The role of ERCP in chronic pancreatitis

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10th Nottingham Endoscopy Masterclass
This presenter has the following declarations of relationship with industry

• NONE

[28/10/17]
Why ERCP in CP patients?

- Pancreatic duct drainage
- Biliary duct drainage
Why ERCP in CP patients?

Pancreatic duct drainage

Biliary duct drainage
Pancreatic duct drainage

Mechanisms of pain generation

- Multiple factors / pathways involved
  - no one therapy effective for all patients

- ↑ intraductal pressure (stone / stricture)
  - ↑ tissue pressure → tissue ischaemia

- Acute inflammation

- Pancreatic neuropathy

- Complications
  - Obstruction of bile duct / duodenum
  - Pseudocyst
  - Cancer

- Unrelated problems
  - Peptic ulcer
  - Gallstones
  - Mesenteric ischaemia
  - Gastroparesis,…
Chronic pancreatitis
Pain management: step-up-approach

1. Correct diagnosis of CP

2. Lifestyle recommendations: alcohol/smoking cessation

3. Analgesics

4. Nutritional support

5. More invasive options: • endoscopic therapy • surgery
**Chronic pancreatitis**

**Pain management: step-up approach**

**5th step: more invasive options**

- **Endoscopic therapy**
  - **Indications**
    - Symptoms related to CP
    - Failed medical therapy
    - Changes on imaging amenable to ET (obstructive stone(s), stricture(s), MPD dilatation)
    - Associated complications amenable to ET (CBD stricture, pseudocyst, MPD disruption)

Most appropriate patient: single obstructing lesion in the distal part of MPD
50 year old woman with painful CP
MPD obstruction in chronic pancreatitis
1st step of endotherapy = ESWL
DEGREE OF FRAGMENTATION
MPD obstruction in chronic pancreatitis

2nd step of endotherapy: EPS, stone extraction, NPC
MPD CANNULATION
PANCREATIC SPHINCTEROTOMY
STONE EXTRACTION WITH BALLOON
DORMIA BASKET
Clinical results of ESWL + endoscopy for pancreatic stones

<table>
<thead>
<tr>
<th>Clinical results</th>
<th>Complete / partial pain relief (%)</th>
<th>FU (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 studies: 1,706 patients</td>
<td>62–95</td>
<td>7-77</td>
</tr>
</tbody>
</table>

Factors independently associated with long-term (≥ 2 y) pain relief

- Location of obstructive calcifications in the head of pancreas
- Short disease duration before ET
- Low frequency of pain attacks before ET
- Less severe symptoms (lack of constant pain, no use of daily narcotics)
- Complete MPD clearance
- Absence of MPD stricture at initial ET
- Discontinuation of alcohol / tobacco during FU
**Clinical situation**

- **Stones**
  - Small < 3mm
  - Radiolucent
  - Calcified

- **MPD**
  - Stricture

- **Exocrine function**
  - Good
  - Reduced

**Treatment**

- ERCP alone → EPS and stone extraction

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For treating patients with uncomplicated painful chronic pancreatitis and radiopaque stones ≥5 mm obstructing the MPD, the ESGE recommends ESWL as a first step, immediately followed by endoscopic extraction of stone fragments. In centers with considerable experience with ESWL, ESWL alone should be preferred over ESWL systematically combined with ERCP (Recommendation grade B). Endoscopic attempts to extract radiopaque MPD stones without prior stone fragmentation should be considered only for stones <5 mm, preferably low in number, and located in the head or body of the pancreas. Intraductal lithotripsy should be attempted only after failure of ESWL (Recommendation grade D).

