EGD and Esophageal Dilation

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EGD and Esophageal Dilation

- Indications for EGD
- EGD picture potpourri
- Esophageal dilation
Indications for EGD

• GERD
  – Alarm symptoms
  – Persistent symptoms despite therapy
  – Screening for Barrett’s esophagus
• Dysphagia
• Persistent epigastric pain and dyspepsia
• UGI bleeding
• Screening for varices
• Etc.
Different Ways to do an EGD

• Pediatric, regular vs. jumbo endoscope
• Transoral vs. transnasal insertion
• To spray or not to spray?
• Sedation vs. no sedation
• Looking “going down” vs. “coming back”
Heartburn Severity Does Not Predict Presence of Erosive Esophagitis


EE = erosive esophagitis; NERD = non-erosive reflux disease.

Prevalence of Erosive Esophagitis

<table>
<thead>
<tr>
<th>Heartburn Grade</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>32% EE (n = 316)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>68% NERD (n = 677)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Diagnostic Tests for GERD

<table>
<thead>
<tr>
<th>Test</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empiric Trial With a PPI</td>
<td>70-80</td>
<td>60-85</td>
</tr>
<tr>
<td>Endoscopy</td>
<td>40-70</td>
<td>90-95</td>
</tr>
<tr>
<td>Esophageal pH Monitoring</td>
<td>70-90</td>
<td>80-95</td>
</tr>
<tr>
<td>Barium Swallow</td>
<td>30-35</td>
<td>60-75</td>
</tr>
<tr>
<td>Esophageal Manometry</td>
<td>15-30</td>
<td>20-40</td>
</tr>
</tbody>
</table>
Prevalence of GERD Complication

* $p<0.001$
+ $p=0.03$
# $p=0.03$

<table>
<thead>
<tr>
<th>Alarm Symptoms (n=124)</th>
<th>Persistent Heartburn (n=82)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical therapy altered</td>
<td>5</td>
</tr>
<tr>
<td>Dilated for esophageal stricture</td>
<td>23</td>
</tr>
<tr>
<td>BE surveillance initiated</td>
<td>6</td>
</tr>
<tr>
<td>Esophagitis grade 3 or 4</td>
<td>21</td>
</tr>
<tr>
<td>New diagnosis of cancer</td>
<td>0</td>
</tr>
<tr>
<td>At least one management improved</td>
<td>40</td>
</tr>
<tr>
<td>+ $p=0.03$</td>
<td>4</td>
</tr>
<tr>
<td># $p=0.03$</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>29</td>
</tr>
</tbody>
</table>

Normal Hypopharynx
Interarytenoid Edema
Vocal Cord Granuloma
Vocal Cord Granuloma
Ventricular Obliteration
Endoscopic Images of the Larynx

Normal Laryngeal Tissue

True Vocal Fold Erythema

Bilateral True Vocal Fold Nodules

Reinke’s Edema

Arytenoid Medial Wall Edema

Posterior Pharyngeal Wall Cobble Stoning

<table>
<thead>
<tr>
<th>Condition</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subglottic edema</td>
<td>0 = absent, 2 = present, 4 = complete</td>
</tr>
<tr>
<td>Ventricular obliteration</td>
<td>2 = partial, 4 = complete</td>
</tr>
<tr>
<td>Erythema/hyperemia</td>
<td>2 = arytenoids only, 4 = diffuse</td>
</tr>
<tr>
<td>Vocal fold edema</td>
<td>1 = mild, 2 = moderate, 3 = severe</td>
</tr>
<tr>
<td>Diffuse laryngeal edema</td>
<td>1 = mild, 2 = moderate, 3 = severe</td>
</tr>
<tr>
<td>Posterior commissure hypertrophy</td>
<td>1 = mild, 2 = moderate, 3 = severe</td>
</tr>
<tr>
<td>Granuloma/granulation tissue</td>
<td>0 = absent, 2 = present</td>
</tr>
<tr>
<td>Thick endolaryngeal mucus</td>
<td>0 = absent, 2 = present</td>
</tr>
</tbody>
</table>

LA Classification of Erosive Esophagitis

LA Grade A
Isolated mucosal breaks ≤5 mm long

LA Grade B
Isolated mucosal breaks >5 mm long

LA Grade C
Mucosal breaks bridging the tops of folds but involving <75% of the circumference

