Endoscopic treatment of Common Esophageal disorders

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Objectives

- Discuss the role of endoscopy and shifting paradigms in management of GI disorders such as:
  - Barrett’s esophagus
  - Zenker’s diverticulum
  - Endoscopic myotomy for Achalasia
- Discuss new techniques and devices for therapeutics in esophagus
  - Endoscopic mucosal resection
  - Endoscopic submucosal dissection
  - Perforation closure devices

Multidisciplinary Care Model: Tertiary Interventional Endoscopy Practice

Colorectal Surgery
Interventional Radiology
Medical Oncology
Minimally Invasive Surgery
Surgical Oncology
Bariatrics Program
Thoracic/Foregut Surgery
Radiation Oncology
Hepatobiliary Surgery
Liver Transplant
Pulmonary
Evolving Indications

World of Endless Endoscopy

Barrett’s esophagus
Relative Change in EAC Incidence

Barrett's Esophagus

EVOLUTION OF BARRETTE'S AND CANCER
Barrett Esophagus
0.5%/patient/year → CA
0.9%/patient/year → HGD

Colon Adenoma
0.5%/patient/year → CA

Dysplastic Barrett’s Esophagus & Early Esophageal Neoplasia

Current standard of care therapy for HGD and early esophageal neoplasia:
- Endoscopic Radiofrequency Ablation
- Endoscopic Cryoablation
- Endoscopic Mucosal Resection
- Endoscopic Submucosal Resection

CyroTherapy
- Cryo Spray Ablation (CSA)
  Low Pressure cryotherapy
  Liquid nitrogen sprayed at 30 psi
  Direct cooling, thru biopsy channel
  Liquid Nitrogen Supply
  Cryo-decompression tube
- 77 patients with HGD, IMC, IAC, Squamous dysplasia, and Nondysplastic Barrett’s
  - 88% CRD & 53% CRIM

Greenwald et al. Dis Esophagus 2010 Jan, 23 (1):
Endoscopic Cryoablation

Cryoablation - Tumor

Pre Cryotherapy Post Cryotherapy

URMC Cryotherapy: CRIM/CRD Data

- Total Population:
  - N = 29
  - CRIM: 89.7%
  - CRD: 96.6%
Radiofrequency Ablation

• Application of Radiofrequency Energy for the purpose of tissue ablation
• Electrode array affixed to a balloon based or flexible catheter

Ablation Depth Control

Micro-array at Tissue Interface

PROCEDURE
Baseline Ablation
Intestinal Metaplasia

Focal RFA “Touch-up”

Long-term Outcomes

Baseline Post-RFA: 2 years

Randomized Multicenter Sham controlled Trial of RF ablation

Endoscopic Mucosal Resection (EMR)/ Endoscopic submucosal dissection (ESD)

• EMR and ESD
  Japan, 1980 - described in 1994

• Early esophageal/gastric cancer (Preneoplastic)

• Alternative to surgery!
Endoscopic submucosal dissection (ESD)

ESD of early esophageal cancer

Endoscopic vs Surgical resection of T1 Esophageal Cancer: Similar Survival
Endotherapy For Esophageal Neoplasia: Summary

- High grade dysplasia and early esophageal cancer can be managed endoscopically
- EMR and ESD can help avoid surgery in carefully selected patients
- Multidisciplinary team approach is key
- Dedicated experts, including Barrett’s Pathologist
- Complications rare: Bleeding, perforation (rare), stricture

Zenker’s diverticulum

- 0.01 - 0.11%
- Pulsion diverticulum
- 7th - 8th decade
- Dysphagia/pulmonary aspiration
- Goal of therapy: sever the septum
- Traditionally managed surgically, now paradigm shifted
Transoral diverticulotomy

Diverticuloscope/Cap-assisted technique
Endoscopic Management of Zenker’s

POEM

Chicago Classification

[Table with data]

[Diagram with types I, II, and III]

[Images of endoscopic procedures]
## POEM

**POEM:** Posterolateral endoscopic transthoracic anterograde esophageal myotomy

### Timed Barium (1 Minute)

<table>
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<th>Ref</th>
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<th>Pre Treatment</th>
<th>Post Treatment</th>
<th>Delay Time of Take-up (sec)</th>
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<td>Reddy D N</td>
<td>282</td>
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<td>239</td>
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Perforation Closure

What happens after perforation…???

The person you are trying to reach is busy having a nervous breakdown, please wait for the next available representative!

Sleepless nights……

What has been the standard of care?

"Nurse, get on the internet, go to SURGERY.COM, scroll down and click on the "Are you totally lost?" icon."


GI Perforation Management: Change in Approach

- General Anesthesia
- Laparotomy/thoracotomy
- Dissection
- Identify perforation
- Repair
- Recovery

Endoscopic Closure Devices
Currently marketed in the US:
- Endoclips
  - Resolution Endoclips (B Sci)
  - Instinct Endoclips (Cook; rotatable)
  - Olympus Quickclip-II (rotatable)
- Over The Scope Clip (OTSC):
  - Ovesco “Bear Claw”
- Apollo Overstitch device (Endoscopic)
Over The Scope Clip: Ovesco

Apollo Overstitch: Endoscopic Suturing Device

Fully Covered Metal Stent

- Study of 88 patients with upper GI leaks, fistulas and perforations
- Resolution achieved in 77.6% with fully covered metal stents

J. Swinnen et al. GIE 2011
Optical Coherence Tomography: VLE Pull through

Cryo C2 Balloon
Valved Esophageal Stent

Retrograde pressure ≤ 255 mm H2O
Antegrade flow > 100 mL/min

Summary

- Interventional Endoscopy has revolutionized medical-surgical management
- Significant shift in management paradigms
- Multidisciplinary management is critical
- Significant advantage in era of health care reform
- Minimally invasive therapeutic endoscopy options continue to develop
- This is just the beginning….!!! Team Approach KEY…!!!

Advanced Endoscopy Team at URMC
The ability to think differently today from yesterday distinguishes the wise man from the stubborn.

John Steinbeck

THANK YOU!!