

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



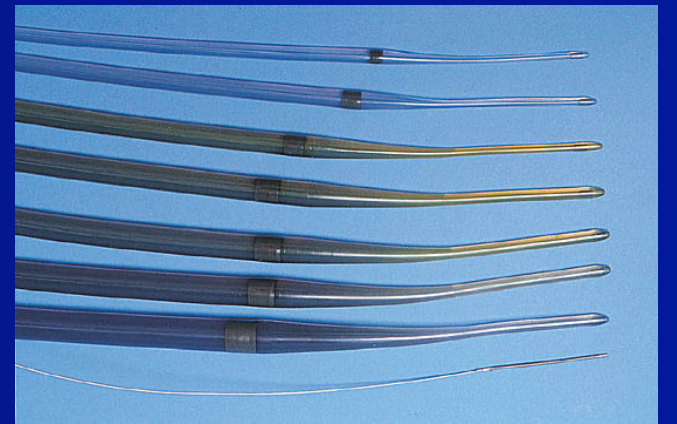
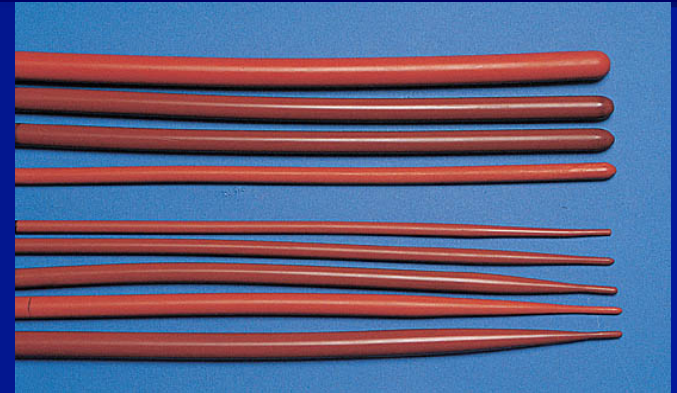
Anastomotic stricture

- Technique
 - Dilation
 - Stenting
 - Strictureplasty
 - Combined therapy
- Tools
 - Dilators
 - Needle knife/ energy source
 - Stents



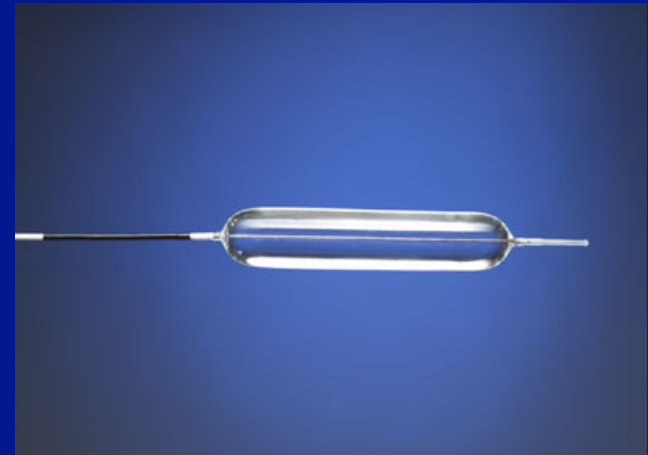
Bougie Dilation

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



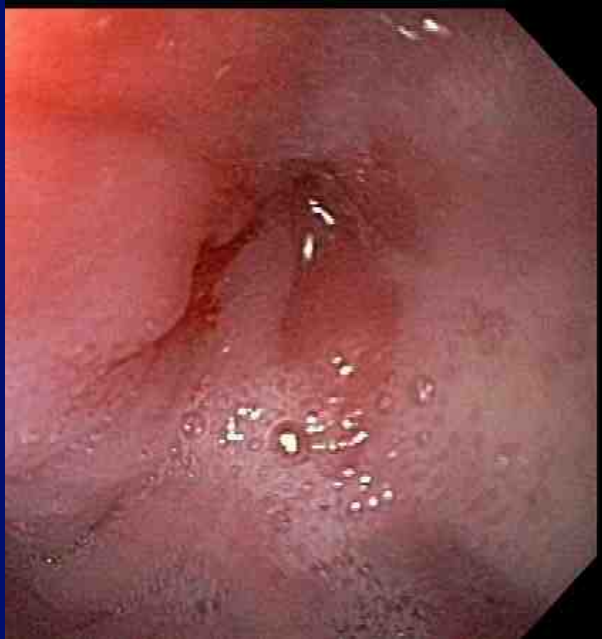
Balloon Dilation

- 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



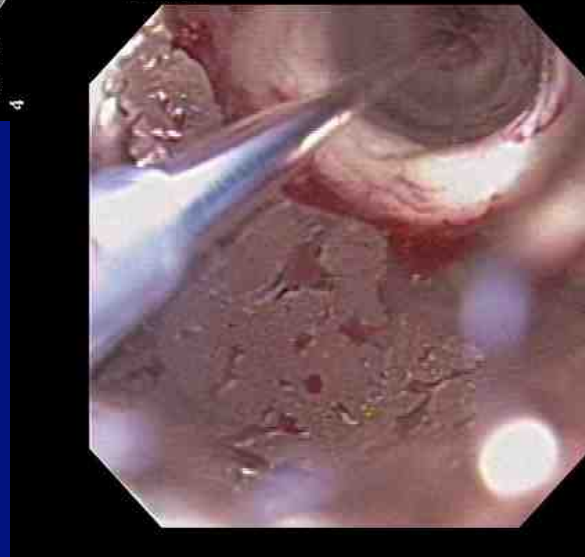
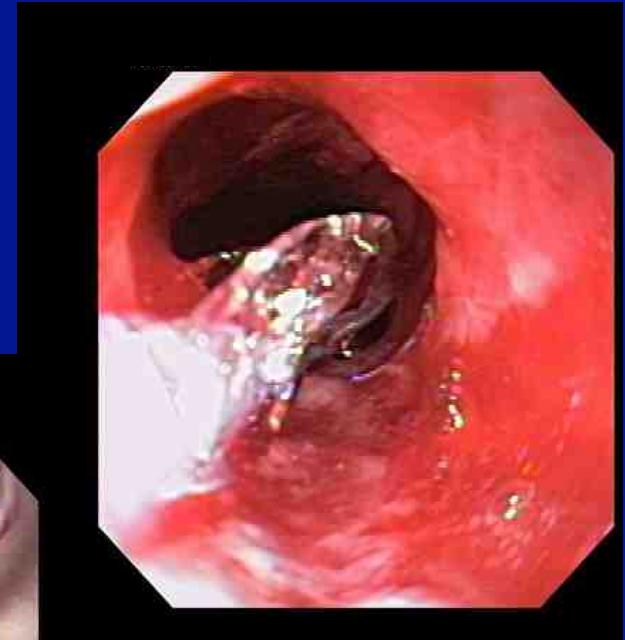
Anastamotic stricture: Balloon Dilatation

Esophago-gastric: Post Esophagectomy



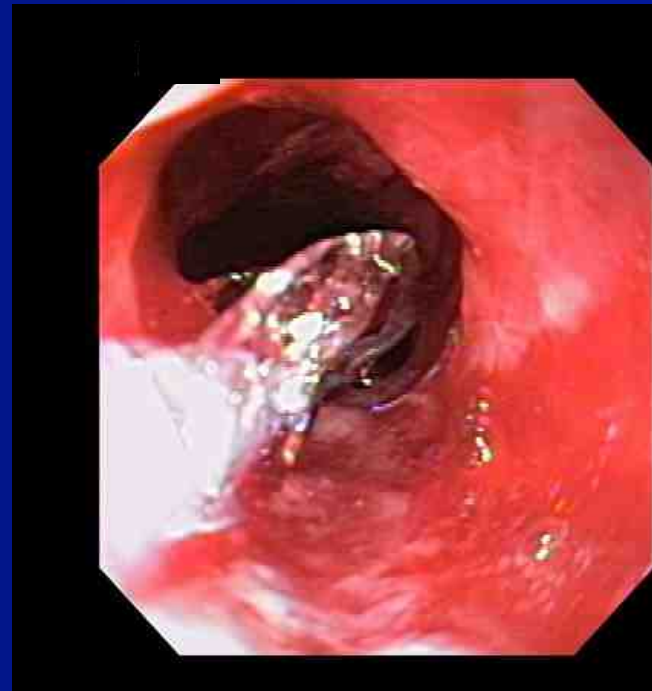
Anastomotic stricture: Balloon Dilatation

Esophago-gastric: Post Esophagectomy



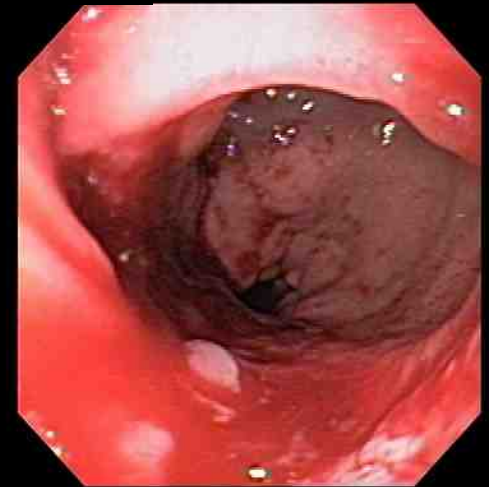
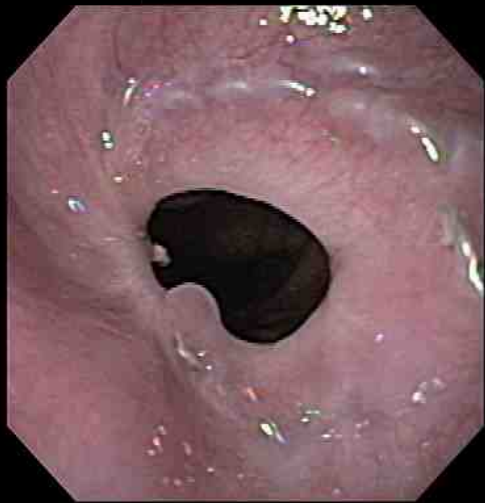
Anastomotic stricture: Balloon Dilation

