STRUCTURES OF THE BILE DUCTS
Session No.: 5

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Rome - Italy
Drainage of biliary strictures .... The history

*before 1980*

Surgical bypass

Percutaneous –
Endoscopic plastic stenting

*3rd millenium*

Self Expandable Metal Stents
Stenting in biliary strictures: *when?*

**Malignant strictures:**
- Palliation
- Pre-operative drainage

**Benign strictures**
- Treatment

**Common bile duct**

**Hilum**
Malignant common bile duct strictures

Palliation: role of SEMS

SEMS better than plastic?

Covered or Uncovered?

Cost-effective?

Role in chemotherapy?
Palliation: role of SEMS

SEMS better than plastic?

SEMS present a lower risk of recurring biliary obstruction than plastic

(Evidence level 1+).

Biliary stenting: Indications, choice of stents and results: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline

Endoscopy 2012

Biliary stent obstruction
Malignant common bile duct strictures

Palliation: role of SEMS

SEMS better than plastic?

Covered or Uncovered?

Amongst SEMS no difference has been clearly demonstrated, including between covered and uncovered models.

(Evidence level 1+).

Biliary stenting: Indications, choice of stents and results: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline

Endoscopy 2012
Increased risk of cholecystitis with Covered SEMS?
Malignant common bile duct strictures

Palliation: role of SEMS

SEMS better than plastic?

Covered or Uncovered?

Cost-effective?

Plastic stent cost-effective if life expectancy < 4 months

SEMS cost-effective if life expectancy ≥ 4 months

(Evidence level 2+).

Biliary stenting: Indications, choice of stents and results: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline

Endoscopy 2012
Malignant common bile duct strictures

Palliation: role of SEMS

SEMS better than plastic?

Metal stents reduce the risk of chemotherapy postponement due to stent occlusion (more frequent with plastic stents)

Takasawa O. W J Gastro 2006

Role in chemotherapy?

Prefer SEMS in patients who are candidates for neoadjuvant therapies (Recommendation grade C)

Biliary stenting: Indications, choice of stents and results: European Society of Gastrointestinal Endoscopy (ESGE) clinical guideline

Endoscopy 2012
Malignant common bile duct strictures

Pre-operative biliary drainage

Is necessary?

Can SEMS impair surgery?

Covered or uncovered SEMS?
Malignant common bile duct strictures

Pre-operative biliary drainage

Is necessary?

Can SEMS impair surgery?

Covered or uncovered SEMS
Malignant common bile duct strictures

Pre-operative biliary drainage

Is necessary?

Can SEMS impair surgery?

Covered SEMS can be removed intraoperatively or “en-bloc” with the surgical specimen

Mullen JT, J Gastrointest Surg 2005
Kahaleh M, Endoscopy 2007
Siddiqui AA et al, J Clin Gastro 2011
Singal AK Dig Dis Sci 2011
Malignant common bile duct strictures

Pre-operative biliary drainage

Is necessary?

Can SEMS impair surgery?

Covered or uncovered SEMS?

Covered preferred but consider presence of the gallbladder
Pancreatico-biliary malignancies:

Surgery vs Pre-operative drainage with SEMS: work in progress!
Malignant hilar biliary strictures

Bismuth and Corlette Classification
Which stents for malignant hilar biliary strictures palliation?

Plastic stenting: if no definitive decision about curative/palliative treatment

SEMS: longer patency than plastic, recommended in patients with life expectancy > 3 months or with biliary infection (Recommendation grade B).

Only uncovered SEMSs are used in this setting to prevent occlusion of side branches (Evidence level 1–).
Malignant hilar biliary strictures. Pre-operative drainage.

1. PTC biliary drainage

2. Portal embolization

3. After 4 weeks

4. Right hepatectomy + seg. 4+1
Benign biliary strictures amenable to stent therapy

- Post-Cholecystectomy
- Post-Liver Tx anastomotic strictures
- Bile duct strictures in chronic pancreatitis
### Benign biliary strictures: characteristics

<table>
<thead>
<tr>
<th>Gallbladder</th>
<th>Site of the stricture</th>
<th>Stricture feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>Common bile duct / hilum</td>
<td>Short</td>
</tr>
<tr>
<td>Absent</td>
<td>Common bile duct (anastomosis)</td>
<td>Short</td>
</tr>
<tr>
<td>Present or not</td>
<td>Intrapancreatic</td>
<td>Longer</td>
</tr>
</tbody>
</table>
Endoscopic Therapy of Post-Operative Biliary Strictures

“Aggressive” approach

- Placement of an increasing number of plastic stent at each stent exchange (3 months)
- End Point: Complete morphologic disappearance of the stricture
- Irrespective of the time of stenting

Costamagna G et al, GIE 2001
Endotherapy of postoperative biliary strictures with multiple stents: results after more than 10 years of follow-up

Guido Costamagna, MD, FACG, Andrea Tringali, MD, PhD, Massimiliano Mutignani, MD, Vincenzo Perri, MD, Cristiano Spada, MD, Monica Pandolfi, MD, Domenico Galasso, MD

