

Low CEA Cystic Pancreatic Tumors, A Tail of Two Cysts

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Low CEA Cystic Pancreatic Tumors – A Tail of Two Cysts

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Background

- Cystic pancreatic tumors (CPT) have variable malignant potential and are increasingly recognized
- Generally, cross-sectional imaging cannot definitely differentiate mucinous from non-mucinous cysts
- Endoscopic ultrasound (EUS) with fine needle aspiration (EUS-FNA) is used to evaluate morphologic appearance and fluid
- Fluid analysis helps differentiate CPT
- In this case series we will review two cases of low carcinoembryonic antigen (CEA) pancreatic tail CPTs with similar preoperative diagnostic evaluation, but differing final diagnoses

Case Presentations

CASE 1

- A 71 year old asymptomatic male found to have an incidental pancreatic tail cyst on imaging
- **EUS:** anechoic, lobulated pancreatic tail cyst (4.2 x 2.8 cm) communicating with a small side branch without septation or nodules
- **FNA:** viscous clear fluid with cytology negative for malignancy, amylase 5420 IU/L and CEA 99 ng/mL
- Surveillance EUS-FNA fluid was inadequate for cytology, however DNA showed KRAS mutation
- Robotic distal pancreatectomy performed
- **Pathology:** pancreatic tail side-branch IPMN (4.3 x 3.0 x 2.4 cm) with low grade intraepithelial dysplasia

CASE 2

- A 51 year old female presented with abdominal pain and hematuria
- CT scan to rule out nephrolithiasis incidentally showed a cystic lesion of the distal pancreas confirmed with MRI
- **EUS:** pancreatic tail cyst (2.1 x 1.9 cm) with numerous 1mm septations and large pockets within the cyst
- **FNA:** thin fluid with cytology negative for malignancy, amylase 44 IU/L and CEA 4.4 ng/mL
- Robotic distal pancreatectomy performed
- **Pathology:** 1.5 x 1.4 x 1.2 cm well differentiated cystic pancreatic neuroendocrine tumor (cPanNET).

Discussion:

- CPT may be malignant and require evaluation prior to resection
- EUS appearance can be diagnostic, and cytology has low sensitivity for diagnosing malignancy
- A CEA concentration cut-off of 192 ng/mL helps differentiate mucinous from nonmucinous (sensitivity 73%, specificity 84%)
- Fluid KRAS mutations are associated with mucinous cysts and the development of malignancy
- Our IPMN patient had uncharacteristic low CEA, but expected DNA KRAS mutation and high amylase
- cPanNETs have fluid findings similar to serous cystadenocarcinomas and presents a diagnostic challenge
- Our patient's surgery was necessitated by young age, septations, and the need for long-term follow-up
- In this case series we reviewed the diagnostic course of pancreatic tail cysts with low CEA found to be an IPMN and a cPanNET

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| Case Findings | | | | | |
|---------------|-----------------------|-----------------|---------------------|------------------|--|
| | Discovery | Fluid Viscosity | Cyst Amylase (IU/L) | Cyst CEA (ng/mL) | Surgical Pathology |
| Case 1 | Incidental on imaging | High | 5420 | 99 | Pancreatic tail side branch IPMN |
| Case 2 | Incidental on imaging | Low | 44 | 4.4 | Pancreatic tail well differentiated cystic pancreatic neuroendocrine tumor |

| Analysis of Cyst Fluid in Various Cystic Lesions of the Pancreas | | | | | |
|--|-----------|---------|------|----------------------|---|
| | Viscosity | Amylase | CEA | CA 72-4 | Cytologic Findings |
| Pseudocyst | Low | High | Low | Low | Histiocytes |
| Serous Cystadenoma | Low | Low | Low | Low | Cuboidal cells with glycogen-rich cytoplasm |
| Mucinous Cyst Neoplasm (benign) | High | Low | High | Intermediate | Columnar mucinous epithelia cells with variable atypia |
| Mucinous Cyst Neoplasm (malignant) | High | Low | High | High | Adenocarcinoma cells |
| IPMN | High | High | High | Intermediate to High | Columnar mucinous epithelial cells with variable atypia |

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