- 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

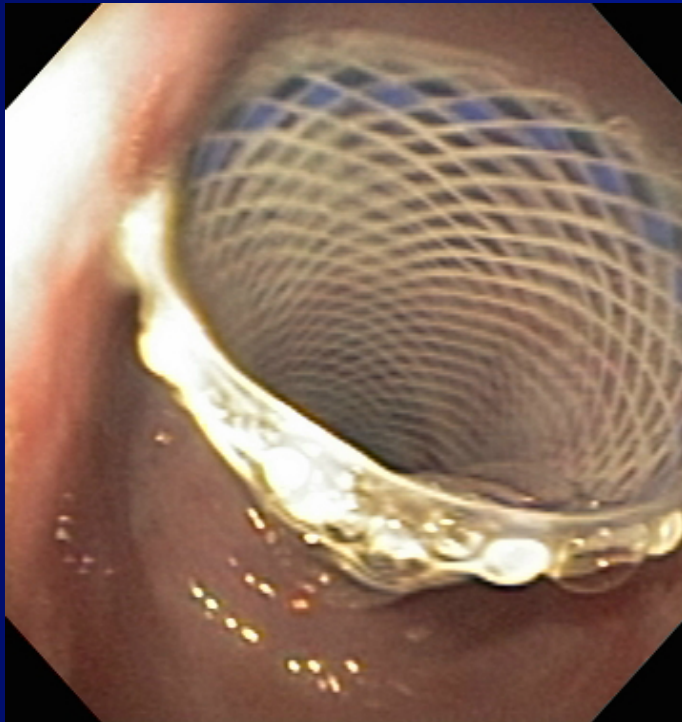


Anastomotic stricture: Stricturoplasty stubborn

Esophago-gastric: Post Esophagectomy

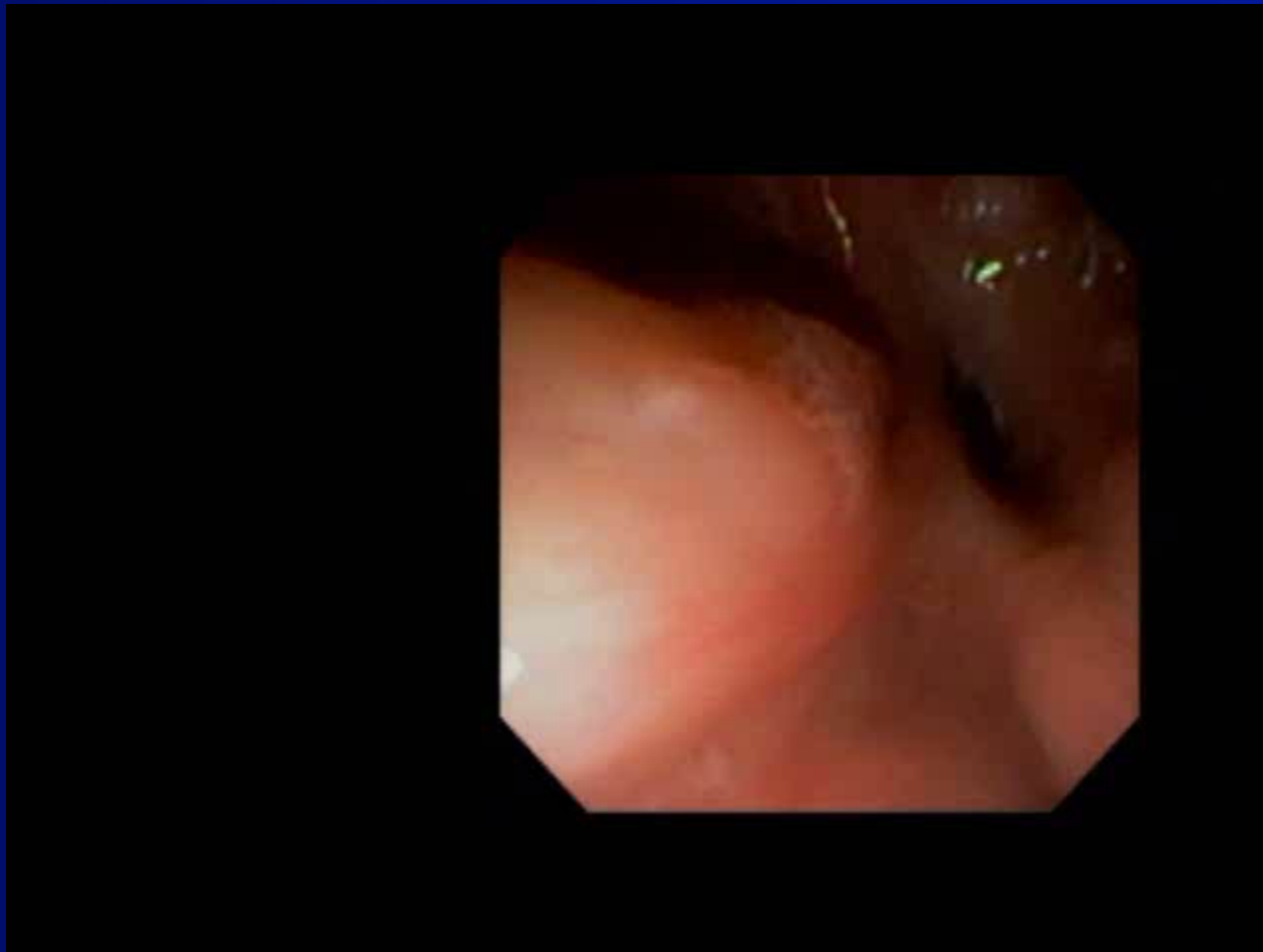


Anastomotic stricture: Removable stent



Benign Strictures

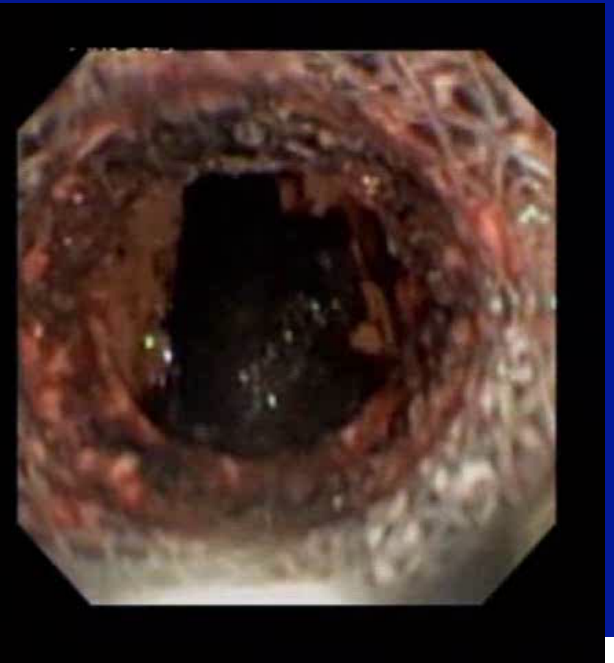
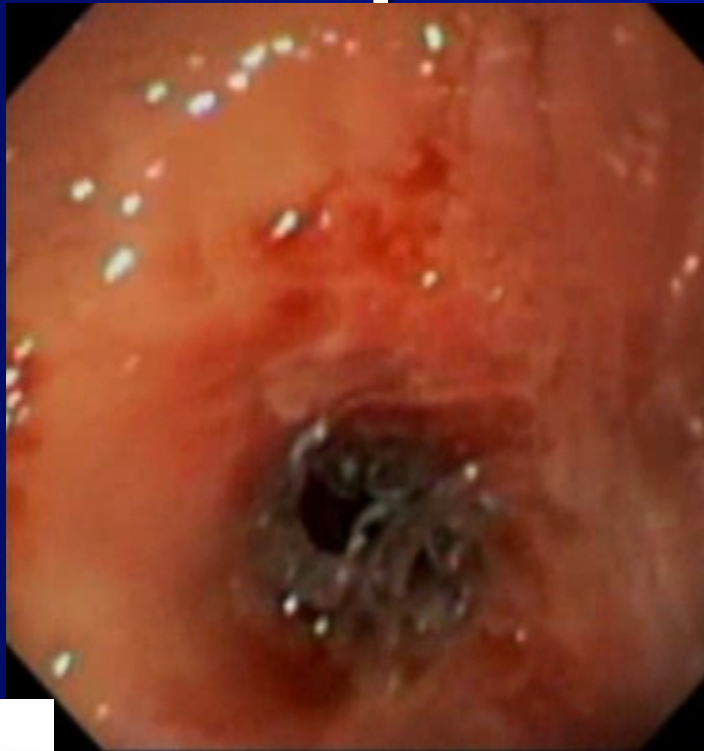
Esophagus



Clinical Vignette

Esophageal Stent

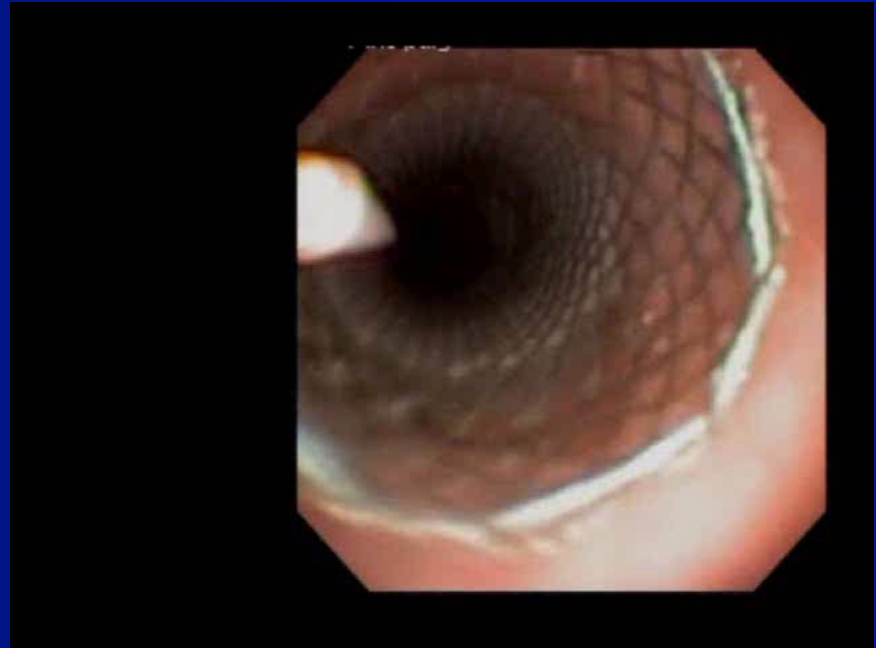
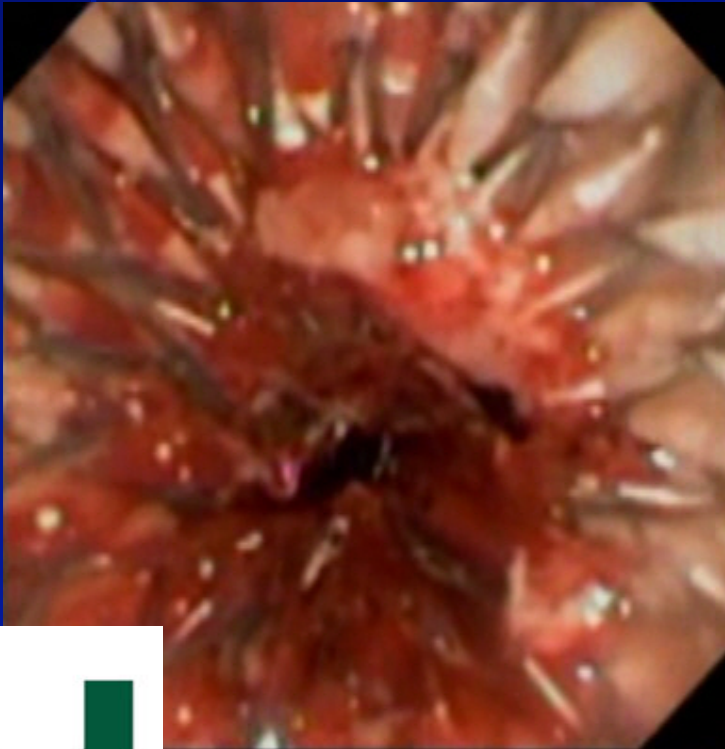
Stent reposition



Clinical Vignette

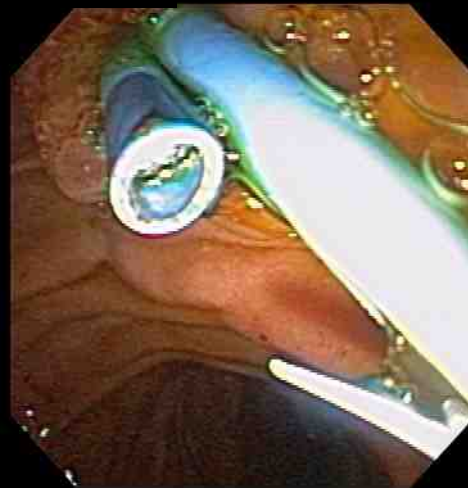
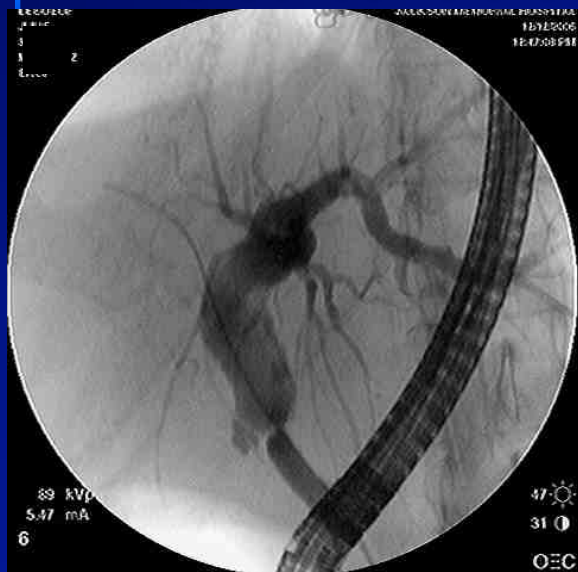
Esophageal Stent

