
New Frontiers of Interventional Endoscopy

43rd Annual Seminar for GI Nurses and Associates
September 2019

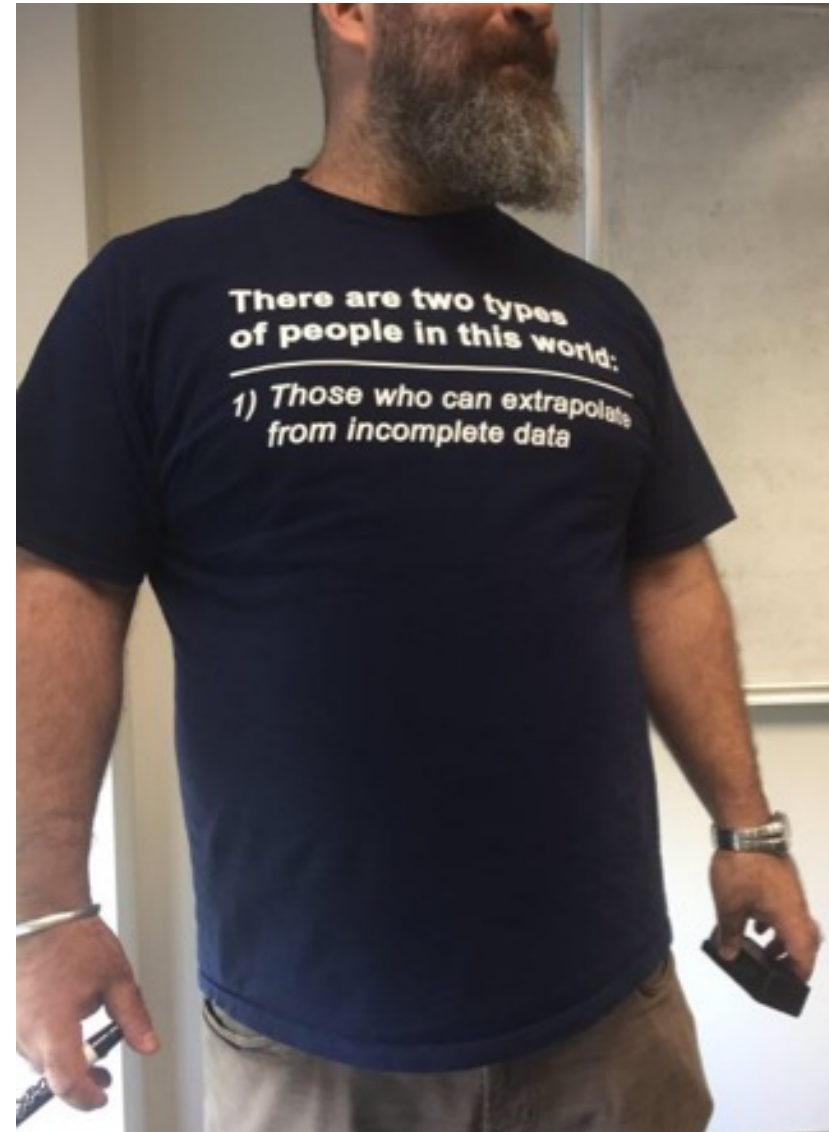
Alireza Sedarat, MD
UCLA Division of Digestive Disease

Disclosures

- Consultant for Boston Scientific Corp.
- Some devices may be presented used in an off-label indication

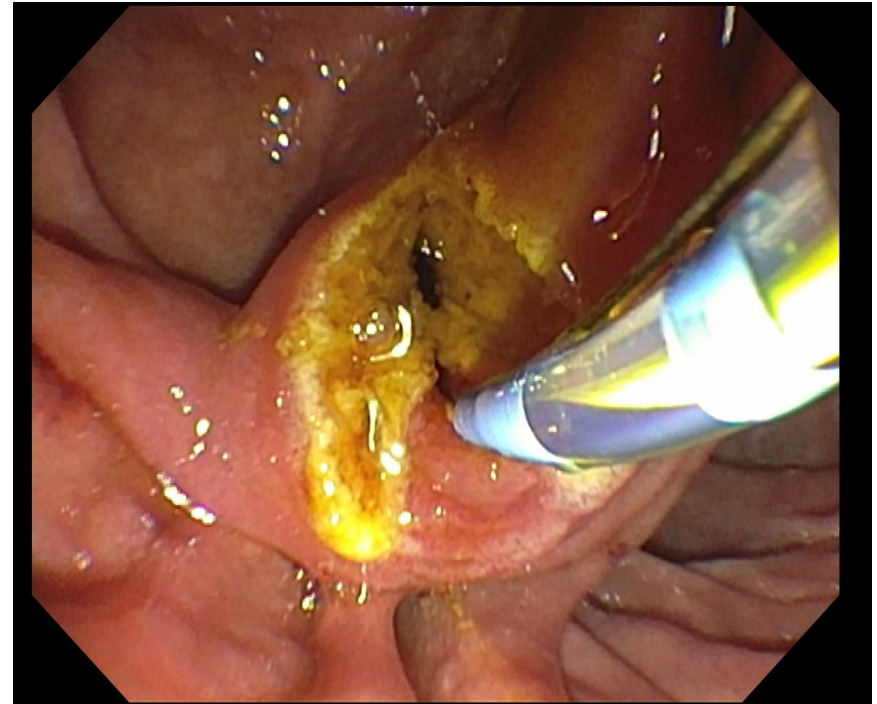
Goals

- To gain an understanding of a sampling of state-of-the-art procedures available in GI endoscopy
- To consider these procedures in context of a “big picture” approach to advancement of minimally invasive therapeutic interventions



Interventional Endoscopy: What you probably know about

- GI Bleeding
- Polyp removal
- Feeding tube placement
- Stricture dilation
- Lumen stenting
- ERCP
 - Stents, stones, leaks
- EUS
 - Tissue sampling, cancer staging



More than stents and stones

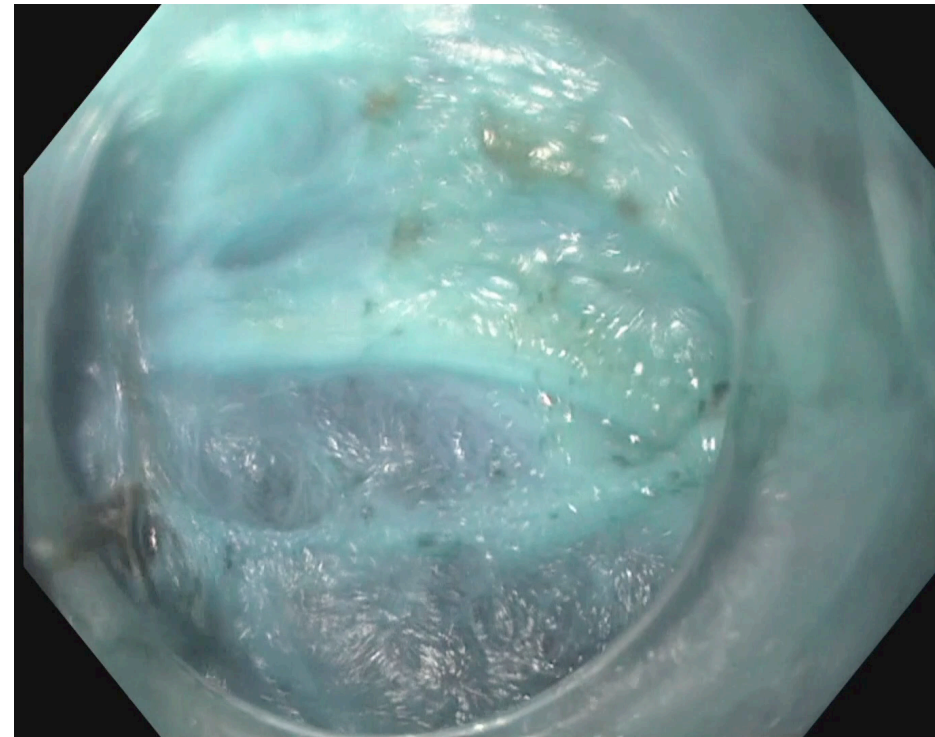
- Hemostasis
 - Cyanoacrylate, topical hemostatic spray, EUS guided embolization and coils, over the scope clips
- Neoplasia resection and ablation
 - Complex EMR and ESD
 - Dysplastic Barrett's management
- Cholangioscopy and lithotripsy
- Intraductal biliary ablation
- EUS guided transluminal interventions (LAMS)
- Intramural or Submucosal endoscopy (eg POEM)