*Dumonceau, Endoscopy 2012*
Chronic pancreatitis

Indications of pancreatic duct stenting

- Dominant MPD stricture in the head
  - With upstream MPD dilatation $\geq 6$ mm
  - Stricture that prevents the outflow of contrast medium

- Refractory MPD stricture
  - Persistent symptomatic dominant stricture after 1 y of single stent
MPD BRUSHING
BALLOON DILATION
STENT INSERTION
# Chronic pancreatitis

Results of single plastic stenting for symptomatic **dominant MPD stricture** (retrospective studies with FU ≥ 24 m)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Pain improvement after stent removal (%)</th>
<th>FU (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binmoeller</td>
<td>93</td>
<td>65</td>
<td>58</td>
</tr>
<tr>
<td>Smits</td>
<td>49</td>
<td>82</td>
<td>34</td>
</tr>
<tr>
<td>Vitale</td>
<td>89</td>
<td>68</td>
<td>43</td>
</tr>
<tr>
<td>Eleftheriadis*</td>
<td>100</td>
<td>62</td>
<td>69</td>
</tr>
<tr>
<td>Weber</td>
<td>17</td>
<td>83</td>
<td>24</td>
</tr>
</tbody>
</table>

* ▪ Median duration of stenting 23 m
* ▪ Majority of pain recurrence, requiring new period of stenting during 1st y (79%) following stent removal (97% by 24 m)

Strategy for stent exchange

- On-demand stent exchange after a mean period of 8-12 m
- At regular intervals (i.e. 3 m)
Chronic pancreatitis

Results of multiple plastic stenting for symptomatic refractory dominant MPD stricture (prospective study)

<table>
<thead>
<tr>
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<th>N</th>
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<th>FU (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costamagna</td>
<td>19</td>
<td>84</td>
<td>38</td>
</tr>
</tbody>
</table>

Criteria for not replacing plastic stent(s) after removal
- Adequate contrast medium outflow
- Easy passage of a 6 Fr catheter or a Fogarty balloon
- Decreased focal narrowing

Costamagna, Endoscopy 2006
Results of FC-SEMS for symptomatic refractory MPD stricture (prospective studies)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Pain improvement after stent removal (%)</th>
<th>FU (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park</td>
<td>13</td>
<td>NA</td>
<td>5</td>
</tr>
<tr>
<td>Sauer</td>
<td>6</td>
<td>67</td>
<td>NA</td>
</tr>
<tr>
<td>Moon</td>
<td>32</td>
<td>84</td>
<td>5</td>
</tr>
<tr>
<td>Giacino</td>
<td>10</td>
<td>90</td>
<td>20</td>
</tr>
</tbody>
</table>

Optimal duration of stenting with FC-SEMS: 3-6 m
Chronic pancreatitis
Complications of pancreatic duct stenting

- Stent occlusion

- Stent migration
  - Distal: 7.5%
  - Proximal 5.2%
  similar for multiple plastic stenting (10%) and for FC-SEMS (8.2%)

- Stent-related ductal changes

- Cholestasis < compression of the BD orifice by FC-SEMS
## RCT related to the treatment of CP

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>36</td>
<td>36</td>
<td>19</td>
</tr>
<tr>
<td><strong>Mean FU</strong></td>
<td>5 y.</td>
<td>2 y.</td>
<td>4 y.</td>
</tr>
<tr>
<td><strong>Pain relief</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>complete (%)</td>
<td>15</td>
<td>34</td>
<td>16</td>
</tr>
<tr>
<td>partial (%)</td>
<td>46</td>
<td>52</td>
<td>16</td>
</tr>
<tr>
<td><strong>Morbidity (%)</strong></td>
<td>8</td>
<td>8</td>
<td>58</td>
</tr>
<tr>
<td><strong>Mortality (%)</strong></td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td><strong>Need for surgery (%)</strong></td>
<td>0</td>
<td>3</td>
<td>21</td>
</tr>
</tbody>
</table>

ESWL and endotherapy for chronic pancreatitis: for who?

- Painful uncomplicated CP whatever etiology
- Obstructive ductal stone(s), calcified or radiolucent, \( \geq 5 \) mm
- Upstream dilatation of the MPD

\[ \text{ESWL} \pm \text{endotherapy} = \text{first-line approach} \]

ESGE Clinical guidelines recommendation: Grade B  
Dumonceau, Endoscopy 2012
ESWL and endotherapy for chronic pancreatitis: for who?