Stent reposition



Anastomotic stricture: Biliary Dilatation: 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

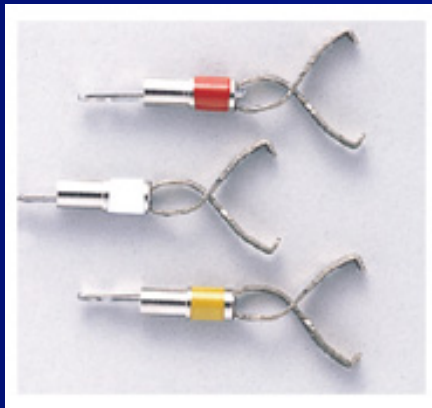
- Tools

- Clips, Stents, Fibrin Glue, Dilators



Tools: Endoscopic Clips

•Olympus



•Boston Scientific

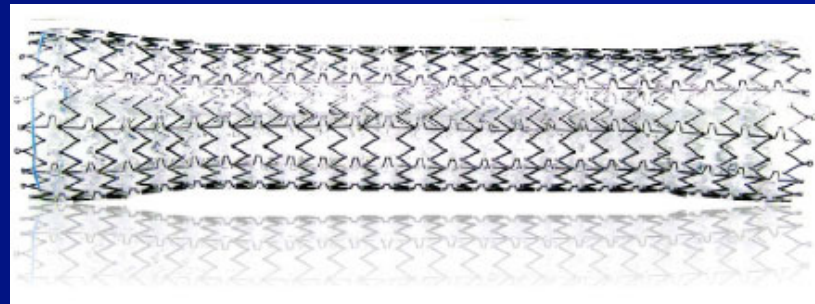


•Ovesco



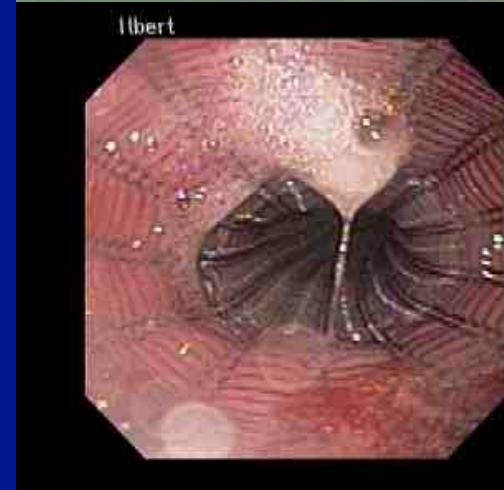
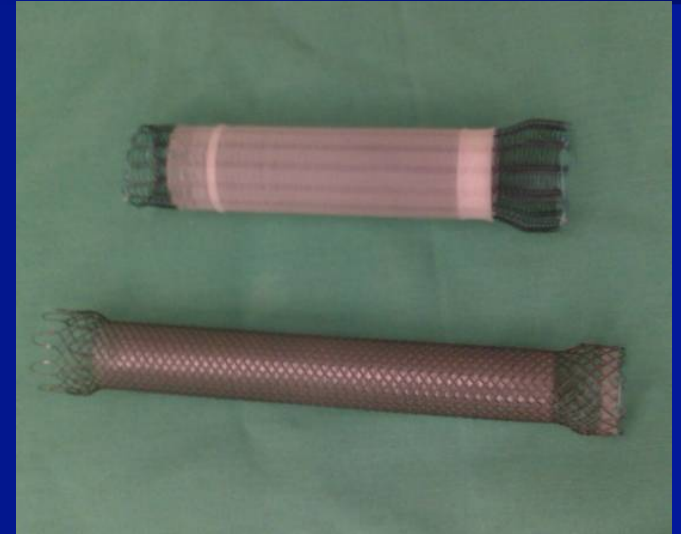
Esophageal Metal Stents

- Merit
 - Alimaxx



Esophageal Metal Stents

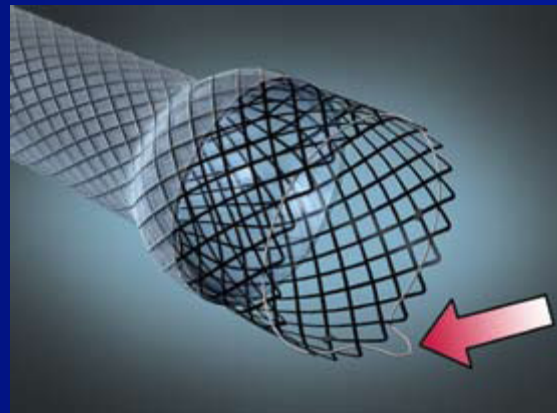
- Boston Scientific
 - Ultraflex NG
 - Wallflex



Esophageal Metal Stents

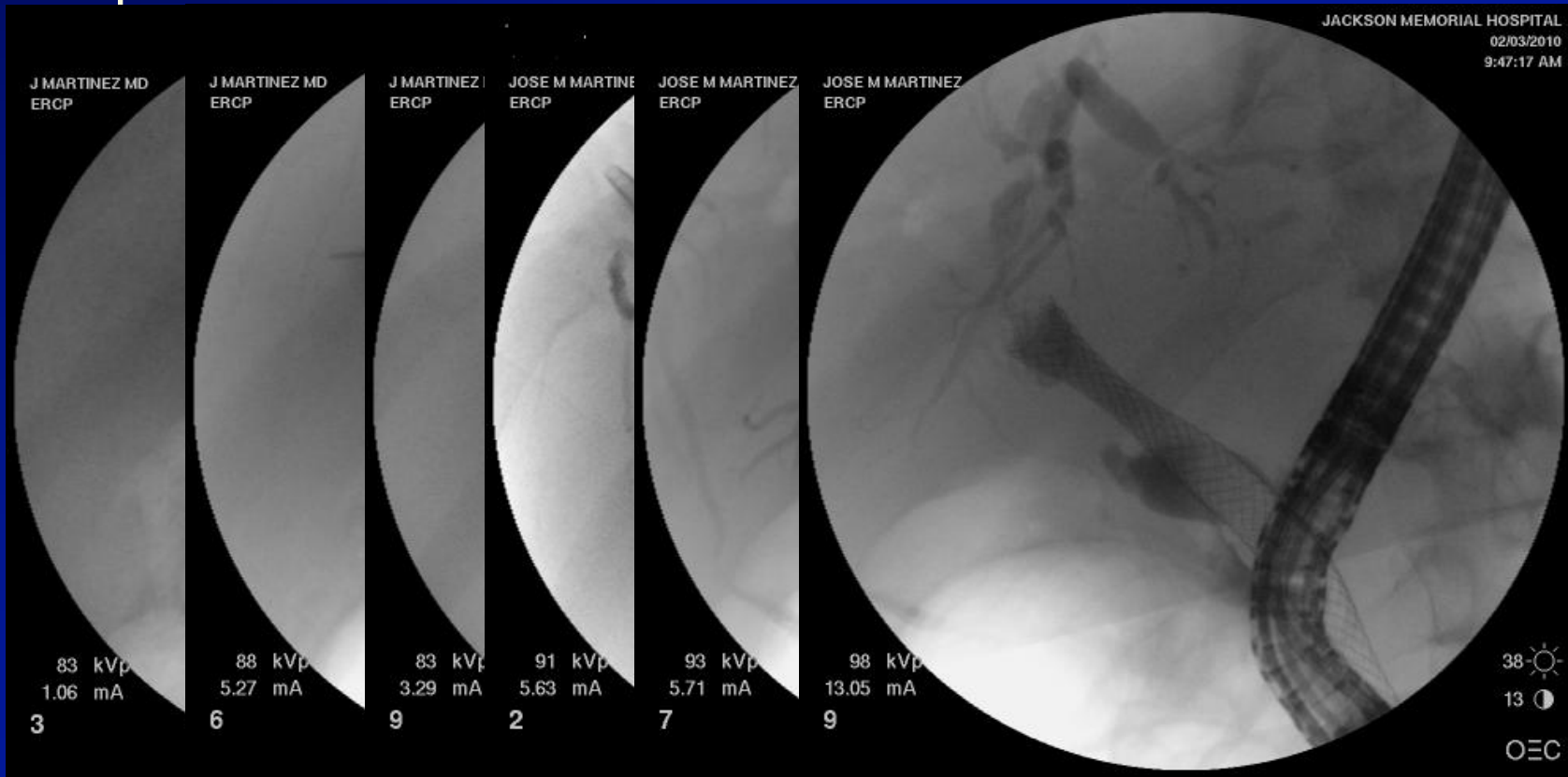
■ Cook Medical

- Z-Stent Fully Covered: Stainless Steel
- Z-Stent Uncoated Flange: Stainless Steel
- Z-Stent with Dua Anti-Reflux Valve
- Evolution Controlled release stent