More than stents and stones

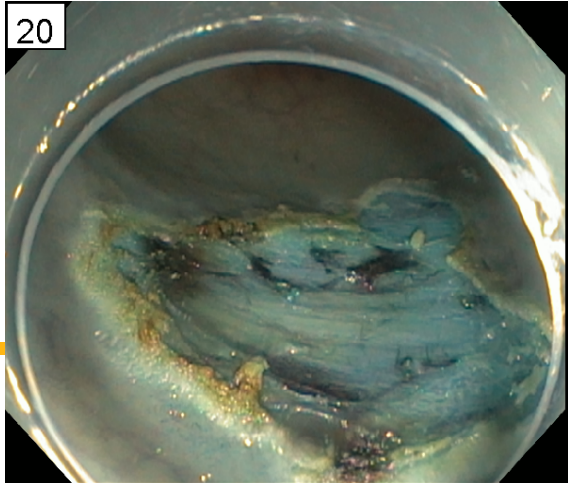
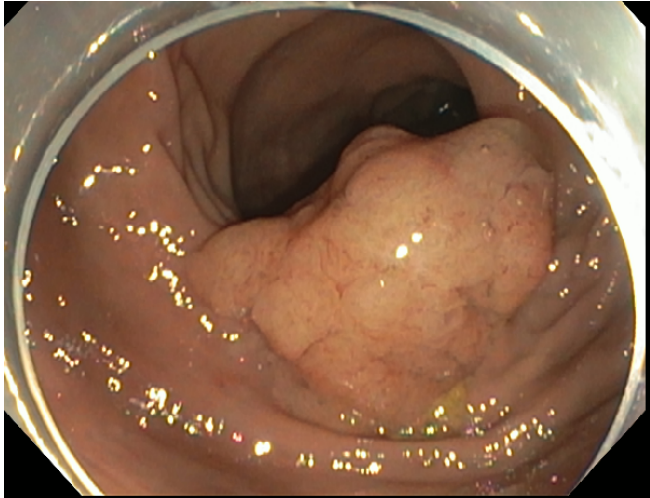
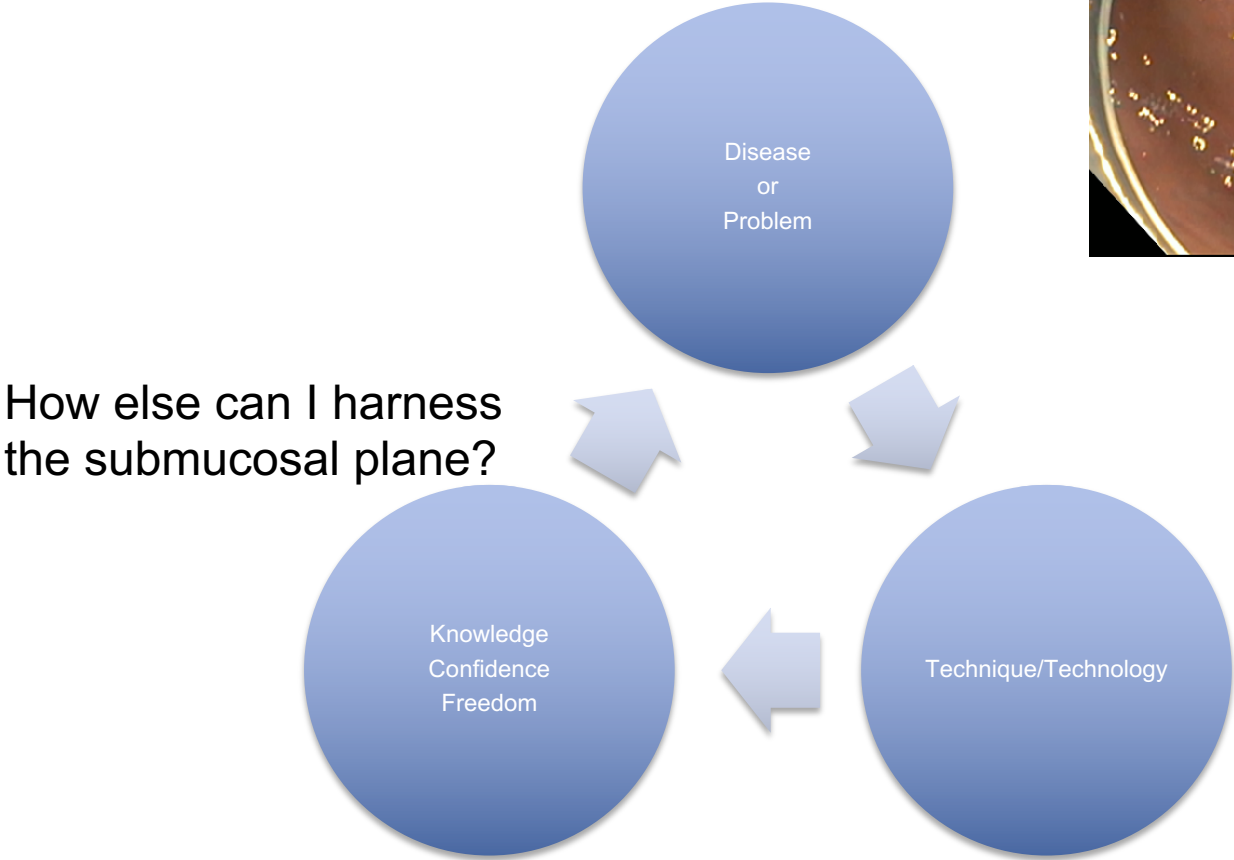
- Bariatric endoscopy
 - Weight regain post RYGB
 - Primary therapy
 - Complications
- Management of surgical complications
- Specialized diagnostic platforms
- Novel disease based platforms and technology (e.g. Antireflux procedures)

What has allowed therapeutic endoscopy to advance?

- Management of complications
- Improved technology
 - Refinement of imaging
 - Device development
 - Dedicated platforms or devices
- Refinement of techniques
- Support of medical and surgical colleagues
- Improved understanding of disease processes

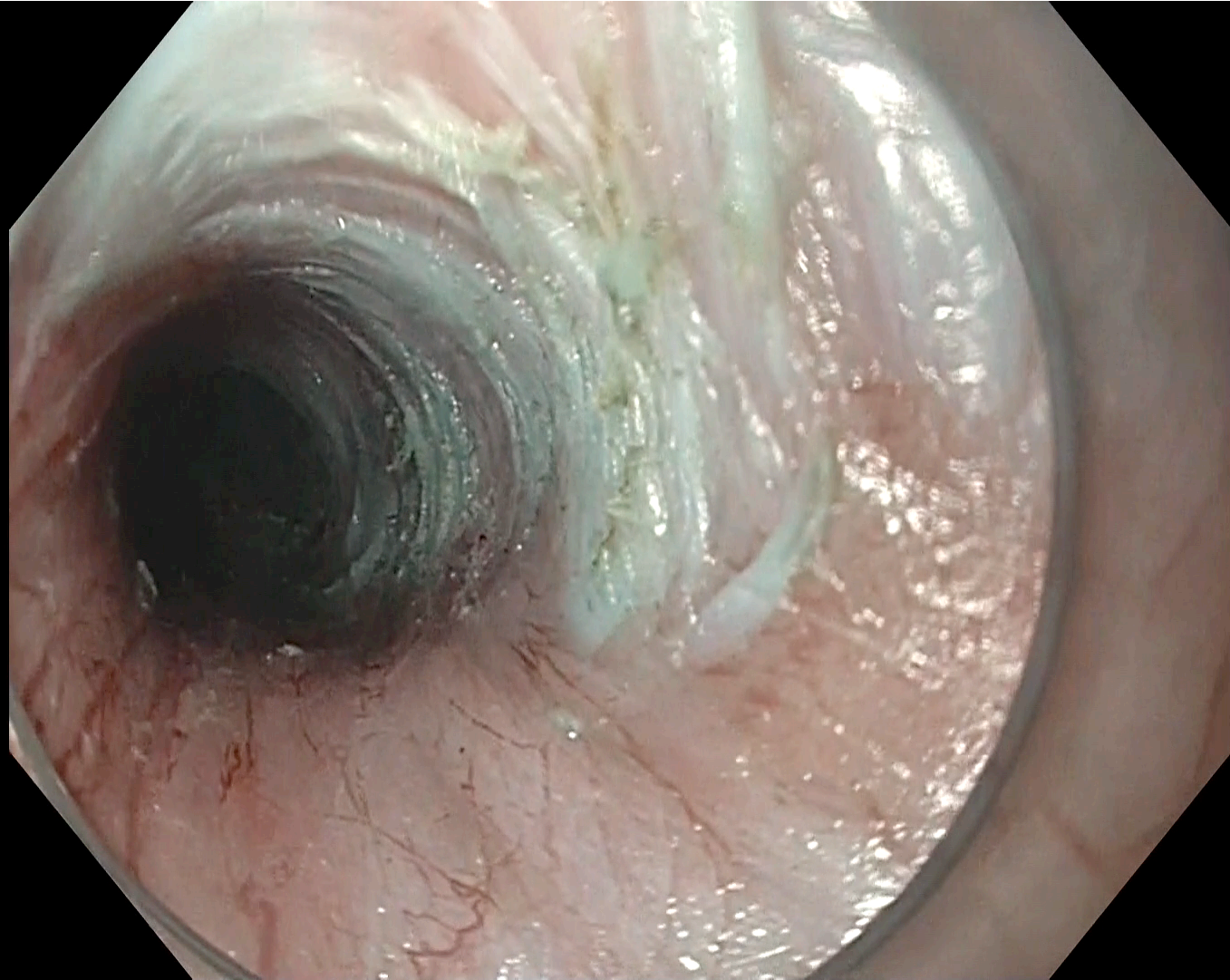


A cycle of advancement...



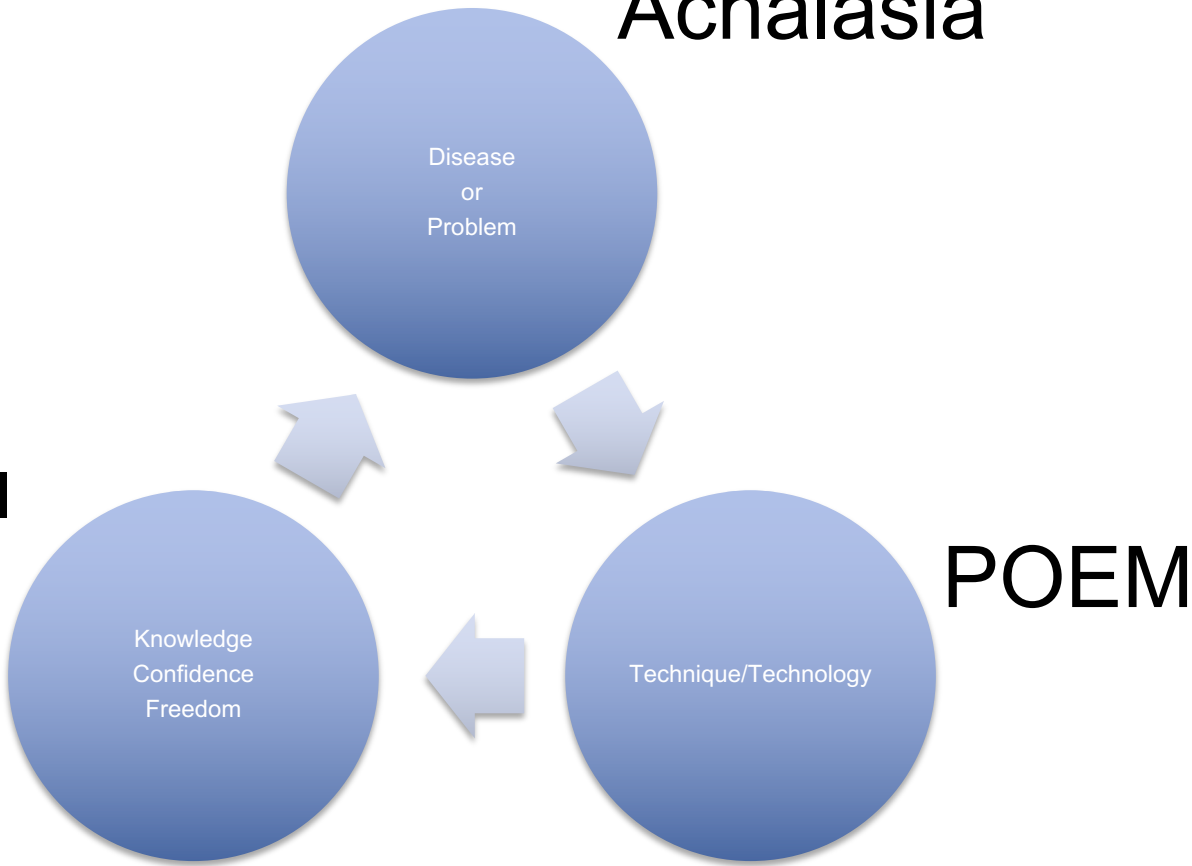
Intramural Interventions:

