Esophageal strictures

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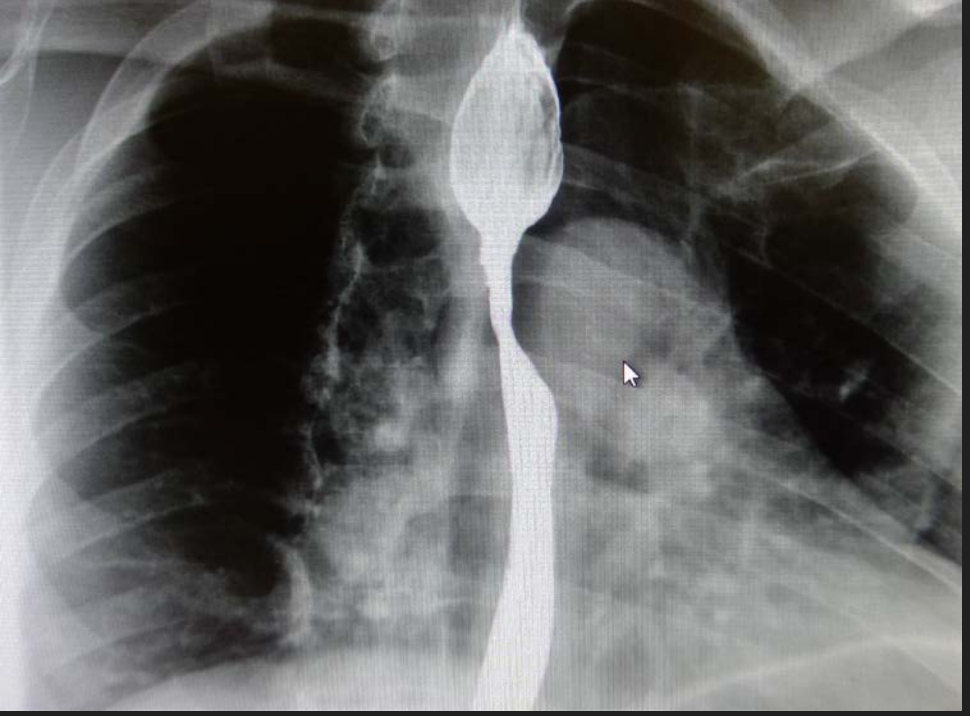
Conflict of interest disclosure

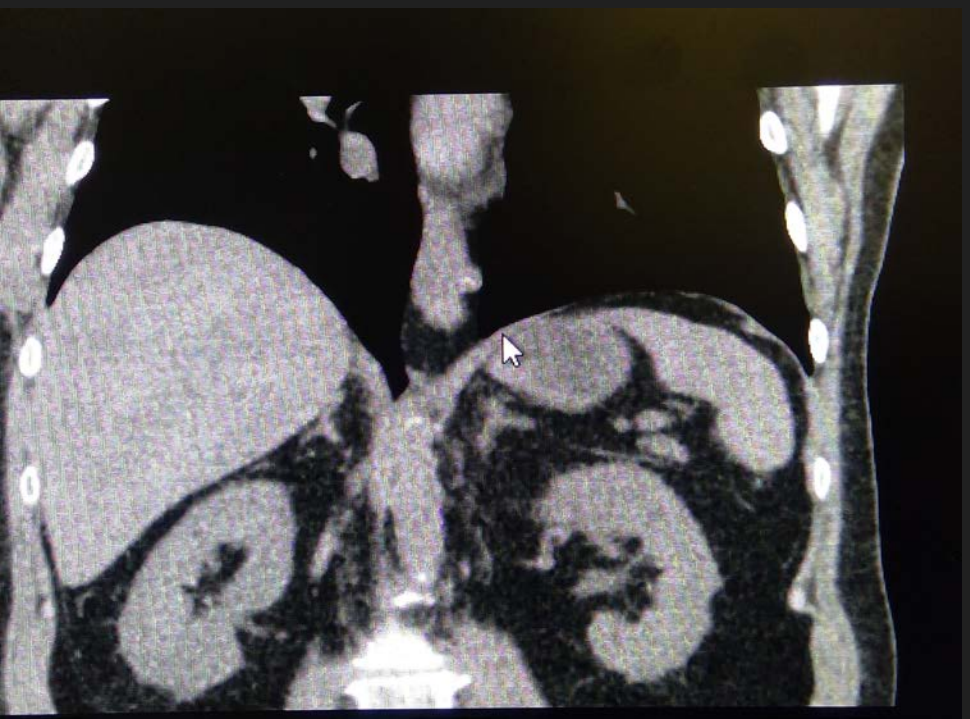
Pendopharm: Speaker, ad board

Janssen: Speaker

CanMEDS Roles Covered in this Session:

✓	**Medical Expert** (as *Medical Experts*, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care. *Medical Expert* is the central physician Role in the CanMEDS framework.)
	Communicator (as Communicators, physicians effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter.)
✓	**Collaborator** (as *Collaborators*, physicians effectively work within a healthcare team to achieve optimal patient care.)
✓	**Manager** (as *Managers*, physicians are integral participants in healthcare organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the healthcare system.)
	Health Advocate (as *Health Advocates*, physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations.)
	Scholar (as *Scholars*, physicians demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge.)
	Professional (as *Professionals,* physicians are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour.)





Case presentation

64 yo male with progressive dysphagia and 7kg weight loss

BS: Mid esophageal 27mm x 5mm stenosis,

CT: 20mm x 13mm partially calcified nodule in esophageal wall at GE junction

Pediatric EGD

- Inflammatory stenosis between 25 and 28cm
- Intestinal metaplasia with LGD between 28 and 35cm on random Bx

What is your next move?

Motility disorders

Intrinsic:

Fibrosis, inflammation, anastomotic, neoplasia, congenital

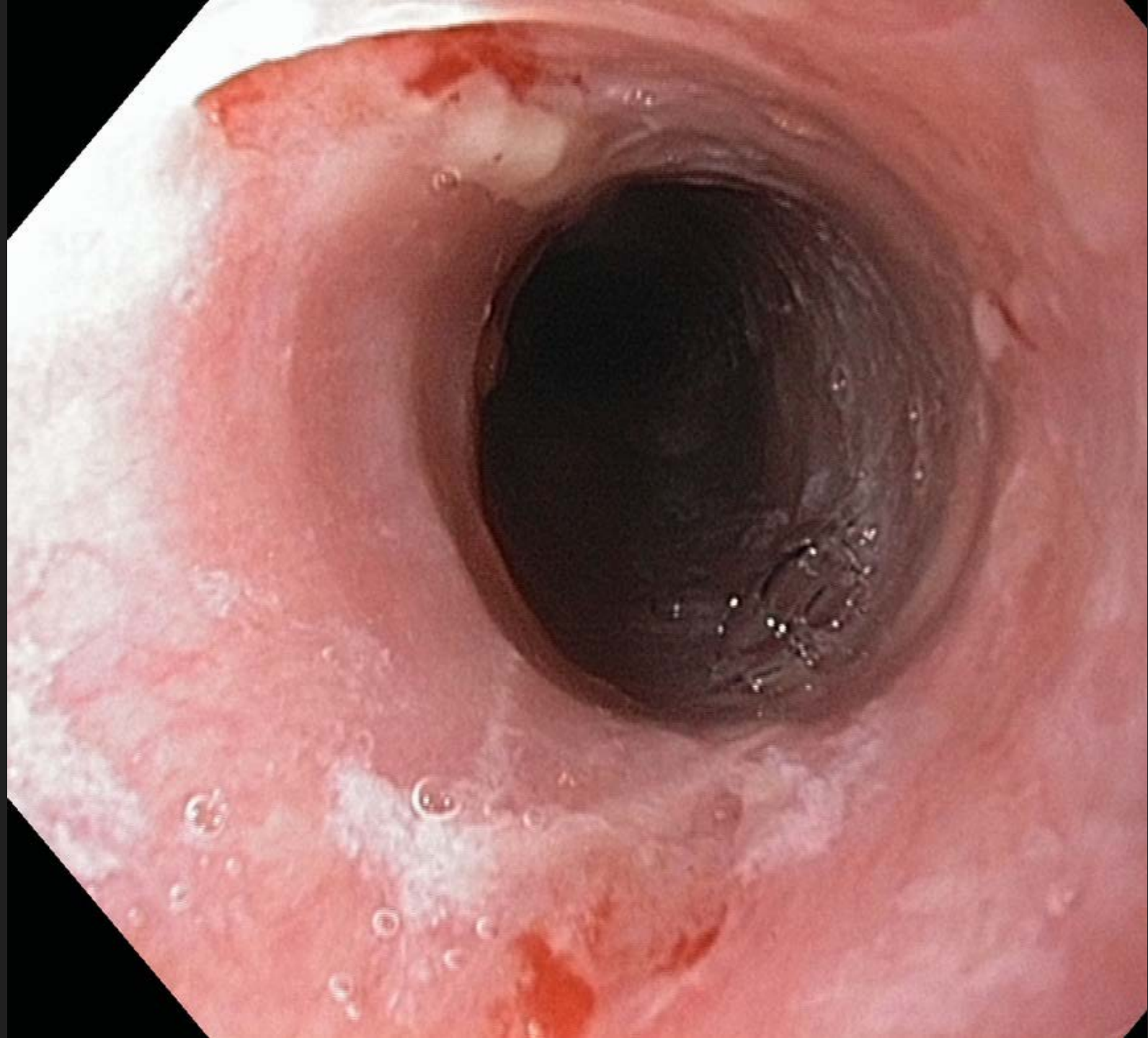
Extrinsic:

