Tricks of the Trade in Complicated Endoscopic Cases

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Disclosures

Consultant BSCI, Beacon Endoscopic
Review

- Foreign Bodies
- GI Bleeding
- Enteral (Colonic) Obstruction
- Feeding tubes

Foreign Bodies

- Ingested foreign objects can be accidental or deliberate, some even iatrogenic
- Accidental more common ages 6 mo to 6 years
- 80-90% of ingested foreign objects that reach the stomach will pass uneventfully; risk of perforation is 1%
- Esophagus is most common site in the GI tract for foreign body obstructions and accounts for 75% with underlying pathology in 88-97%

Smith MT, Gastrointest Endosc Clin N Am, 2007;17:361-382
Foreign Body Management

- Radiographic localization with plain films, both PA and lateral; avoid barium
- Airway attention
- Timing:
  - Emergent: unable to manage secretions, esophageal disk batteries and sharps in esophagus
  - Urgent: incomplete esophageal obstruction, non sharp esophageal, sharps in stomach or duodenum, items >6 cm proximal to duodenum, magnets
  - Non urgent: coins in esophagus if asymptomatic, batteries in stomach present for less than 48 hours

ASGE Guidelines, GIE 2011;73: 1085-1091
Meat Impaction

- Urgent endoscopy; hopefully within first 6-12 hours before meat softens
- Airway protection
- If unable to remove as bolus consider push, may need partial reduction first
- Can try glucagon, avoid papain

Eosinophilic Esophagitis

- Commonly found in younger patients presenting with food impaction
- Reported in as many of 33% of patients with food bolus impaction

Goat Soup

Reality vs Guidelines: Drug Packets
Bravo Capsule

- Retained in up to 2% of patients
- Persistent chest pain
- Mucosal attachment
- Can typically be removed by cold snare

De Hoyos A, Digestion: 2009; 79: 14-16
Capsule Retrieval/ DBE for Recurrent SBO

Stent removal

Barthel JS. GIE 2008; 67(3):546
GI Bleeding

- Upper GI source predicted by patient reported history of melena, melenic stool on exam, blood or coffee grounds on NG lavage, ratio of BUN to Cr >30
- Passage of blood clots less likely upper source
- Restrictive Blood transfusion policy favored; maintain Hgb ~ 7

Laine L, Am J Gastroenterol 2012; 107:345-360

Prokinetics for bleeding

- Erythromycin 250 mg iv(3mg/kg) 30 min prior to endoscopy allows improved visualization
- Decreases need for second look endoscopy but does not improve clinical outcomes
- No data to suggest benefit to metoclopropamide
Obscure Gastrointestinal Bleeding (OGIB)

- GI bleeding that persists or recurs without obvious source on EGD, colonoscopy, and conventional small bowel radiography
  - Accounts for ~ 5% of GI bleeding patients
    - ~ 75% have a small bowel (SB) source
  - Overt or occult based on presence of absence of clinically evident bleeding; obscure-overt with frank bleeding; obscure-occult with guaiac positive stools possibly coupled with iron deficiency anemia


Consider Repeating Conventional Endoscopy Before Exploring the Deep Small Bowel

- Fry et al (2009)
  - DBE in 107 OGIB patients (85 overt, 22 obscure)
  - Possible bleeding source within the reach of conventional endoscope in 48%
  - Definite bleeding source was within the reach of a conventional endoscope in ~ 24%
  - Potential small bowel source in 65%

Fry LC et al. Aliment Pharmacol Ther 2009; 29:342-349
Lesions That Are Often Overlooked

- Peptic ulcers
  - High lesser gastric curvature, posterior wall of duodenal bulb
- Cameron’s lesions
- Dieulafoy lesions
- Angioectasias
- Gastric Antral Vascular Ectasia, GAVE
- (Neoplasms)

Dieulafoy Lesion
Deep Enteroscopy
Push & Pull Endoscopy
Double Balloon (DBE)
Single Balloon (SBE)

Angioectasia
Crohn’s Dz
NSAID-enteropathy

Carcinoid
GIST
Lymphoma

Meckel’s Diverticulum
Mesenteric Ischemia
Mesenteric Lymphangiomatosis
Yield of Deep Enteroscopy (%) in OGIB

(Arranged By Publication Year)

Range ~ 43% to 91%
Mean ~ 69%
Endoscopic interventions are performed in ~ 35% of DBEs (10-60%)
Bleeding from gastroesophageal varices is a serious complication of portal hypertension and chronic liver disease.