- Painful uncomplicated CP whatever etiology
- Obstructive ductal stone(s), calcified or radiolucent, $\geq 5$ mm
- Upstream dilatation of the MPD

ESWL ± endotherapy = first-line approach

Assessment of clinical response at 6 – 8 w
Unsatisfactory response $\rightarrow$ multidisciplinary team discussion

Repeat ESWL / endotherapy vs Surgical option

ESGE Clinical guidelines recommendation: Grade B

Dumonceau, Endoscopy 2012
Why ERCP in CP patients?

- Pancreatic duct drainage
- Biliary duct drainage
Biliary drainage in chronic pancreatitis

- Up to 30% of CP
- Distal, intrapancreatic CBD stricture
  - < fibrosis
  - < compression by pseudocyst
  - < AP in the head
  - < groove pancreatitis

Indications for biliary stenting
- Persistent cholestasis
  - AP > 2-3 N for > 1 m & upstream biliary dilatation
- Secondary biliary stones
- Biliary cirrhosis

ΔΔ benign / malignant CBD stricture
- Smooth tapering of distal CBD
- Evidence of CP:
  - Atrophy, Ca++
  - Dilated MPD
Chronic pancreatitis complications
CP-related biliary strictures

Summary of results

Single plastic stent
- Long-term stricture resolution 25%
- No benefit for stenting > 12 m

Multiple plastic stents
- Sequential placement, ~ 12 m
- Stricture resolution in 44 – 92%

SEMS
- Uncovered
  - Disappointing < epithelial hyperplasia
  - Difficult or impossible removal
- PC
- FC
  - Promising alternative
  - High rate of migration?
CP-related biliary strictures

FC-SEMS

187 benign biliary strictures
- 127 CP
- 42 OLT
- 18 cholecystectomy

Stricture resolution

<table>
<thead>
<tr>
<th>Group</th>
<th>Patients</th>
<th>Percent resolution (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolved</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>CP</td>
<td>94</td>
<td>118</td>
</tr>
<tr>
<td>OLT</td>
<td>28</td>
<td>41</td>
</tr>
<tr>
<td>CCY</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>135</td>
<td>177</td>
<td>76.3 (69.3-82.3)</td>
</tr>
</tbody>
</table>

P = .32 for between group difference

Stricture recurrence

Deviere J et al, Gastroenterology 2014; 147: 385-395
CP-related biliary strictures

The choice between endoscopic and surgical treatment should rely on local expertise, local or systemic patient co-morbidities (e.g., portal cavernoma, cirrhosis) and expected patient compliance with repeat endoscopic procedures (Recommendation grade D). If endoscopic therapy is elected, the ESGE recommends temporary (1-year) placement of multiple, side-by-side, plastic biliary stents (Recommendation grade A). Because of the risk of fatal septic complications, a

Scheduled stents exchanges every 4 months

In case of relapsing stricture
- FC SEMS vs Hepatico-jejunostomy

Dumonceau, Endoscopy 2012
Chronic pancreatitis
Management: step-up-approach

Make a correct diagnosis
- history
- imaging tests MRI / MRCP / CT / EUS
- alternative diseases / complications / pancreatic cancer / IPMN, pseudocyst, BD / duodenal obstruction

Candidate for endoscopy
symptoms + appropriate morphologic features
Trial of endotherapy
≤ 5 interventions
Early in the disease course

No good candidate for endoscopy
or failed endoscopy
Opioids tried for a limited period
Slow release preparation
→ slow access to CNS
→ ↓ addiction
⊕ adjunctive agents
Limited effect and/or
↑ opioid treatment needed

If no persistent pain relief

Surgery
Alternative options
Gastroenterology and Endotherapy European Workshop

BRUSSELS - BELGIUM

June 18 – 20, 2018

www.live-endoscopy.com