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 definitively 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 cysts with similar preoperative diagnostic evaluation, but differing final diagnoses

Case Presentations

<table>
<thead>
<tr>
<th>CASE 1</th>
<th>CASE 2</th>
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<tbody>
<tr>
<td><strong>A 71 year old asymptomatic male found to have an incidental pancreatic tail cyst on imaging</strong></td>
<td><strong>A 51 year old female presented with abdominal pain and hematuria</strong></td>
</tr>
<tr>
<td><strong>EUS:</strong> anechoic, lobulated pancreatic tail cyst (4.2 x 2.8 cm) communicating with a small side branch without septation or nodules</td>
<td><strong>CT scan to rule out nephrolithiasis incidentally showed a cystic lesion of the distal pancreas confirmed with MRI</strong></td>
</tr>
<tr>
<td><strong>FNA:</strong> viscous clear fluid with cytology negative for malignancy, amylase 5420 IU/L and CEA 99 ng/mL</td>
<td><strong>EUS:</strong> pancreatic tail cyst (2.1 x 1.9 cm) with numerous 1mm septations and large pockets within the cyst</td>
</tr>
<tr>
<td>Surveillance EUS-FNA fluid was inadequate for cytology, however DNA showed KRAS mutation</td>
<td><strong>FNA:</strong> thin fluid with cytology negative for malignancy, amylase 44 IU/L and CEA 4.4 ng/mL</td>
</tr>
<tr>
<td>Robotic distal pancreatectomy performed</td>
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</tr>
<tr>
<td><strong>Pathology:</strong> pancreatic tail side-branch IPMN (4.3 x 3.0 x 2.4 cm) with low grade intraepithelial dysplasia</td>
<td><strong>Pathology:</strong> 1.5 x 1.4 x 1.2 cm well differentiated cystic pancreatic neuroendocrine tumor (cPanNET).</td>
</tr>
</tbody>
</table>

Analysis of Cyst Fluid in Various Cystic Lesions of the Pancreas

<table>
<thead>
<tr>
<th></th>
<th>Discovery</th>
<th>Fluid Viscosity</th>
<th>Cyst Amylase (IU/L)</th>
<th>Cyst CEA (ng/mL)</th>
<th>Surgical Pathology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case 1</strong></td>
<td>Incidental on imaging</td>
<td>High</td>
<td>5420</td>
<td>99</td>
<td>Pancreatic tail side branch (PNS)</td>
</tr>
<tr>
<td><strong>Case 2</strong></td>
<td>Incidental on imaging</td>
<td>Low</td>
<td>44</td>
<td>4.4</td>
<td>Pancreatic tail well differentiated cystic pancreatic neuroendocrine tumor</td>
</tr>
</tbody>
</table>

Case Findings

- 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 cystadenocarcinoma 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

Discussion:


References:


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