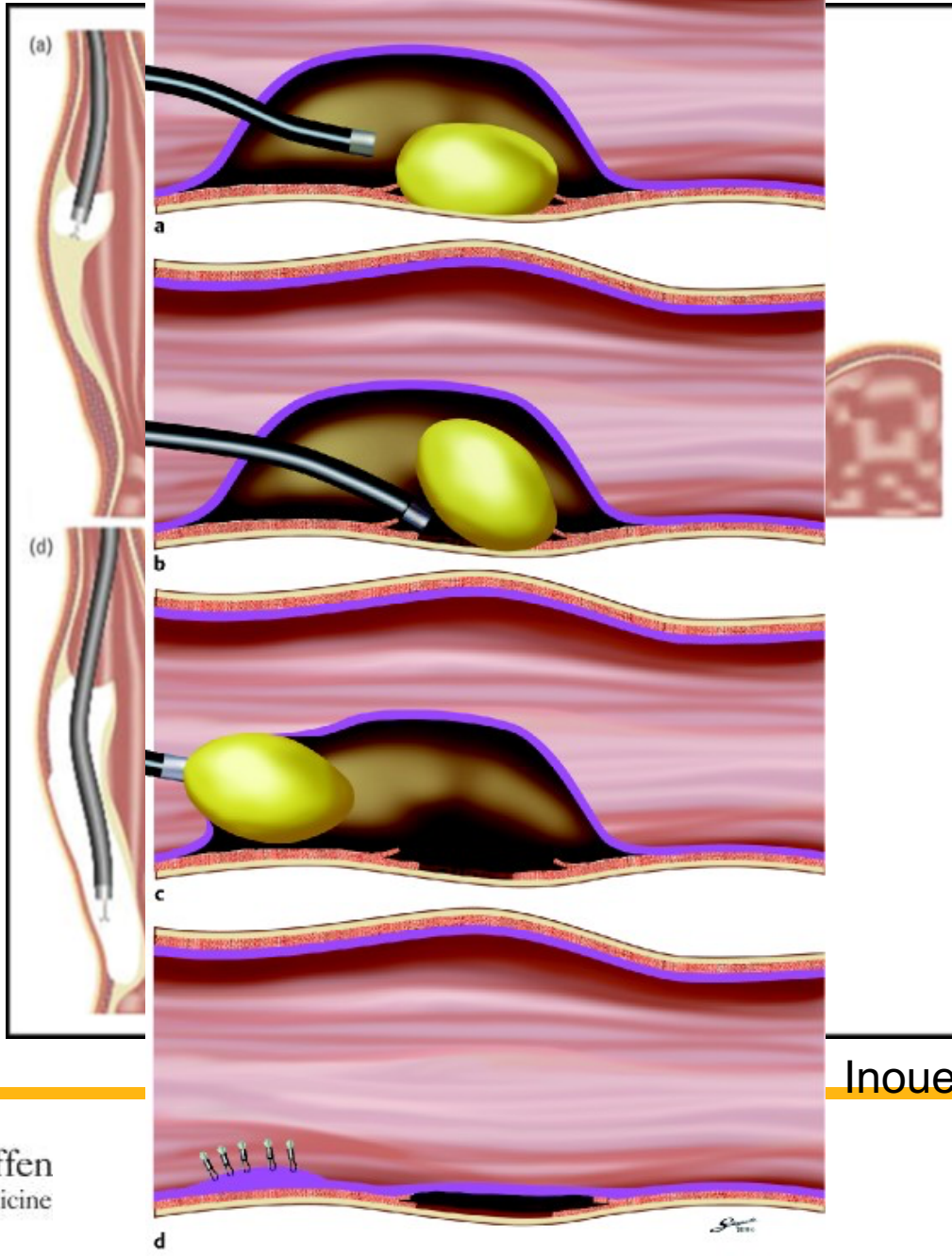
Per-Oral Endoscopic Myotomy for Achalasia and
Submucosal Endoscopy



Achalasia

What else can I
do in the wall?





Inoue et al Endoscopy 2012

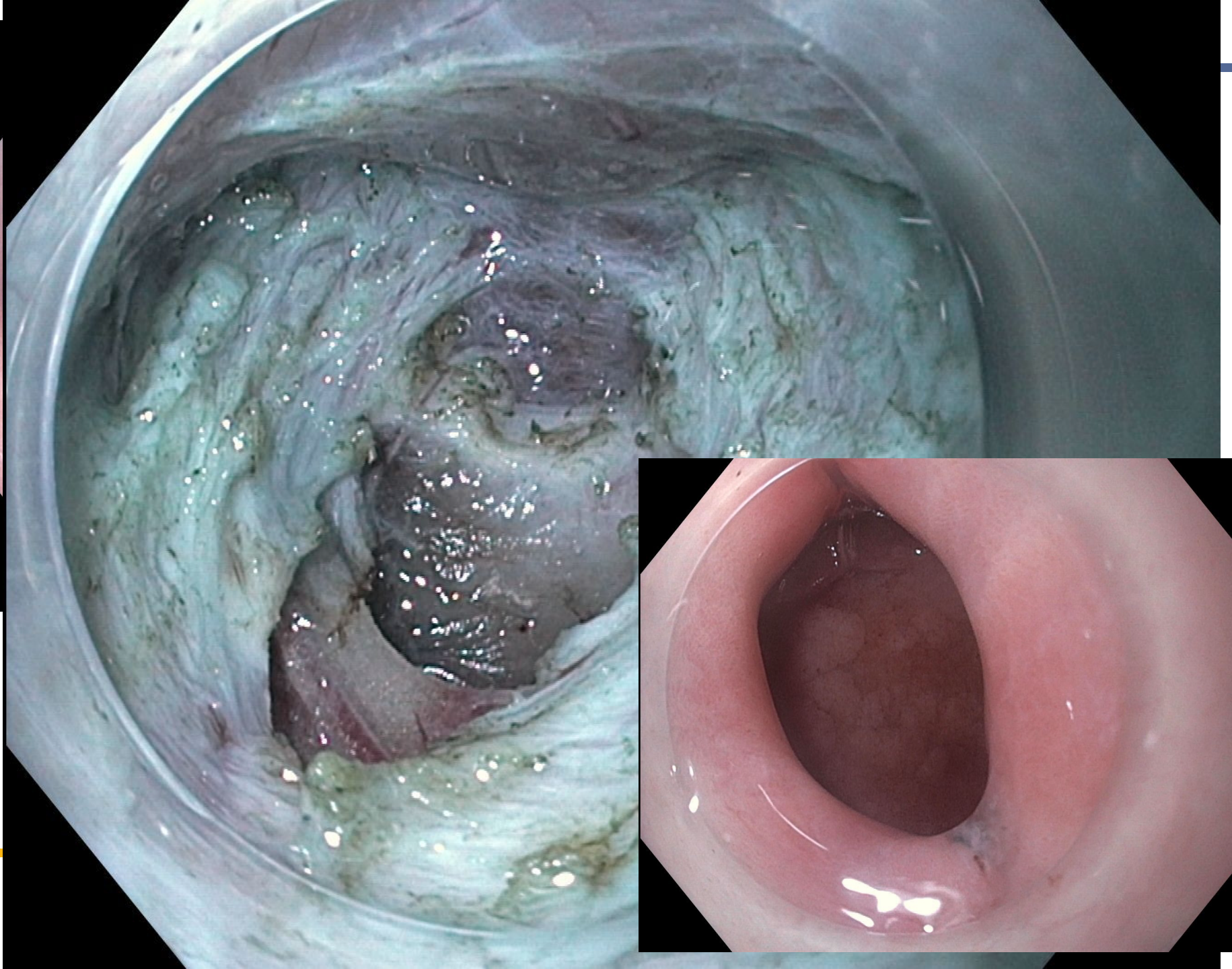


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Progression of submucosal endoscopy

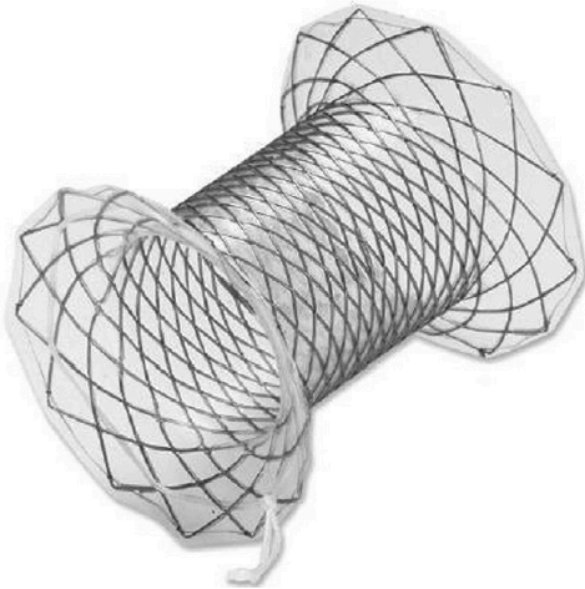
- Submucosal balloon dissected tunnel in porcine model, Gostout, Parischa, et al 2007
- POEM, Inoue 2010
- Submucosal tunnel for tumor resection; Zhou, Inoue 2011
- Peritoneoscopy (conscious sedation), Lee 2013
- Pyloromyotomy, Khashab 2013



Transmural interventions:

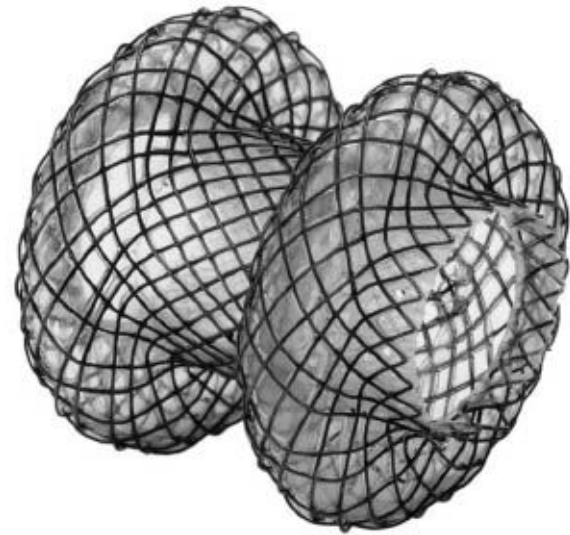
Lumen Apposing Metal Stents
Pancreas necrosis and beyond

Lumen Apposing Metal Stents (LAMS)



NAGI stent

Taewoong Medical, Korea



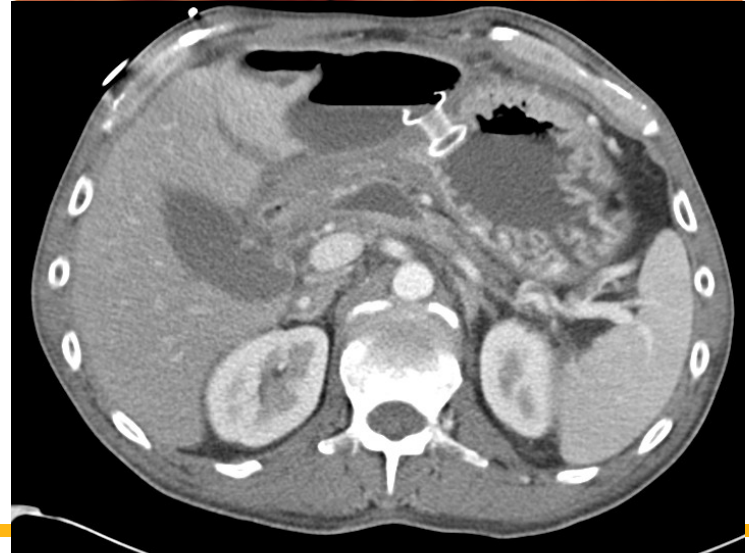
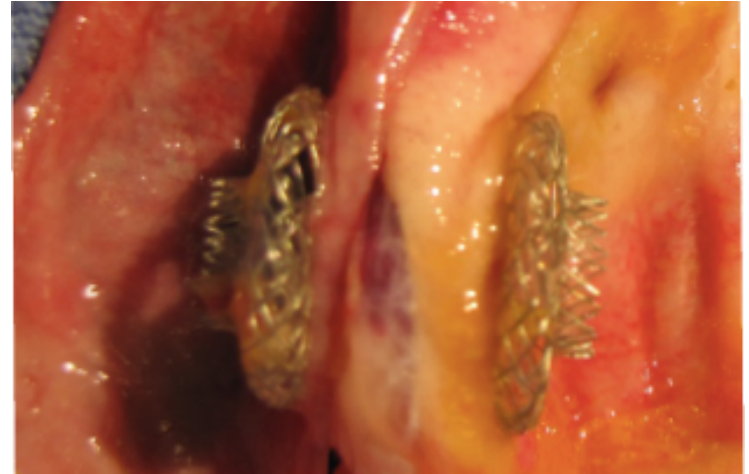
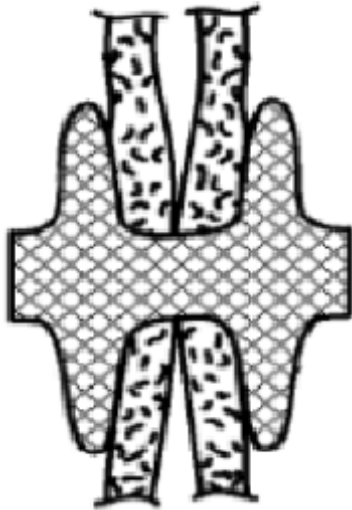
AXIOS stent

Boston Scientific, USA

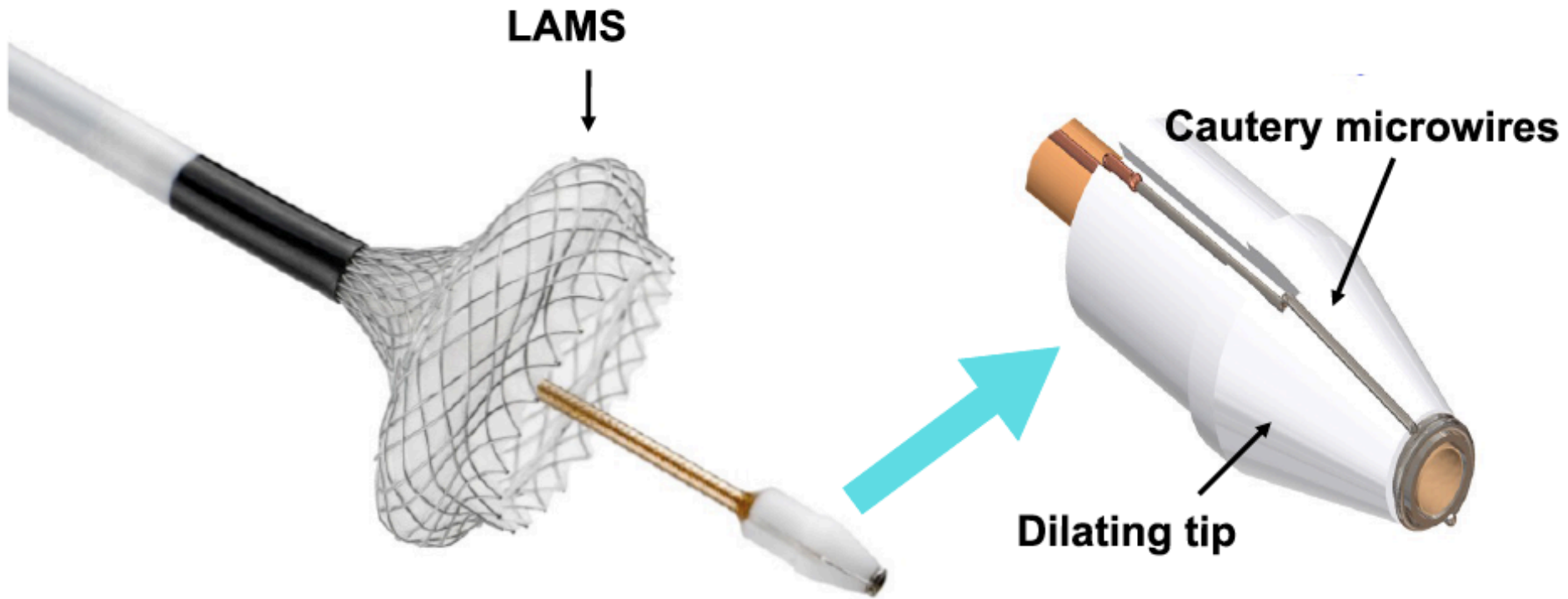


LAMS

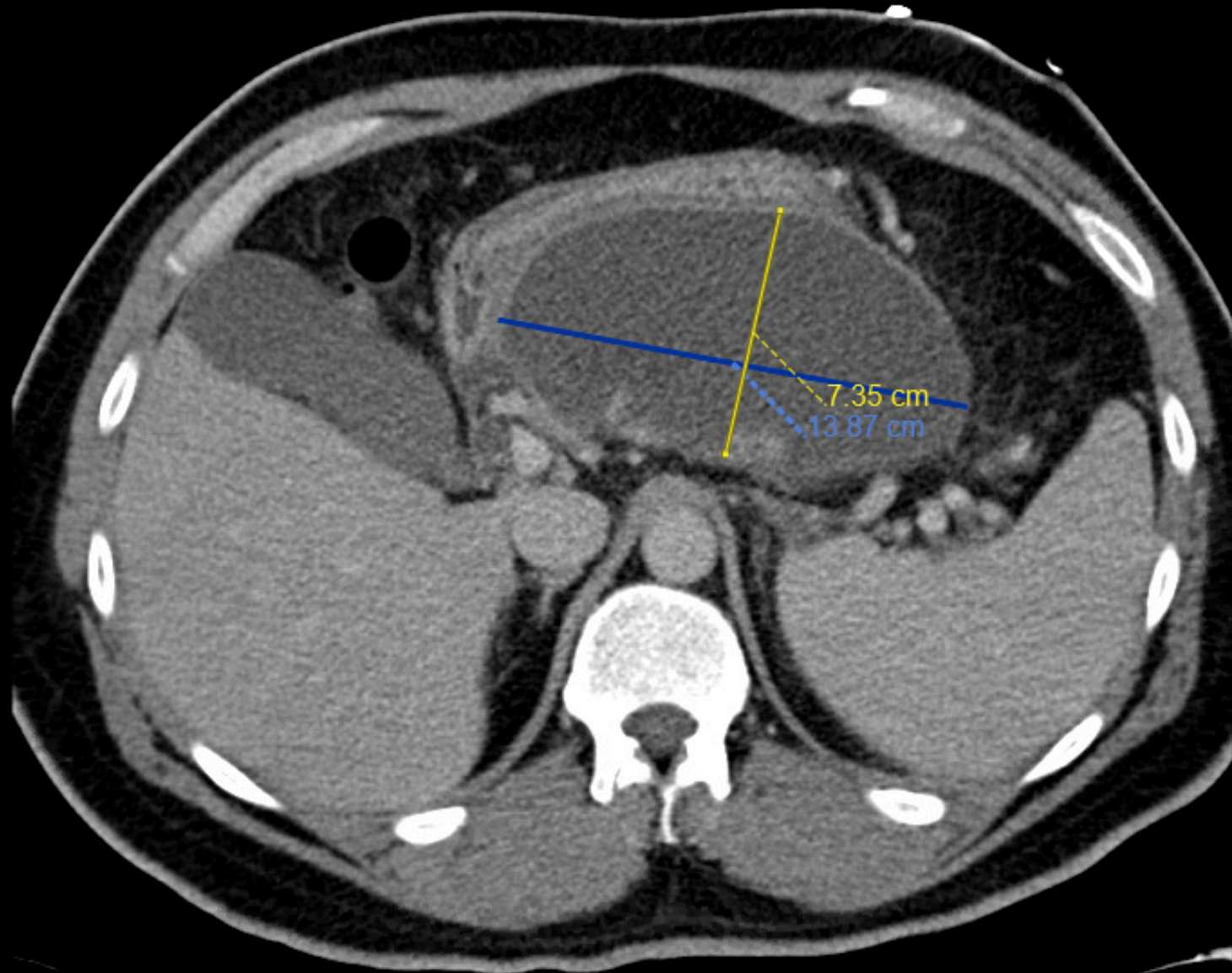
- Large lumen
- Short length (1 cm)
- Fully covered
- Anchoring flanges