Lymph nodes, invasion, mediastinal disease, duplications

Classification of esophageal strictures

Intrinsic fibrotic benign esophageal strictures:

- Peptic injuries
- Schatzki rings
- Webs
- Eosinophilic esophagitis (EoE)
- Anastomotic strictures *
- Caustic ingestion
- Post-procedural strictures (post EMR/ESD/RFA)
- Radiation injuries
- Congenital stenosis
- Epidermolysis bullosa

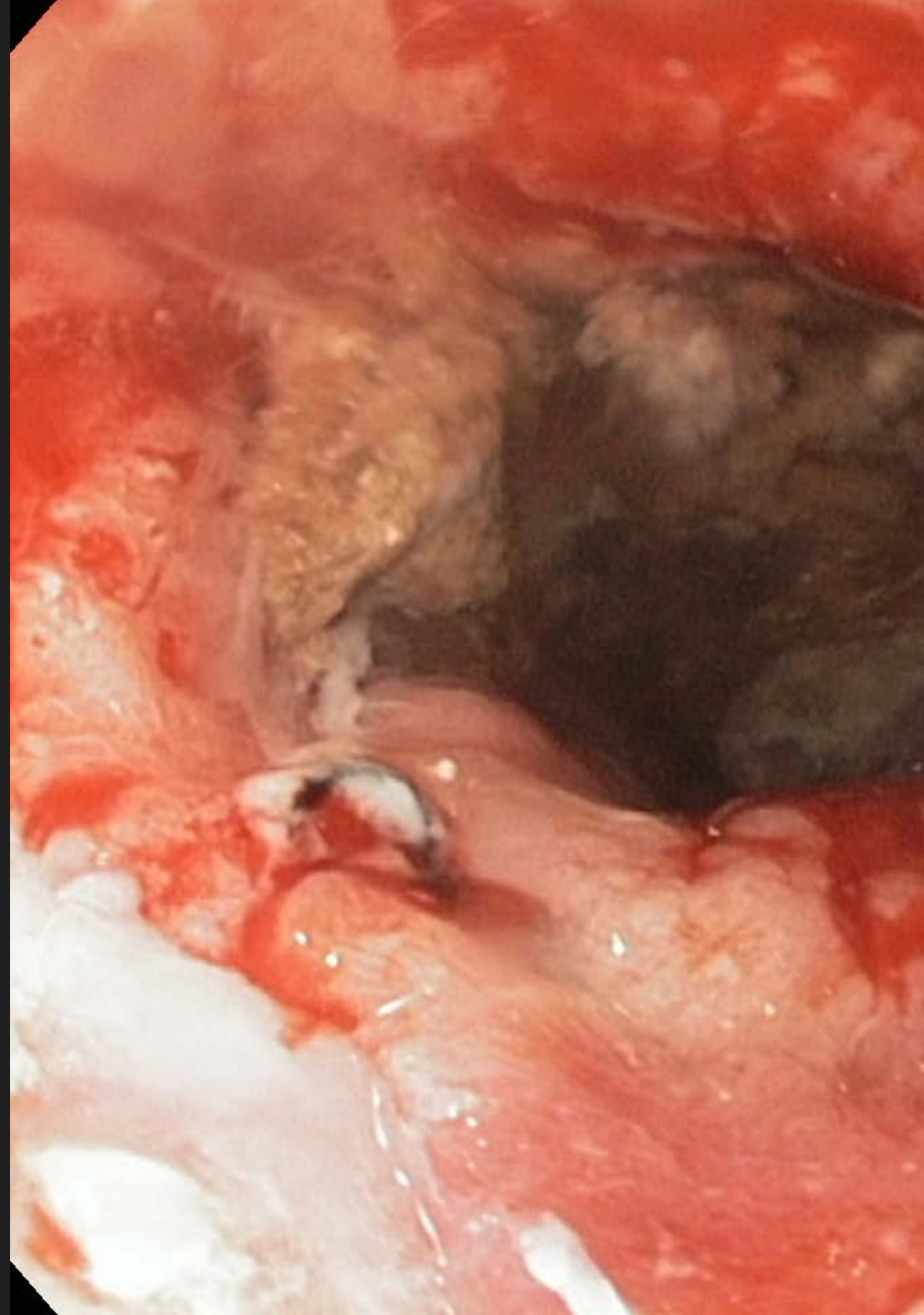


Refractory Benign Esophageal Stricture

An anatomic restriction because of cicatricial luminal compromise or fibrosis that results in the clinical symptom of dysphagia *in the absence of endoscopic evidence of inflammation*

- **Refractory:** inability to dilate up to **14mm** over **5 sessions** at 2-weekly* intervals

- **Recurrent:** once 14mm has been achieved, inability to **maintain** diameter **for 4 weeks***



Kochman. Gastrointest Endosc 2005; 62: 474–475

Refractory oesophageal stricture; Evaluation

Upper vs Lower oesophagus

Simple vs Complex (>2cm, angulated, irregular, small caliber)

