

## Luminal and Biliary Stenting

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## What's New in PB Stenting?

- Prophylactic PD stenting in pts @ high-risk of post-ERCP pancreatitis
- 3 Fr vs 5 Fr stents?
- Development and marketing of fully covered prostheses
  - Use in benign CBD/PD strictures/malignancy
- Advisability of biliary decompression with resectable distal MOJ
- SEMS placement in all distal MOJ pts regardless of resectability

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## Prophylactic PD Stenting 5 Fr vs 3 Fr PD Stents?

- Chahal et al. *Clin Gastroent Hepatol* 2009; 7:834
  - Pts at high risk for PEP randomized to 5 Fr/3 cm unflanged (116) vs 3 Fr  $\geq$ 8 cm (133) PD stents
  - $\uparrow$  success rate of 5Fr stent placement (100% vs 91%; p = 0.003)
  - Rate of PEP NS different (9%/14%)
- Conclusions: 5Fr stents preferable...

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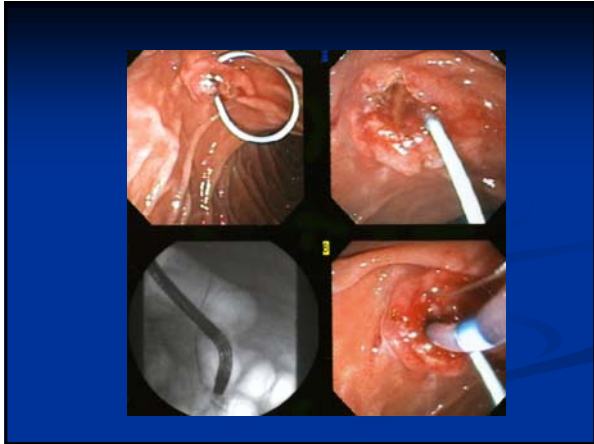
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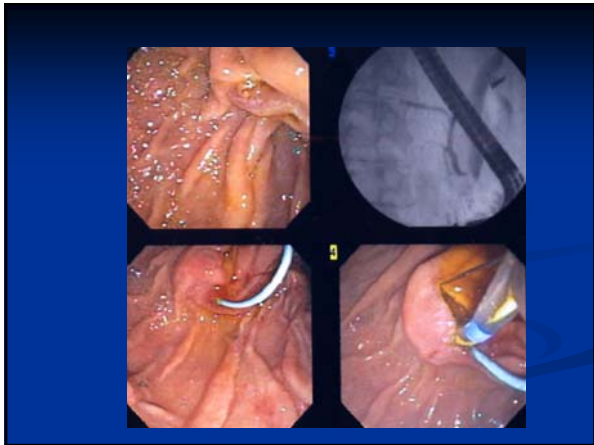
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### Biliary Stenting DDW-2009



- Does putting a covering on a biliary SEMS improve stent longevity?
- Kullman et al (933): Multicenter study randomizing 338 pts w/ C/U Nitinella stent
  - Identical survival pts/stents; comparable complix
- Cho et al (1114): 77 pts randomized to covered/ uncovered Bonastent/Hanarostent/Wallstent
  - Comparable patency  $\approx$  200 d
  - Complix 10.5% UNC/26.5% covered ( $p > 0.05$ )
- Cho et al (1112): C-SEMS into occluded uncovered SEMS statistically increased stent/pt survival compared w/ plastic/u-SEMS placement

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### Does Putting a Covering on a SEMs Allow Retrieval/Preclude Complications?



- Kasher et al (1113): Multi-center trial, 36 pts Rx with Viabil stent, median placement duration 106 days
  - All removable w/rats-tooth or snare
  - Device occlusion median 160 d
  - Iatrogenic intraductal stricture from oversized stents

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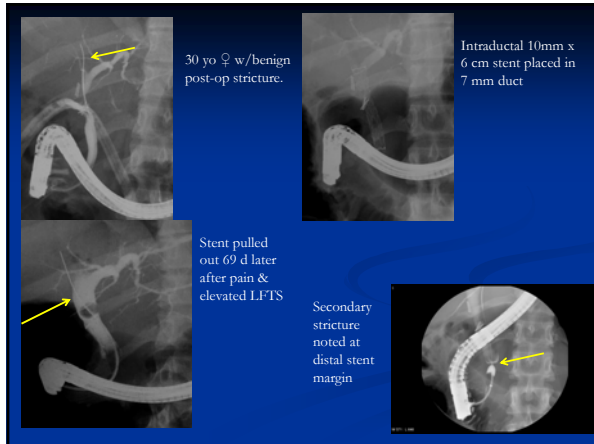
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### Use of (Partially) Covered SEMS for Benign Dz