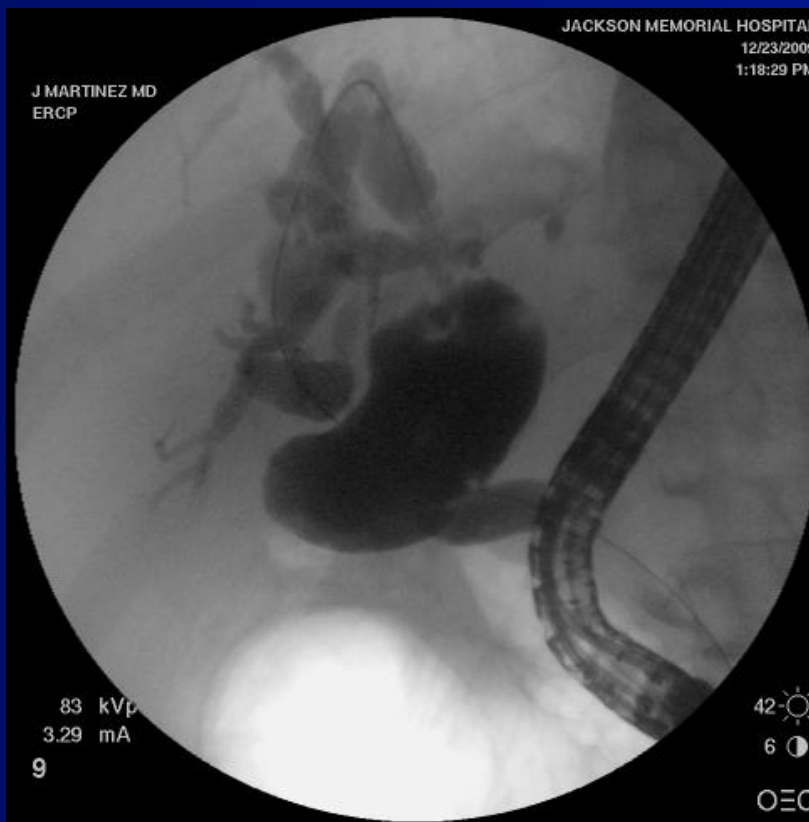
Fistula / Leaks

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

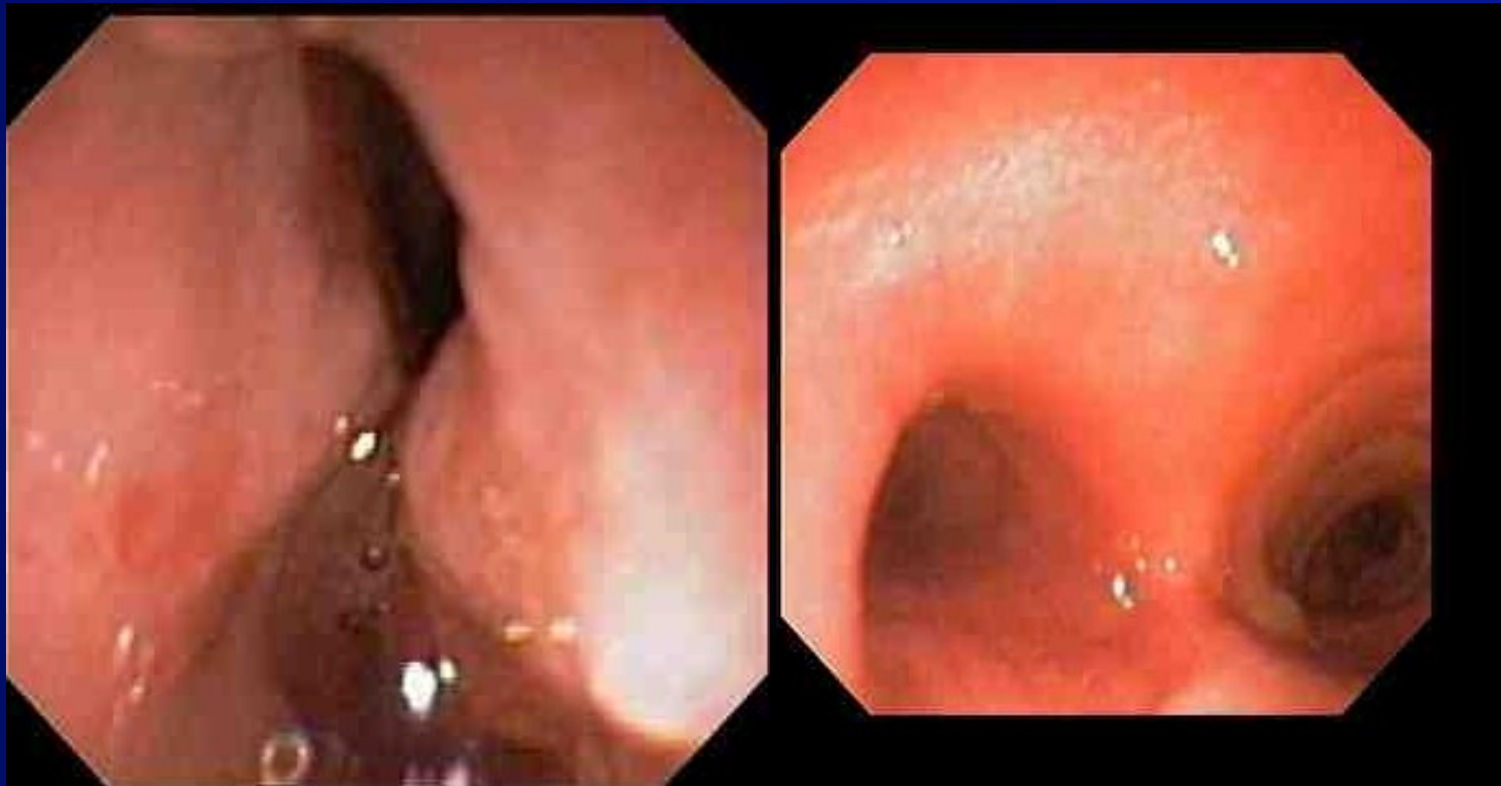
Esophago-pleural Fistula

Combined therapy- Glue and Stent



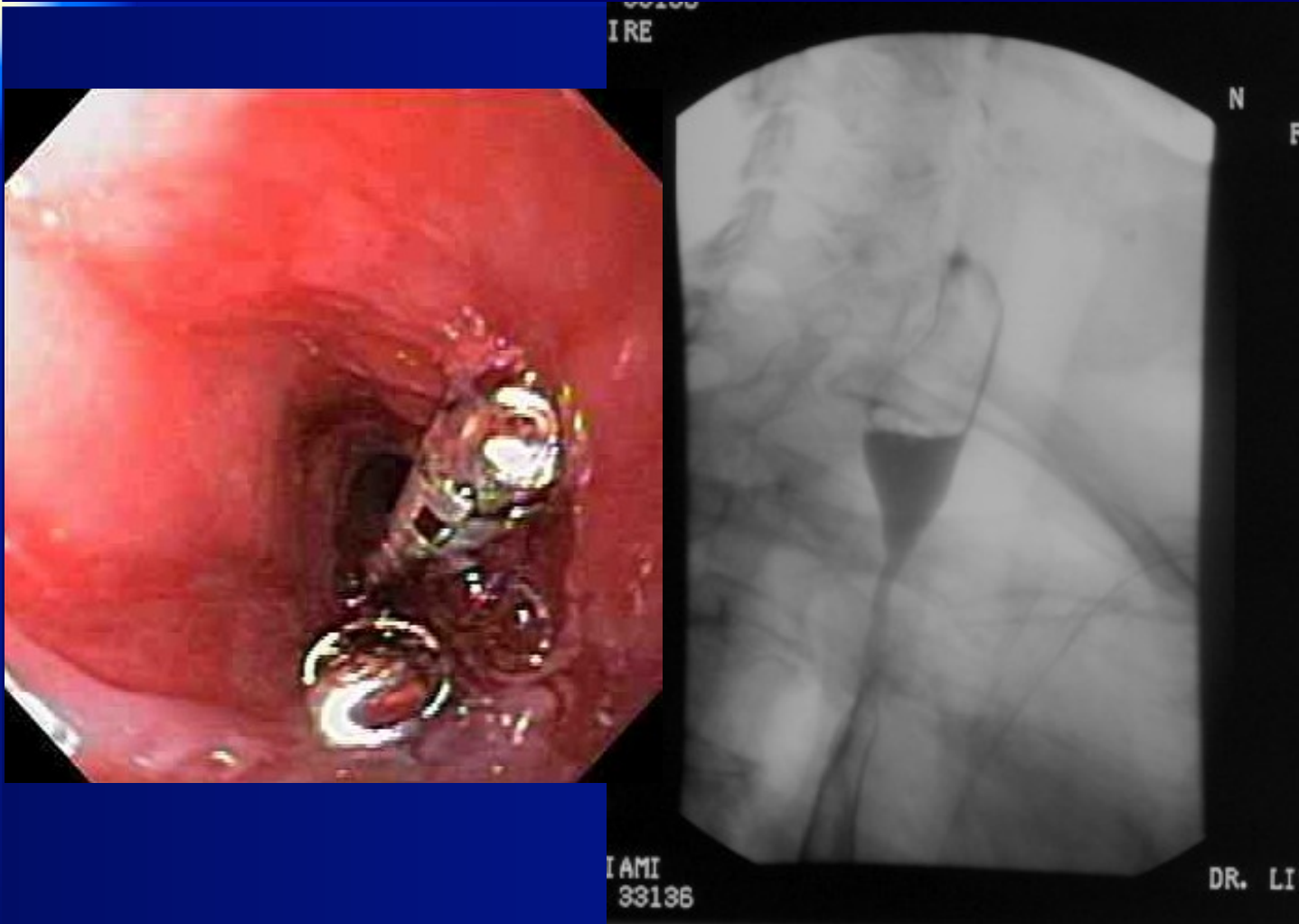
Fistula, leaks and perforation

Esophageal Fistula



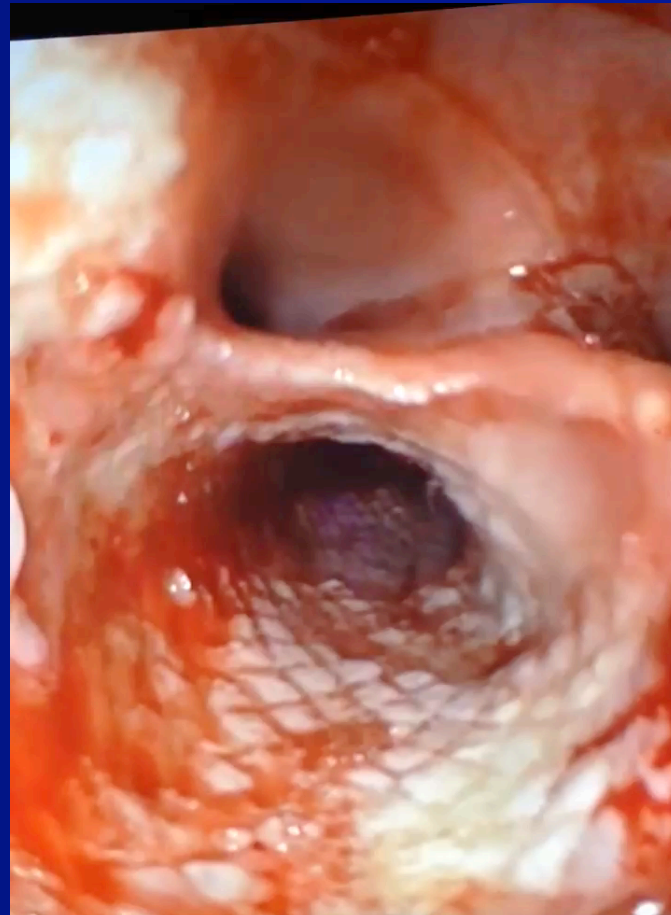
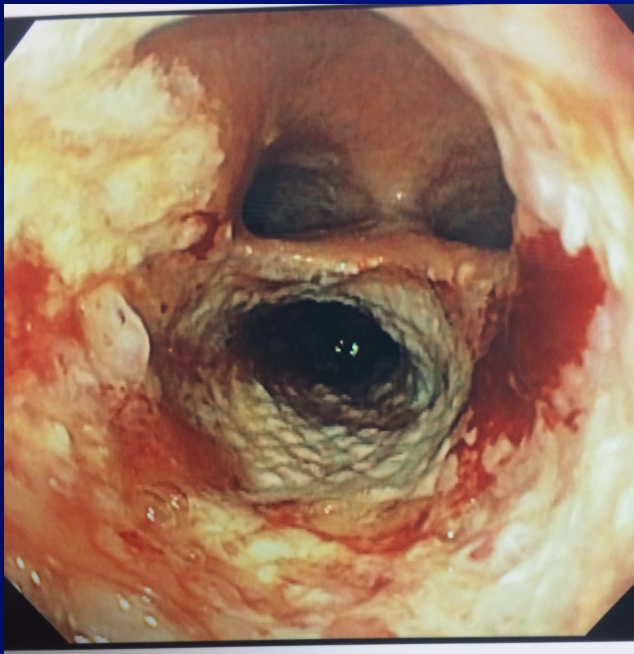
Fistula, leaks and perforation

