Stenting from Esophagus to Colon

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Self Expanding Stents

• Stent is delivered on a catheter system over a guide wire
• Stent is placed across narrowed lumen
• As it is released from the catheter the stent expands and creates a larger lumen
Expanded use of esophageal stents in the management of GI disorders

- Malignant dysphagia
- Benign disorders
  - Strictures
  - Leaks and fistulas
  - Perforation
  - Miscellaneous uses
    - Variceal bleeding
    - Pancreatic necrosis

Esophageal stents

FCSEMS  PCSEMS  FCSEMS  PSES
Refractory benign esophageal strictures

- Up to 10% of esophageal strictures are refractory to dilation⁴
- Other treatment options include surgical therapy or aggressive endoscopic interventions
- Stenting with a removable or bioabsorbable device should allow prolonged dilation and resolution of the stenosis
- Initial reports were very enthusiastic, more recent reports reflect the realities of stricture management

   a. cannot dilate to 14mm after 5 sessions 2 weeks apart
   b. inability to maintain lumen at 14mm for 4 weeks

Recent reports of esophageal stents for benign strictures demonstrate disappointing efficacy

- Mayo Clinic 2008 SEPS series¹
  - Only 5 of 83 interventions resulted in long term improvement after stent removal
- UAB-UVA 2011 FCSEMS series²
  - Only 4 of 17 patients with strictures had long term resolution of dysphagia from stenting

Refractory benign esophageal strictures

Biodegradable stents

- Appealing concept of single procedure therapy for benign strictures
- Early stent designs appear promising
- Variability in stricture response and stent absorption time require modification

1. Siersma PD and de Wijkerslooth LRH. Dilation of refractory benign esophageal strictures. Gastrointest Endoscopy 2009 70:1001-1012
Biodegradable stent

Before stent placement

0 months 3 months 6 months

- Uncovered stent
- Made of polidioxanone
- Absorbed within 2-3 months
- No repeat endoscopy for stent removal

Gastroduodenal obstruction

- Malignant Etiologies
  - Gastric
  - Duodenal
  - Pancreatic
  - Biliary
  - Gallbladder

- Patients with limited life expectancy and poor treatment options

Slide courtesy of Dr. Peter Siersema
Gastroduodenal Obstruction

- Treatment options
  - Enteral stenting
  - Surgical bypass
  - Palliative decompression
    - NG
    - PEG
    - Surgical gastrostomy
  - Hospice (no therapy)
Gastroduodenal Obstruction

Literature

• Large number of retrospective series
• One RCT favors stenting
  – Mehta et al Surg Endo 2006
• Excellent technological review
  – Baron and Harewood GIE 2003

Gastroduodenal Obstruction

Literature Summary

• Reported technical success rates for enteral stenting 85-95%
• Clinical success 80-85%
• Time to initiating oral diet is shorter with stenting than surgery
• Cost savings with enteral stenting
Combined gastroduodenal and biliary obstruction

• Evaluate carefully for biliary involvement prior to enteral stenting

• If any involvement of the bile duct is present then metallic stenting of the biliary tree should be completed before placing an enteral stent across the major papilla.

• If a patient with a duodenal stent develops malignant obstructive jaundice, ERCP can be attempted and if unsuccessful PTC or EUS assisted biliary drainage can be accomplished with a metallic stent.

Colonic Obstruction

Devastating presentation that can be completely addressed by SEMS placement by the endoscopist
Colonic obstruction
Clinical situations

• Two stage therapy of patients with obstructing colon cancer
  – Placement of SEMS at colonoscopy
  – Bowel prep followed by resection of lesion and stent.

• Palliation of unresectable colon cancer
  – Obstructed patient for palliation
  – Relief of obstruction while undergoing down staging therapies

Expandable Metallic Stents
Colonic Stents

• TTS design 10 Fr catheter systems vs. over the wire 16-31 Fr systems
• Steel alloy vs. nitinol
• All stent designs are very effective

10 French
TTS delivery
16-31 French
Wire delivery
Colonic Obstruction
Stent Placement

- Enema prep
- Fluoroscopy room
- CO2 insufflation
- Endoscopically identify the lesion
- Guide wire passed into obstructed colon with fluoroscopic guidance
- Obstruction delineated with contrast and balloon catheter
- Stent positioned and deployed

Complications of colonic stenting

- Acute Complications
  - Standard procedural complications
  - Perforation
    - Localized
    - Free intraperitoneal
Causes of recurrent obstruction after colonic stenting

- Tumor ingrowth
- Tumor overgrowth
- Hyperplasia of normal colon mucosa
- Additional lesion
- Stent migration
- Fecal impaction

Colonic obstruction

Literature

- Randomized trials difficult to complete
- Large number of series with favorable results
- Excellent technological review
  - Baron and Harewood GIE 2003
Expected Outcomes

**Preoperative Stents Pooled Analysis**

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<th>Success Rate</th>
<th>Median</th>
<th>Range</th>
<th>Cumulative</th>
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<tr>
<td>Technical</td>
<td>92%</td>
<td>33-100%</td>
<td>84%</td>
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<tr>
<td>Clinical</td>
<td>72%</td>
<td>45-84%</td>
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**Palliative Stents Pooled Analysis**

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<th>Median</th>
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<th>Cumulative</th>
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<tbody>
<tr>
<td>Technical</td>
<td>94%</td>
<td>67-100%</td>
<td>96%</td>
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<tr>
<td>Clinical</td>
<td>91%</td>
<td>62-100%</td>
<td>93%</td>
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</tbody>
</table>

1. Pooled Analysis of the Efficacy and Safety of SEMS in Malignant Colorectal Obstruction; Sebastian S et al, Am J Gastroenterol 2004;99:2051-2057

Caution with extra colonic malignancies

- Often asked to consider palliative *stenting* in gynecologic or other oncologic processes with extrinsic colonic obstruction
- Outcomes can be much worse for these patients
  - Perforations
  - Multiple levels of obstruction (consider CO2 use)

Stenting from Esophagus to Colon
Conclusions

- Stenting has revolutionized the approach to obstructive pathology of the GI Tract
- Cost effective, safe and beneficial therapy for patients with luminal obstruction
- Placement of expandable stents should be an option for all active therapeutic endoscopists

Thank you!

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