Electrocautery Enhanced Delivery System



ONTRAST



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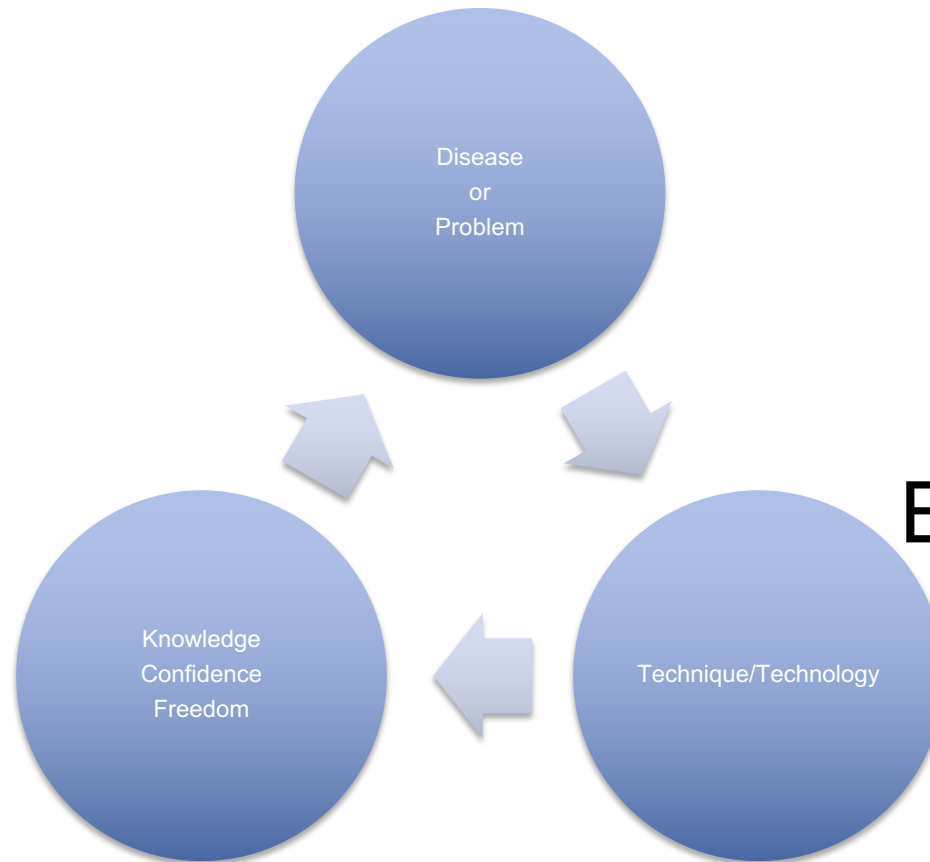
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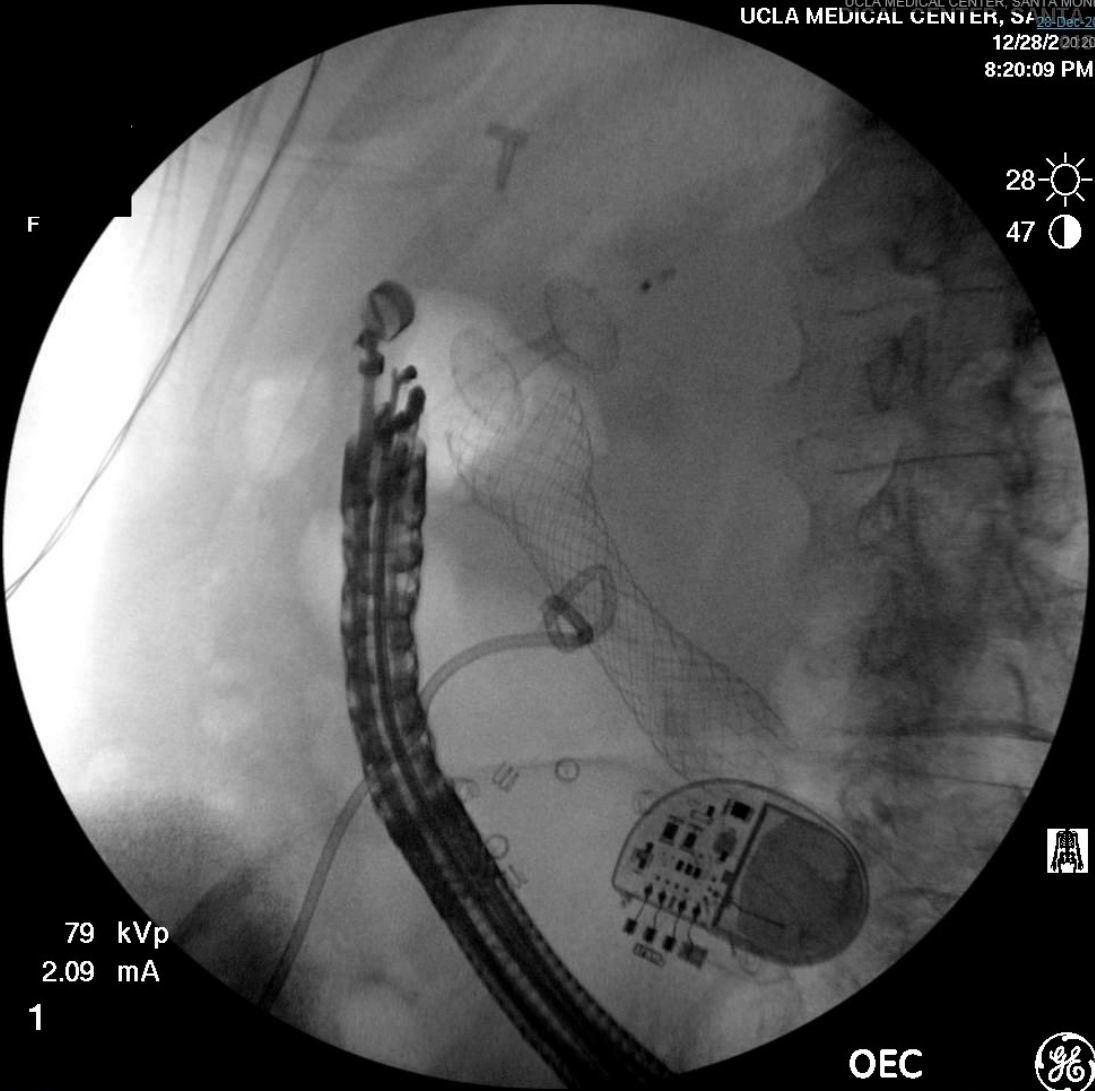
WOPN



What other
lumens can
I appose?

EUS-LAMS

Primary
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47 🌑

79 kVp
2.09 mA

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OEC



Lossy 32 - 1

WL-32767 - WW:65535

FL MORE THAN 1 HOUR

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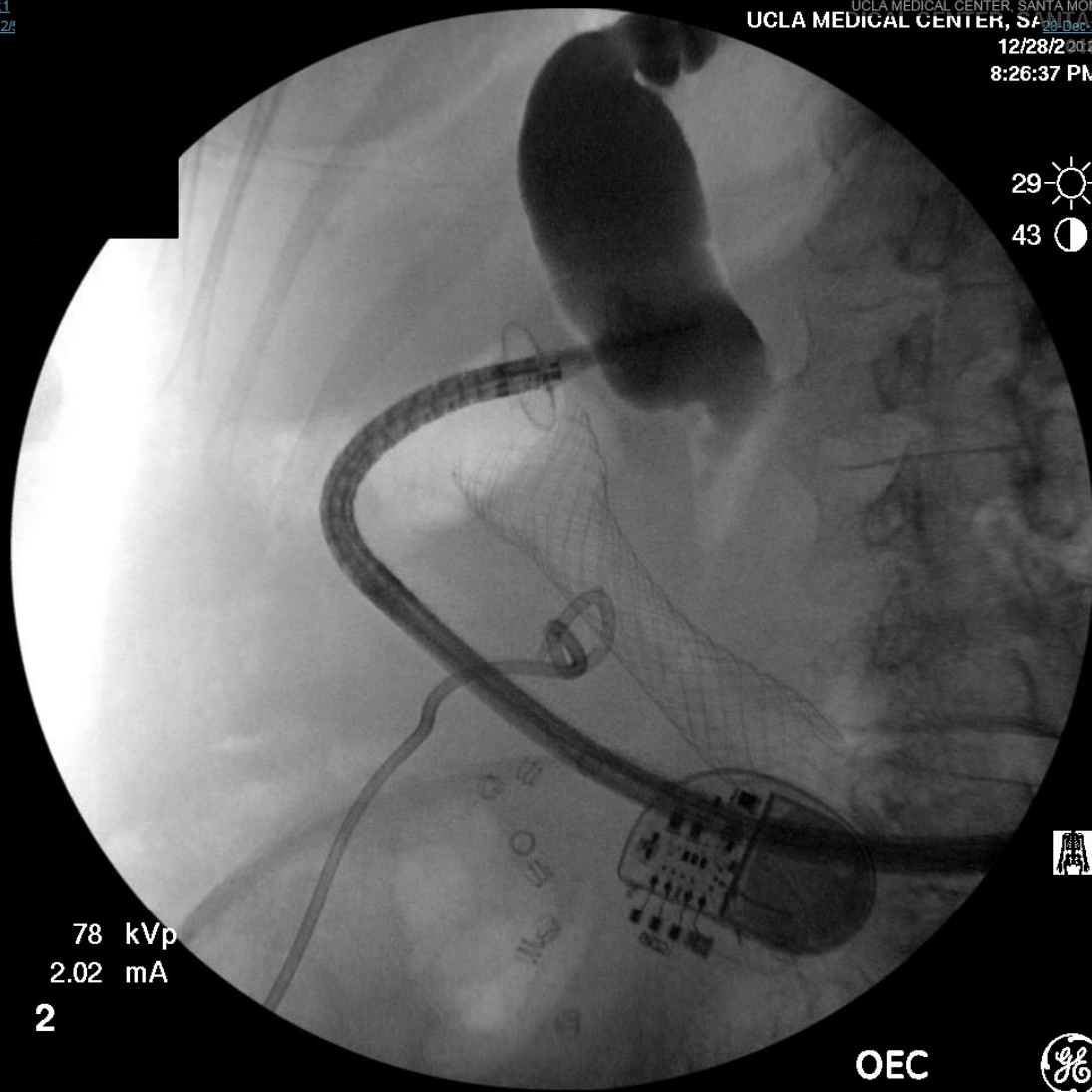
Primary