LA Grade D
Mucosal breaks bridging the tops of folds and involving >75% of the circumference

A = Los Angeles.
LA Grade A Esophagitis
LA Class C Esophagitis
LA Class D Esophagitis
GERD: Mucosal Sloughing
Esophageal Scarring
Esophageal Scarring
GEJ Peptic Stricture
Barrett’s Esophagus
Barrett’s Esophagus with Stricture
Barrett’s Esophagus with Nodular Surface
Barrett’s Esophagus with Nodular Surface
Barrett’s Esophagus with Nodular Surface
Types of Hiatal Hernias

- Type 1: Sliding
- Type 2: True Paraesophageal
- Type 3: Mixed Paraesophageal

Type 1: Sliding Hiatal Hernia
Type 1: Sliding Hiatal Hernia
Type 2: True Paraesophageal Hernia
Type 3 Mixed Paraesophageal Hernia
Type 3 Mixed Paraesophageal Hernia
Cork Screw Esophagus
Esophageal Diverticulum
Achalasia
Achalasia with Esophageal Stasis
Extrinsic Compression
Esophageal Adenocarcinoma
Eosinophilic Esophagitis
(Corrugated Esophagus)
Eosinophilic Esophagitis
Eosinophilic Esophagitis
Eosinophilic Esophagitis
Esophageal Dilation
Types of Esophageal Dilators

• Hydraulic
  – Through-the-scope radial balloon

• Bougienage
  – Maloney dilator
  – Savary wire-guided dilator
  – See-through dilator

• Pneumatic
Maloney Dilations

- Pressures generated
  - Highest pressures in new strictures
  - Lower pressures in chronic bougienage patients
  - Higher pressures with larger dilators
    40Fr (163), 44Fr (276), 48Fr (307 mmHg)
- "Lack of respect" for Maloney dilations
- Study comparing Maloney, Savary, Balloon
- All 4 perforations (2.8% of 142 pts) from Maloneys in complex strictures

Kozarek (Gastroent 1981;81:833)
Hernandez (Gastro Endo 2000;51:460)
Maloney Dilation - Blinded Technique

McClave (Technique Gastro Endo 1999;1:70)
# Maloney Dilations

<table>
<thead>
<tr>
<th>Fluoroscopic Guidance</th>
<th>Fluoro (n=74)</th>
<th>Blinded (n=88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful dilation</td>
<td>96%</td>
<td>80% *</td>
</tr>
<tr>
<td>Adverse event</td>
<td>11.3%</td>
<td>5.4% NS</td>
</tr>
<tr>
<td>Recognition</td>
<td>100%</td>
<td>20% *</td>
</tr>
<tr>
<td>Relief dysphagia</td>
<td>93%</td>
<td>69% *</td>
</tr>
<tr>
<td>Pill passage postdilatation</td>
<td>62%</td>
<td>42% *</td>
</tr>
</tbody>
</table>

McCline (Gastro Endo 1990;36:272) (Gastro Endo 1996;43:93) (* p < 0.05)
**Savary Dilations**

- **Wire-guided polyvinyl dilators**
  - Longer more complex strictures
  - Never pass without guidewire
- **Long tapered tip for safer dilation**
  - Shear versus radial force

1. Abele (HepatoGastro 1992;39:486)
Savary Dilations

Problems in placement of spring-tipped guidewire
Savary Dilations

Correct approach to the patient
Radial Balloon Dilation

• **Beneficial features**
  - Dilating radial without forward shear force
  - Endo, bx, dilation at single intubation
  - Outer diameter fixed

• **Disadvantages**
  - Tactile sensation is lost
  - Compressible by dense strictures
  - Dilating long strictures difficult
Radial Balloon Dilators
When is Fluoroscopy Needed for Dilating Esophageal Stricture?

1. Unable to pass the endoscope
2. Proximal esophageal stricture
3. Large hiatal or paraesophageal hernias

Why is the Stricture Keep Coming Back?

1. Persistent acid reflux
2. Gastroparesis
3. Infection (herpes, CMV)
4. Eosinophilic esophagitis
5. Cancer (adenocarcinoma)

Wo et al. Unpublished comments.