The Endoscopic Management of PSC

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“Why did my doctor order an endoscopic retrograde cholangiopancreatogram (ERCP)?”
• Everyone with PSC just gets them periodically, right?
• **Everyone with PSC just gets them periodically, right?**
• **Really fun and if you don’t get one you won’t know what you are missing**
• Everyone with PSC just gets them periodically, right?
• Really fun and if you don’t get one you won’t know what you are missing
• College – doctor’s children are going
• Everyone with PSC just gets them periodically, right?
• Really fun and if you don’t get one you won’t know what you are missing
• College – doctor’s children are going
• Polking around – that’s all doctors want to do
How ERCP can help

• Patients with PSC develop:
  – Ascending cholangitis from strictures or stones
  – Refractory pruritis and jaundice
  – Cholangiocarcinoma

• Extrahepatic bile duct and/or main hepatic duct
  – Treat to palliate symptoms
  – Exclude cholangiocarcinoma
Dominant Stenoses

• Options for palliative treatment and/or bridge to transplantation
  – ERCP with balloon dilation alone (ERCPBD)
    • Possibly preferred due to concerns regarding bacterial seeding and higher infectious complications with stenting in one study
  – ERCP with balloon dilation and stenting (ERCPST)
    • UCHSC preference
  – PTC with drainage tubes (PTCDT)

Primary Sclerosing Cholangitis
Primary Sclerosing Cholangitis
Is there an impact of pre-transplant endoscopic or percutaneous intervention on MELD, time to transplant, or post-transplant complications?
Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

– **Group I- DIAGNOSTIC** biliary intervention alone

– **Group II- THERAPEUTIC** sequential biliary intervention any time prior to transplantation until resolution of dominant stricture or transplant
  
  • ERCP with balloon dilation (ERCPBD) alone
  • ERCP with balloon dilation and stenting (ERCST)
  • PTC with drainage tubes (PTCDT)
Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

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- **Group II- THERAPEUTIC** sequential biliary intervention any time prior to transplantation until resolution of dominant stricture or transplant
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  - ERCP with balloon dilation and stenting (ERCST)
  - PTC with drainage tubes (PTCDT)

- **Group II MELD** determined by the value prior to biliary intervention and at time of transplant or greater than 3 months post-completion of interventions (whichever came first)
Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

- 622 liver transplants at UCHSC from 1999-2006.
- 62 patients (mean age 42 yrs) had PSC
  - 7 excluded due to lack of pre-transplant data
  - N=55 patients in study group:
    - Group I = 26 patients
    - Group II = 29 patients
- Comparable use of Actigall in both groups

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Group II Interventions

- ERCPST: 12
- ERCBD: 4
- PTCDT: 8
- ERCPST & PTCDT: 5

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Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

• **Group II Interventions:**
  – Mean number of ERCPST was 2.1 (CI = 1.0-3.2).
  – Mean number of PTCDT was 4.9 drain exchanges (CI = 1.2-8.6).

• Mean duration of ERCP/stent placement was 5.8 weeks (CI = 2.3-9.3).
Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

• **Mean MELD Scores from evaluable data:**
  – Group I = 17.0 at time of transplant
  – Group II = 13.5 pre-intervention to 15.0 post

• **Time from Diagnosis to Liver Transplantation:**
  – Group I = 10.5 yrs (+/- 7.6 yrs)
  – Group II = 9.8 yrs (+/- 5.0 yrs)
Do Pre-transplant Biliary Stents or Drainage Tubes Increase Rates of Post-transplant Complications?
Do Pre-transplant Biliary Stents or Drainage Tubes Increase Rates of Post-transplant Complications?

• **Group I**- diagnostic ERCP, ERCPBD, or no intervention (N=30)

• **Group II**- ERCPST or PTCDT (N=25)

• Similar mean duration of disease (10 years)

• Transplant reconstruction
  • Group I (Roux-Y=26, duct-to-duct=4)
  • Group II (Roux-Y=25).
Do Pre-transplant Biliary Stents or Drainage Tubes Increase Rates of Post-transplant Complications?

