Pancreatic Stents – Are They Now State of the Art Care?  
... To Help Limit Post ERCP Pancreatitis

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If an endoscopist performs ERCP and does not offer prophylactic pancreatic stents she/he is providing appropriate or inappropriate care?
Rationale for Prophylactic Pancreas Stents

Placement of a prophylactic stent across the pancreatic sphincter can decrease the intraductal pressure and decrease post-ERCP pancreatitis frequency and severity.

Patient Risk Category for Prophylactic Pancreatic Stents

- Low risk of post-ERCP pancreatitis (≤5-7%) such as most bile duct stones and pancreas Ca; Little stent data ... no stent indicated
- High risk patients for post-ERCP pancreatitis (≥8-10%) ... yes stent indicated
Technique

• Stent choice
  - Type: Polyethylene/Standard; Softer Plastic
  - Diameter: 3, 4, 5 Fr
  - Length: 2-12 cm
  - Internal barbs – generally no

Plastic Stents

- Hobbs
- Sof-flex Cook; 5 Fr only

Cook Endoscopy
Prophylactic Pancreatic Stents Prevent Post-ERCP Pancreatitis – Meta-analysis of 5 Prospective Controlled Trials (n=481) in High Risk Patients

<table>
<thead>
<tr>
<th></th>
<th>Stent</th>
<th>No Stent</th>
<th>O.R.(C.I.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pancreatitis</td>
<td>5.8%</td>
<td>15.5%</td>
<td>3.2 (1.6-6.4)*</td>
</tr>
<tr>
<td>Mild/Mod</td>
<td>5.8%</td>
<td>13.1%</td>
<td>3.0 (1.4-6.2)*</td>
</tr>
<tr>
<td>Severe</td>
<td>0/0.4%ª</td>
<td>2.5%</td>
<td>2.9 (0.6-13)**</td>
</tr>
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NNT to prevent 1 episode of AP = 10; *p=0.001; **p=0.15

Singh. GIE 2004;60:544
ª IUMC data (0.4%)

Patients at Higher Risk for PEP

- **Pre**
  - Suspected SOD
  - Pancreas Divisum
  - Prior Acute/Recurrent Pancreatitis / PEP
  - No Chronic Pancreatitis
  - Young, Female w/o biliary stones

- **During**
  - Precut Sphincterotomy
  - Endoscopic Ampullectomy
  - Balloon Dilation of Intact Sphincter
  - Difficult Cannulation
  - Pancreatic Duct Injection (any, multiple, to tail)
High versus Low Risk?

• Young to middle-aged woman
  • Recurrent RUQ biliary type pain (like pre-CCx done for gallbladder sludge)
  • Normal LFTs except Alk Phos mildly elevated
  • Normal CT scan findings except mild fatty liver and 8mm diameter CBD
• ERCP being considered to evaluate for stones
• Diagnostic ERCP….high or low risk?
• Empiric biliary sphincterotomy ….high or low risk?
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Cannulation Attempts vs PEP in 451 Intact Papilla Patients

Swan et al, GIE 71:AB111, 2010

Survey of 676 USA ERCP Endoscopists

Cote et al. GIE 2011;74:65-73
Survey of 676 USA Endoscopists


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Post-ERCP pancreatitis rates according to extent of pancreatic duct opacification

Cheon et al., *GI Endosc* 2007;65:385-93

Plastic prophylactic pancreatic stents (Negative aspects)

- Less than 100% effective
- 10-15% difficult to place (genu) - 5-8% have failed placement (increases risk more)
- Migration – In/Out
- Perforation (GW / Stent)
- Stent induced scar (if left too long in situ)
- Follow up to removal
Guide wire Perforation

Post-ERCP Pancreatitis....Mild

PD Stent Outside Pancreatic Duct

Pancreatic duct
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Other means to decrease post ERCP Pancreatitis?

......... And avoids stents?

**Possibly/probably effective**
- Protease Inhibitors*
- NSAID
- Somatostatin*
  - *12 hr.
  - *not available in USA
- Secretin
- Glyceryl trinitrate

**Ineffective don’t work**
- Non-ionic contrast
- Octreotide
- PAF inhibitors
- Steroids
- Allopurinol
- Heparin
- Ca²⁺ ch blockers
- Lidocaine
- Interleukin-10
Rectal NSAIDs in the prevention of post-ERCP pancreatitis: meta-analysis

Elmunzer et al. Gut 2008;57;1262-1267.

Post-ERCP Pancreatitis in 602 High Risk Patients - All Sites

Post-ERCP Pancreatitis in 602 High Risk Patients
Other Sites vs IU

![Bar chart showing the percentage of patients experiencing post-ERCP pancreatitis at other sites and in the interventional unit (IU).](chart.png)

Placebo: 26.9%
Indomethacin: 12.6%
100 mg rectal suppository: 7.2%

NEJM 2012;366:15

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Rectal NSAIDS for high risk ERCP Patients … Now Standard of Care
Can NSAIDS or Other Drugs Replace Pancreatic Stents for Prevention of Post ERCP Pancreatitis?

No direct comparative studies.

Needed Studies for PEP Prophylaxis

- Drugs (NSAIDS) vs Stents vs Both
- Optimal dose of NSAIDS
- Combination NSAIDS + Nitroglycerin + Others
- Optimal Stent
Recognize prophylactic pancreatic stent benefit

- Attorneys

- A few colleagues have published opinions and given court testimony.

Pancreatic Stents – Are They Now State of the Art Care to Help Limit Post-ERCP Pancreatitis?

Low risk patients … no

High risk patients … yes

Low risk patients who convert to high risk (difficult cannulation; suspected ductal stones but none found) usually need protection of prophylactic pancreatic stents (or at least indomethacin).
Thank you.