Solid and papillary epithelial neoplasm of the pancreas
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Section: Abdominal imaging
Imaging Technique: Ultrasound
Imaging Technique: CT
Case Type: Clinical Cases
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Patient: 14 years, female

Clinical History:
A patient presented with a recent onset of epigastric pain.

Imaging Findings:
A patient presented with a recent onset of epigastric pain. A US investigation done showed the presence of a large complex mass in the left upper abdominal quadrant; the lesion was found primarily to be of a solid nature with cyst-like areas (Fig. 1). On CT, a huge well-demarcated mass with a thin capsule in the left hypochondrium with inhomogeneous (solid and water-like) attenuation was seen; the solid portion increased with attenuation on enhanced CT scans, although less than for paraspinal muscles. No calcium deposits were evident. The distal pancreas were not visible; enlargement of the gastro-epiploic vein due to compression of the splenic vein was also evident (Fig. 2a, b). The preoperative diagnosis suggested the presence of a solid and papillary epithelial neoplasm (SPEN) of the pancreas.

Discussion:
SPEN of the pancreas (Frantz’s tumor) is believed to be a rare non-ductal low grade malignancy almost exclusively affecting young women. The preoperative diagnosis is clinically relevant as SPEN of the pancreas is potentially curable with surgical resection. The presenting signs and symptoms include a palpable abdominal mass, abdominal pain, nausea and vomiting; an incidental radiological detection of a SPEN of the pancreas has also been reported in asymptomatic patients. The tumor is grossly encapsulated, but local invasion is observed in 16% of patients at surgery. Hepatic and peritoneal spreads are possible; local and distant recurrences are also reported. SPEN of the pancreas is microscopically characterized by a papillary and solid pattern mixed with hemorrhagic areas secondary to disruption of the vascular network. Hemorrhagic changes macroscopically range from areas of solid and friable tumors, areas of semisolid hemorrhagic debris and post-hemorrhagic cyst-like areas. The radiological appearance depends on the proportion between solid and cystic portions. On non-enhanced CT scans, hyperattenuating areas (besides calcium deposits) correlate with solid hemorrhagic components, whereas tissue-like and intermediate densities cover macroscopic findings ranging from non-hemorrhagic tissues to hemorrhagic solid portions and hemorrhagic cysts; both non-hemorrhagic and hemorrhagic cysts can show a water-like attenuation. A fluid-level from hemorrhagic degeneration can be detected. Also US findings do not correlate well with gross pathology. Because of its intrinsic capability, MR imaging is superior to the other diagnostic modalities in demonstrating hemorrhagic degeneration of both solid and cystic areas, and more specific in detection of hemoglobin products in the presence of a fluid-debris level. Calcification is more easily detectable on CT scans, but can sometimes be visible on US; coarse capsular calcifications prevent us from doing a sonographic analysis of the internal
architecture. SPEN of the pancreas must be differentiated from other complex cystic masses. Microcystic adenomas usually affect older women and are characterized by multiple small cysts and thin septa with a central scar, which is eventually calcified. Mucinous cystic adenomas have a typically large cystic area with thin septations; calcification as well as marginal nodulations may also be present. Multilocularity of cystic mucinous adenomas is a characteristic feature. Non-functioning islet cell tumors are typically hypervascular, usually large in size with necrotic areas at the time of diagnosis. However, in contrast to a SPEN, they exhibit a typical enhancement on arterial phase dynamic imaging. Hemorrhagic pseudocysts do not contain solid components; the clinical history and associated imaging findings of pancreatitis provide the clues for making the correct diagnosis.

**Differential Diagnosis List:** Solid and epithelial neoplasm of the pancreas.

**Final Diagnosis:** Solid and epithelial neoplasm of the pancreas.

**References:**


Description: Ultrasonography: a large complex mass in the left hypochondrium; the lesions contain solid inhomogeneous components and multiple cysts. Origin:
Description: Computed tomography: the mass is well demarcated by a thin capsule; it contains water-like attenuation areas and solid hypoattenuating areas (a). The distal pancreas are not recognizable; there is compression of the splenic vein with the collateral vein via the gastroepiploic vein (b). Origin:
Description: Computed tomography: the mass is well demarcated by a thin capsule; it contains water-like attenuation areas and solid hypoattenuating areas (a). The distal pancreas are not recognizable; there is compression of the splenic vein with the collateral vein via the gastroepiploic vein (b). Origin: