

# **EGD and Esophageal Dilation**

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**July 28, 2005**

# EGD and Esophageal Dilation

- Indications for EGD
- EGD picture potpourri
- Esophageal dilation

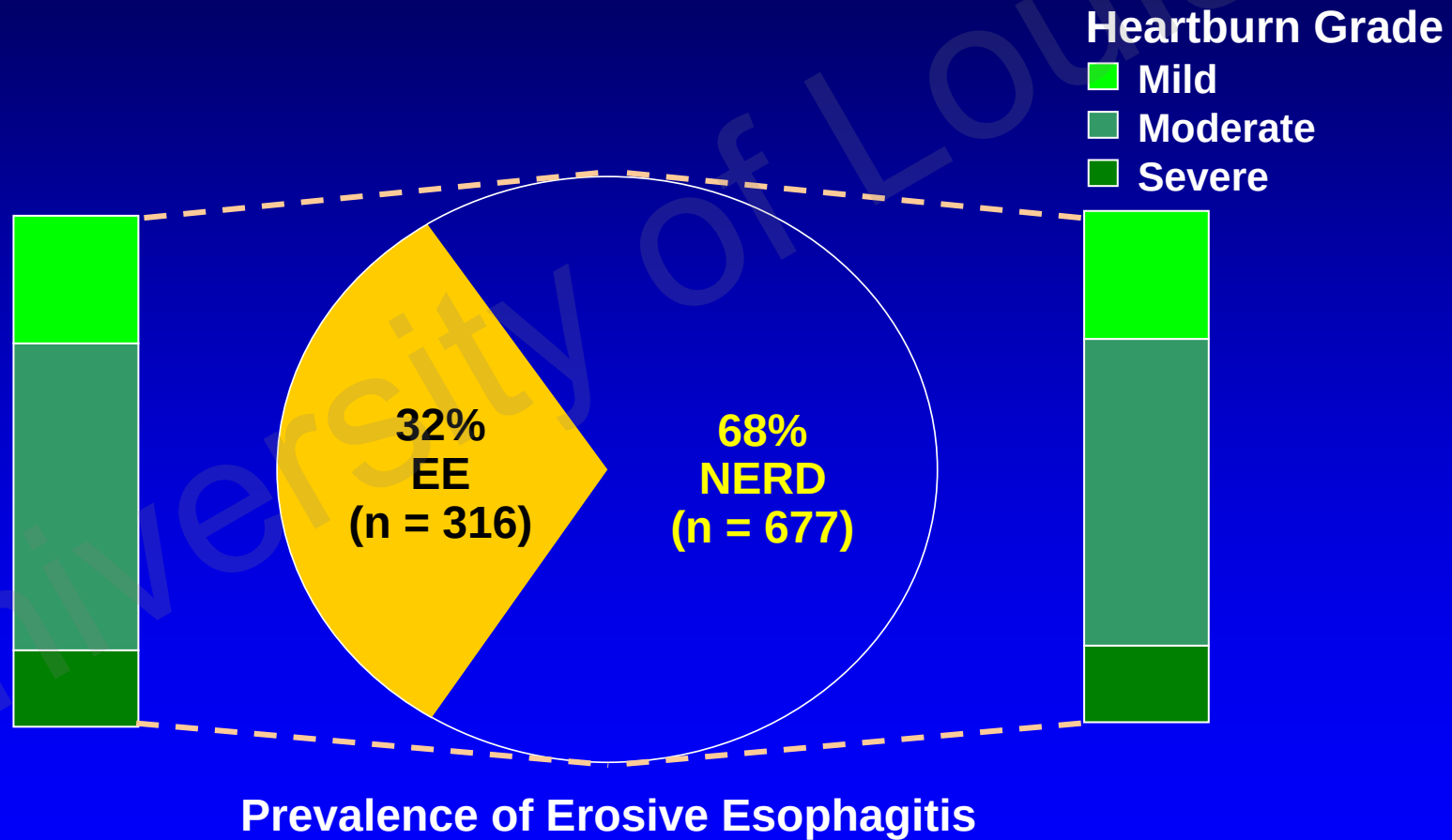
# Indications for EGD

- 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



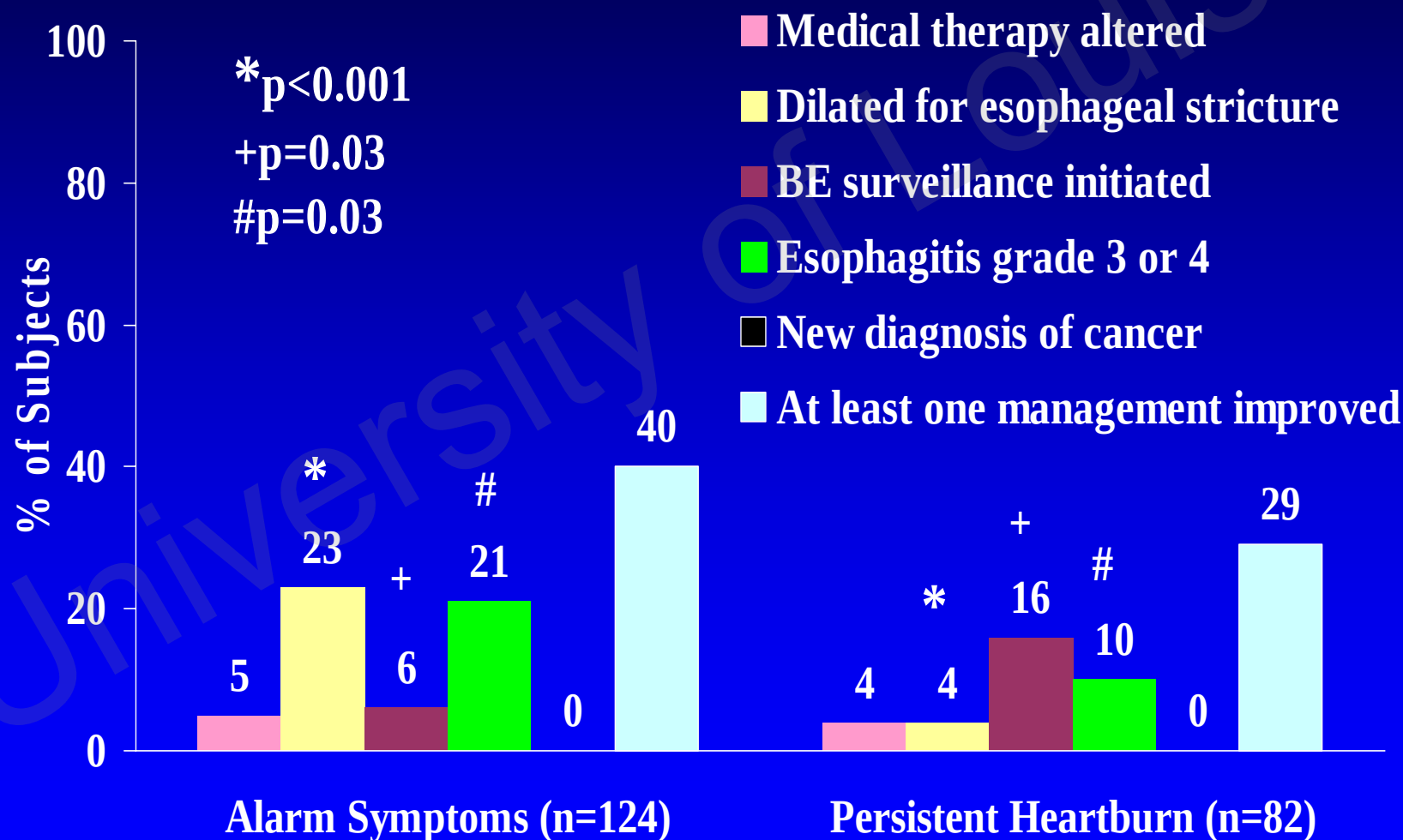
EE = erosive esophagitis; NERD = non-erosive reflux disease.

Venables et al. *Scand J Gastroenterol.* 1997;32:965-973.

# Diagnostic Tests for GERD

|                          | Sensitivity (%) | Specificity (%) |
|--------------------------|-----------------|-----------------|
| Empiric Trial With a PPI | 70-80           | 60-85           |
| Endoscopy                | 40-70           | 90-95           |
| Esophageal pH Monitoring | 70-90           | 80-95           |
| Barium Swallow           | 30-35           | 60-75           |
| Esophageal Manometry     | 15-30           | 20-40           |

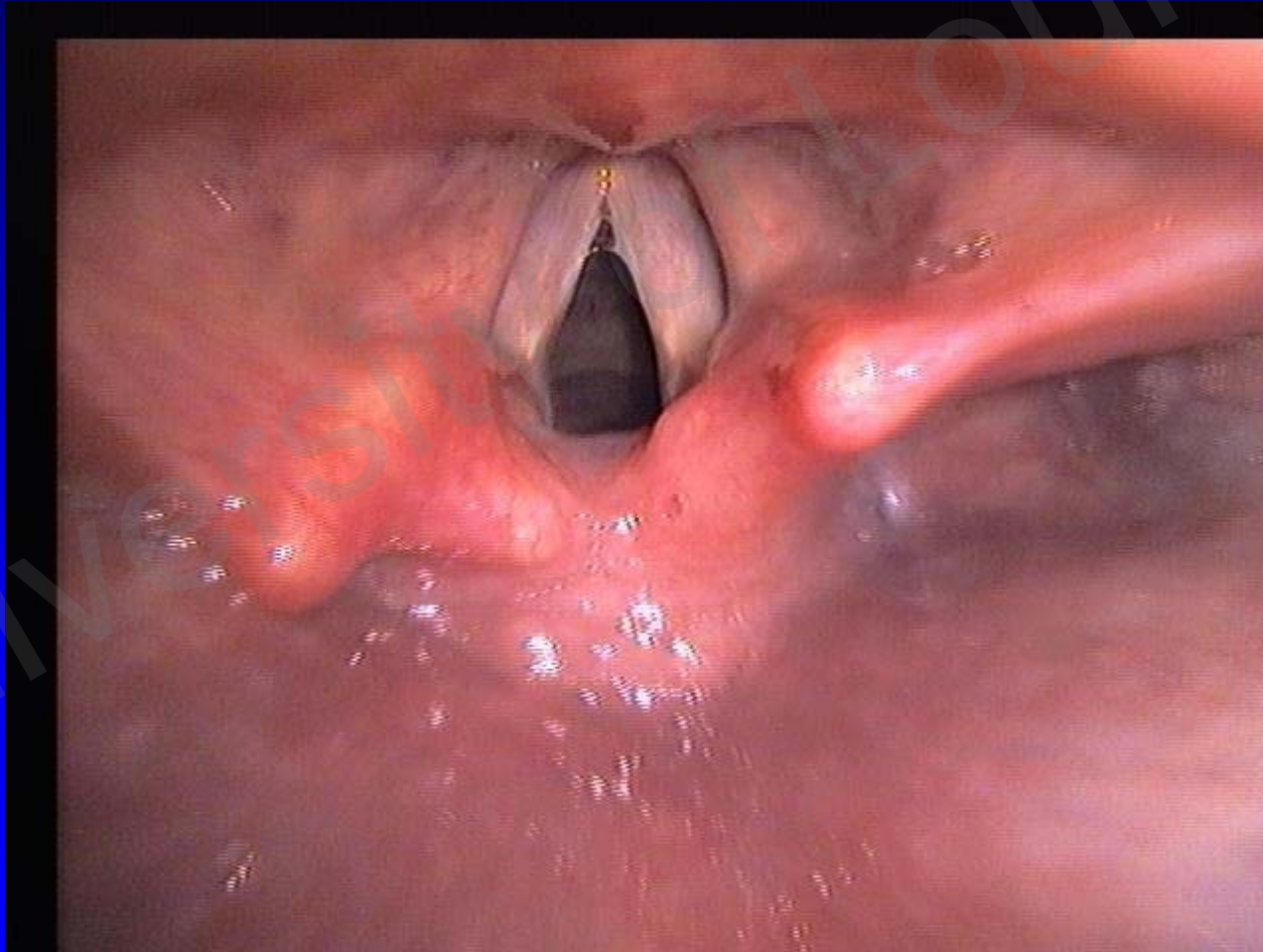
# Prevalence of GERD Complication



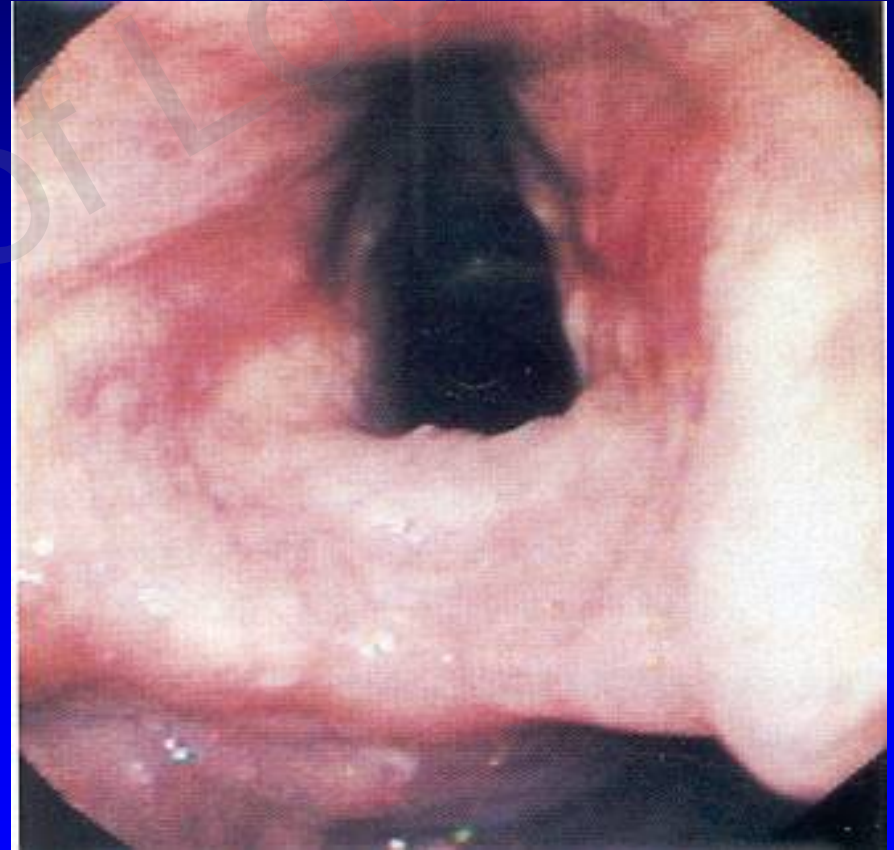
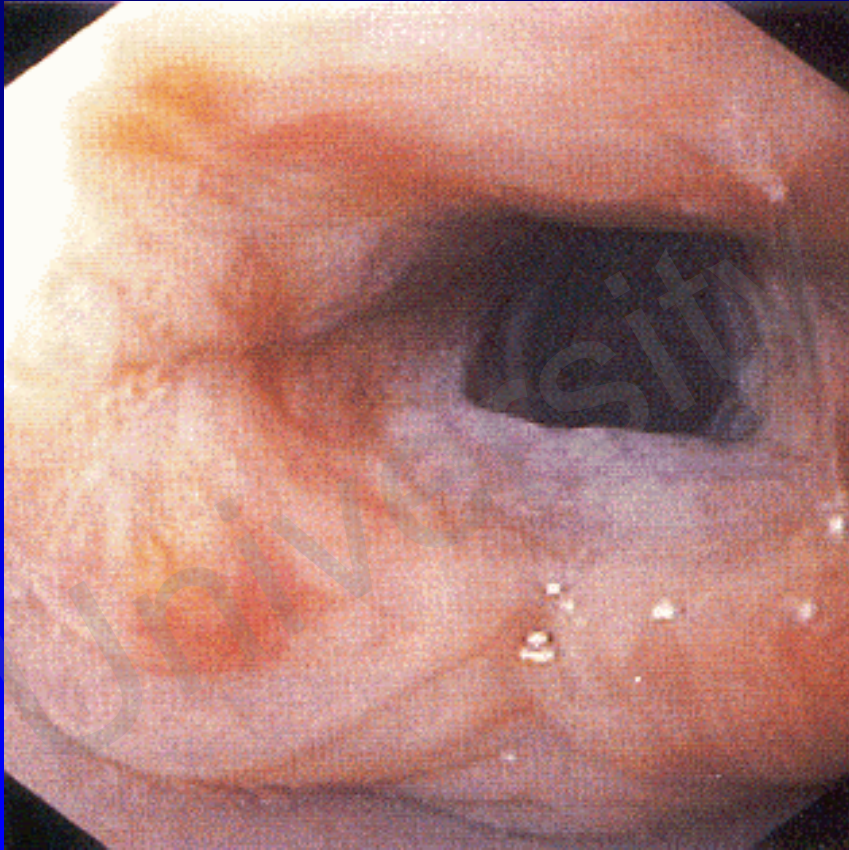
# EGD Potpourri



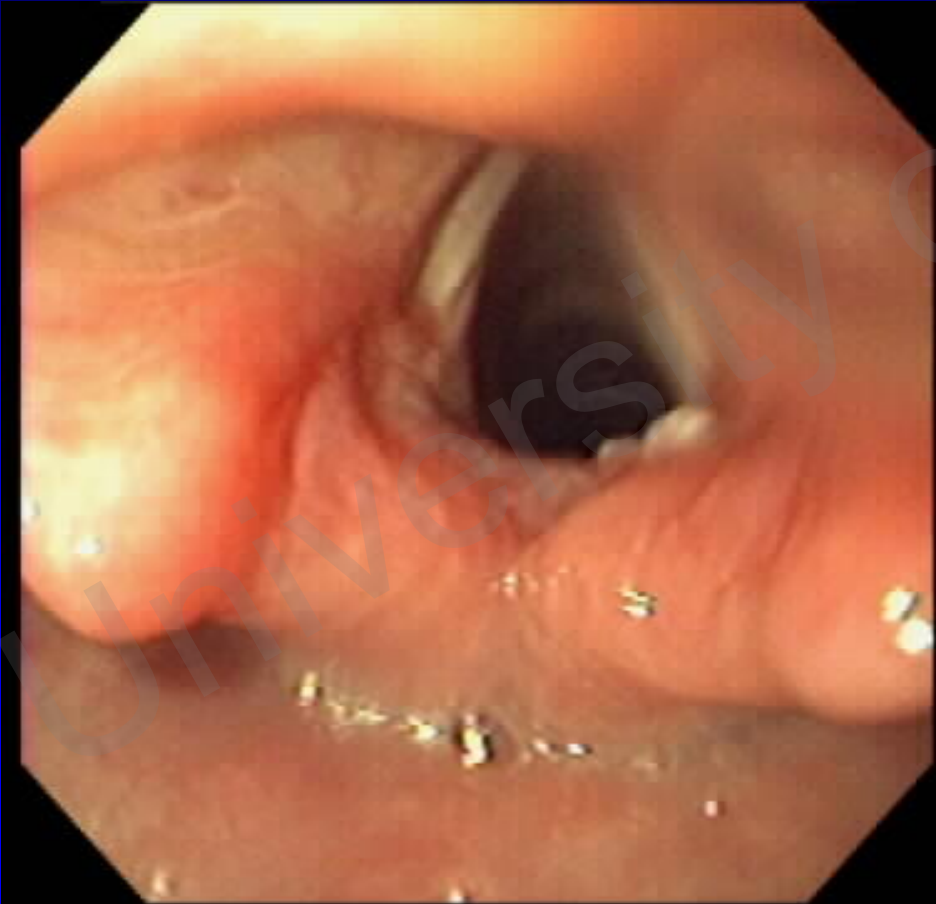
# Normal Hypopharynx



# Interarytenoid Edema



# Vocal Cord Granuloma

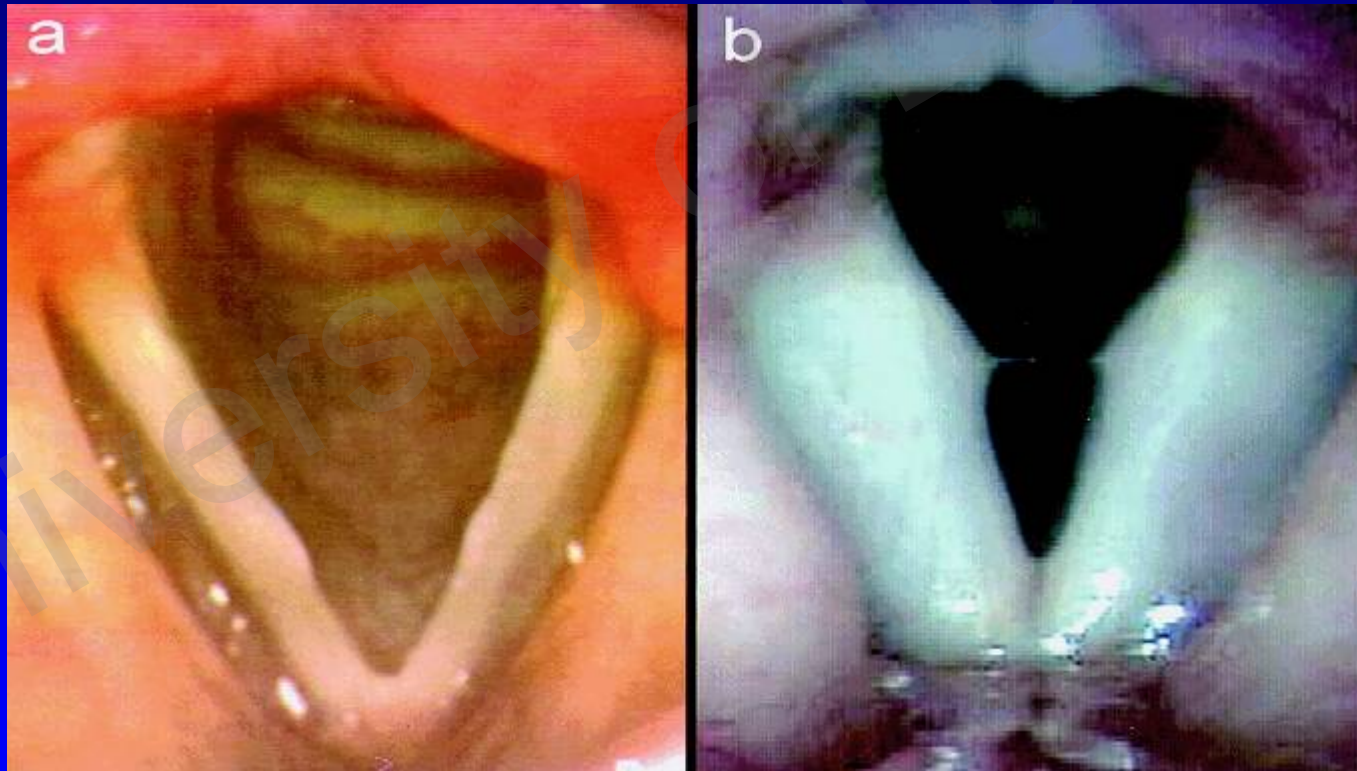




# Vocal Cord Granuloma



# Ventricular Obliteration



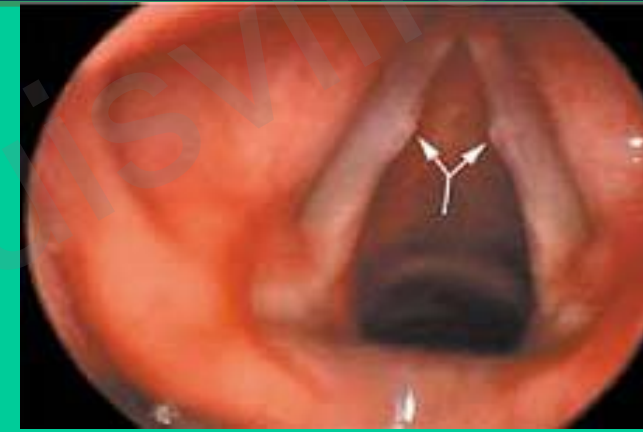
# Endoscopic Images of the Larynx



Normal Laryngeal  
Tissue



True Vocal Fold  
Erythema



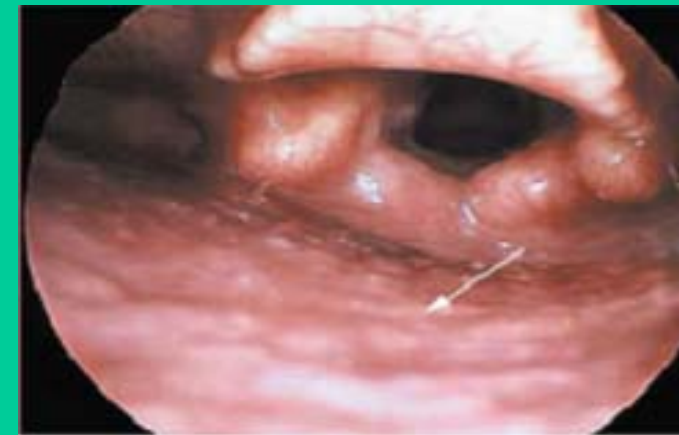
Bilateral True  
Vocal Fold Nodules



Reinke's Edema



Arytenoid Medial  
Wall Edema



Posterior Pharyngeal  
Wall Cobble Stoning

TABLE I.  
Reflux Finding Score (RFS).

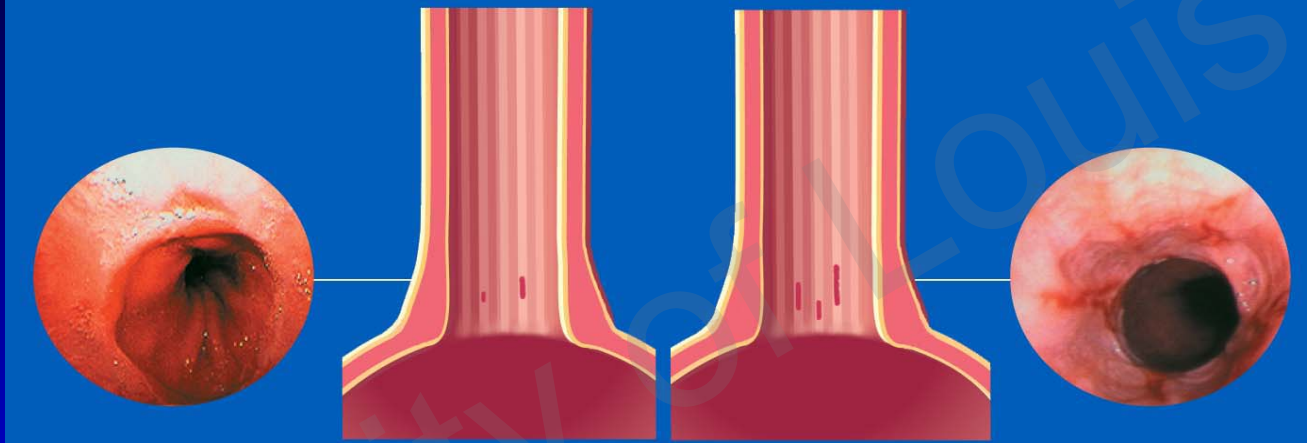
|                                  |                                                           |
|----------------------------------|-----------------------------------------------------------|
| Subglottic edema                 | 0 = absent<br>2 = present                                 |
| Ventricular obliteration         | 2 = partial<br>4 = complete                               |
| Erythema/hyperemia               | 2 = arytenoids only<br>4 = diffuse                        |
| Vocal fold edema                 | 1 = mild<br>2 = moderate<br>3 = severe<br>4 = polypoid    |
| Diffuse laryngeal edema          | 1 = mild<br>2 = moderate<br>3 = severe<br>4 = obstructing |
| Posterior commissure hypertrophy | 1 = mild<br>2 = moderate<br>3 = severe<br>4 = obstructing |
| Granuloma/granulation tissue     | 0 = absent<br>2 = present                                 |
| Thick endolaryngeal mucus        | 0 = absent<br>2 = present                                 |



# LA Classification of Erosive Esophagitis

## LA Grade A

Isolated mucosal breaks  $\leq 5$  mm long

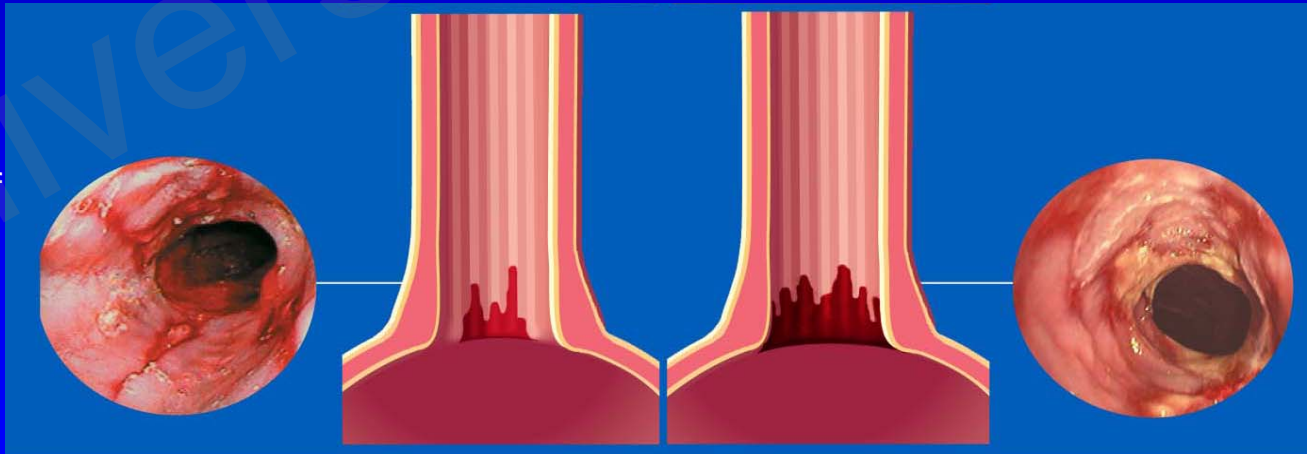


## LA Grade B

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

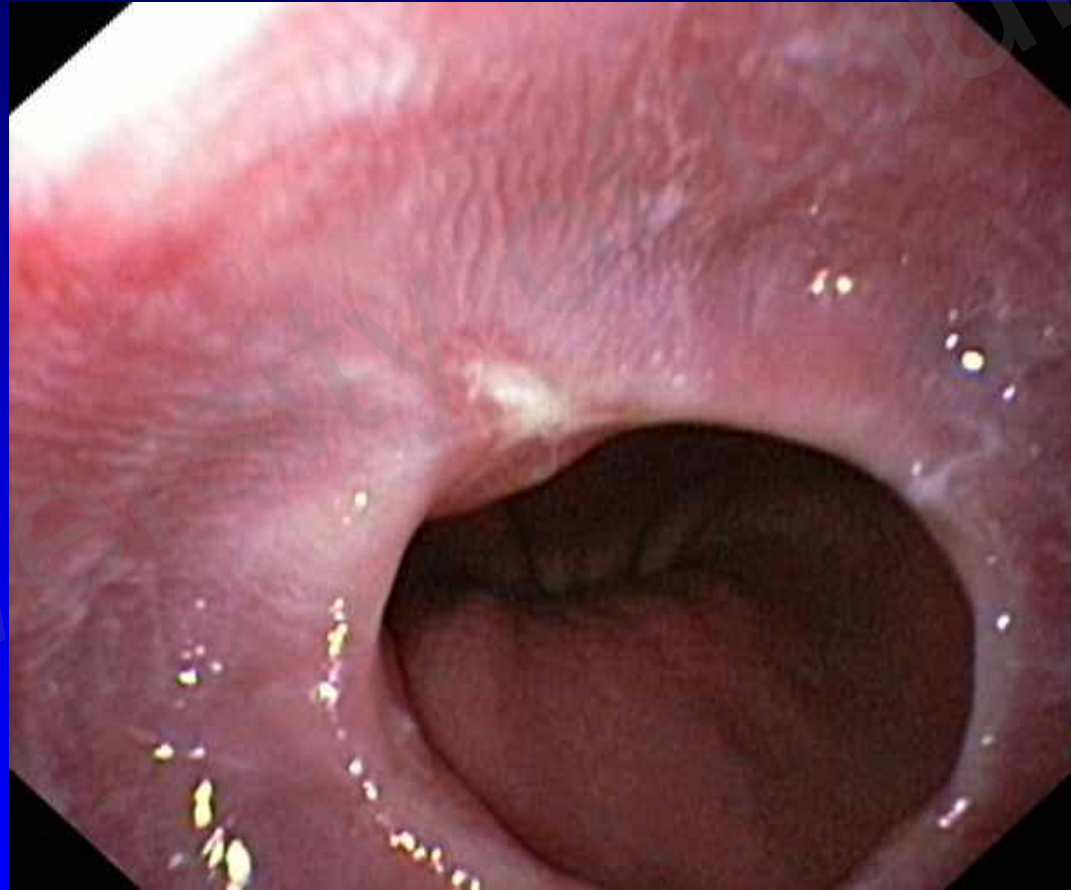
Mucosal breaks bridging the tops of folds and involving  $> 75\%$  of the circumference

A = Los Angeles.

Sundell et al. *Gut* 1999;45:172-180



# LA Grade A Esophagitis



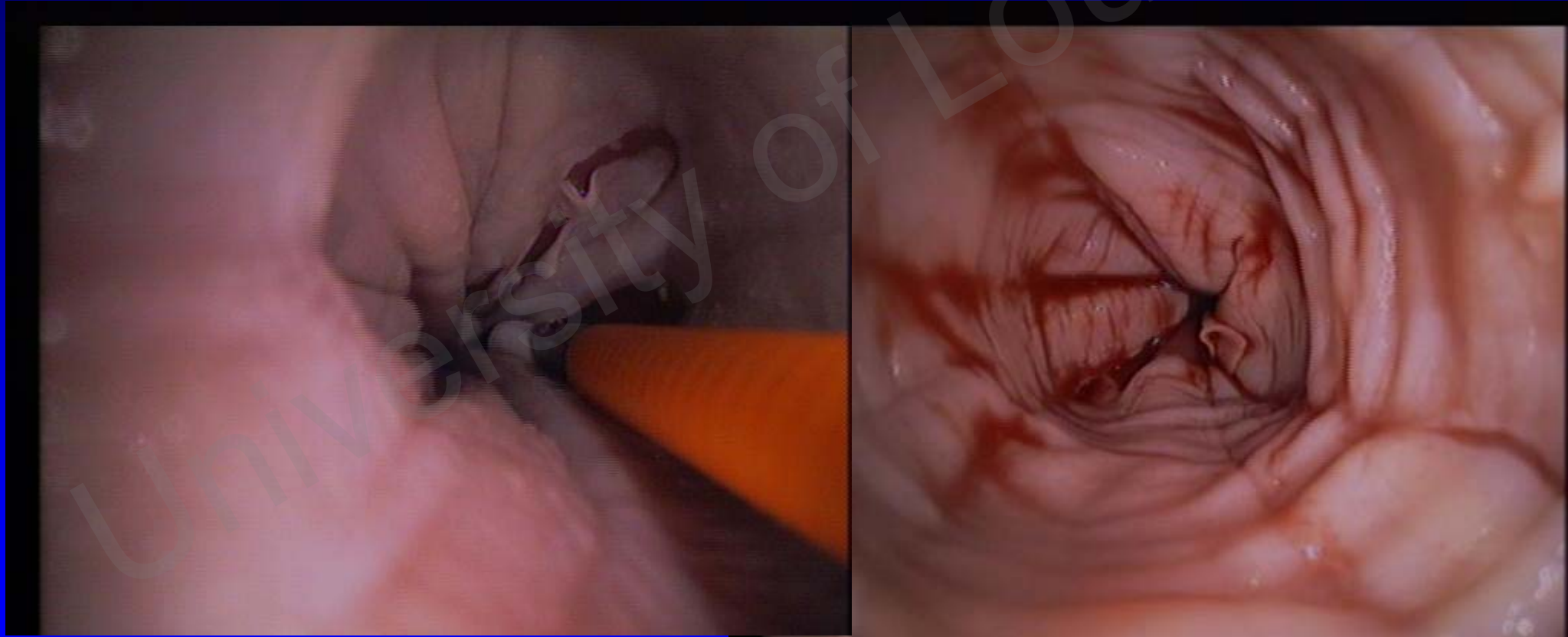
# LA Class C Esophagitis



# LA Class D Esophagitis



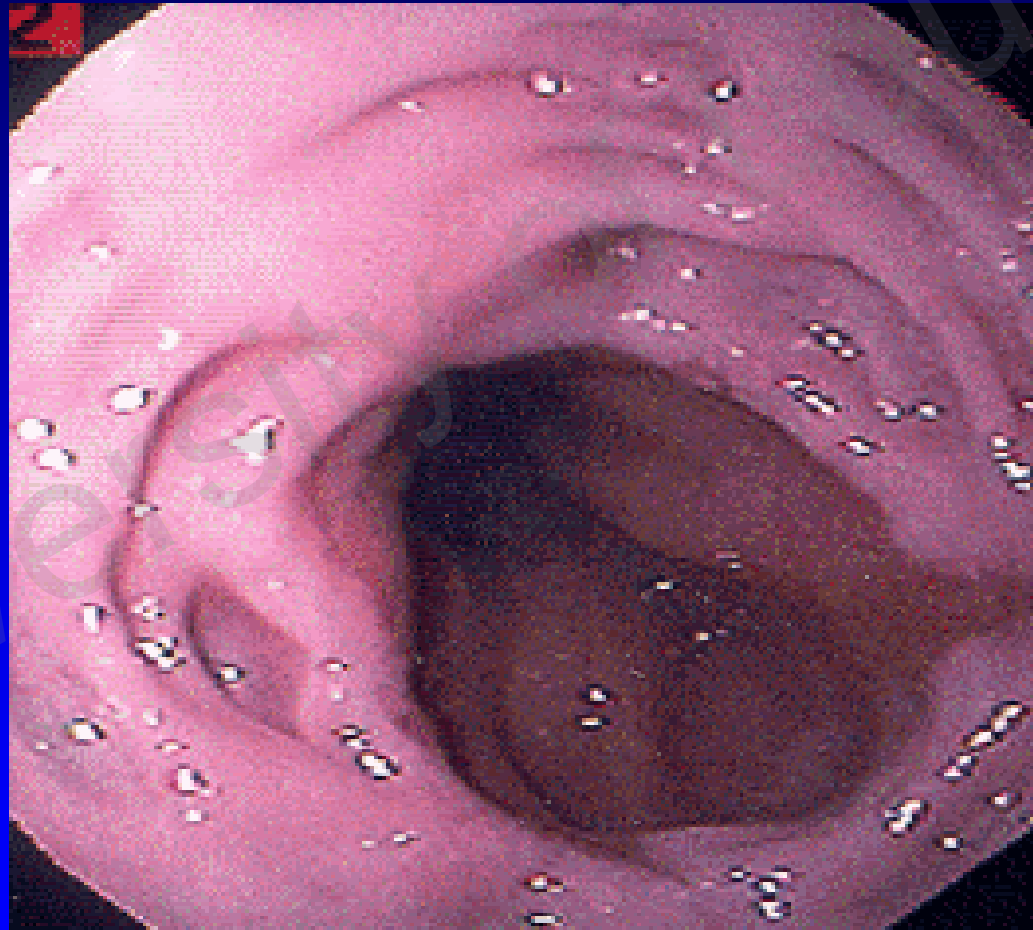
# GERD: Mucosal Sloughing



# Esophageal Scarring

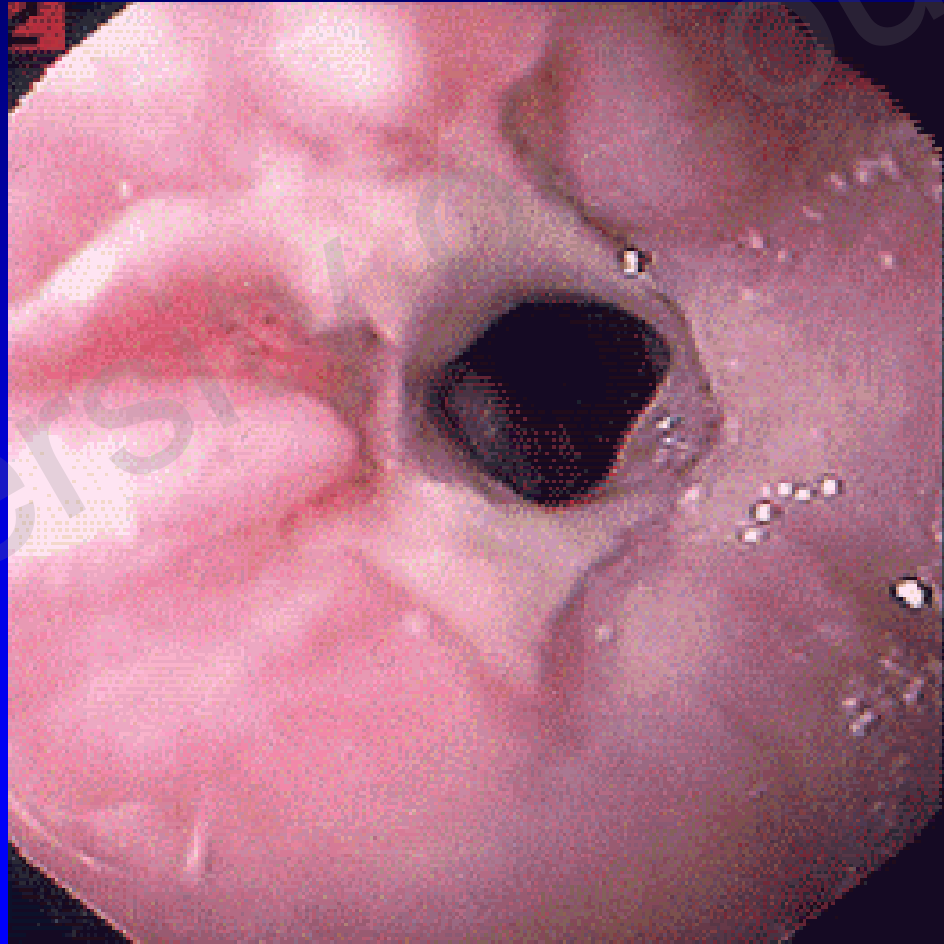


# Esophageal Scarring

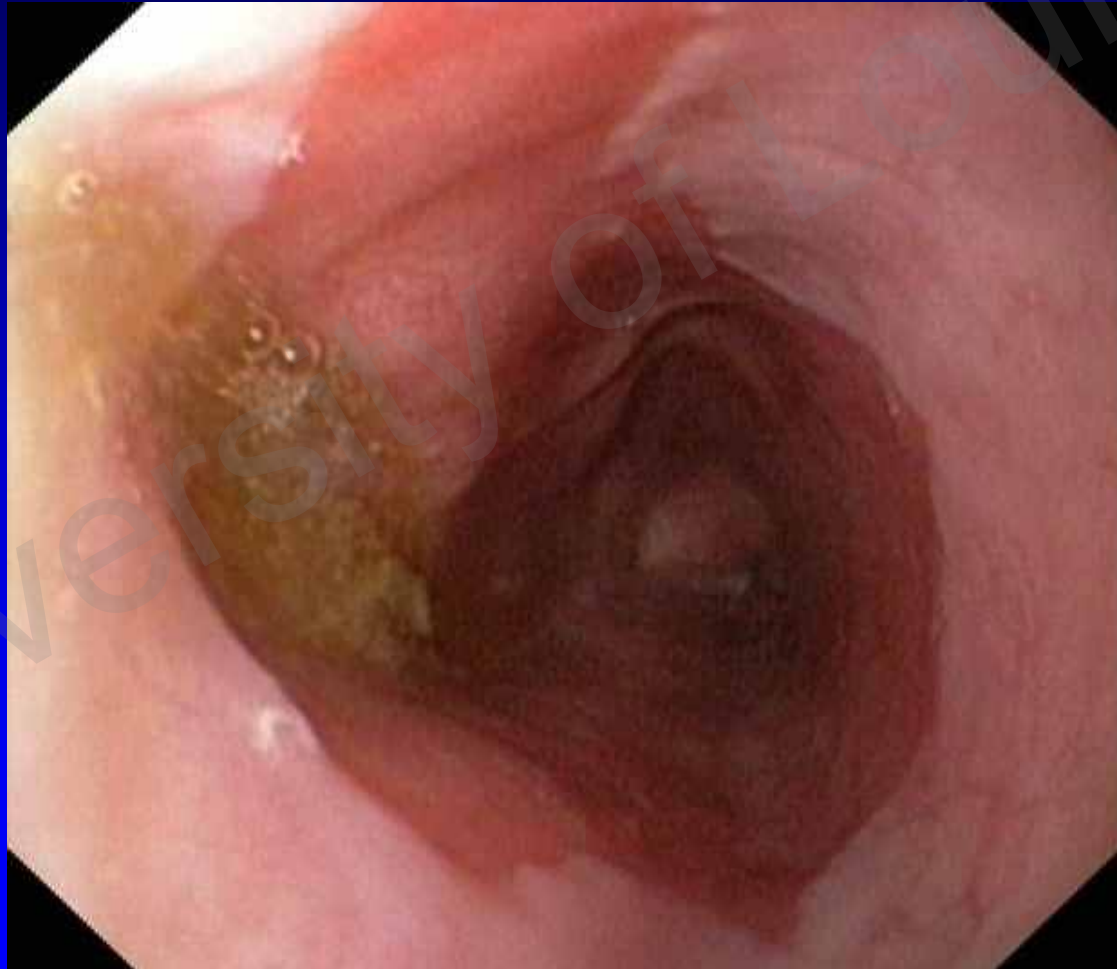




# GEJ Peptic Stricture



# 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

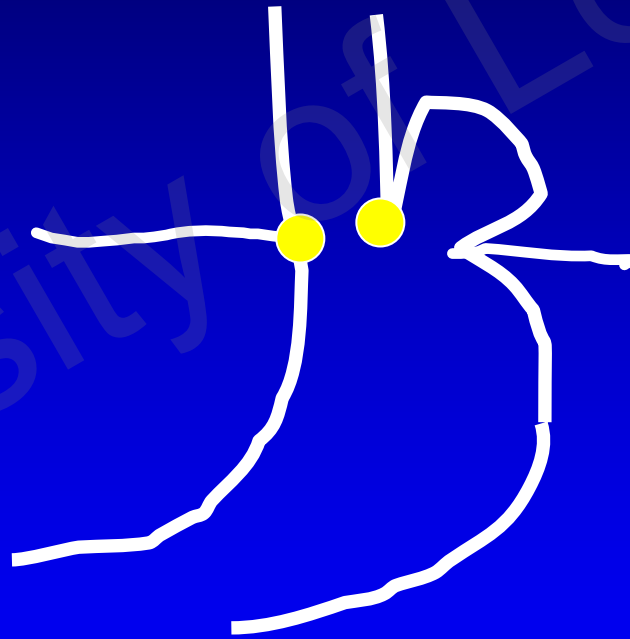




# Types of Hiatal Hernias



**Type 1: Sliding**

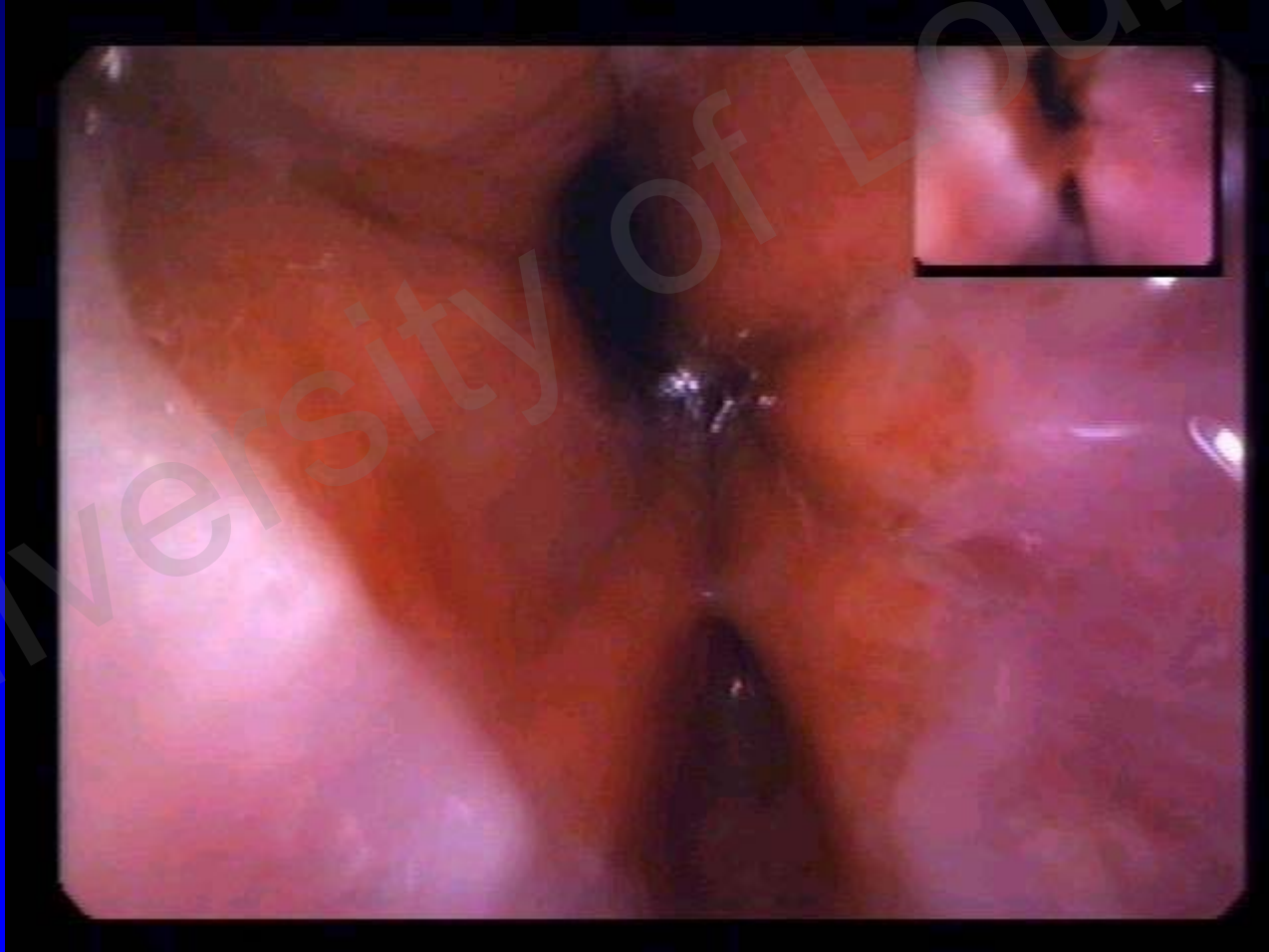


**Type 2: True  
Paraesophageal**



**Type 3: Mixed  
Paraesophageal**

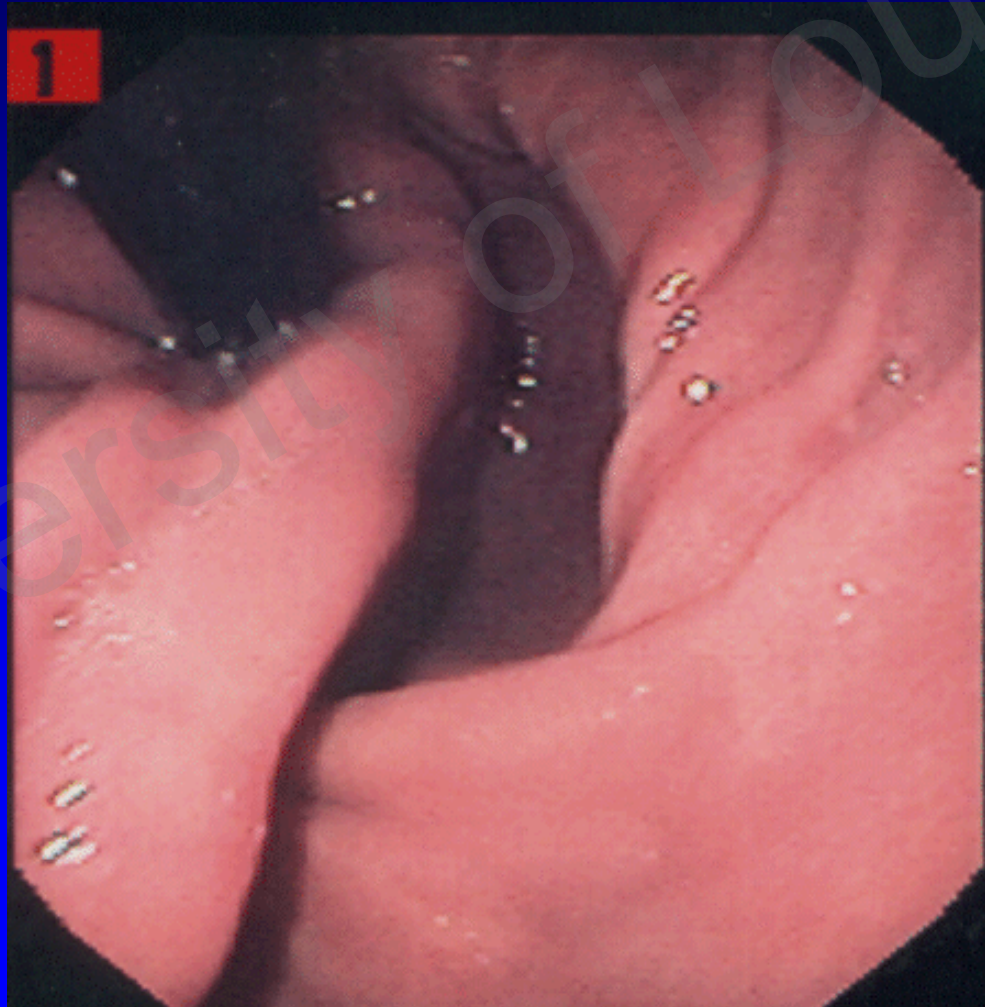
# Type 1: Sliding Hiatal Hernia



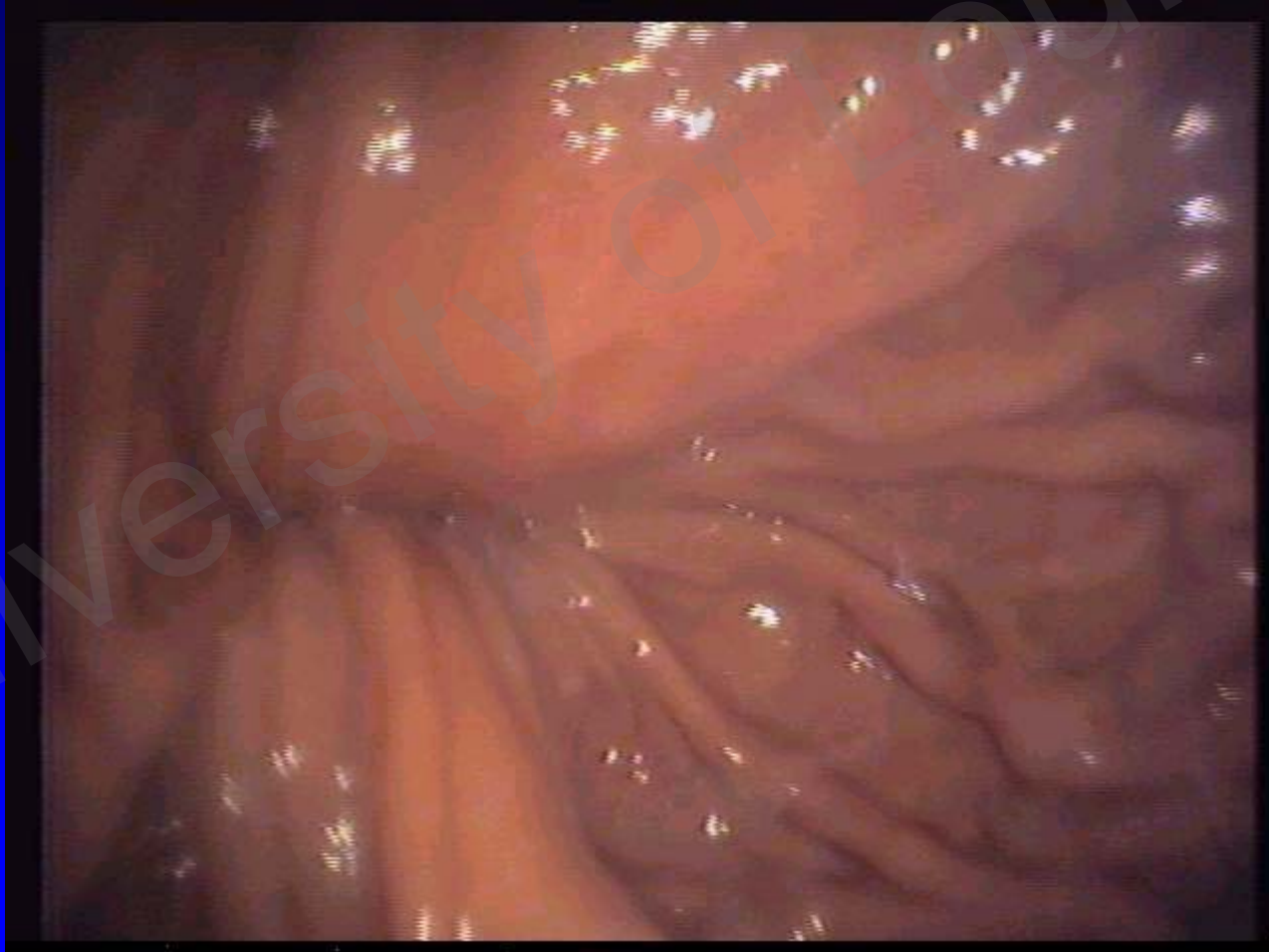
# Type 1: Sliding Hiatal Hernia



# Type 2: True Paraesophageal Hernia



# Type 3 Mixed Paraesophageal Hernia





# Type 3 Mixed Paraesophageal Hernia





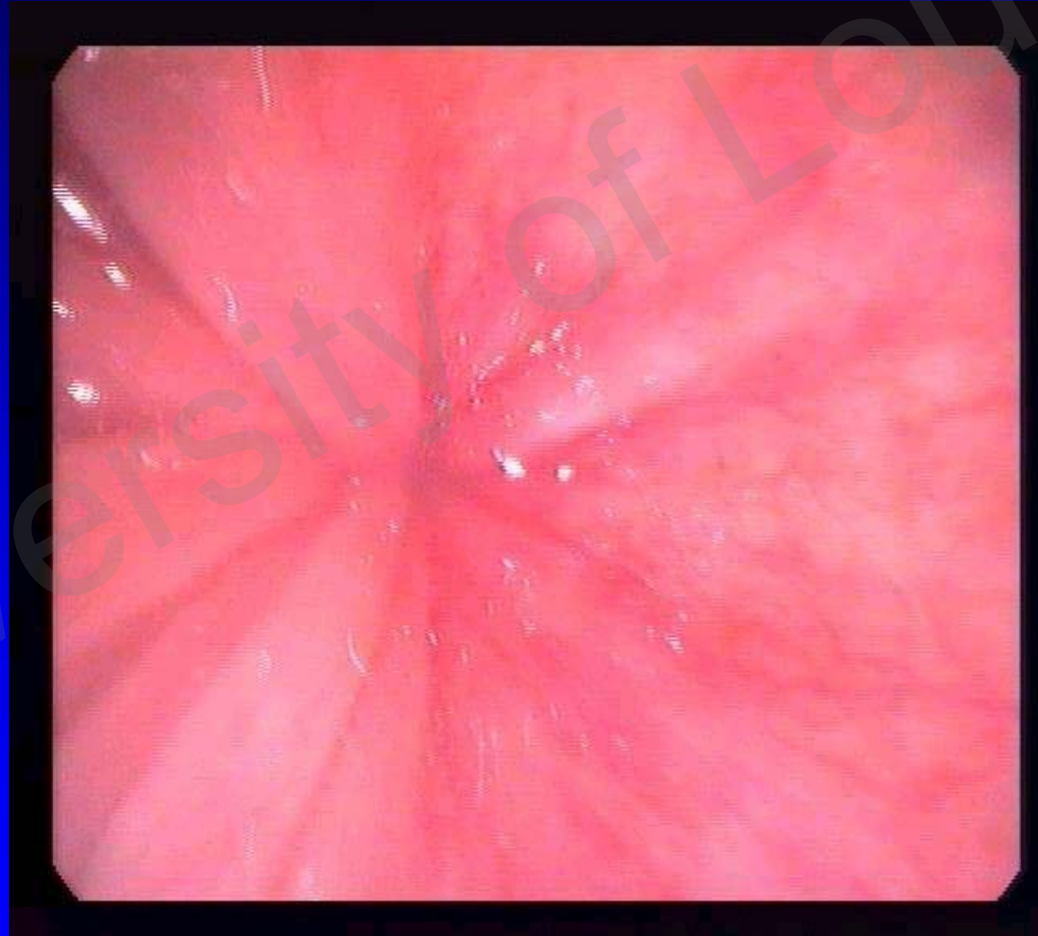
# Cork Screw Esophagus



# Esophageal Diverticulum



# Achalasia



# Achalasia with Esophageal Stasis



# Extrinsic Compression



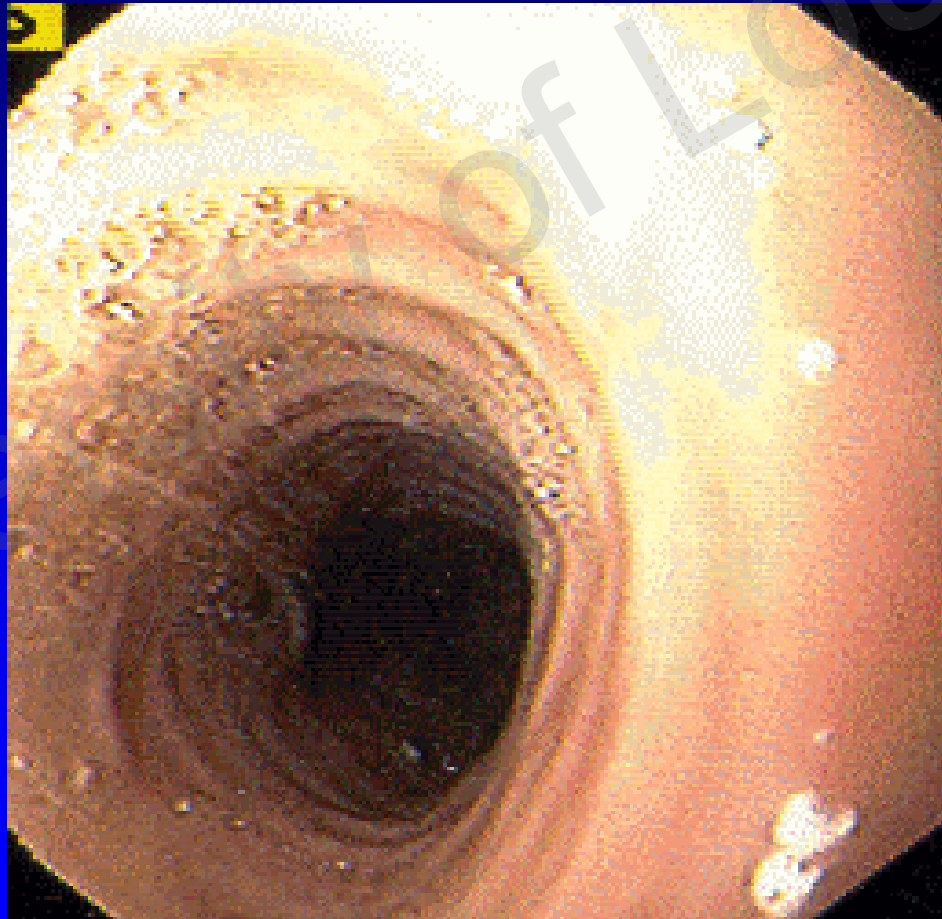


# Esophageal Adenocarcinoma

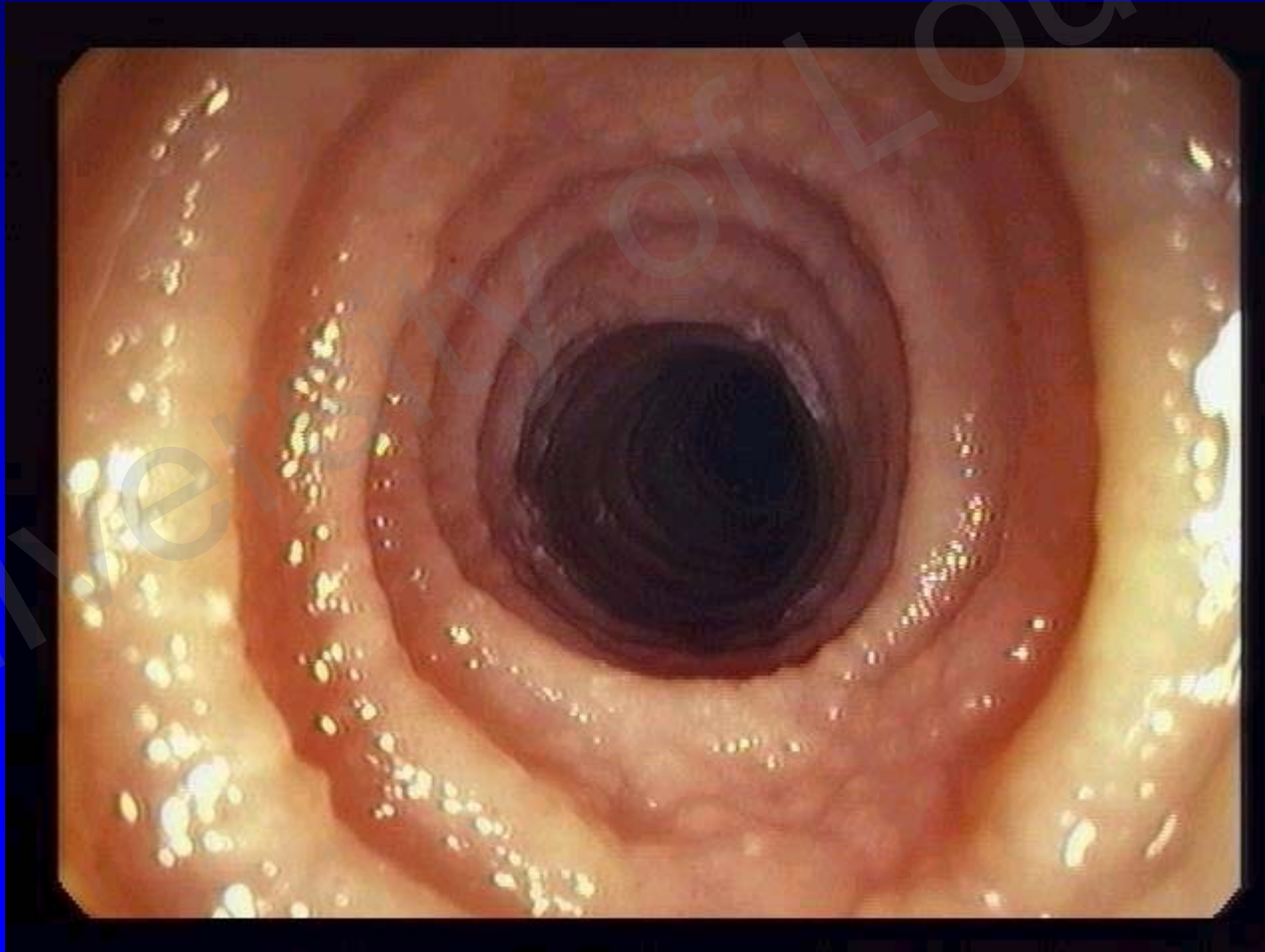




# Eosinophilic Esophagitis (Corrugated Esophagus)



# Eosinophilic Esophagitis



# Eosinophilic Esophagitis



# Eosinophilic Esophagitis



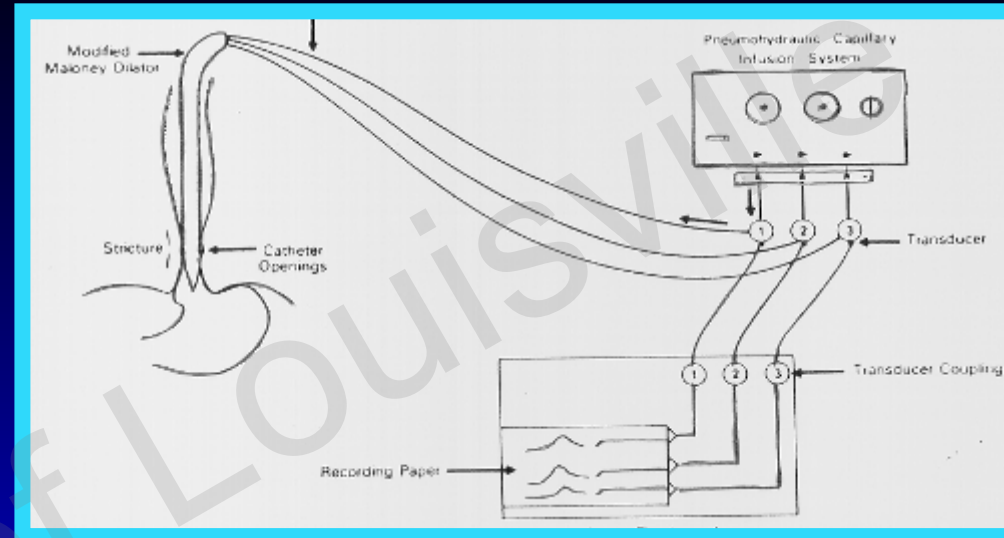
# Esophageal Dilation

# Types of Esophageal Dilators

- Hydraulic
  - Through-the-scope radial balloon
- Bougienage
  - Maloney dilator
  - Savary wire-guided dilator
  - See-through dilator
- Pneumatic