Esophageal Fistula



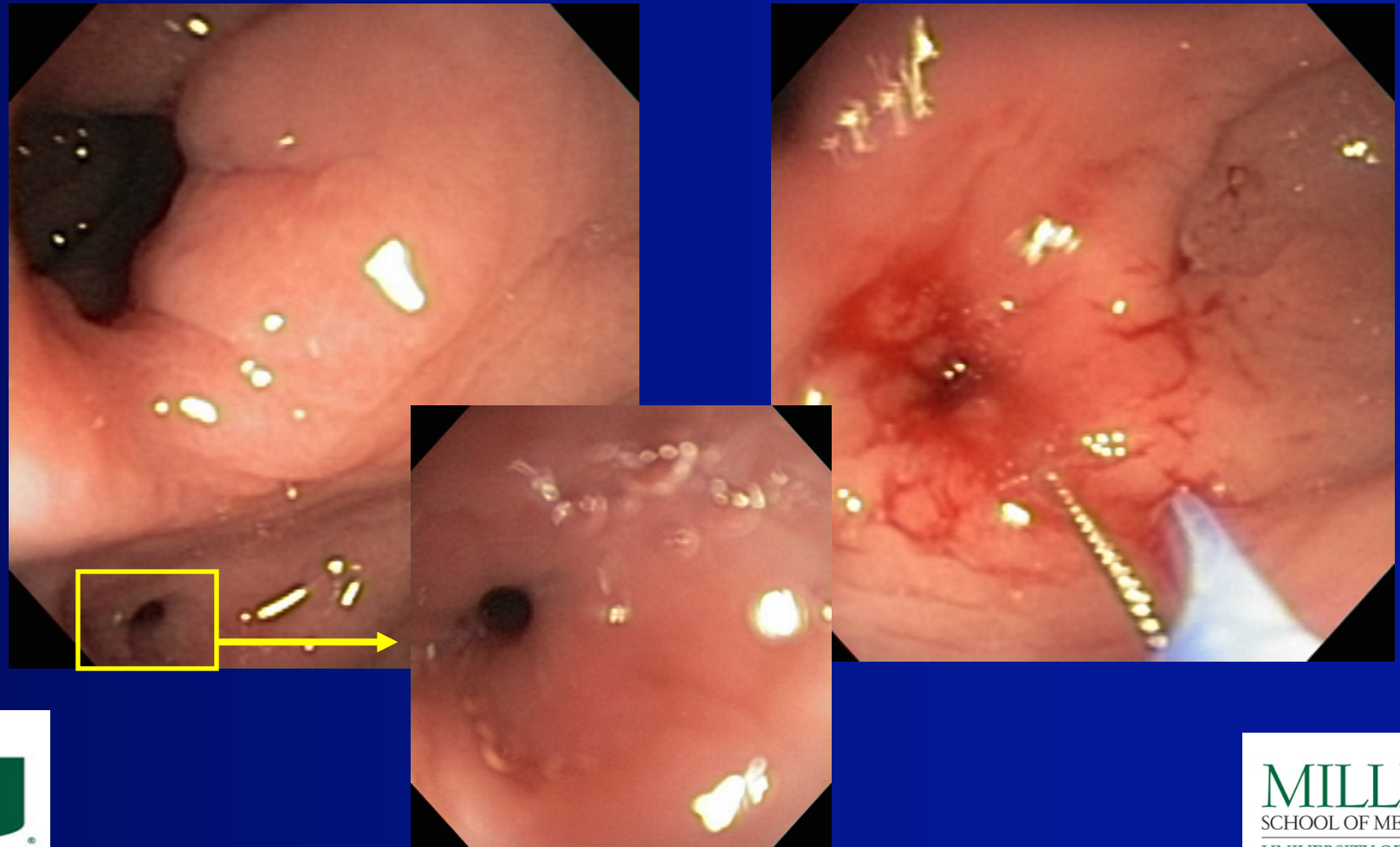
Fistula, leaks and perforation

Tracheo-esophageal Fistula



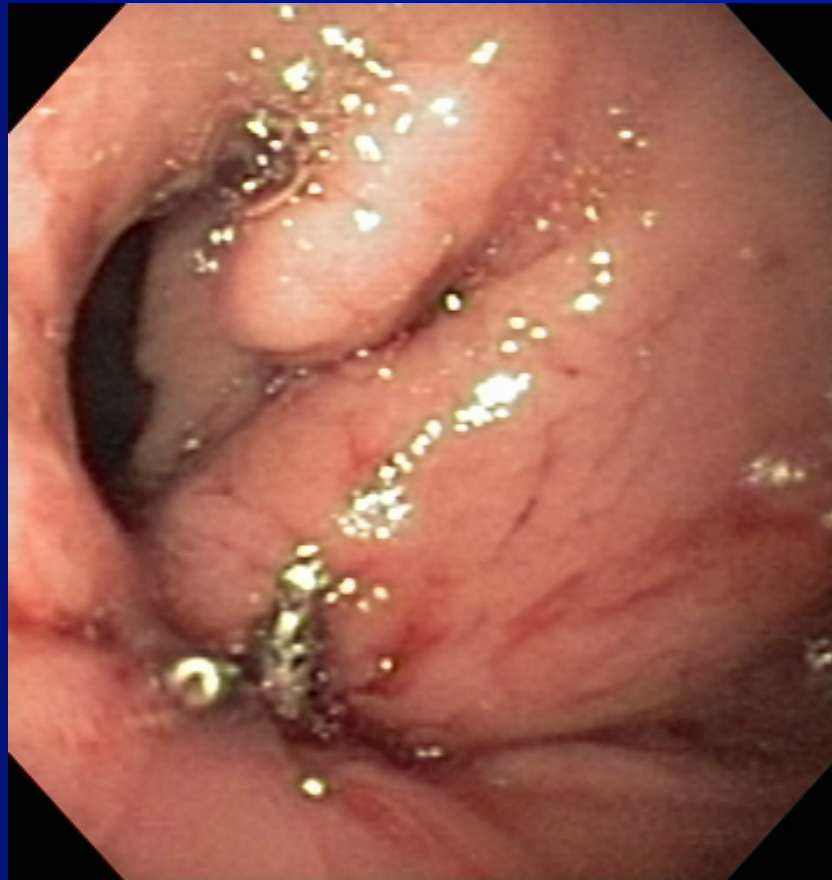
Fistula, leaks and perforation

Gastro-gastric fistula: Small

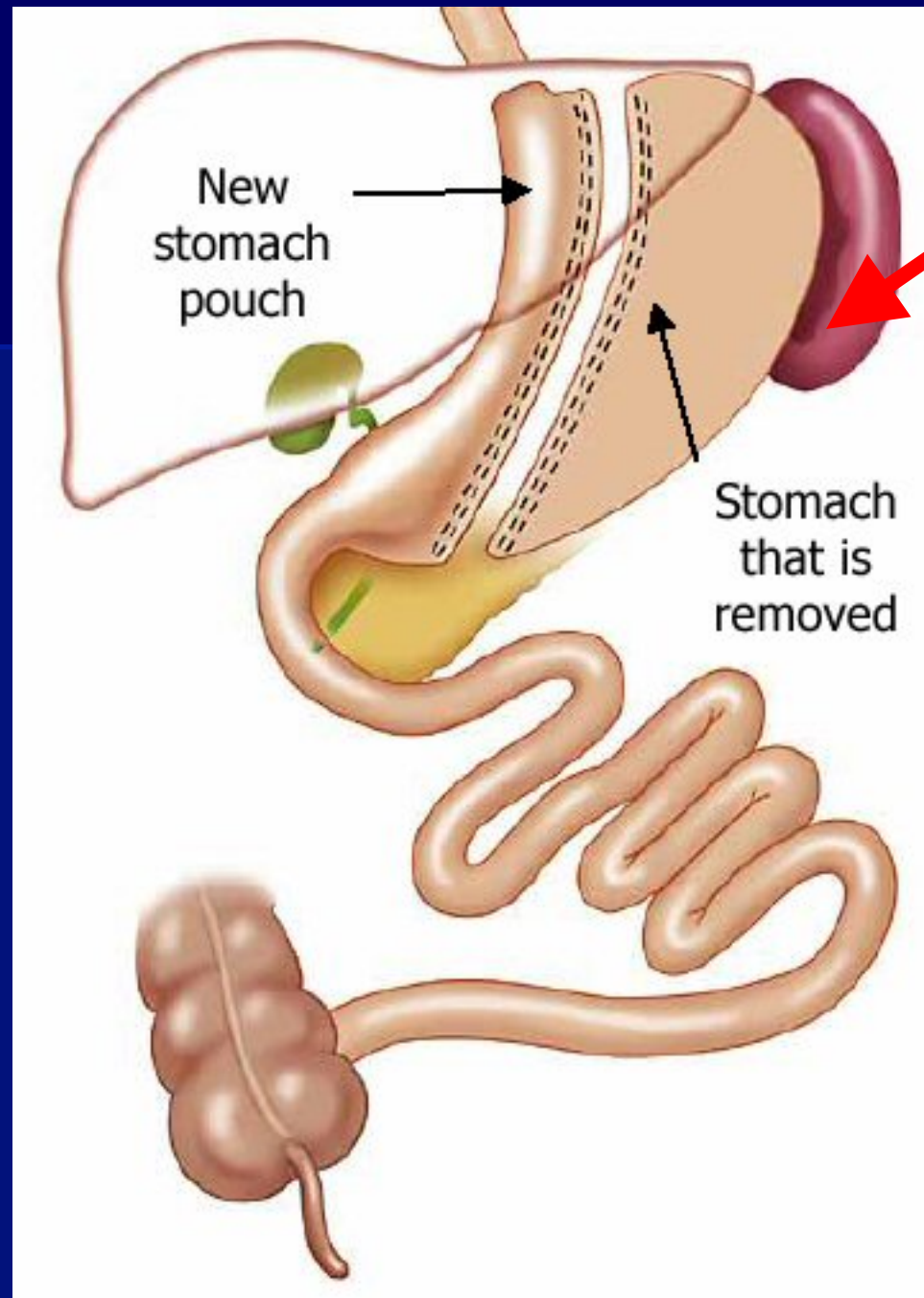


Fistula, leaks and perforation

Gastro-gastric fistula: Small