- Kahaleh et al., *GIE* 2008;67:446
- 79 pts w/BBS (CP 32/stones 24/liver transplant 16/other 7)
  - Rx with PC Wallstent
    - 65 stents removed; resolution BBS (90%) @ median F/U 12 months; Rx success ITT 75%
    - Complix – migration 14%/ PEP 4%/Pain 2%/Bleed 1%
- Conclusions: PC SEMS potential alternative to surgery

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### Biliary Stenting-DDW 2009

- Does preoperative biliary drainage (PBD) improve outcomes in jaundiced pts with pancreatic head mass treated surgically?
- Van Der Gaag, et al (837): Prospective, randomized multi-center Dutch trial: PBD for 4-6 weeks vs early surgery
  - 220 pts, 106 PBD endoscopically/96 early
  - ↑ rate complix PBD, 76% vs 40%
    - PBD complix, 47% PBD vs 2%
    - Surgery-related complix, 47% PBD vs 38%
    - $\bar{o}$  difference mortality, hospital stay
  - Conclusions:
    - Significant morbidity PBD
    - Comparable surgical outcomes with/without PBD
    - PBD not indicated routinely in resectable pts with obstructive jaundice with pancreatic neoplasms

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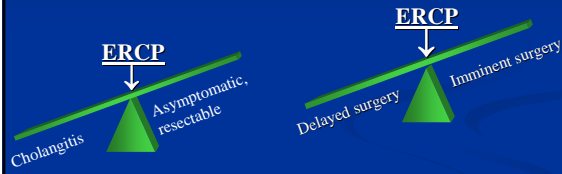
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### Should ERCP be Done in Malignant Obstructive Jaundice in Pts with Resectable Pancreatic CA??



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### Initial Placement of Biliary SEMS for Distal MOJ Regardless of Resectability

Chen et al. *Clin Gastroenterol Hepatol* 2005; 3:1229

Kahaleh et al, *Endoscopy*, 2007;39:319

Yoon et al, *GIE*, 2009;70:284

- Purported benefits
  - 80% of pts non-resectable
  - ↑ patency of SEMS
    - Allows downstaging for surgery/palliation to death with ↓↓ risk of occlusion
  - Cost-effectiveness

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### What's New in Esophageal Stenting?

- Newer prostheses
- Placement of fully covered SEMS for benign disorders (not FDA approved)
- Use of covered biliary SEMS for exceptionally tight/following rendezvous procedure for disconnected esophagi

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### Newer Prostheses Non-FDA Approved

Saito et al. *Dig Dis Sci* 2008; 53:330

- Biodegradable poly-L-lactic acid stents for benign disorders
  - Ella-CS, Prague, Czech Republic
  - Marai Textile Machinery Co., Osaka, Japan

Jeon et al, *Endoscopy* 2009;41:449

- Paclitaxel imbedded Bonastent noted to ↓↓↓ tissue hyperplasia in dog model

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### Use of fully covered SEMS for Benign Disorders

- Anastomotic leaks
  - EG, EJ, GJ (gastric bypass)
  - Boerhaave's iatrogenic perforations
  - Refractory strix
    - Eloubeidi et al, *Am J Gastro* 2009;133
      - 39 Alimaxx-E stents placed 36 pts
      - Long term success 88% TE fistulas, 100% post-op leaks.
      - 50% iatrogenic perforations, 29% refractory B-9 strix
      - All stents successfully removed in pts with benign disorders

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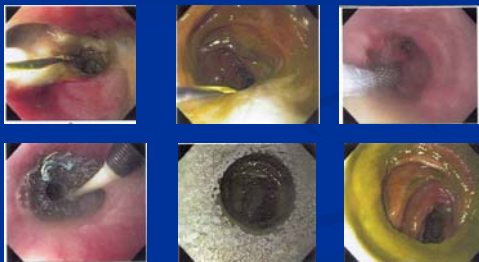
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### Placement of Fully Covered Niti-S Esophageal Stent for Anastomotal Post-Gastric Bypass



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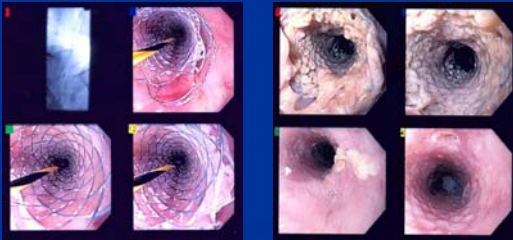
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**Use of a Fully Covered Wallflex to Treat a Refractory Cervical Esophageal Stricture with Neck Fistula**



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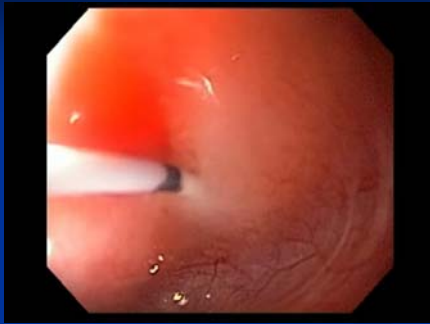
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**What's New With Enteral and Colonic Stents?**

