HILAR MALIGNANT BILIARY OBSTRUCTION

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PANCREATIC AND BILIARY CANCERS

CT scan

EUS (tissue/± staging) + MRCP (if hilar)

Resectable

Unresectable or Poor surgical candidate

SURGERY +/- resection

ONCOLOGY adjuvant/neoadjuvant chemoradiation

ERCP with metallic stent
Hilar tumor

- Cholangiocarcinoma, gallbladder or metastases
- Can sometimes be resected for CURE
- Not staged by Bismuth class alone
- Evaluation best by MRCP/EUS
  - Before ERCP!
Hilar tumor

- ERCP challenging and risky
- Poor outcomes with traditional approach
- Often treated by percutaneous biliary drainage
- Can be safely drained via ERCP using metallic stents with MRCP-targeted selective drainage
Hilar tumor
Traditional approach
Hilar tumor

Traditional approach
**TABLE 2.** Comparison of 30-day Outcomes in Patients With Malignant Hilar Biliary Obstruction Stratified by Stent Type

<table>
<thead>
<tr>
<th>30-day Events</th>
<th>Plastic</th>
<th>Metallic</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[N = 28 (%)]</td>
<td>[N = 34 (%)]</td>
<td></td>
</tr>
<tr>
<td>Stent complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occlusion</td>
<td>6 (21.4)</td>
<td>2 (5.9)</td>
<td>0.125</td>
</tr>
<tr>
<td>Migration</td>
<td>2 (7.1)</td>
<td>1 (2.9)</td>
<td>0.585</td>
</tr>
<tr>
<td>Perforation</td>
<td>1 (3.6)</td>
<td>0 (0.0)</td>
<td>0.451</td>
</tr>
<tr>
<td>Cholangitis</td>
<td>3 (10.7)</td>
<td>2 (5.9)</td>
<td>0.087</td>
</tr>
<tr>
<td>Any of above</td>
<td>9 (32.1)</td>
<td>3 (8.8)</td>
<td>0.027*</td>
</tr>
<tr>
<td>Unplanned biliary drainage procedure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percutaneous</td>
<td>5 (17.8)</td>
<td>1 (2.9)</td>
<td>0.037*</td>
</tr>
<tr>
<td>Endoscopic</td>
<td>6 (21.4)</td>
<td>4 (11.8)</td>
<td>0.326</td>
</tr>
<tr>
<td>Either or both</td>
<td>9 (32.1)</td>
<td>4 (11.8)</td>
<td>0.065</td>
</tr>
<tr>
<td>Stent-related adverse outcome</td>
<td>11 (39.3)</td>
<td>4 (11.8)</td>
<td>0.017*</td>
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</tbody>
</table>
Hilar tumor
MRCP-targeted unilateral metal stent

MRCP
Bismuth III
Hilar tumor
MRCP-targeted unilateral metal stent

MRCP  Bismuth III  ERCP
Hilar tumor
MRCP-targeted unilateral metal stent
Hilar tumor

MRCP-targeted unilateral metal stent

MRCP  Bismuth IV  ERCP
Hilar tumor
MRCP-targeted unilateral metal stent

MRCP
Bismuth IV
ERCP
Unilateral MRCP-targeted drainage of malignant hilar biliary obstruction with metallic stents is effective

<table>
<thead>
<tr>
<th></th>
<th>Freeman</th>
<th>DePalma</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>35</td>
<td>61</td>
</tr>
<tr>
<td>Cholangiocarcinoma</td>
<td>49%</td>
<td>43%</td>
</tr>
<tr>
<td>Bismuth III-IV</td>
<td>54%</td>
<td>56%</td>
</tr>
<tr>
<td>Jaundice resolved</td>
<td>77%</td>
<td>86%</td>
</tr>
<tr>
<td>Early complications</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>Median stent patency</td>
<td>5.4 mo</td>
<td>5.6 mo</td>
</tr>
<tr>
<td>Repeat intervention</td>
<td>29%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Gastrointest Endosc 2003
Hilar tumor

Draining atrophic lobe

Atrophic left lobe - Dilated left hepatic duct

DRAINING ATROPHIC LEFT DUCT USELESS
Tight mesh or open mesh stents?

Wallstent  
Wallflex

ZilverStent  
Luminexx  
Vexsuit
Tight mesh or open mesh stents?

Multicenter randomized trial of the spiral Z-stent compared with the Wallstent for malignant biliary obstruction. Shah et al. Gastrointest Endosc 2003;57:830-6
Bilateral metal stents sometimes required

side-by-side “double barrel” versus... stent-through-stent “Y” stent
Open mesh stents for hilar tumor
Open mesh stents for hilar tumor
Open mesh stents for hilar tumor
Open mesh stents for hilar tumor
Hilar tumor

Downside of tight mesh stent:

Percutaneous drain of “walled off” Wallstent