonal with central, small round nuclei, clear cytoplasm glycogen-rich. Immunohistochemical examination shows positive staining for cytokeratin.

Surgery is the treatment of choice in every patient with a solid pancreatic tumor, in the solid serous microcystic adenoma of the pancreas, too. First because is not possible to

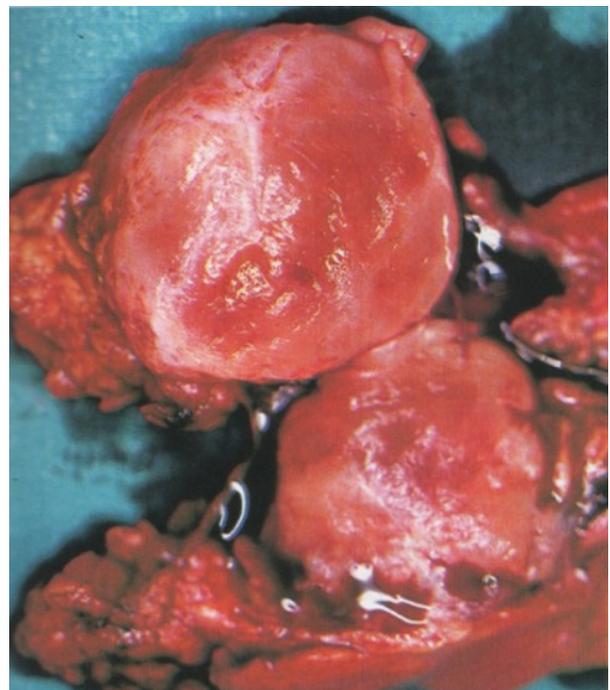


Figure 2. Gross examination. A solid, well circumscribed, encapsulate mass is present in the pancreatic tail (4 cm in diameter). The cut surface of the tumor contains a thick fibrous band without necrosis or hemorrhage. The surrounding pancreatic parenchyma appears normal.

distinguish surely between a solid mass with benign or borderline or low grade malignant behavior. Second, as in our case, because symptoms are often present. The type of surgical approach have to be more conservative than in malignant tumor: lymphadenectomy is not necessary and a laparoscopic approach could be performed. In the 4 cases reported from the literature, all were treated with pancreatic resections (two pancreaticoduodenectomy and two distal pancreatectomies with splenectomy) as well as in our case.

In conclusion the case described is the fifth case of solid serous microcystic adenoma of the pancreas: radiological and pathological findings are reported to well know this type of cystic tumor and to allow a proper surgical treatment.

Received June 10th, 2008 - Accepted June 11th, 2008

Keywords Cystadenoma, Serous; Pancreas; Pancreatic Neoplasms

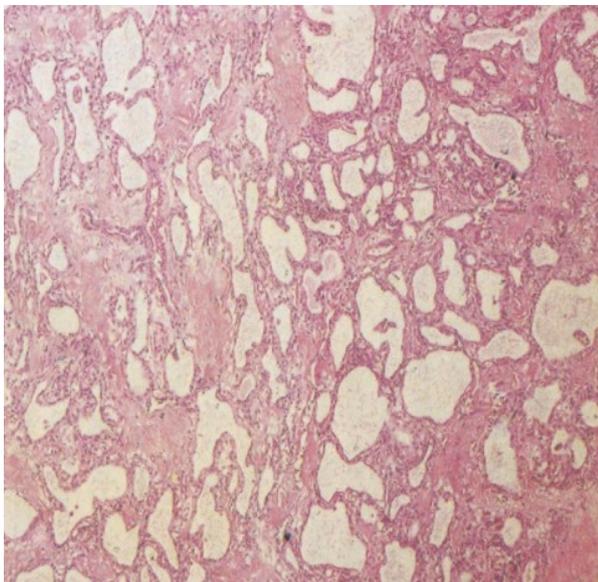


Figure 3. Microscopic examination. The architecture of the mass is solid with cells arranged in small acini, separated by thick, hypocellular fibrous band. Small cystic areas are present. The tumor cells have polygonal or cuboidal shape with clear cytoplasm and well-defined cell margins. The nuclei are small, uniform and centrally located. No pleomorphism or mitotic activity are detected. (Hematoxylin-eosin stain, x20)

Conflict of interest The authors have no potential conflicts of interest

Correspondence

Riccardo Casadei
Department of General Surgery
S.Orsola-Malpighi Hospital
University of Bologna
Via Massarenti, 9
40138 Bologna
Italy
Phone: +39-051.636.4728
Fax: +39-051.341.483
E-mail: riccardo.casadei@aosp.bo.it

References]

1. Casadei R, Santini D, Greco V M, Piana S, Okoro HU, Conti A, Marrano D. Macrocystic serous cystadenoma of the pancreas. Diagnostic, therapeutic and pathological considerations of three cases. *Ital J Gastroenterol Hepatol* 1997; 29:54-7. [PMID 9265580]
2. Galanis C, Zamani A, Cameron JL, Campbell KA, Lillemoe KD, Caparrelli D, et al. Resected serous cystic neoplasms of the pancreas: a review of 158 patients with recommendations for treatment. *J Gastrointest Surg* 2007; 11:820-6. [PMID 17440789]
3. Goh BK, Tan YM, Yap WM, Cheow PC, Chow PK, Chung YF, et al. Pancreatic serous oligocystic adenomas: clinicopathologic features and a comparison with serous microcystic adenomas and mucinous cystic neoplasms. *World J Surg* 2006; 30:1553-9. [PMID 16773248]
4. Hashimoto M, Watanabe G, Matsuda M, Mori M. Serous cystic neoplasm of the pancreas-indications for surgery. *Hepatogastroenterology* 2006; 53:950-2. [PMID 17153460]
5. Perez-Ordenez B, Naseem A, Lieberman PH, Klimstra DS. Solid serous adenoma of the pancreas. The solid variant of serous cystadenoma? *Am J Surg Pathol* 1996; 20:1401-5. [PMID 8898845]
6. Kosmahl M, Wagner J, Peters K, Sipos B, Klöppel G. Serous cystic neoplasms of the pancreas: an immunohistochemical analysis revealing alpha-inhibin, neuron-specific enolase, and MUC6 as new markers. *Am J Surg Pathol* 2004; 28:339-46. [PMID 15104296]
7. Reese SA, Traverso LW, Jacobs TW, Longnecker DS. Solid serous adenoma of the pancreas. A rare variant within the family of pancreatic serous cystic neoplasms. *Pancreas* 2006; 33:96-9. [PMID 16804417]
8. Stern JR, Frankel WL, Ellison EC, Bloomston M. Solid serous microcystic adenoma of the pancreas. *World J Surg Oncol* 2007; 5:26. [PMID 17338818]