- 13/25 (52%) patients had stents/drains at time of transplant
- 5 patients (38%) had infectious complications
- 1 patient (8%) had vascular thrombosis

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Cholangioscopy in PSC

• Consecutive Patients (N=41)
• Objectives
  – Detection of CCA
  – Stones missed by cholangiography
  – Cholangioscopy-directed lithotripsy
  – Clinical Improvement
    • Resolution of jaundice or greater than 50% reduction in pain or cholangitis episodes requiring hospitalization

Awadallah, Chen, Piraka, Shah. Is there a role for cholangioscopy in patients with PSC? Am J Gastro 2006; 101
## Cholangioscopy in PSC

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>N=41 patients</th>
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</thead>
<tbody>
<tr>
<td>Presenting symptoms</td>
<td>Cholangitis episodes (N=30)</td>
</tr>
<tr>
<td></td>
<td>Jaundice (N=2)</td>
</tr>
<tr>
<td></td>
<td>Pain (N=1)</td>
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<tr>
<td></td>
<td>Worsening LFTs (N=8)</td>
</tr>
<tr>
<td>Indication for index cholangioscopy</td>
<td>Evaluation of Dominant Strictures (N=35)</td>
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<tr>
<td></td>
<td>Stone Removal (N=1)</td>
</tr>
<tr>
<td></td>
<td>Evaluation of PSC strictures and stone removal (N=5)</td>
</tr>
</tbody>
</table>

Awadallah, Chen, Piraka, Shah. Is there a role for cholangioscopy in patients with PSC? Am J Gastro 2006; 101
Results of stone removal using conventional ERCP methods or cholangioscopy

<table>
<thead>
<tr>
<th>Technique</th>
<th>Complete</th>
<th>Partial</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP-directed lithotripsy (N=9)</td>
<td>7 (78%)</td>
<td>2 (22%)</td>
</tr>
<tr>
<td>Conventional methods only (N=8)</td>
<td>3 (38%)</td>
<td>5 (63%)</td>
</tr>
<tr>
<td>Total (N=17)*</td>
<td>10 (59%)</td>
<td>7 (41%)</td>
</tr>
</tbody>
</table>

* Stone removal was not attempted in 6 of 23 (26%) patients with stones.

Awadallah, Chen, Piraka, Shah. Is there a role for cholangioscopy in patients with PSC? Am J Gastro 2006; 101
Cholangioscopy in PSC

- Detection of CCA
  - Found 1 EHBD cancer; Missed 1 IHBD cancer
- Stones missed by cholangiography
  - 1 in 3 patients with stones were missed by cholangiogram
- Cholangioscopy-directed lithotripsy
  - Suggestion of more complete stone clearance with lithotripsy
- Clinical Improvement
  - Two-thirds
Conclusions

• Biliary interventions in PSC patients palliate symptoms as a bridge to transplantation
• Our data suggest that biliary interventions do not improve MELD, delay the time to transplant, or increase post-transplant infectious or thrombotic complications
• Cholangioscopy improves detection and treatment of stones in PSC and may be used in evaluating dominant strictures
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• Median years of disease duration until liver transplant was 9.0 yrs, IQR (1.0-25.0) for Group I and 11.0 yrs, IQR (1.0-22.8) for Group II.
Follow-up

Patients
N=40/41 (98%)

- Patients with Dilation +/- Stenting and Stones Removed
  N=14
    - Clinical Improvement
      N=11/14 (79%)

- Patients with Dilation +/- Stenting Only
  N=18
    - Clinical Improvement
      N=9/18 (50%)

- Patients with Stone Removal Only
  N=3
    - Clinical Improvement
      N=2/3 (67%)

- Biopsy Only
  N=5
    - Clinical Improvement
      N=3/5 (60%)

Clinical Improvement
N=11/14 (79%)

Clinical Improvement
N=9/18 (50%)

Clinical Improvement
N=2/3 (67%)

Clinical Improvement
N=3/5 (60%)