Bleeding from esophageal is more common than from gastric varices.

When gastric variceal bleeding occurs, it is usually severe, and associated with increased mortality.

Qureshi, et al. GIE 2005
Sarin Classification

- **Gastroesophageal Varices (GOV)**
  - GOV1: esophageal varices that extend across the GE junction and lesser curvature
    - 75% of GVs
  - GOV2: esophageal varices that extend along the fundus

- **Isolated Gastric Varices (IGV)**
  - IGV1: occur in the fundus only
    - Most severe bleeding
  - IGV2: occur in other isolated areas of the stomach

Sarin SK et al. Hepatology 1992

Epidemiology

- Gastric varices are found in about 20% of patients with portal hypertension
  - Most have GOV1 gastric varices
- IGV1 varices have the highest incidence of bleeding
- GVs are more common in non-cirrhotic portal HTN than in cirrhotics

Treatment Options

• Endoscopic Therapy
• TIPS
• BRTO
• Surgery

Cyanoacrylate Injection

• Not currently FDA approved for use in the United States
• Comparison studies have shown glue to be more effective than ethanolamine in achieving hemostasis
  Oho et al. Endoscopy 1995
• More effective at obliterating GVs (100% vs 44%) and achieving hemostasis (89% vs 62%)
  Sarin SK et al. Am J Gastro 2002
Cyanoacrylate: US Experience

• 44 patients were treated with N-2-butyl cyanoacrylate
  – Initial hemostasis: 95%
  – Cost analysis suggested marked cost reduction and improved survival


Cyanoacrylate Injection
Cyanoacrylate Injection
B-RTO

- Balloon-occluded Retrograde Transvenous Obliteration
  - IR technique for embolizing GVs through a gastrorenal shunt
  - First introduced by Kanagawa et al in 1991
    - Commonly used in Japan
    - Increasing use in Europe and the US

B-RTO Technique

- Balloon catheter is placed through either the femoral vein or IJ, to the left renal vein and into the gastro-renal shunt
- Balloon is inflated and ethanolamine is injected to fill up the shunt
- The balloon is left in place for at least 1 hour
- Balloon is deflated after cessation of blood flow within the shunt
GI Stents: General Points

- Stents can be placed with fluoroscopy alone, or a combination of endoscopy with fluoroscopic guidance
- Self expanding metal stents of various lengths and diameters preloaded in a constrained position on a delivery catheter
- The goal is to advance them across the obstruction and release the constraining mechanism
Deployment Tips

- For proximal SB obstruction use duodenoscope or therapeutic gastroscope: colonic obstruction; depends on location; remember channel size (3.6 mm) and location
- 450 cm STIFF guidewire
- Cannula or biliary balloon for contrast; marking length depends upon whether or not endoscope traversed
- Stent selection; at least 2 cm longer than obstruction
- No predilatation necessary
- Leave wire in after stent deployed

Reasons for Colonic Stenting:

- Pre-operative decompression
  - up to 30% of patients with colon Ca present with obstruction
- Palliation of malignant bowel obstruction
  - patients with extensive disease &/or poor operative risk
Obstructing Colon Cancer

Stent Deployment
Preoperative Colonic Stents

• Emergency operations associated with higher morbidity and mortality rates
• May result in temporary or permanent colostomy with its high impact on the quality of life
• Only 40% of left sided malignant obstructions can be treated with resection without a stoma
• Stenting allows decompression and elective surgery

Khot UP, British J of Surg 2002; 89:1096-1102

Preoperative Colonic Stents

• Multicenter study of pts with primary colon cancer treated with preoperative radiologically placed stents
• Successful stent placement with clinical resolution of large bowel obstruction in 66 of 71 pts (93%)
• 65 pts had elective single stage surgery with primary anastomosis in 8.6 days post SEMS
• Intestinal perforation in 1 pt