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UCLA MEDICAL CENTER, SANTA MONICA

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43 



78 kVp
2.02 mA

2



OEC



Lossy 36 : 1

WL:32767 - VVV:65535



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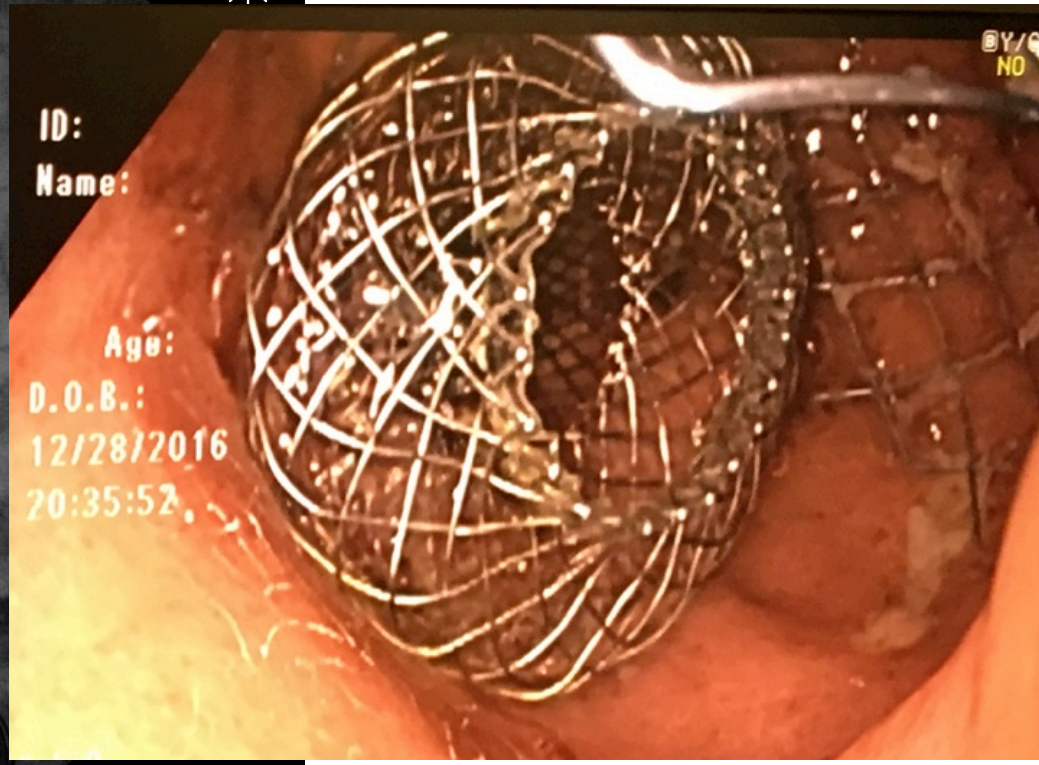
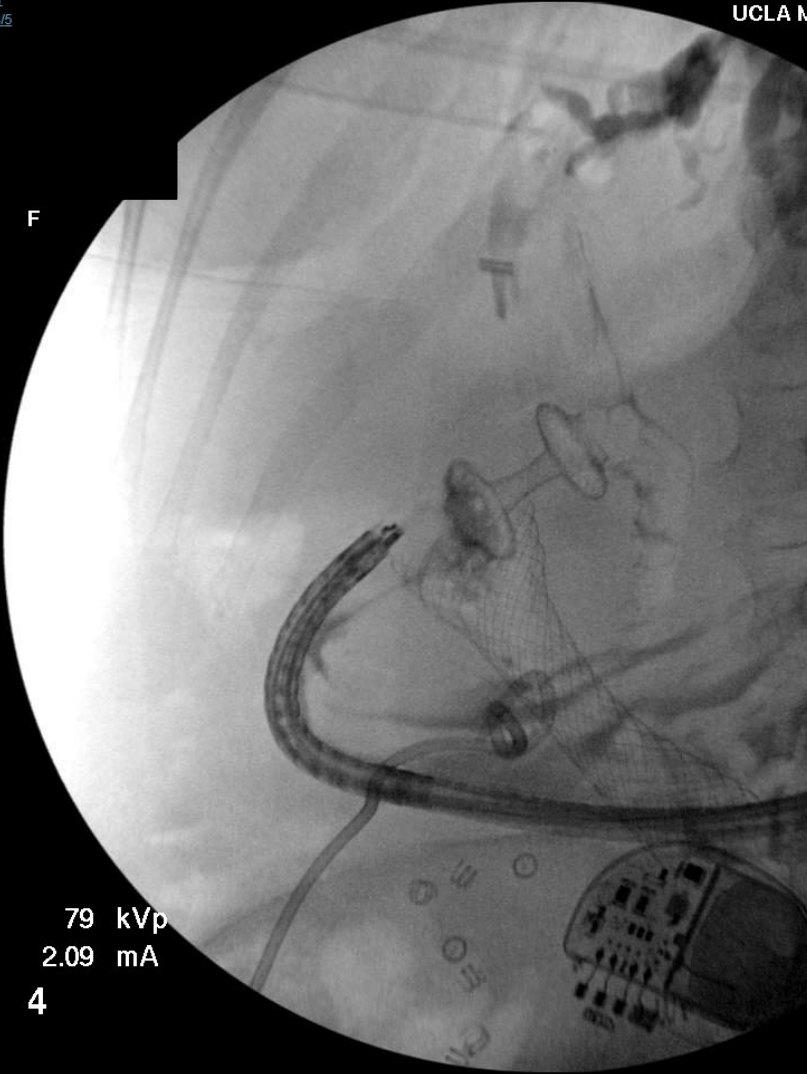
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Age:
D.O.B.:
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79 kVp
2.09 mA
4

OEC



WL:32767 - WW:65535

FL MORE THAN 1 HOUR

Primary
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52 🌑

79 kVp
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5



OEC

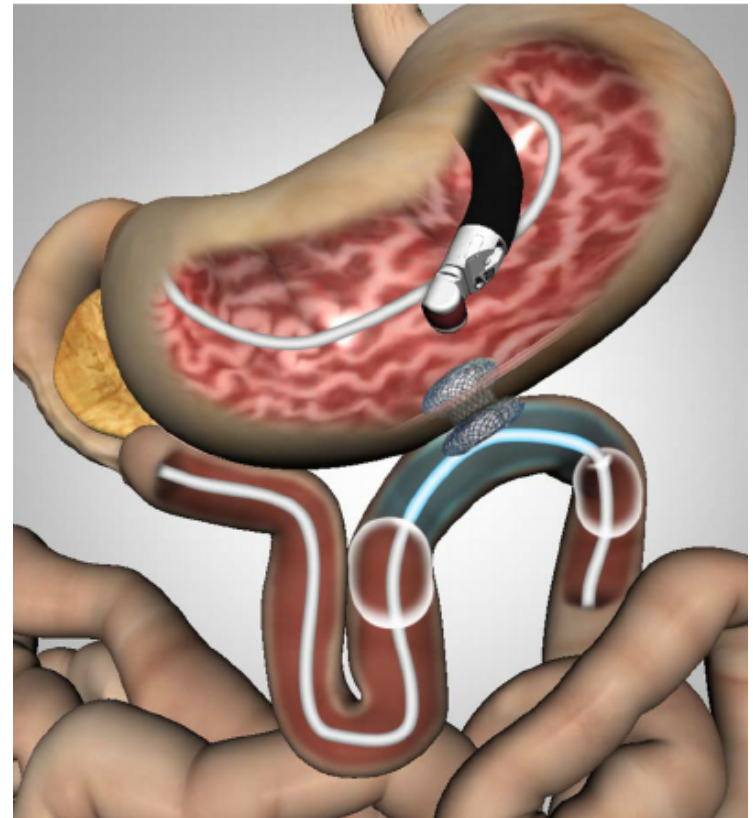


Lossy_32_1

WL:32767 - WW:65535

Lumen apposing metal stents

- Pancreatic fluid collections
- Gallbladder drainage
- Bile duct drainage
- Lumen apposition
 - Gastrojejunostomy
 - Gastrogastric (post bariatric surgery)
 - Afferent limb syndrome
 - Post-operative fluid collections