Primary vs Recurrent

Therapeutic modalities

Agressive antireflux therapy

Dilation

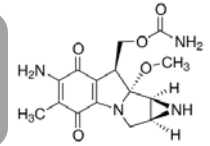
Adjunctive quadratic steroids injection

Incisional therapy

Temporary stenting

Self-Dilation

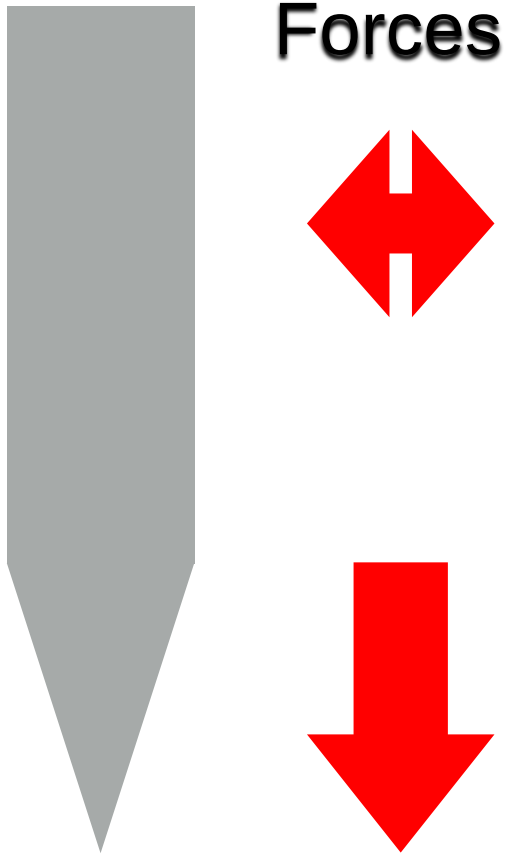
Mitomycin C



Others

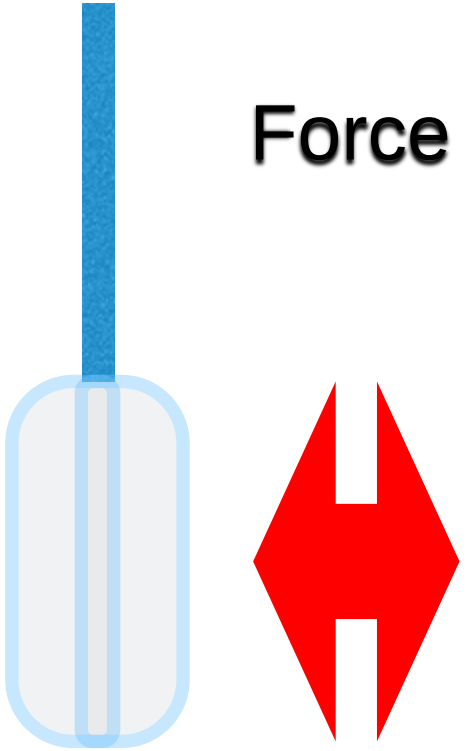
Bougie dilation

- Maloney vs Savary-Gilliard
- Rule of 3mm / session
- Reusable
- Tactile feedback



Balloon dilation (EBD)

- Single use
- Size 6-20mm
- Increased risk of tear in eosinophilic esophagitis
- Look for whitening and tearing through the balloon before applying full pressure



Bougie vs balloon dilation

- Up to 5 sessions (up to 16-18mm) before considering alternative treatment
