Evaluation and Management of Strictures in PSC Using ERCP

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MRCP to Diagnose PSC
Endoscopic Retrograde Cholangiopancreatography (ERCP)
When to Perform ERCP

- Confirm PSC
- Treat symptoms of cholestasis
- Exclude malignancy
  - Decompensation of known PSC
    - Worsening cholestasis
    - H/O variceal bleeding
    - Increasing cholangitis episodes
    - Elevated tumor serology or signs/symptoms of occult malignancy
Dominant Stenoses

- Noted in 10% - 20% of PSC patients
- Main duct and/or right and left hepatic duct
  - Tissue sampling (brush and biopsy) to exclude malignancy
- Palliative treatment with balloon dilation and stenting
  - No RCT on optimal duration of dilation and/or stenting
ERCP is Used to Treat Symptoms and Exclude Cancer
Treatment Options

- ERCP with passage or balloon dilation alone
- ERCP with dilation followed by stenting
  - U of Colorado preference – similar strategy as multiple stents for benign post-choly strictures
- PTC with drainage tubes – for ERCP failures
- Antibiotic prophylaxis
Extrahepatic PSC
Extrahepatic PSC

After two endotherapy sessions
Intrahepatic PSC
Pre-Stenting

Post-Stenting
ERCP Tissue Sampling in PSC

- Brush cytology:
  - Sensitivity: 29-73%
  - Specificity: 95%-100%

- Biopsy forceps:
  - Sensitivity: 29%
  - Specificity: 100%

HPB;13
Levy, et al. 2008 AJG 103
Fluorescence in situ hybridization (FISH)

- Four fluorescently labeled probes that hybridize to pericentric regions
  - Cs 3, 7, 17, 9p21
  - Fluorescence microscope

Biliary Probe-based Confocal Laser Endomicroscopy (pCLE)
Field of View – 325 ucm (greater than one-fourth mm)
Lateral resolution of 3.5 ucm
Visualization depth - 40-70 micrometer
Measures of Validity for pCLE in PSC Patients with Dominant Stenoses

<table>
<thead>
<tr>
<th>Operating Characteristics</th>
<th>pCLE % (CI%)</th>
<th>Tissue Sampling % (CI%)</th>
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<tbody>
<tr>
<td>Sensitivity</td>
<td>100 (19-100)</td>
<td>0 (0-81)</td>
</tr>
<tr>
<td>Specificity</td>
<td>61 (36-83)</td>
<td>94 (73-99)</td>
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<tr>
<td>NPV</td>
<td>100 (71-100)</td>
<td>90 (67-98)</td>
</tr>
<tr>
<td>PPV</td>
<td>22 (4-60)</td>
<td>0 (0-84)</td>
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</tbody>
</table>

** Two explants – corresponding dysplasia (LGD and HGD) suspected by pCLE not confirmed by ERCP sampling

Heif, Yen, Shah. DDS 2013
Multicenter Registry Study of pCLE in PSC Patients with Dominant Stenoses

Participating Centers:
U of Colorado
U of Pittsburgh
Cornell, NYC
Columbia, NYC
PSC Patient 3 (liver transplant)

- 58 year-old male
- PSC for 15+ years, UC for 20+ years
- Indication - Suspected hilar mass on CT and rising CA19-9 (169)
PSC Patient 3 (liver transplant)

- Liver explant showed benign changes!
PSC Patient 8

- 19 year-old male
- ≤ 1 year of PSC and UC
- Indication for pCLE – brushings from DS with highly atypical ductal cells suspicious for carcinoma. CA19-9 (9.3)
Stricture at common bile duct
Pathology- biopsy HGD and FISH showed polysomy
Follow-up ERCP showed HGD in distal CBD and right main duct.
Awaiting Transplant
Conclusions

- Lab studies, imaging such as CT or MRI, and symptoms will determine need for ERCP
- ERCP is used to evaluate and treat dominant stenoses
- Dominant stenoses are narrowings in the main trunk of the tree (common bile duct) or its main branches
- Biopsies and brushings are done to help exclude cancer.
- Laser confocal microscopy is promising to further evaluate strictures in PSC
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