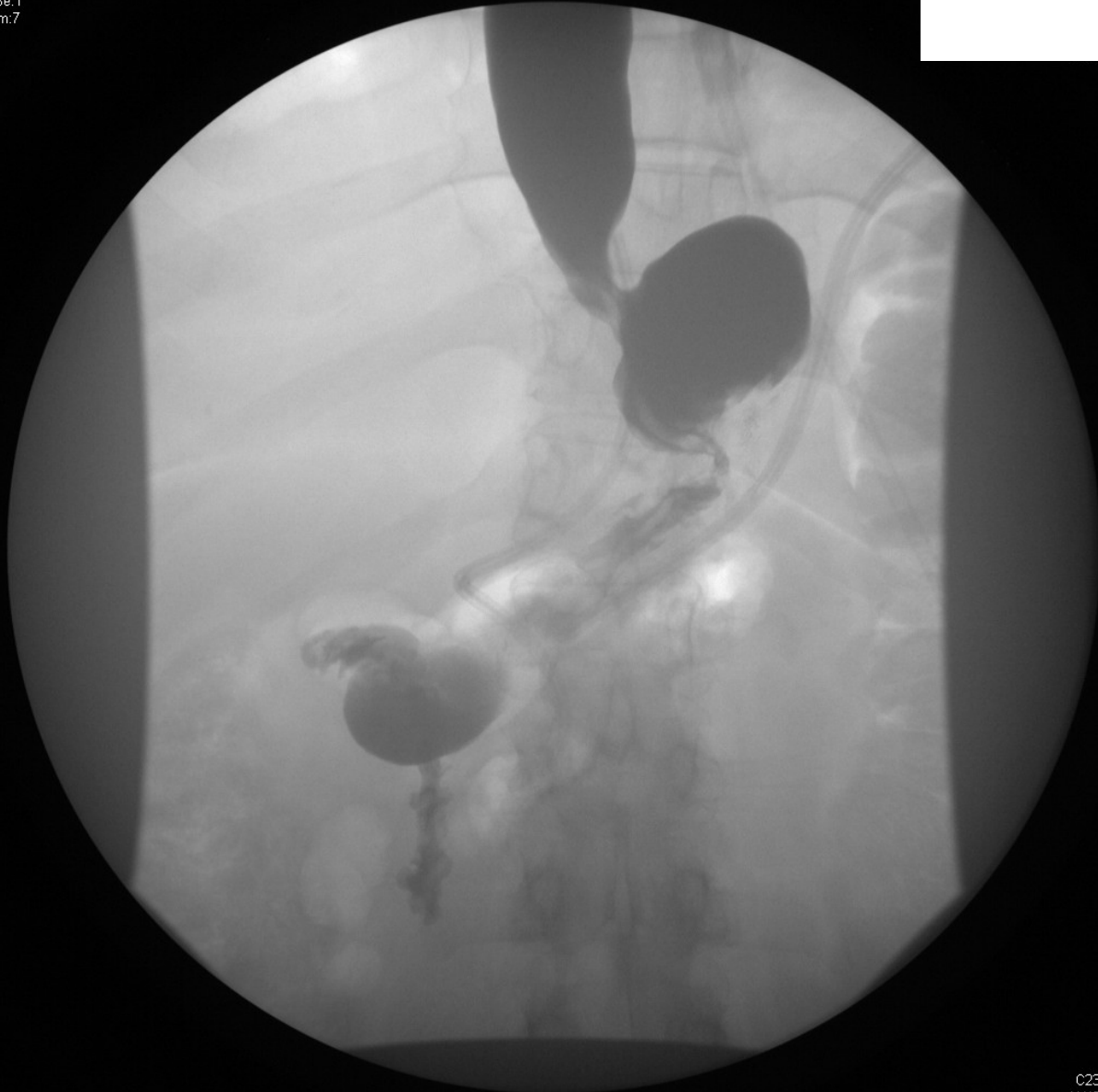


Gastric Sleeve

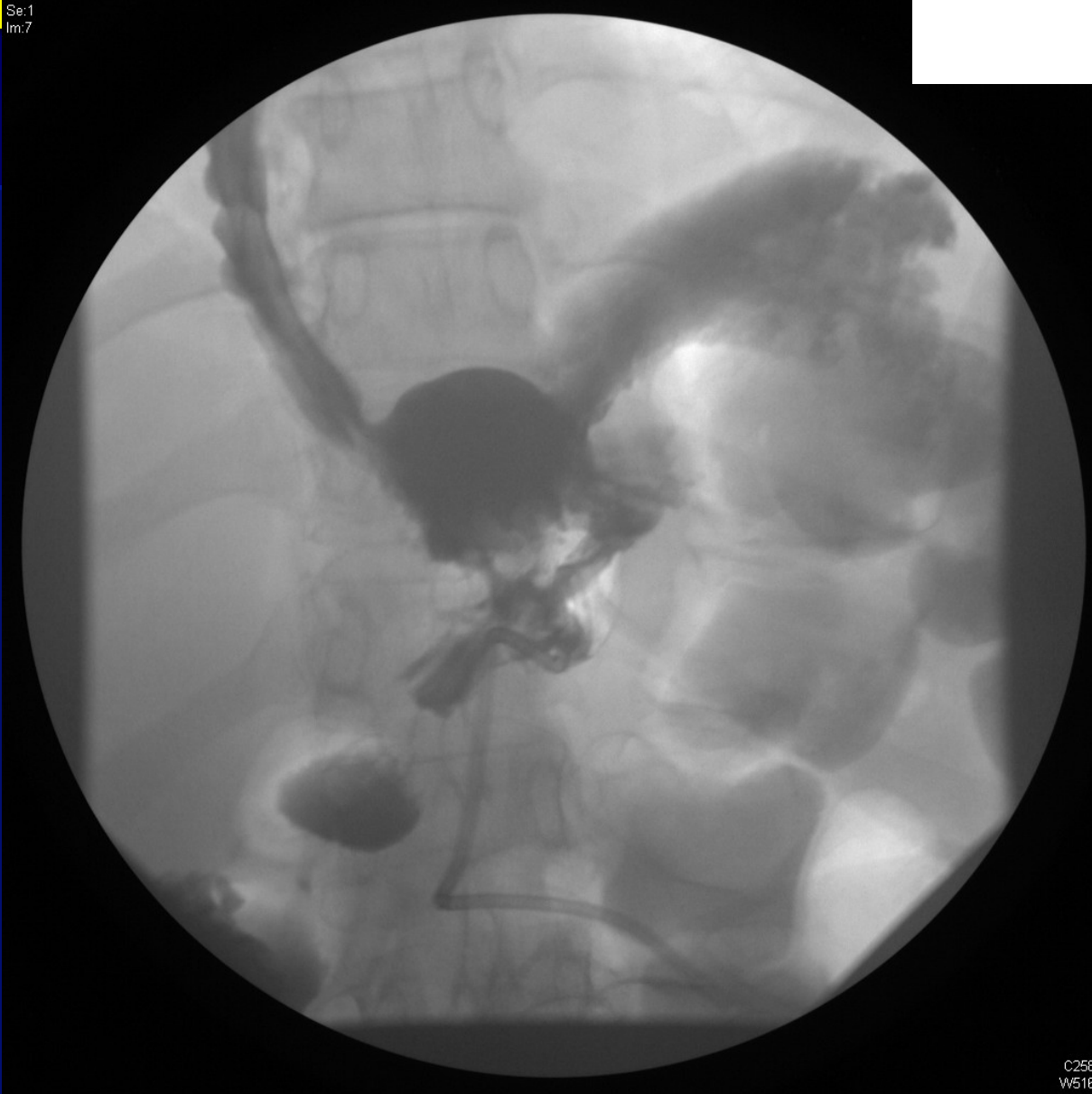


POD #1 (9/20) – UGI

Se:1
Im:7

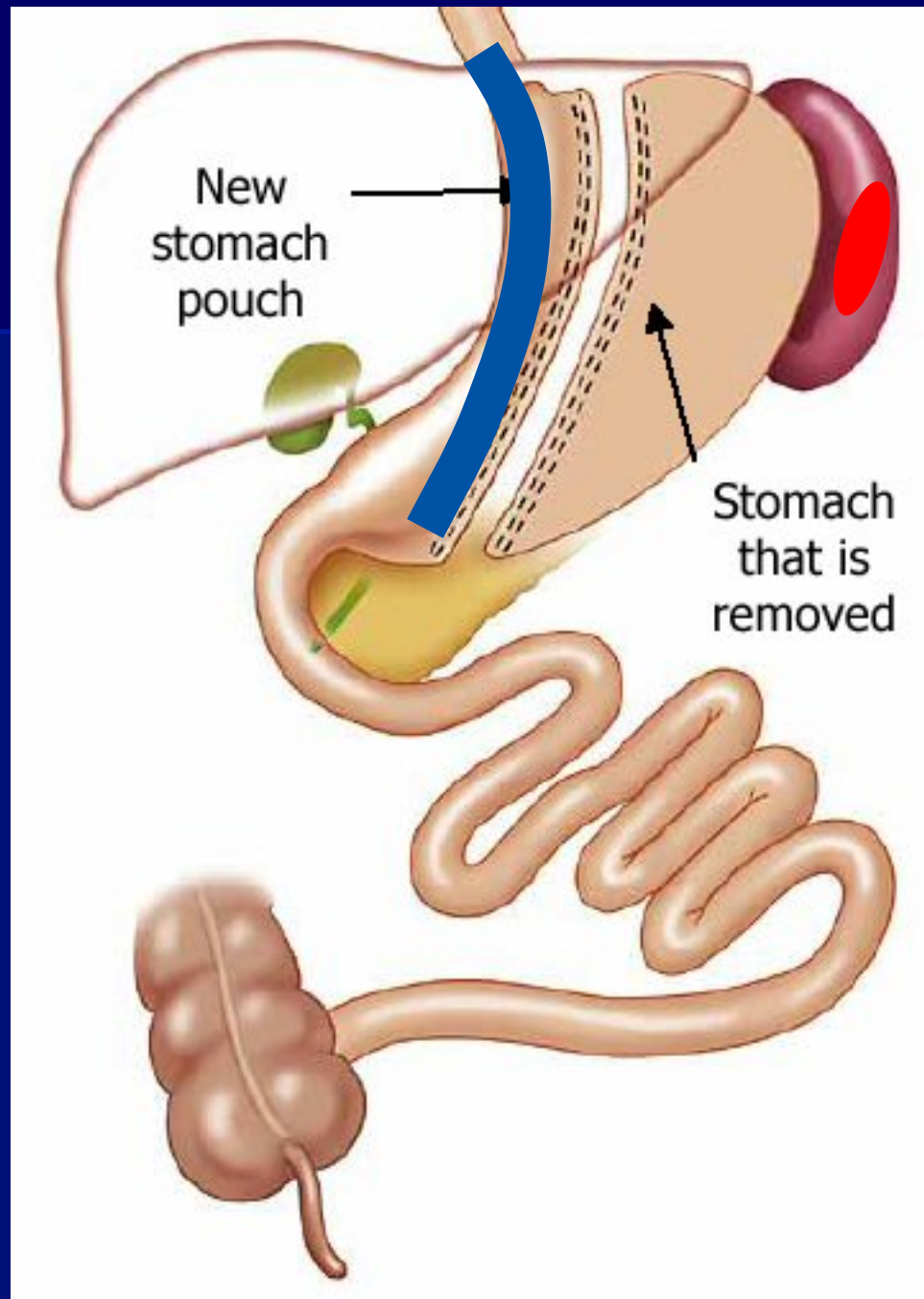


POD #7 (9/26) – Repeat UGI

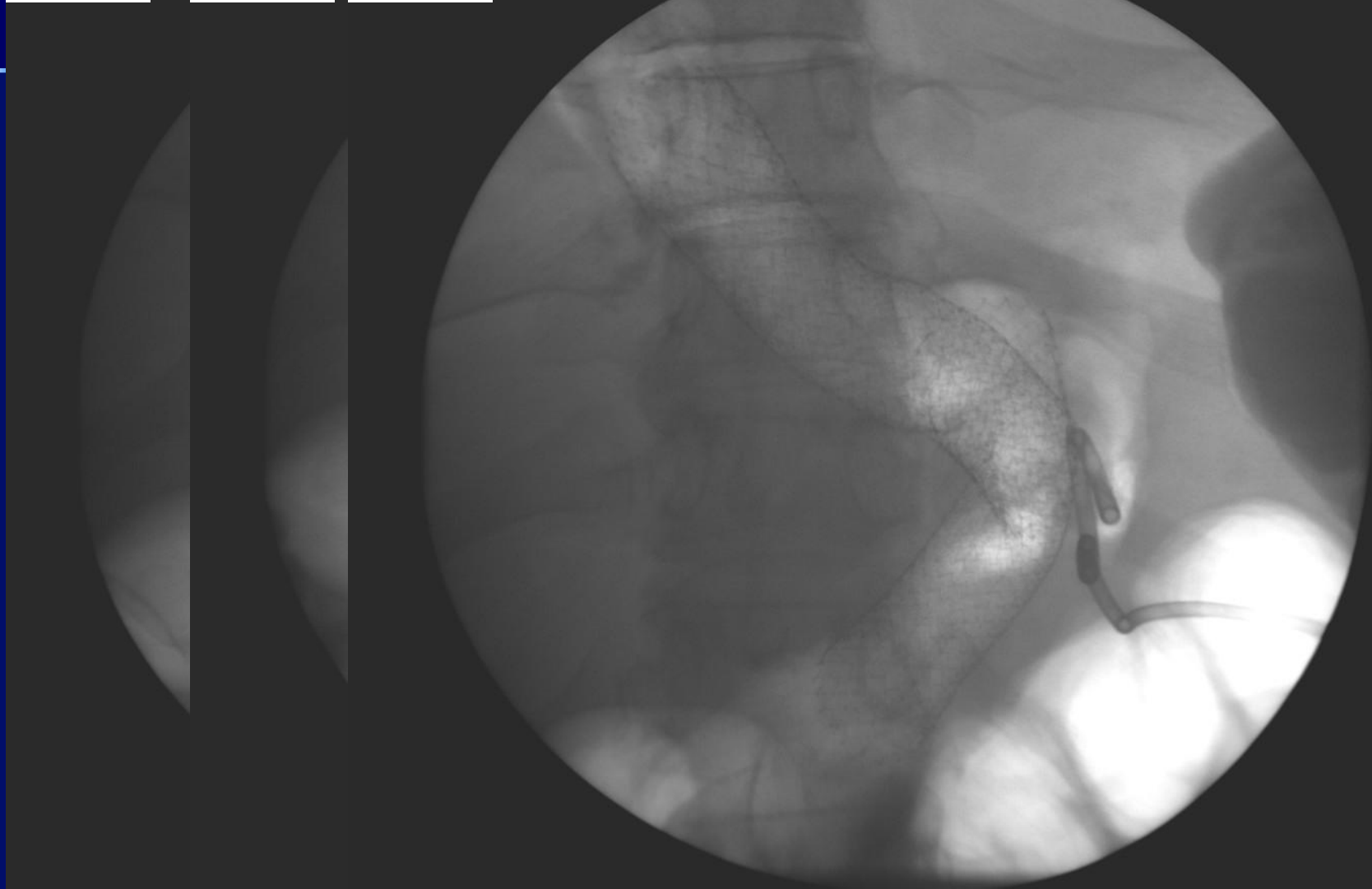


C258
W516

Gastric Sleeve



POD #8 - Fluoro



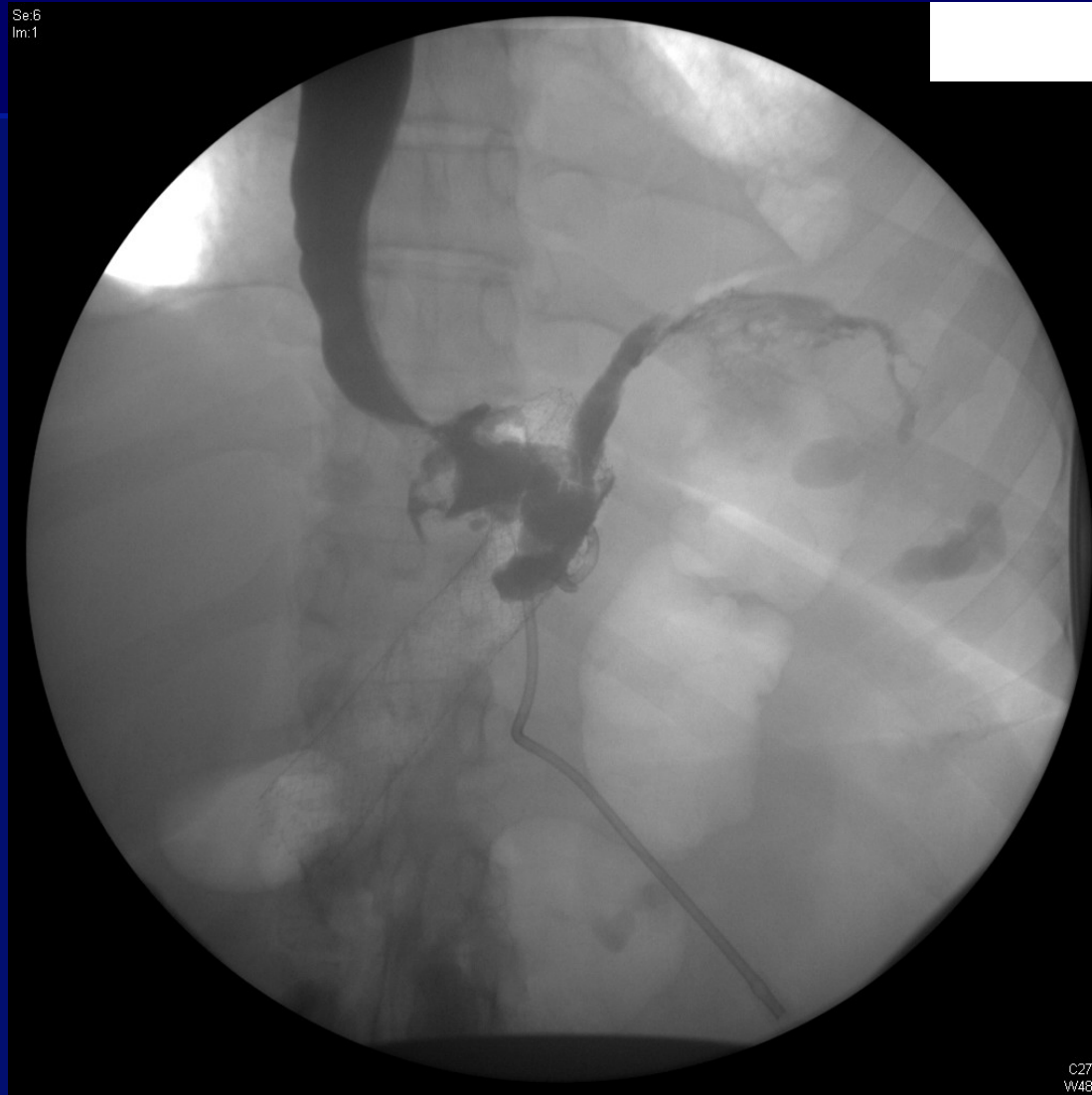