# Maloney Dilations

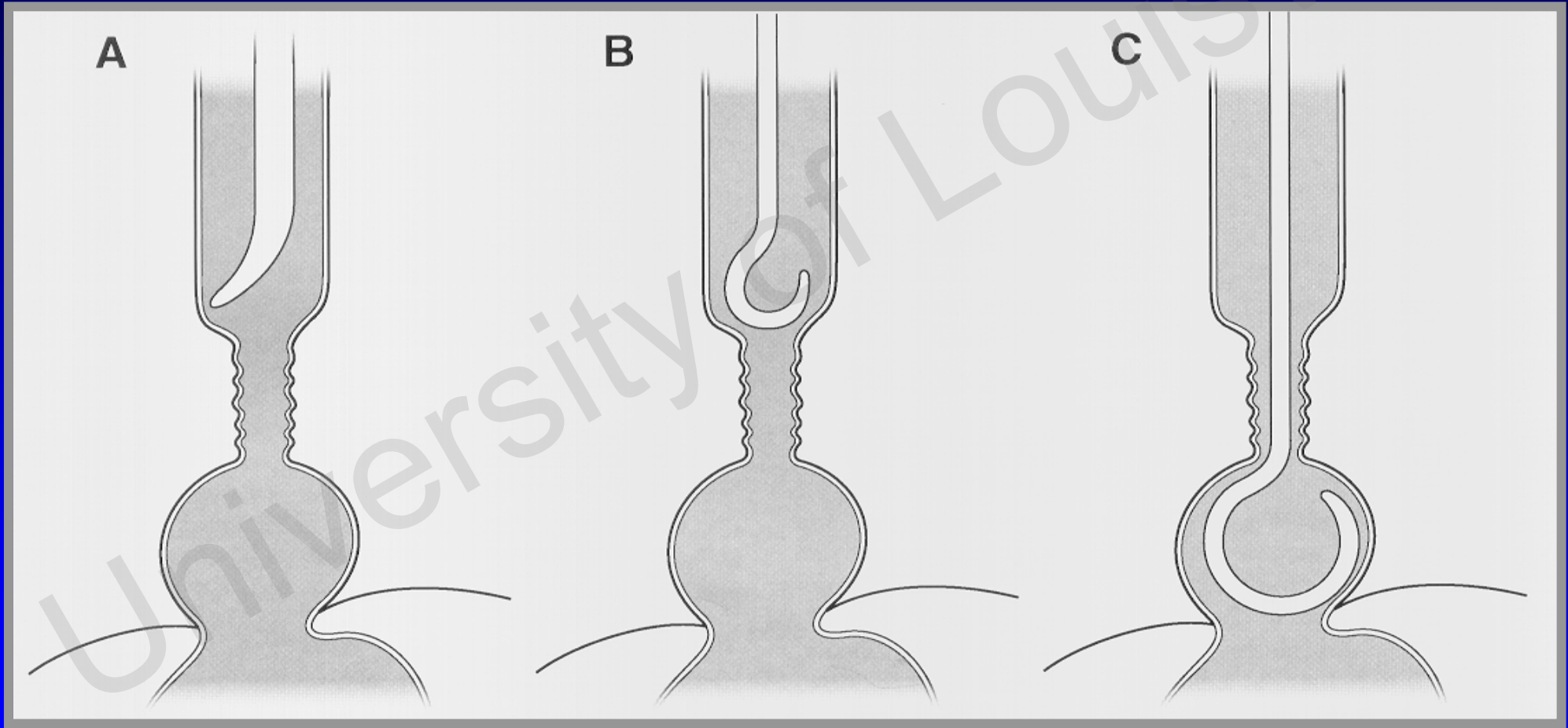


- **Pressures generated**
  - Highest pressures in new strictures
  - Lower pressures in chronic bougienage patients
  - Higher pressures with larger dilators  
40Fr (163), 44Fr (276), 48Fr (307 mmHg)
- **“Lack of respect” for Maloney dilations**
  - Study comparing Maloney, Savary, Balloon
  - All 4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

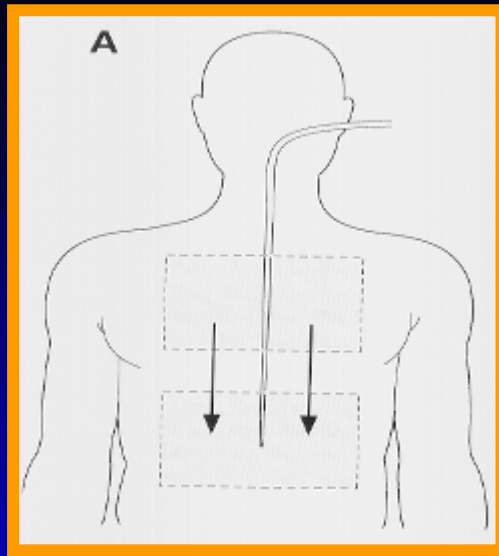
Kozarek (Gastroent 1981;81:833)

Hernandez (Gastro Endo 2000;51:460)

# Maloney Dilation - Blinded Technique



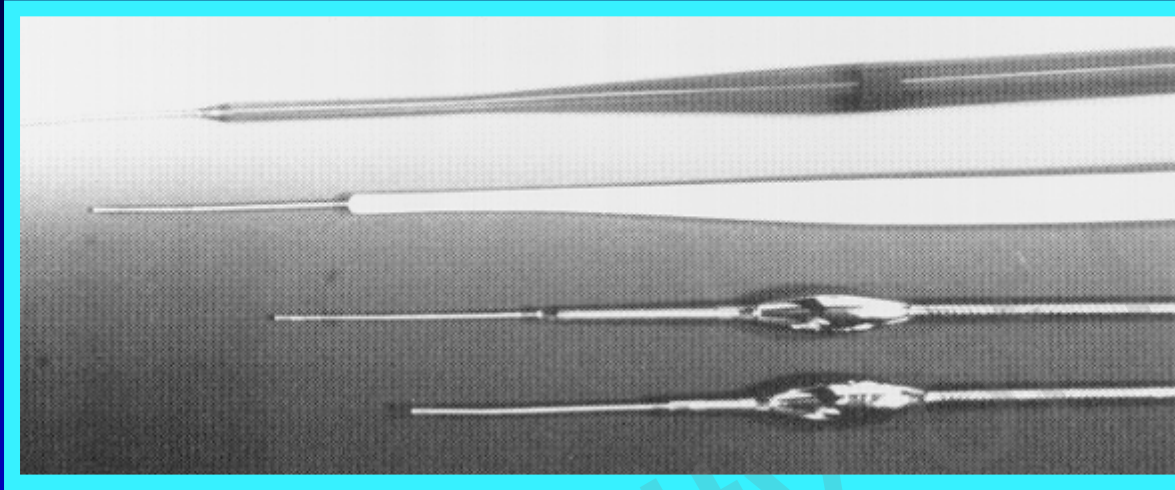
# Maloney Dilations



## Fluoroscopic Guidance

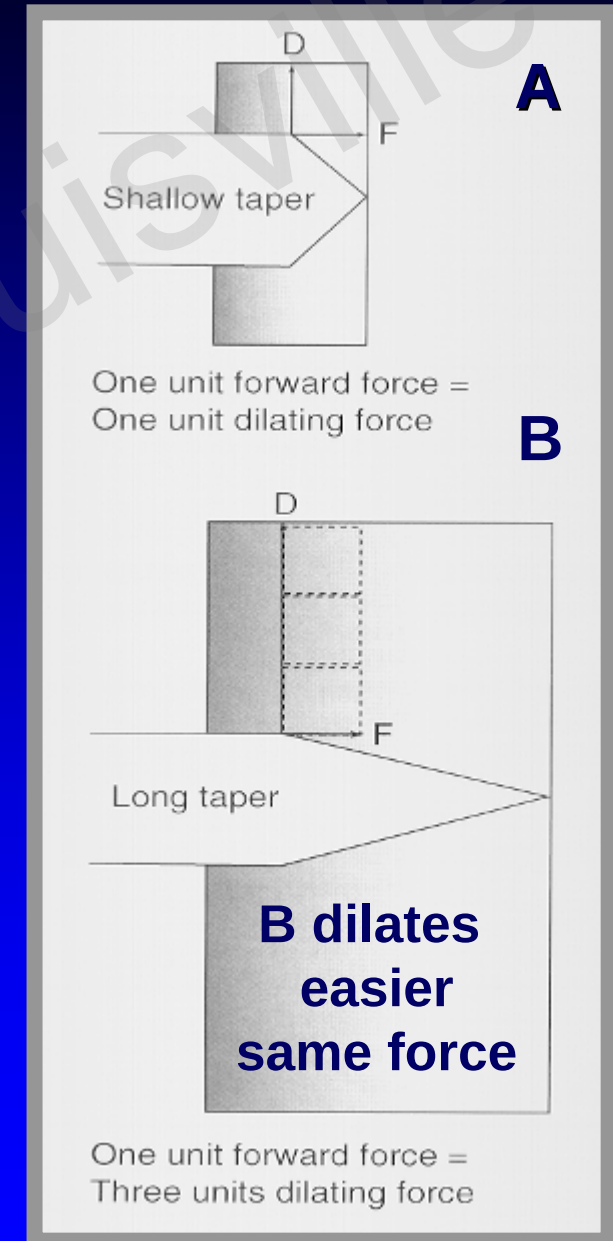
|                           | Fluoro<br>(n=74) | Blinded<br>(n=88) |    |
|---------------------------|------------------|-------------------|----|
| Successful dilation       | 96%              | 80%               | *  |
| Adverse event             | 11.3%            | 5.4%              | NS |
| Recognition               | 100%             | 20%               | *  |
|                           | (n=50)           | (n=50)            |    |
| Relief dysphagia          | 93%              | 69%               | *  |
| Pill passage postdilation | 62%              | 42%               | *  |

# Savary Dilations

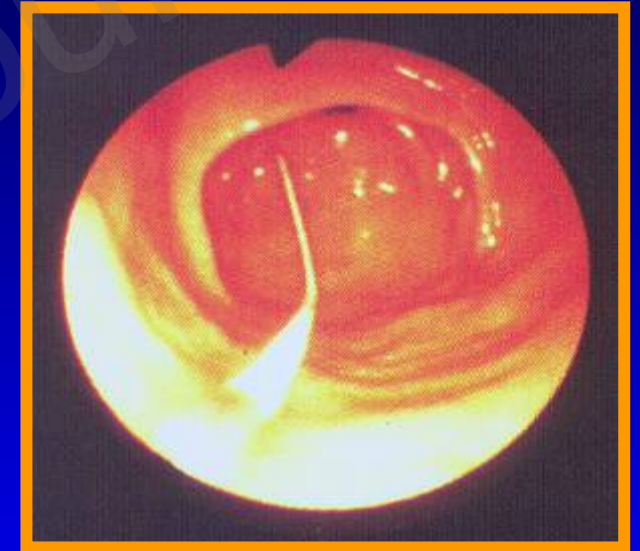


- **Wire-guided polyvinyl dilators**  
Longer more complex strictures  
Never pass without guidewire
- **Long tapered tip for safer dilation <sup>1</sup>**  
Shear versus radial force