- No clear advantage between both techniques
- Perforations:
  - 0,1-0,4%; mostly with complex stricture and Maloney dilators (blind)
  - 1 to 3% in eosinophilic oesophagitis (chest pain, tears)
- Small risk of hemorrhage, bacteremia (stop anticoagulant before)

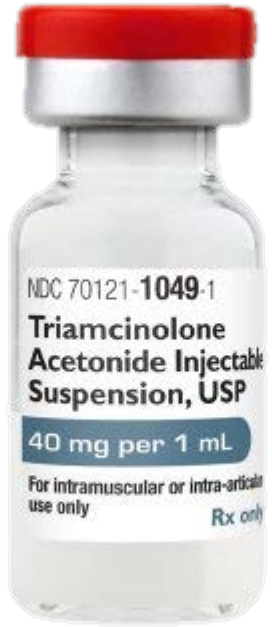
Quadratic triamcinolone + dilation

Inhibits matrix protein genes, prevents fibrosis and formation of scar tissue

Studied in peptic strictures with Savary dilation

4-8 quadratic 0.5ml (20mg) triamcinolone injections proximal and in stricture before dilation :

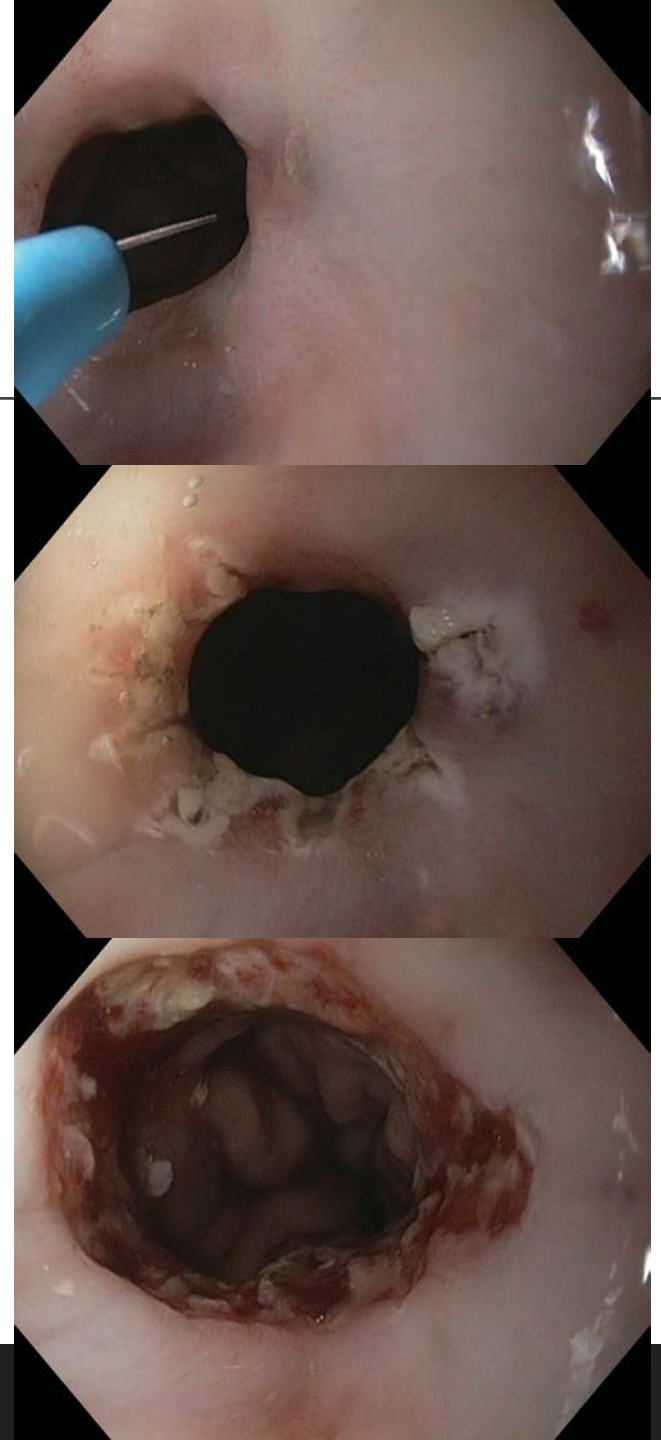
- Decreased need for repeat dilation at 1 year
- Maximum of 3 sessions suggested