- Large series re technical success rates/clinical outcomes for malignant GOO/colon obstrux
- Retrospective/economic comparisons with surgical decompression of non-resectable Dz
- Paucity of randomized, controlled trials comparing surgery to stenting

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### Results SEMS for GOO

- ≈500 pts reported in literature to date
- 90% successful (up to 1/3 need 2<sup>nd</sup> stent)
- Acute complications 5%
  - Malplacement/migration
  - Perforation
  - Bleeding
- Chronic complications 25%
  - Food impaction
  - Ingrowth/overgrowth
  - Erosion/bleeding/perforation
- Median survival 3-4 months

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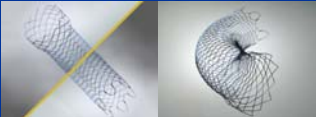
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### Prospective Multicenter Trials

Piesman et al, *Am J Gastroenterol* 2009; in press

- 43 pts malignant GOO Rx with enteral Wallflex
- Successful deployment initial attempt, 41
- Reintervention rate for adverse events 10% @10d
  - 39% within 90d (stent occlusion 9%, perforation 5%)
- Improvement in GOOSS  $\geq 1$  in 75% by 7d
- Most maintained to time of death



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**Self-expandable metallic stents (SEMS) marketed/ utilized for colonic stenoses**

SEMS	Stent diameters (mm)	Length delivery catheter (cm)	Delivery catheter size (F)	Material
Z®	25	40	31	Stainless steel
Memothem®	25, 30	120	14.5	Nitinol
Enteral Wallflex®	18, 20, 22	136, 266	10	Nitinol
Precision Ultraflex®	30	69/90/120	16	Nitinol
CoRectCoil®	16, 20	80	32	Nitinol
Choostent®	22	75, 120	12	Nitinol
Niti-S	20, 22, 24	100	24	Nitinol

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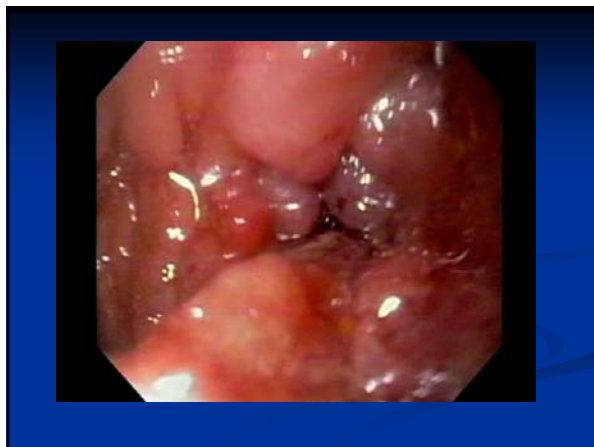
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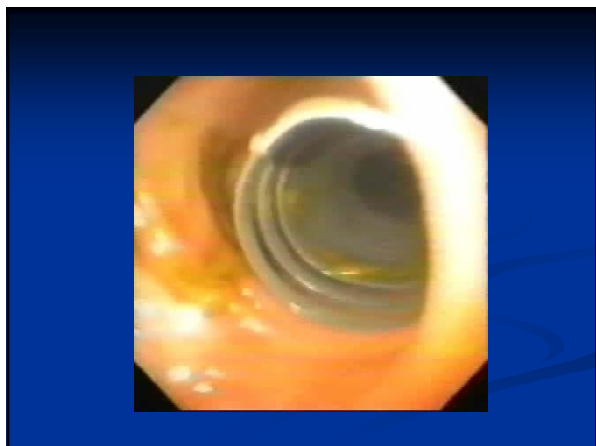
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**Colonic SEMS for Prep/Palliation**

- Lee et al, *GIE* 2007;66:931
- Song et al, *Endoscopy* 2007;39:448
- Small/Baron, *GIE* 2008;67:478
- Stipa et al, *Surg Endosc* 2008;22:1477
- Im et al, *Int J Colorectal Dis*, 2008;23:789
- Repici et al, *GIE* 2008;67:68
- Van Hoof et al, *Endoscopy* 2008;40:184

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**Literature Comparison of Colon Stenting vs Open surgery for Malignant Colon Obstruction**

Tilney et al. Surg Endosc 2007;21:225

- 10 studies, 451 pts reviewed for meta-analysis
  - Stent insertion 244 pts, successful 226 (93%)
  - Mean LOH 7.7 days less in the stent group (p<0.001)
  - ↓ mortality for stent (p=0.03)
  - ↓ complix for stent (p<.001)
  - ↓ risk stoma formation (OR=0.02, p<0.001)

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**Conclusions**

- Continued evolution of PB/eso/enteral prostheses

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