1102
Yml

1102
Yml

1102
Yml

1102
Yml

POD #13 (10/2) – Repeat UGI

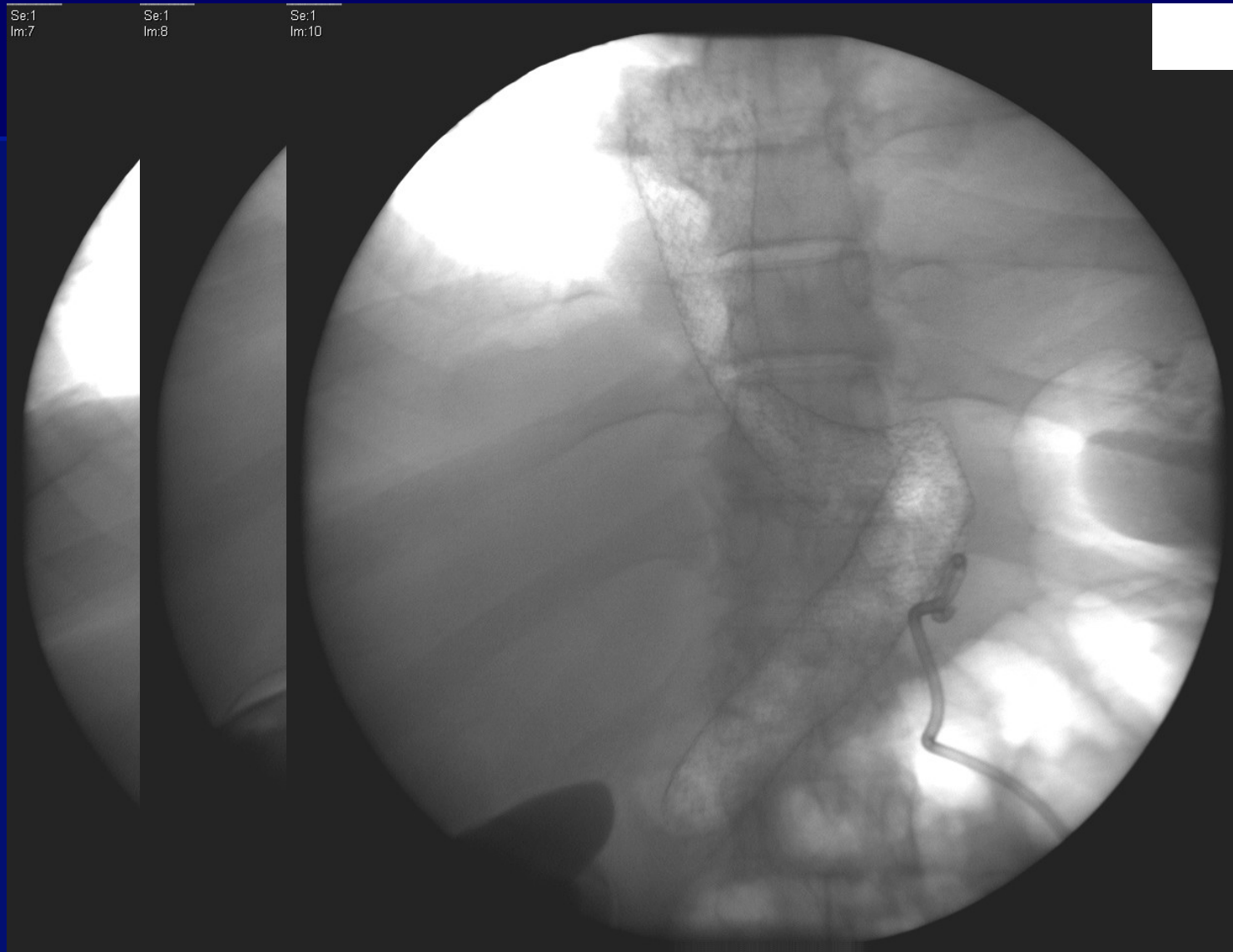


POD #14 – Fluoro

Se:1
Im:7

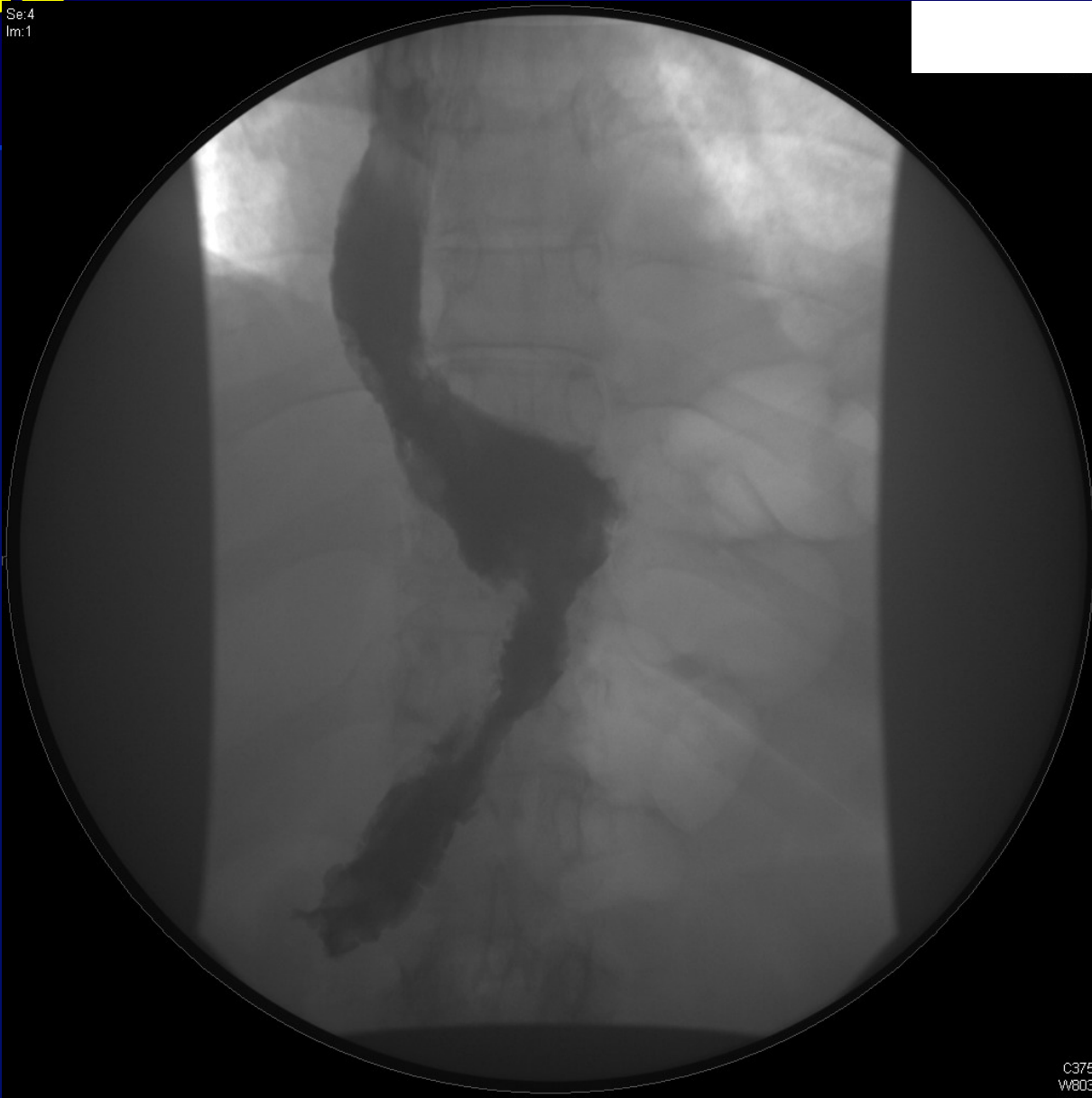
Se:1
Im:8

Se:1
Im:10



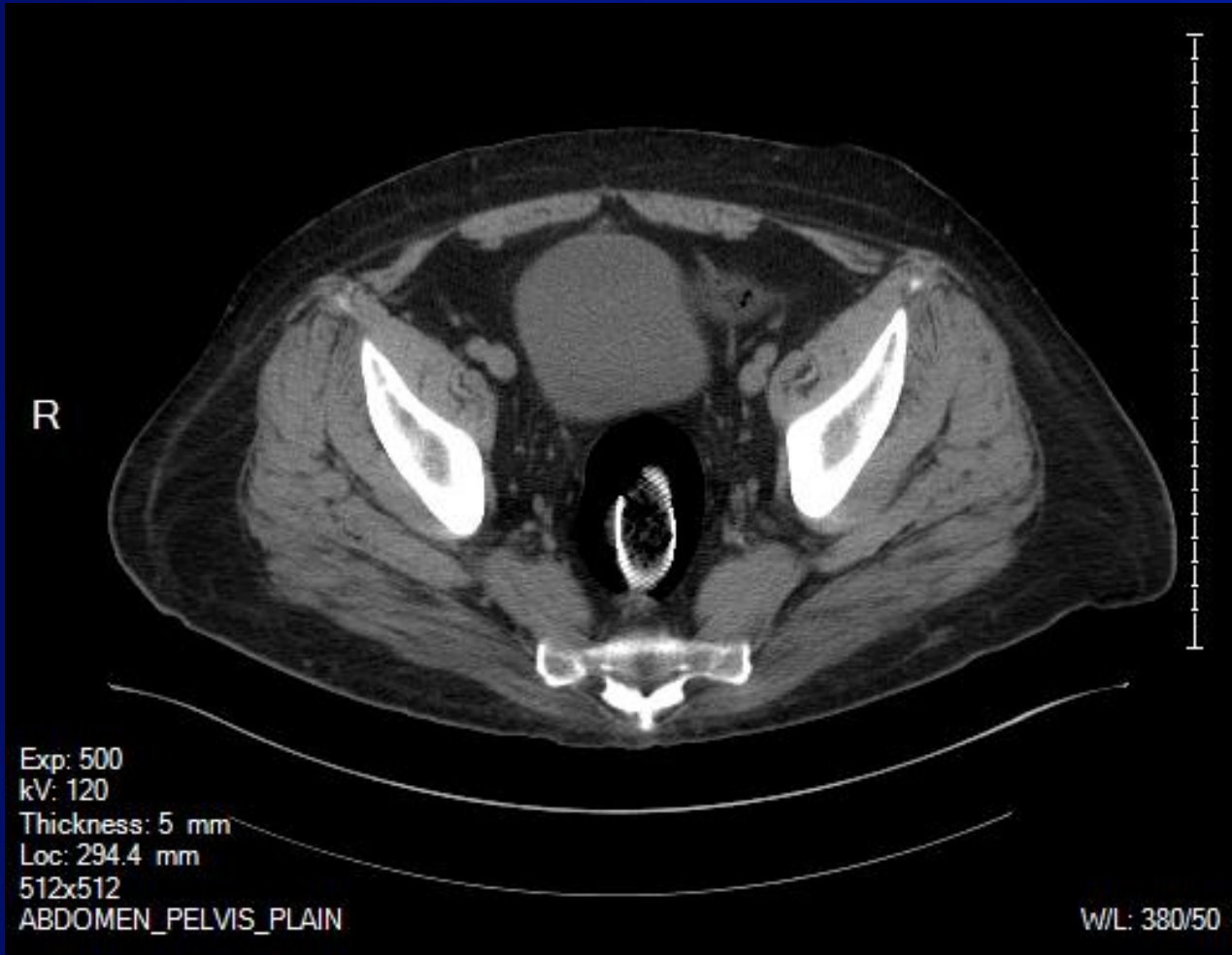
POD #45 (11/3) – repeat UGI

Se:4
Im:1



C375
W803

Stent Migration