Dunne et al. *Gastroenterology*. 1999. 116:A152
Ramage et al., Am J Gastroenterol 2005;100:2419–2425

Incisional therapy

- For short (<1cm) anastomotic strictures and Schatzki rings
- 8 to 12 radial incisions in one session with needle-knife or isolated-tip knife
- Until passage of 10mm scope



Hordijk, Gastrointest Endosc **2006;63:157-63**
Lee, Gastrointest Endosc 2009;69:1029-33

Incisional therapy vs Savary dilation

Equivalent for anastomotic stenosis

2.9 vs 3.3 sessions (NS)

81 vs 68% success rate (NS)

Satisfaction and tolerability better with incisional therapy

Hordijk, Gastrointest Endosc 2009;70:849-55

Temporary stenting

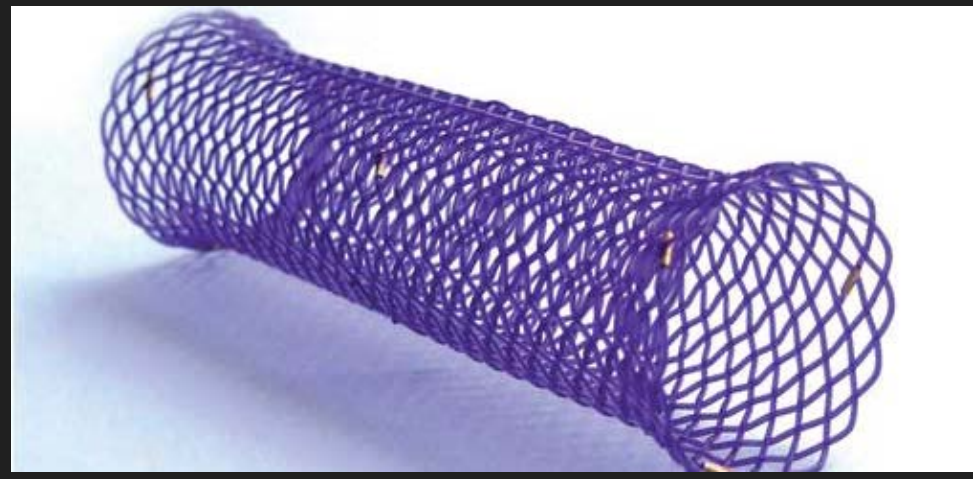
Fully covered, for 4 to 8 weeks

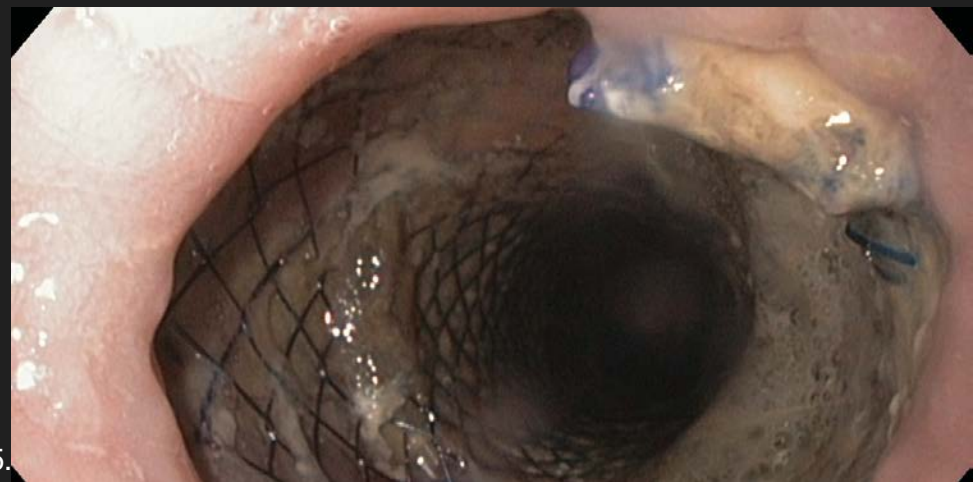
Overall clinical success 46%

- Esophageal perforations 100%
- Anastomotic leaks 80%
- Fistula 71.4%
- Refractory benign strictures 33.3%
- Anastomotic strictures 23.1%

Migration rates 26-31%

Biodegradable?