<table>
<thead>
<tr>
<th>Follow-up finding</th>
<th>Long term (year 1998)</th>
<th>Very long term (year 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean follow-up period, years (range)</td>
<td>4 (2-11.3)</td>
<td>13.7 (11.7-19.8)</td>
</tr>
<tr>
<td>Patient lost to follow-up</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Patient died of unrelated cause</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Asymptomatic with normal LFT, no. (%)</td>
<td>39/40 (97.5)</td>
<td>28/35 (80)</td>
</tr>
<tr>
<td>Cholangitis recurrence, no. (%)</td>
<td>1/40 (2.5)</td>
<td>7/35 (20)</td>
</tr>
<tr>
<td>Stricture recurrence</td>
<td>0</td>
<td>4/35 (11.4)</td>
</tr>
<tr>
<td>Stones/food</td>
<td>1 (2.5)</td>
<td>3/35 (8.6)</td>
</tr>
</tbody>
</table>

*LFT, Liver function test results.*
Endoscopic Therapy of *Post-Colecystectomy* Biliary Strictures

“Aggressive” approach (22 years experience)

160/180 (88.8%) patients: *7 years* mean follow-up

- 86.3% (n 138) asymptomatic
- 13.7% (n 22) symptomatic recurrences (cholangitis)

- 8.7% (n 14) Stricture recurrence
- 5% (n 8) Stones

*Time to recurrence:* 2.5 y (0.2-12)

*Success of endoscopic retreatment:* 100%

*Mean follow-up after retreatment:* 4.8 y

Digestive Endoscopy Unit, UCSC, Rome

**UEGW 2012**
Endoscopic Therapy of
Anastomotic Biliary Strictures following liver Tx.
“Aggressive” approach

50 patients: 5.8 years mean follow-up

- 94% (n 47) Asymptomatic
- 6% (n 3) Stricture recurrence

Time to recurrence: 2.9 y (1.2-5.4)
Success of endoscopic retreatment: 100%
Mean follow-up after retreatment: 5.6 y
Endoscopic Therapy of *Benign* Biliary Strictures

Multiple plastic stents.

<table>
<thead>
<tr>
<th>Pro</th>
<th>Con</th>
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<tbody>
<tr>
<td>• Effective and satisfactory results</td>
<td>• Need for several ERCPs (2-7)</td>
</tr>
<tr>
<td>• Few major complications</td>
<td>• Usually 1 year treatment</td>
</tr>
<tr>
<td>• Related mortality absent</td>
<td>• Patient compliance</td>
</tr>
<tr>
<td>• Low stricture recurrence rate</td>
<td>• Risk of cholangitis (stent displacement / occlusion)</td>
</tr>
<tr>
<td>• Endoscopic re-treatment feasible and successful</td>
<td></td>
</tr>
</tbody>
</table>
Endoscopic Therapy of *Benign* Biliary Strictures
Fully Covered Removable Metal Stents.
Endoscopic Therapy of
Anastomotic Biliary Strictures following liver Tx.
Fully Covered Removable Metal Stents

1

2
ERCPs

6 months later
Endoscopic Therapy of Benign Biliary Strictures.
SEMS induced stricture.

After 1 month
Endoscopic Therapy of *Benign* Biliary Strictures
Fully Covered Removable Metal Stents.

**Possible advantages**
- Potentially 2 ERCPs
- SEMS larger diameter than plastic
- Better patient compliance

**Disadvantages**
- Stricture < 2 cm from the main hepatic confluence excluded
- Migration
- Removability not always “easy”

10 mm

Six 10 French plastic stents
Endoscopic Therapy of Bile duct strictures in Chronic Pancreatitis
Endoscopic Therapy of *Chronic Pancreatitis* related Biliary Strictures

Multiple plastic stents Vs FC-SEMS.

Randomized multicenter study of multiple plastic stents vs. covered self-expandable metallic stent in the treatment of biliary stricture in chronic pancreatitis

30+30 pts

6 plastic stents vs 10 mm FCSEMS

Median F- up 40 months

Stricture resolution 90 vn 92% (ns)

2 year stricture recurrence 12 vs 9 % (ns)

*Haapamaki C et al*

*Endoscopy 2015*
Stent in Benign biliary strictures.
Conclusions

- Better Post-cholecyst. and OLT
- Yes
- Hilar strictures
- Applicable
- Usually “easy”
- Removability
- Always feasible
- Endoscopic re-treatment
- Always feasible

Results

- Long-term f-up
- Yes

- Slightly better CP related biliary stricture
- No
- Not applicable
- Could be a challenge
- Always feasible
In patients with benign CBD strictures, we recommend temporary placement of *multiple plastic stents* provided that the patient consents and is thought to be compliant with repeat interventions

(Recommendation grade A)

Fully covered SEMS for benign biliary strictures is an *investigational option* that needs to be carefully evaluated by long-term follow-up studies.

(Evidence level 1+)
EDITORIAL

Covered self-expanding metal stents in benign biliary strictures: not yet a “new paradigm” but a promising alternative

Costamagna G. GIE 2008
endolive roma 2016

Venue: Auditorium Catholic University Rome Policlinico A.Gemelli

www.endoliveroma.it

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