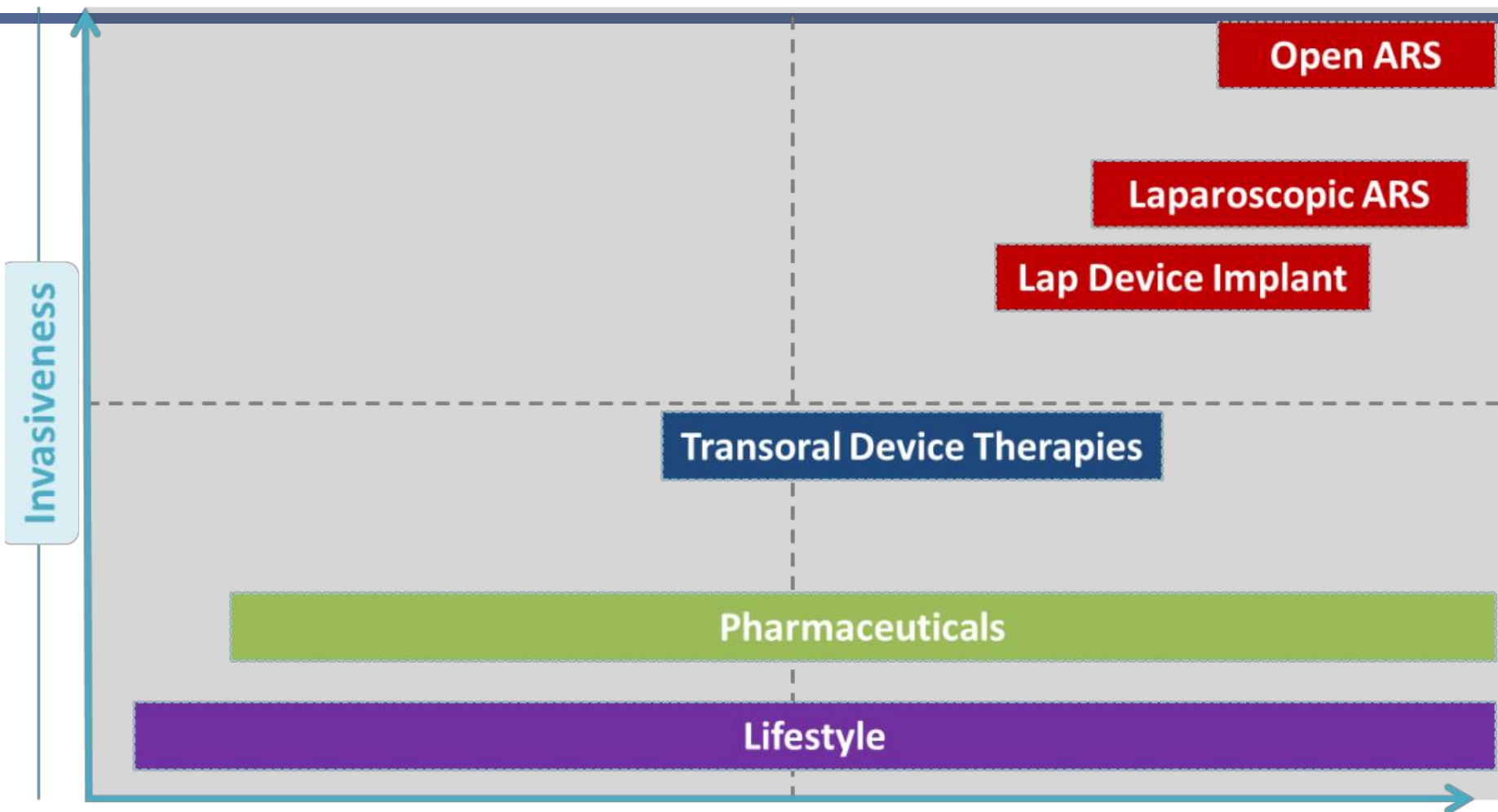


Dedicated endoscopic platform:

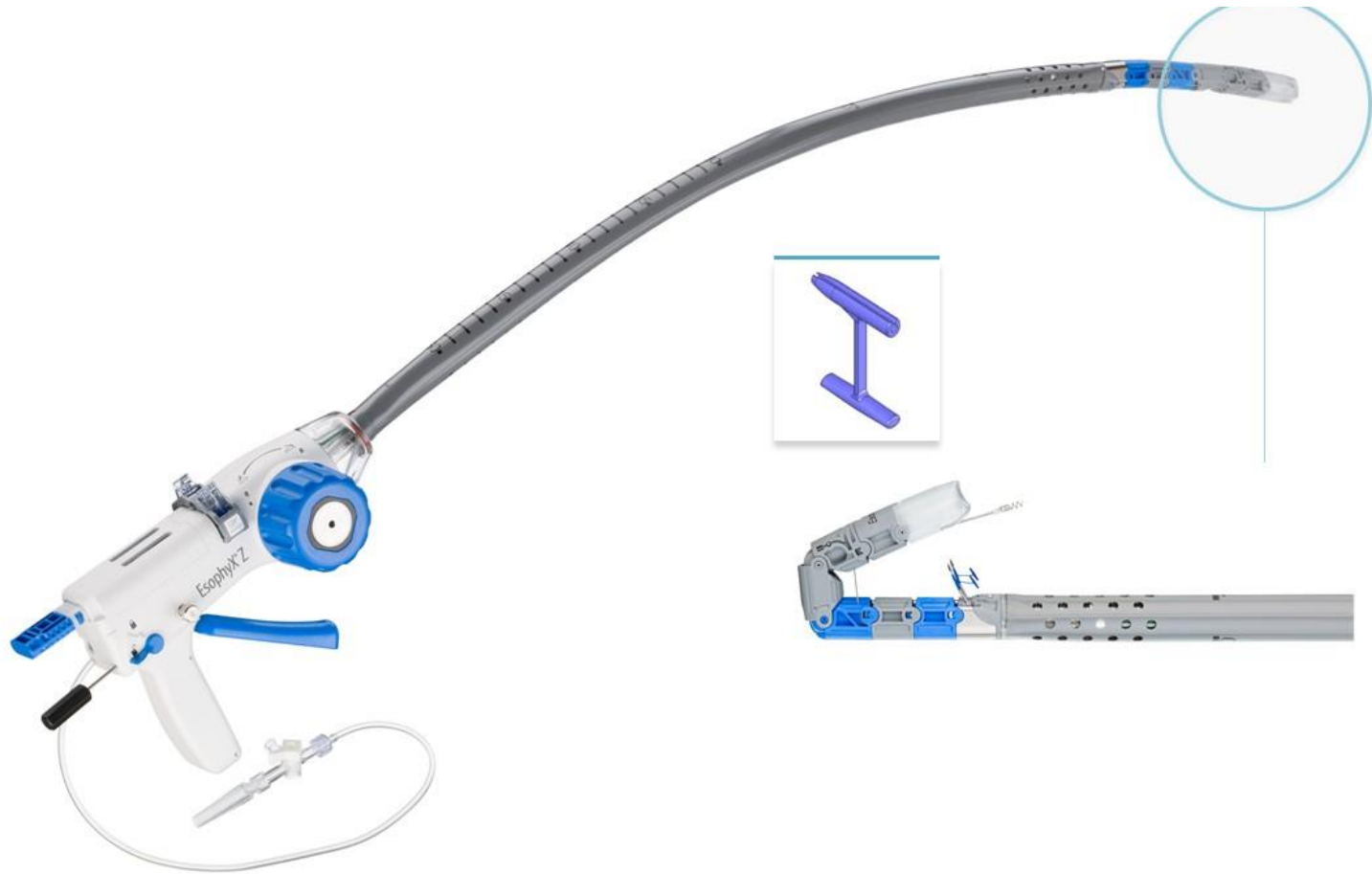
Transoral Incision-less Fundoplication (TIF) for
GERD

Why endoscopic therapy?

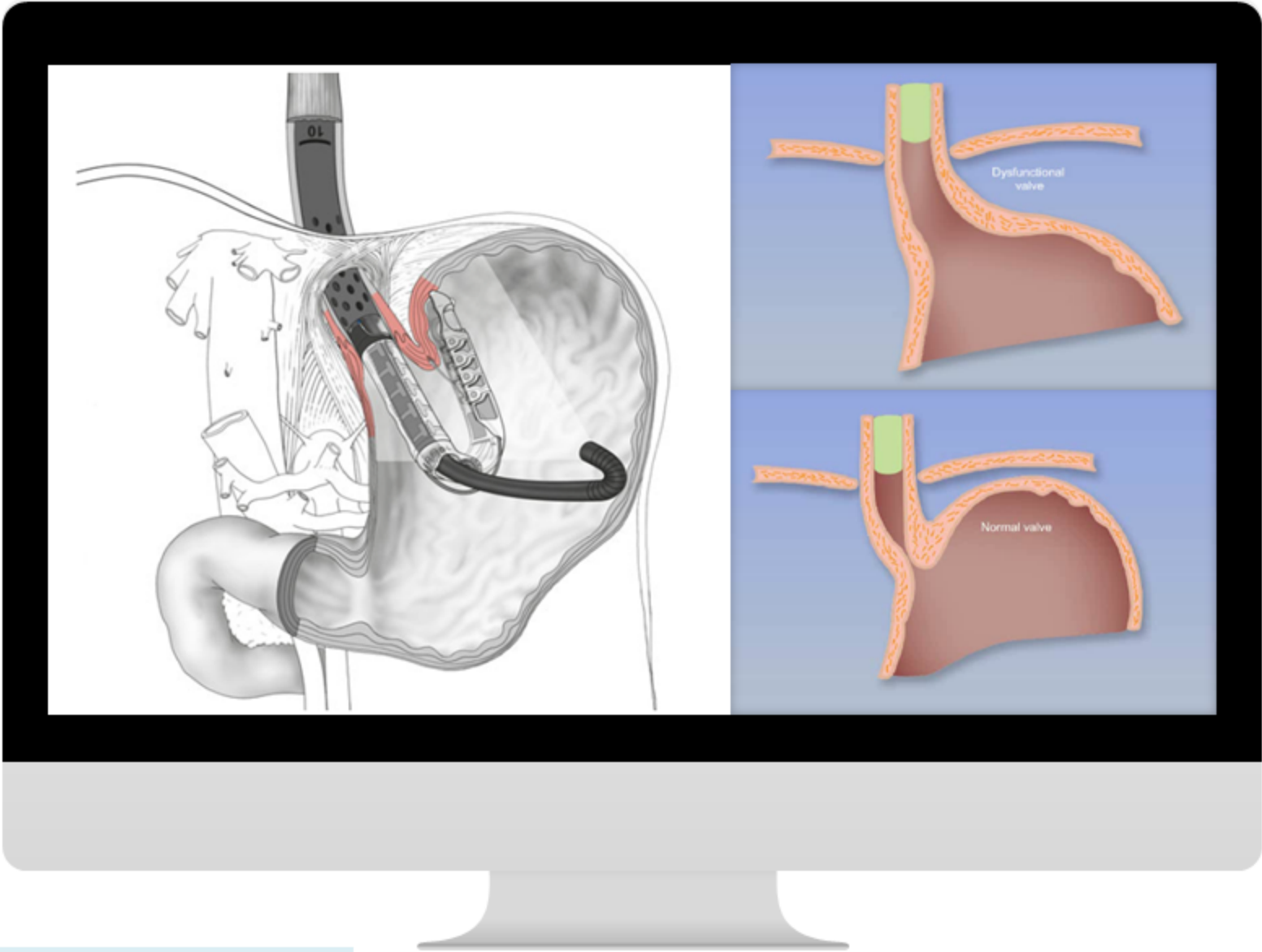
- GERD is common
- Current medical and surgical treatment are pretty good but not ideal
- There are real and perceived adverse effects related to surgery
- There is a potential for an endoscopic technology to fill a niche



