Endoscopic Management of the Complications of Acute Pancreatitis

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Objectives

• To provide an evidence-based review on the role of ERCP for the management of acute biliary pancreatitis (ABP)

• To discuss some recent, important studies on the endoscopic management of pancreatic fluid collections
  – Uncomplicated pancreatic pseudocysts
  – Walled-Off Pancreatic Necrosis (WOPN)
Acute Biliary Pancreatitis (ABP)

• Most cases are mild and do not require endoscopic intervention

• Mortality rate of an initial episode of ABP ~10%\(^1\)

• 25% of ABP attacks are severe
  – Mortality rate ~30%\(^2\)

• Without definitive treatment, risk of recurrent attack of ABP within 6 months is 30-50%\(^3,4\)

Questions to Ask During an Episode of ABP

- When should ERCP be considered?
- When should urgent ERCP be considered?
- What endoscopic therapy should be performed during the ERCP?
# Prospective Studies on ERCP in ABP

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Design</th>
<th>Timing</th>
<th>ERCP Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neoptolemos et al</td>
<td>1988</td>
<td>RCT</td>
<td>&lt;72 h</td>
<td>59 (25 severe)</td>
</tr>
<tr>
<td>Fan et al</td>
<td>1993</td>
<td>RCT</td>
<td>&lt;24 h</td>
<td>97 (41 severe)</td>
</tr>
<tr>
<td>Folsch et al</td>
<td>1997</td>
<td>RCT</td>
<td>&lt;72 h Sx</td>
<td>126 (26 severe)</td>
</tr>
<tr>
<td>Zhou et al</td>
<td>2002</td>
<td>RCT</td>
<td>&lt;24</td>
<td>20 (7 severe)</td>
</tr>
<tr>
<td>Oria et al</td>
<td>2007</td>
<td>RCT</td>
<td>&lt;48 h Sx</td>
<td>51 (17 severe)</td>
</tr>
<tr>
<td>Van Santvoort et al</td>
<td>2009</td>
<td>Pros Obs</td>
<td>&lt;48 h Sx</td>
<td>81 (all severe)</td>
</tr>
<tr>
<td>Chen et al</td>
<td>2010</td>
<td>RCT</td>
<td>&lt;48 h Sx</td>
<td>21 (all severe)</td>
</tr>
</tbody>
</table>
When should elective ERCP be considered?

- Jaundice & imaging suggestive of choledocolithiasis
- Abnormal intraoperative cholangiogram (IOC)
- For biliary sphincterotomy as primary treatment:
  - Poor surgical candidate
  - Temporary therapy during pregnancy

When should **urgent** ERCP be considered?

- **Acute cholangitis**
  - Fever, leukocytosis, sepsis

- **Persistent biliary obstruction**
  - Pain, continued LFT elevation +/- biliary dilation

ERCP should be performed within 48 hours of symptom onset\(^1,2\)

What endoscopic therapy should be performed during ERCP?

- **Biliary sphincterotomy:**
  - 50% patients with ABP have biliary or ampullary stones at the time of ERCP
  - Biliary sphincterotomy augments pancreatic drainage
  - Possible SOD component contributing to the pathophysiology of ABP

What endoscopic therapy should be performed during ERCP?

- **Biliary sphincterotomy:**
  - Lower incidence of ABP-related mortality and pancreatic necrosis; *even for patients without obvious stones*¹
  - Protects against further attacks of ABP, with or without subsequent cholecystectomy²

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What endoscopic therapy should be performed during ERCP?

- **Pancreatic stent placement:**
  - Fejes R, et al\(^1\)
    - PD stents in 27/87 patients undergoing urgent ERCP for ABP
    - Stent sizes: 3Fr or 4Fr, 5cm or less
    - PD stents placed for difficult cases only
  
  - Lower overall complication rate (7.4% vs. 25%)
  - Fewer complications in those with SAP (13% vs. 40%)

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What endoscopic therapy should be performed during ERCP?

- **Pancreatic stent placement:**
  - Dubravcsik Z, et al\(^1\)
    - PD stents in 71/141 patients undergoing ERCP for ABP
    - Stent sizes: 5Fr, 3-5 cm
    - PD stents placed for difficult cases only
  - Lower overall complication rate (10% vs. 31%)

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What endoscopic therapy should be performed during ERCP?

• Biliary stent placement

  *Should Be Placed:*
  - Acute cholangitis
  - Inability to perform biliary sphincterotomy
  - Incomplete ductal clearance of stones

  *Unclear Benefit:*
  - Biliary sphincterotomy, complete ductal clearance, +GB stones, awaiting cholecystectomy...
Summary of Data

Indications and Timing of ERCP in Acute Biliary Pancreatitis

**Urgent ERCP (within 48 hours of symptom onset)**
- Acute cholangitis
- Persistent biliary obstruction

**Elective ERCP (generally within 5 days)**
- Jaundice and/or imaging suggestive of choledocolithiasis
- Abnormal IOC
- Biliary sphincterotomy as primary therapy

- **Biliary sphincterotomy for most cases**
- **Low threshold for PD stent placement**
- **Judicious use of CBD stent placement**

Table adapted from Kuo & Tarnasky, Gastrointest Endosc Clin N Am 2013.
Endoscopic Management of Pancreatic Fluid Collections
Pancreatic Pseudocyst Drainage: EUS-guided Cystogastrostomy
Equal efficacy of endoscopic and surgical cystogastrostomy for pancreatic pseudocyst drainage in a randomized trial.

- Single-center, randomized trial
- Surgical vs. endoscopic cystogastrostomy for non-necrotic collections
- 20 patients in each arm
- Primary end point: pseudocyst recurrence within 24 months
- Secondary end points: treatment success, complication rates, LOS, re-intervention rates, quality of life scores, & total cost

Results:

• 1 recurrence in the surgical arm, vs. none in endoscopic arm
• Hospital LOS shorter for endoscopy (2 d vs. 6 d, p<0.001)
• Total cost lower for endoscopy ($7,011 vs. $15,052, p=0.003)
• Improved physical and mental health scores in endoscopy arm
• Equal rates of treatment success, complications, and re-interventions
Endoscopic Pancreatic Necrosectomy

- Retrospective study, combined data from 6 different U.S. centers
- 104 patients with acute pancreatitis and symptomatic WOPN
- Primary end point: resolution of WOPN without need for surgical or percutaneous drainage
- Secondary end point: complications

Results:

• Successful resolution of WOPN in 95/104 patients (91%)
• Mean time to initial procedure = 63 days after onset of acute pancreatitis
• Mean number of procedures required = 3
• Mean time to resolution of WOPN = 4.1 months
• Overall complication rate = 14% (including 5 perforations, 1 case of massive bleeding requiring surgery, and 1 death)
• BMI > 32 predicted failure of resolution of WOPN
Endoscopic transgastric versus surgical necrosectomy for infected necrotizing pancreatitis: a randomized trial.
Bakker OJ, et al. Dutch Pancreatitis Study Group

• Multicenter, randomized trial
• 22 patients total
• Primary end point: inflammatory response, interleukin 6 (IL-6) levels
• Secondary end point: composite end point (total major complications) and death
Endoscopic transgastric versus surgical necrosectomy for infected necrotizing pancreatitis: a randomized trial.
Bakker OJ, et al. Dutch Pancreatitis Study Group

Results:
• Endoscopic necrosectomy associated reduced levels of IL-6, compared to surgery (p=0.004)

• Composite end point (total major complications) occurred less in endoscopy (20% vs. 80%)
  --risk difference [RD], 0.60; 95% CI, 0.16-0.80; P = .03
Thank you 😊