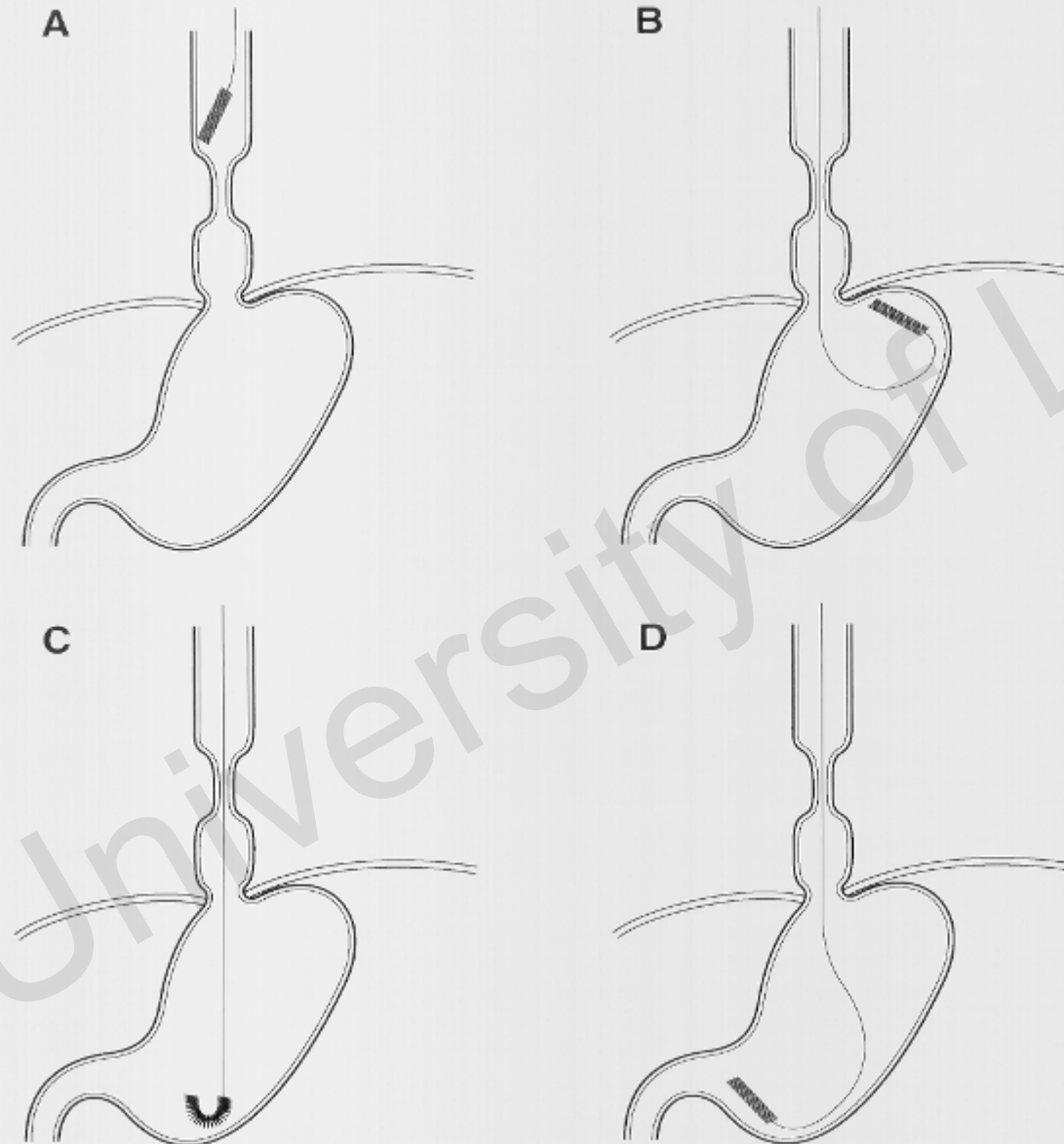
<sup>1</sup> Abele (HepatoGastro 1992;39:486)



# Savary Dilations

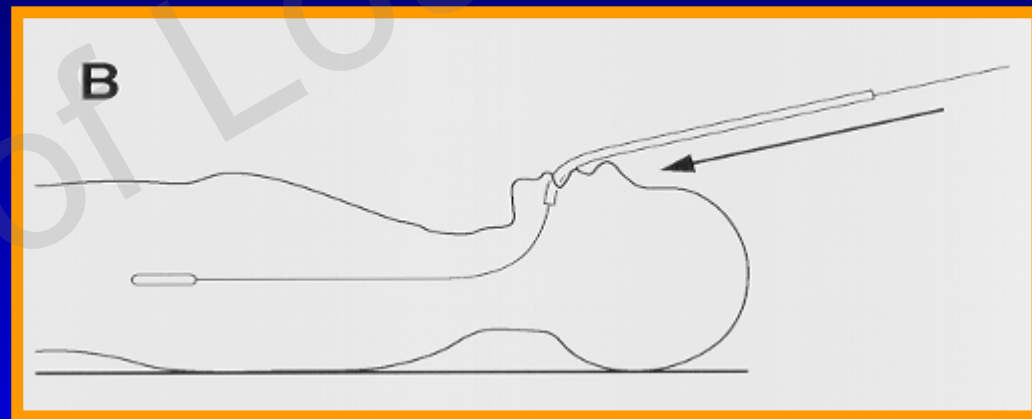


Problems  
in placement  
of spring-tipped  
guidewire



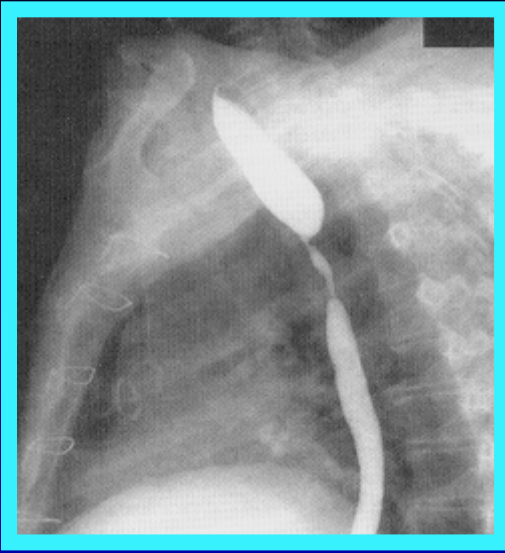


# Savary Dilations

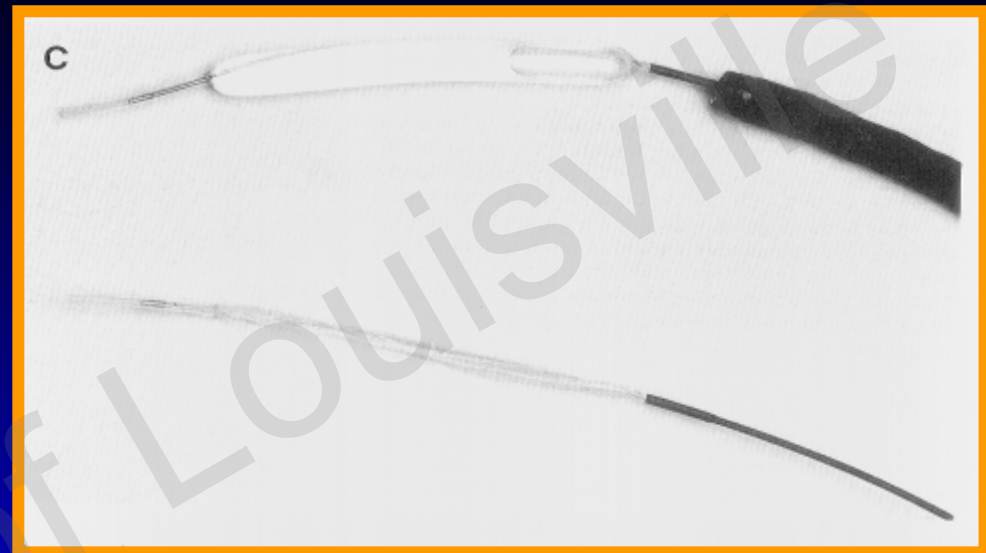


Correct approach  
to the patient



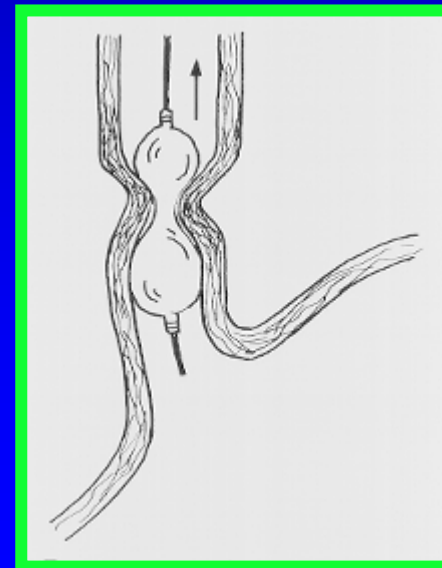
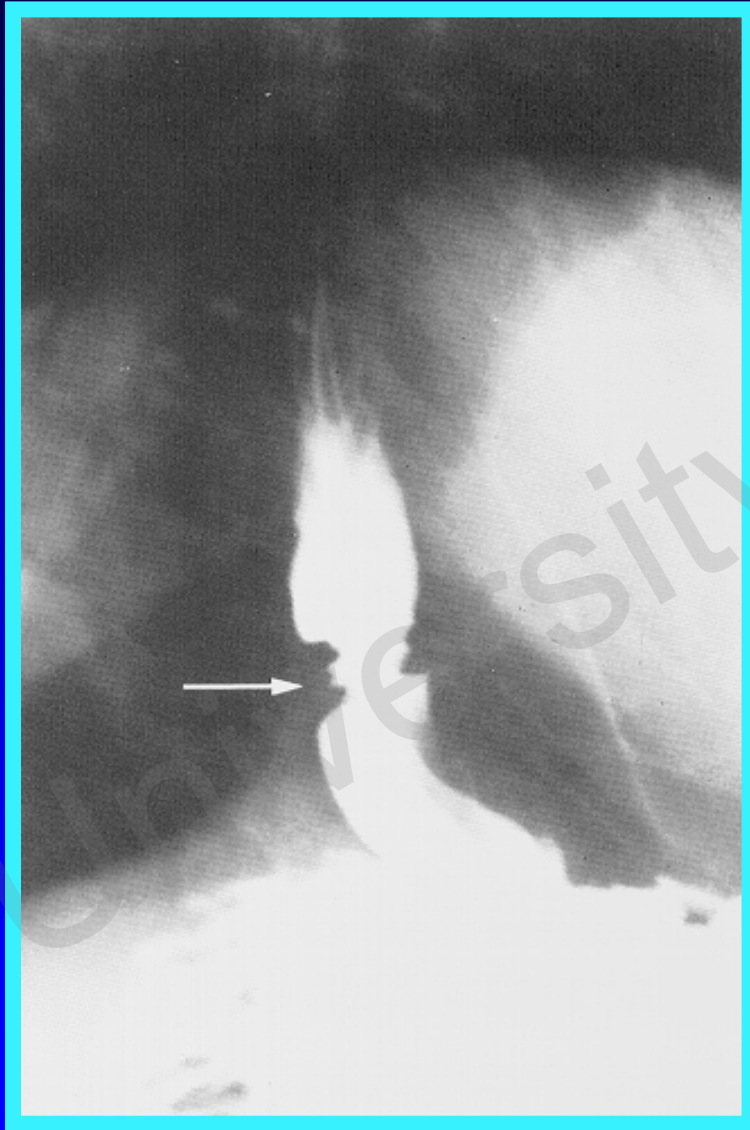


# **Radial Balloon Dilation**



- **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)