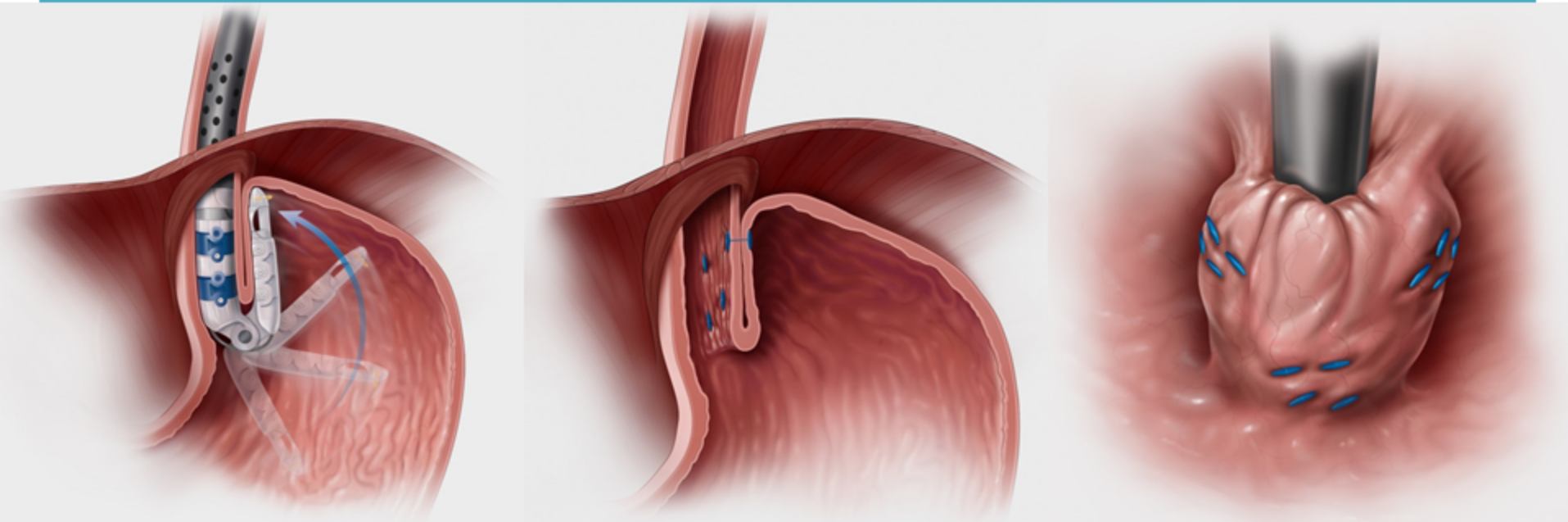
Esophyx device with fasteners



TIF Image: Anterior View



TIF Procedure Overview



©2015 AGA Institute. Hunter JG, et al. Gastroenterology. 2015 Feb;148(1):325.

STEP 1

The EsophyX® device is inserted into the esophagus through the mouth and is positioned at the junction of the stomach and esophagus. A small hiatal hernia is reduced by engaging suction (invaginators) and positioning the esophagus below the diaphragm.

STEP 2

A full thickness tissue fold at the gastroesophageal junction is retracted, wrapped and anchored using SerosaFuse® implantable fasteners—equivalent to 3.0 sutures—which are delivered across the tissue to complete the plication.

STEP 3

The valve is extended and multiple fasteners (12-20) are delivered with a single device insertion. The TIF procedure reconstructs the primary components of the antireflux barrier, creating a tight 3-5 cm valve enveloping the distal esophagus below the diaphragm.

GERD



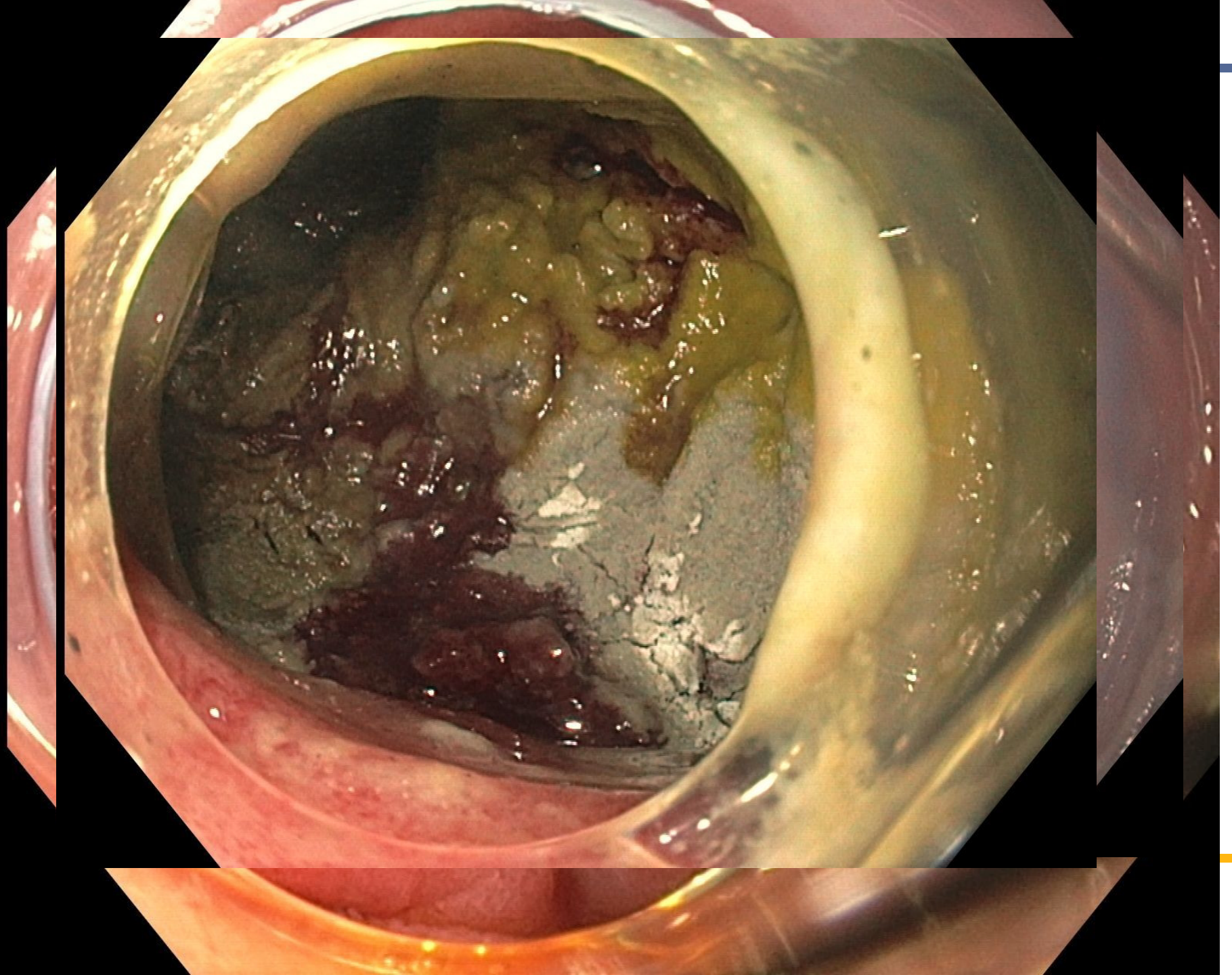
What other dedicated platforms can I come up with?

What niches need filling?



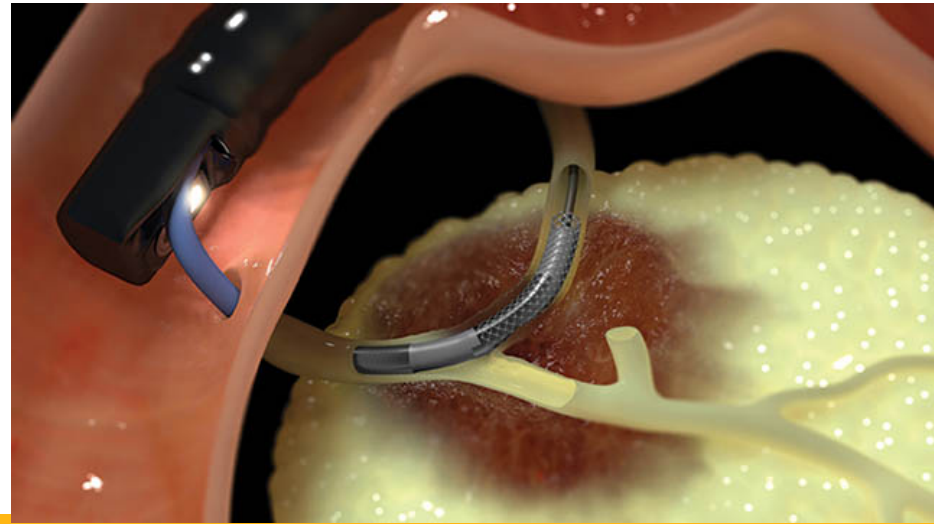
Hemostatic Powder



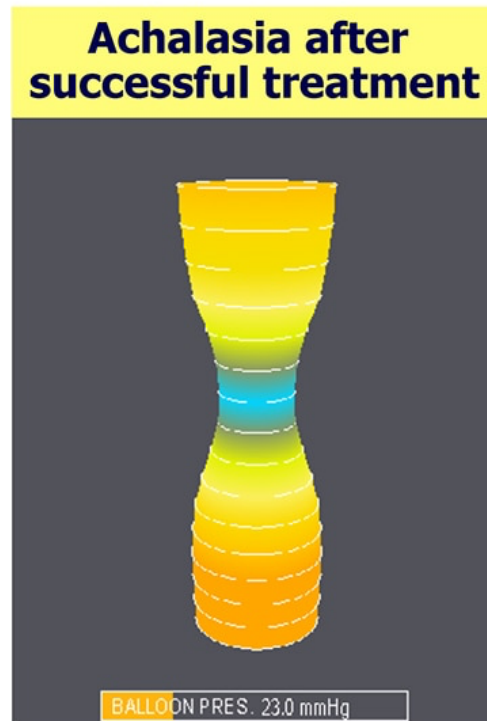


Ablation technology

- Ablation for dysplastic Barrett's esophagus well established in practice
- Biliary and pancreatic ablation (RFA, PDT) available and continue to be utilized and evaluated



EndoFLIP



What are the challenges of therapeutic endoscopy

- Flexible instrument (pro and con)
- Lack of triangulation
 - Coaxial image, instruments
 - Exposure, retraction
- Most techniques are based on basic technology
- Limited devices
 - Snare, wire, needle, knife, forceps, stent
- Few notable task- or disease- specific devices
- Technology (and economics) have not yet matched our ambition
- Reimbursement

Robotic Endoscopy: The Next Logical Step?

- Are we approaching the limit that traditional endoscopes can achieve?
- Deconstructing the endoscope to achieve new goals or improve safety, efficiency, efficacy



Thank you!



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