Mainar, Radiology 1999;210:65-9
Colonic stent vs Standard Surgery

- Retrospective comparison of 13 pts Rx’ed with SEMS vs 13 Rx’ed in standard fashion
- Stent placement in 12/13 (3 palliation only).
- 2/13 SEMS group had colostomy vs 10/13 in surgical group
- Cost savings of 29% in SEMS group attributable to fewer hospital and ICU days and fewer surgical procedures

Binkert CA, Radiology 1998; 206:199-204

Palliative Stenting vs Emergency Surgery

- Retrospective review of 61 patients (31 surgery; 30 stent) with incurable cancer distal to the splenic flexure
- Stent insertion successful in 29 of 30
- No difference in median survival (107 days SEMS vs 119d); stent associated with shorter hospitalization (4 vs 8 days) and less need for ICU (1 pt vs 11)
- Stoma needed in 4 stent pts, vs 15 Rx’ed with surgery

Law WL, British J Surg 2003;90:1429-1433
Systematic Review Colorectal Stents

- Review of published results from 1990 to 2000
- Total of 598 attempted stent insertions
- Technical success in 92% (551); clinical success in 88% (525)
- Mortality of 1% (3 deaths)
- Complications: 4% perforation (22); migration 10% (54); reobstruction 10% (52)

Khot UP, Brit J Surg 2002; 89: 1096-1102

Pooled Analysis on Colorectal SEMS

- Review of 54 studies with total of 1198 patients
- Median technical success rate 94%; clinical success rate 91%
- Clinical success as bridge to surgery 71.7%
- Complications: perforation 3.76%, migration 11.81%, reobstruction 7.34%, mortality 0.58%

Sebastian S, Am J Gastroenterol 2004;99:2051-2057
Colonic stenting

Colonic Stenting as Bridge to Surgery

- Report of 2 prospective multicenter international registries
- 182 patients tumors of L colon (85%), rectum (11%), splenic flexure (4%); 86% local disease without mets
- Procedural success in 177/182 (98%)
- Clinical success in 141/150 (94%)
- Elective surgery performed in 150 patients (9 stomas), with emergent surgery in 7 patients for complications
- Overall complication rate of 7.8% (5 perforations)

Jimenez-Perez J, Am J Gastroenterol 2011;106:2174-80
Feeding Tubes

• PEG: mainstay of nutritional support in patients who cannot swallow but have intact gut function
• Remarkably safe and well established
• Generally late complication is the migration into the gastric or abdominal wall; “buried bumper syndrome” leading to difficulty feeding, leakage around site, abdominal pain, infection

Buried Bumper Management

• Case series from Taiwan described prevalence of 8.8% (19 cases in 216 PEG insertions); 5 with multiple cases
• Duration between PEG insertion and clinical recognition ranged from 1-50 months; mean 20.3 months
• Generally managed by external removal with traction followed by insertion of new feeding tube

Lee TH, GIE 2008; 68: 580-584
Enteral Feeding distal to Treitz

- Aspiration risk, prior gastric resection, gastric tumors, gastroparesis
- Peg with Jejunal extension (PEGJ) or direct placement of a jejunal feeding tube (DPEJ)
- Comparison of PEGJ to DPEJ: retrospective Mayo review of 5 years of experience found more interventions in the PEGJ group, but only used 20F PEG tube with 9F extension

Fan AC, GIE 2002;56:890-94

Aspiration Prevention

- No literature supporting PEG tube placement as an effective method of preventing aspiration
- PEG/J conversion: not proven to decrease incidence of aspiration, possibly secondary to high malfunction rate
- DPEJ: may reduce risk of aspiration and is also an option when PEG can’t be placed

Freeman C, Curr Opin Gastroenterol 2009;25:155-159
Tips for Placement

• Pediatric colonoscope
• Transillumination is critical
• For PEGJ; 24F PEG tube, 12 F jejunal extender with suture attached deployed with clip; have hemostats handy
• For DPEJ; some advocate holding the seeker needle with snare and following alongside with trocar needle, 20F PEG tube

Take away