Thomas T et al. Endoscopy 2011; 43: 386–393

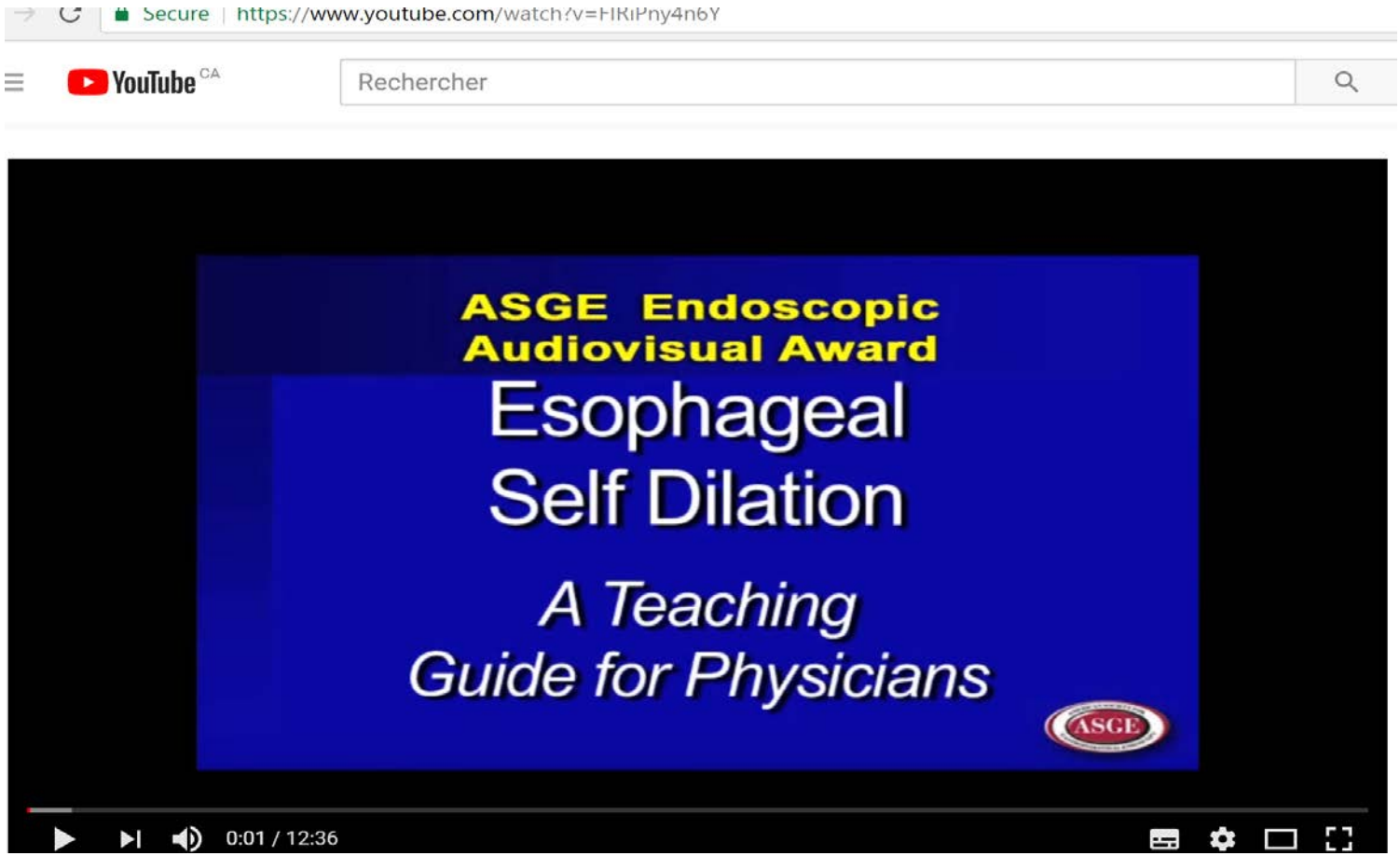
Youg et al. Clin Endosc 2014;47:295-300

Suzuki T et al. *J Clin Gastroenterol*. 2016 May-Jun. 50(5):373-8.
Kim KY et al. *Cardiovasc Intervent Radiol*. 2017 Oct. 40(10):1576-85.

Strictures in the proximal esophagus

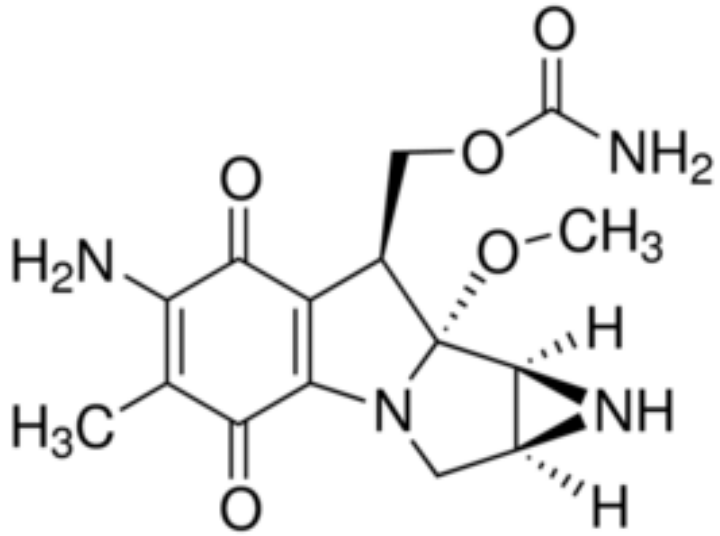
- Metal stents: Frequent globus and high failure rate with
- Risks of tracheoesophageal fistula, stridor and esophago-subclavian fistula (TEF/EA patients)
- **Self-dilation**
- Mitomycin C
- Surgery (risk of recurrent stricture)

Self-Dilation



Mitomycin C (MMC)

- Inhibits proliferation and activation of fibroblasts
- 63-83% effective in EA/caustic strictures in children (less dilation)
- Injections (4 quadrants 1.5ml of 1mg/2ml) or topical (0.1-1 mg/ml) applied after dilation
- Risk of secondary malignancy and perforation



Rosseneu, J Pediatr Gastroenterol Nutr. 2007;44:336-41

Spier, GIE 2009;69:152-3

Berger, Eur J Pediatr Surg 2012;22:109-16

Interactive CardioVascular and Thoracic Surgery, 2017 Jan: 24, (1):112-114.

Post-ESD stricture prevention

- > ¾ circumference, > 4cm, cervical location: up to 90% stricture
- Weekly balloon dilation (average of 34!)
- Oral prednisolone 30mg started day 2, tapered over 8w (5 vs 31% stricture rate)
- Triamcinolone injection on 9-40 sites (18-100mg): 7-19% stricture rate vs 90-100%
- 13 vs 6 dilation sessions
- Budesonide slurry?

Shinichiro Kobayashi. World J Gastroenterol 2014;20: 15098-15109
Takahashi, BMC Gastroenterol. 2015;15:1

Key Points

- Agressively treat inflammation
- Dilation with bougie or balloon are an effective first choice
- Adjunctive steroids somewhat useful for refractory cases
- Incisional therapy is effective for short anastomotic stricture / Schatzki
- Stenting useful in inflammatory stenosis, perforations, leaks and fistulas
- Self bouginage should be considered in refractory cases and upper strictures