Endoscopic Management of Surgical Complications

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Disclosure

- Lifecell
- Boston Scientific
- Covidien
Objectives

- Review surgical complications amenable to endoscopic intervention
- Demonstrate tools of the trade
- Understand limitations of current endoscopic therapeutic options
Surgical Complications Amenable to Endoscopic Intervention

- Anastomotic stricture
- Fistula, leaks and perforation
Anastomotic stricture

- **Etiology**
  - Inflammatory, Leak, Ischemia, Iatrogenic

- **Common anastomotic strictures**
  - Esophago-gastric: Esophagectomy
  - Gastro-jejunal: Gastric bypass
  - Colorectal
  - Biliary: Liver transplant
Anastomotic stricture

- Technique
  - Dilation
  - Stenting
  - Stricturoplasty
  - Combined therapy

- Tools
  - Dilators
  - Needle knife/ energy source
  - Stents
Bougie Dilation

- Non wire-guided
  - Maloney
- Wire-guided bougie dilators
  - Savary-Gilliard
Balloon Dilation

- Method of introducing balloon
  - Through the scope (TTS)
  - Under fluoro guidance (achalasia)

- Method of inflation
  - Hydrostatic
  - Pneumatic
Anastomotic stricture:
Balloon Dilation

- Esophago-gastric: Post Esophagectomy
Anastamotic stricture: Balloon Dilatation
Esophago-gastric: Post Esophagectomy
Anastomotic stricture: Balloon Dilatation

Esophago-gastric: Post Esophagectomy
Anastomotic stricture: Balloon Dilation

- Esophago-gastric: Post Esophagectomy
Anastomotic stricture: Savary Dilation
Esophago-gastric: Post Esophagectomy
Which Method of Dilation Best?

- **Bougie**
  - Inexpensive
  - Both radial and shearing force
  - Effective

- **Balloon**
  - More expensive
  - Radial force only (safer?)
  - Easier to traverse complex strictures
Anastomotic stricture: Stricuroploasty stubborn
Esophago-gastric: Post Esophagectomy
Anastomotic stricture:
Removable stent
Benign Strictures

Esophagus
Clinical Vignette
Esophageal Stent

Stent reposition
Clinical Vignette
Esophageal Stent

Stent reposition
Anastomotic stricture:
Biliary Dilation: Stents

- Duct-to-duct anastamosis:
Fistula, leaks and perforation

- **Etiology**
  - Ischemia, foreign body, iatrogenic, infection/inflammation, distal obstruction

- **Common treated complications**
  - Anastomotic leaks/ fistula
  - Enterocutaneous fistula
  - Bile leak
Fistula, leaks and perforation

- **Techniques**
  - Closing it, Covering it, Sealing it, relieving a distal obstruction

- **Tools**
  - Clips, Stents, Fibrin Glue, Dilators
Tools: Endoscopic Clips

- Olympus
- Ovesco
- Boston Scientific
Esophageal Metal Stents

- Merit
  - Alimaxx
Esophageal Metal Stents

- Boston Scientific
  - Ultraflex NG
  - Wallflex
Esophageal Metal Stents

- **Cook Medical**
  - Z-Stent Fully Covered: Stainless Steel
  - Z-Stent Uncoated Flange: Stainless Steel
  - Z-Stent with Dua Anti-Reflux Valve
  - Evolution Controlled release stent
Fistula / Leaks
Bile ducts
Fistula / Leaks
Bile ducts
Newer Metal Stents: Advantages
Fistula, leaks and perforation

Esophago-pleural Fistula

Combined therapy - Glue and Stent
Fistula, leaks and perforation
Esophago-pleural Fistula

Combined therapy- Glue and Stent
Fistula, leaks and perforation
Esophageal Fistula
Fistula, leaks and perforation
Esophageal Fistula
Fistula, leaks and perforation
Tracheo-esophageal Fistula
Fistula, leaks and perforation
Gastro-gastric fistula: Small
Fistula, leaks and perforation
Gastro-gastric fistula: Small
Gastric Sleeve
POD #7 (9/26) – Repeat UGI
Gastric Sleeve
POD #13 (10/2) – Repeat UGI
POD #14 – Fluoro
POD #45 (11/3) – repeat UGT
Stent Migration
Clinical Vignette
Esophageal Stent

Stent removal: Proximal method
Clinical Vignette
Esophageal Stent

Stent removal: Distal method
Foreign Body

- Etiology
  - Erosion into intestinal lumen
  - Presentation- ulcers / fistula

- Commonly encountered
  - Suture
  - Staples
  - Bands (silastic, Lap, Mesh)
Foreign Body- Suture
Foreign Body-
Eroded band post RYGBP
Conclusion

- Many surgical complications are amenable to being managed endoscopically
- Discuss all possible options for your surgical complications prior to proceeding with take back to the OR
Future in Surgical Endoscopy