Clinical Vignette

Esophageal Stent

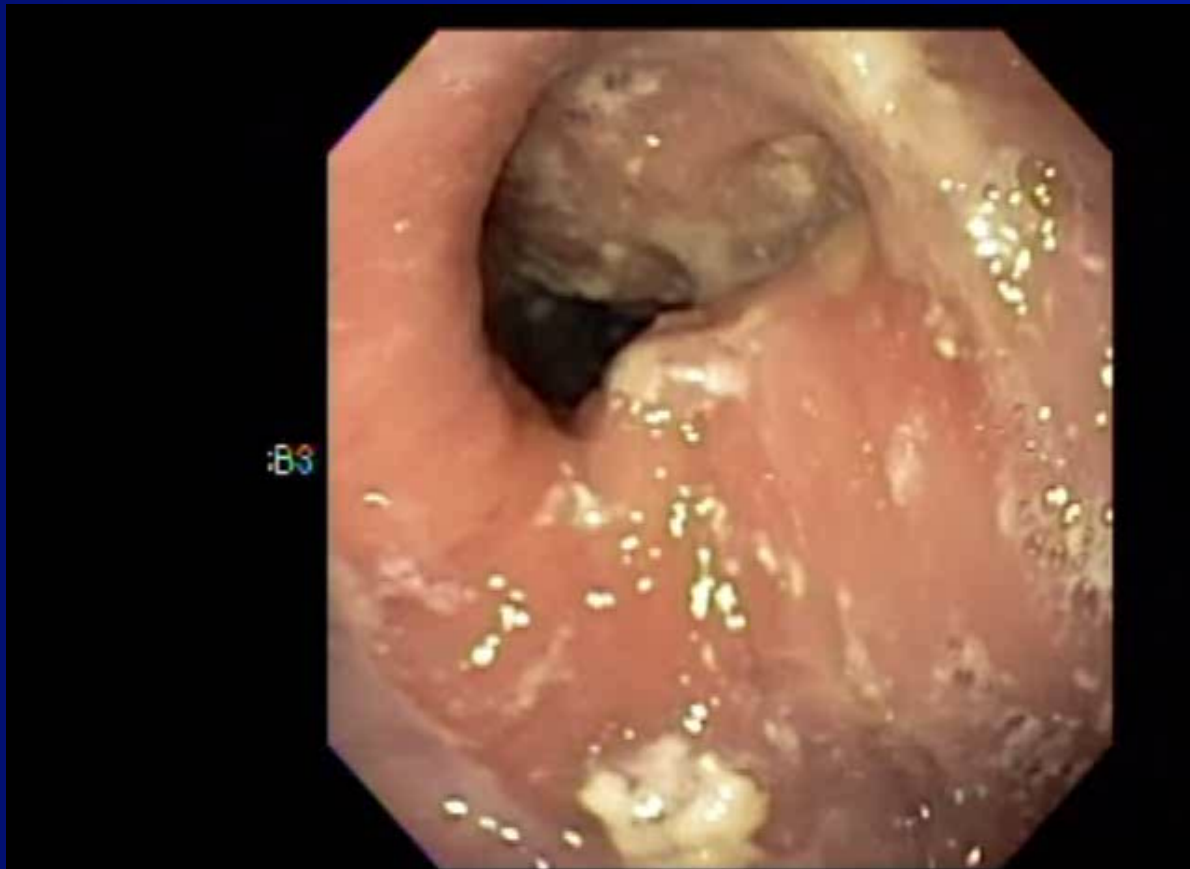
Stent removal : Proximal method



Clinical Vignette

Esophageal Stent

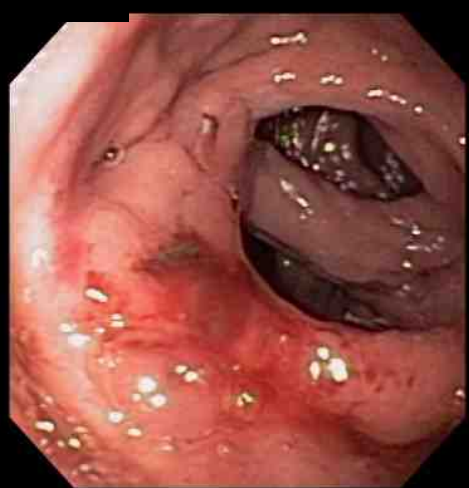
Stent removal : Distal method



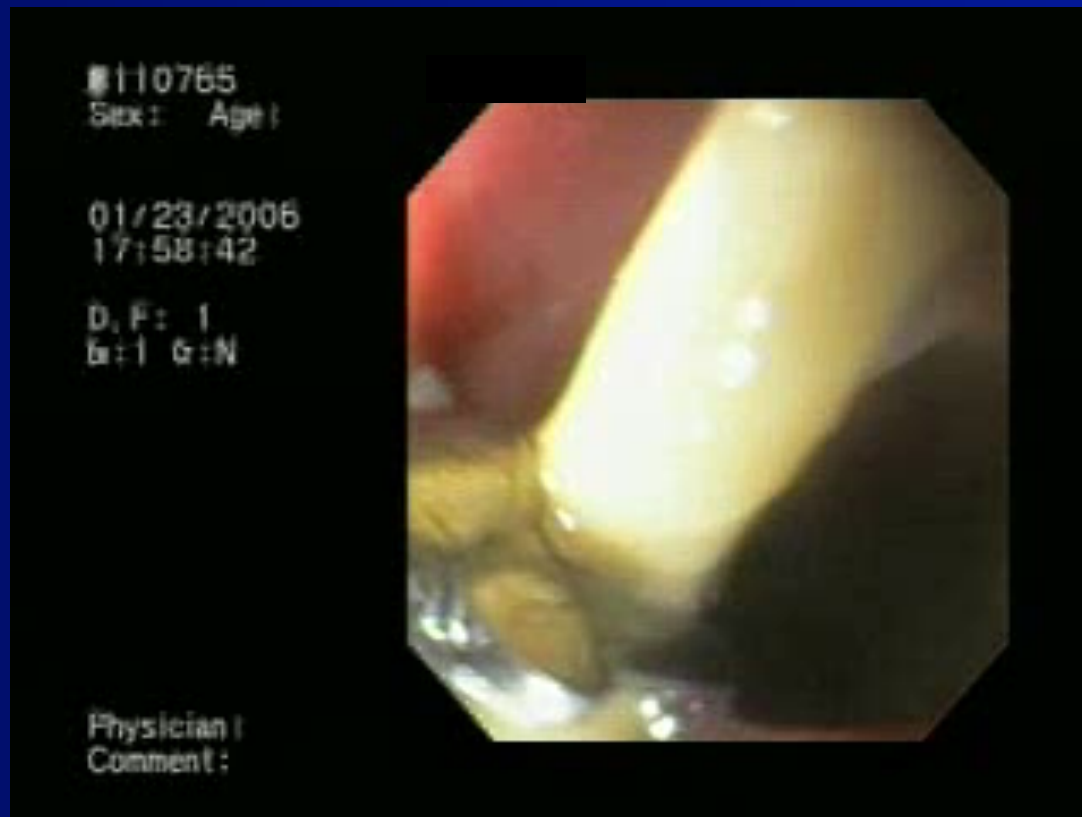
Foreign Body

- 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

