

# EGD

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**July 3, 2008**

# Different Ways to do an EGD

- Which scope?
  - Pediatric, regular, jumbo EGD endoscope or pediatric colonoscope
- Transnasal vs. transoral insertion
- Sedation vs. no sedation
- Looking “going down” vs. looking “coming back”



“Spraying for skunk!”



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### FDA Public Health Advisory

#### Benzocaine Sprays marketed under different names, including Hurricaine, Topex, and Cetacaine <sup>1</sup>

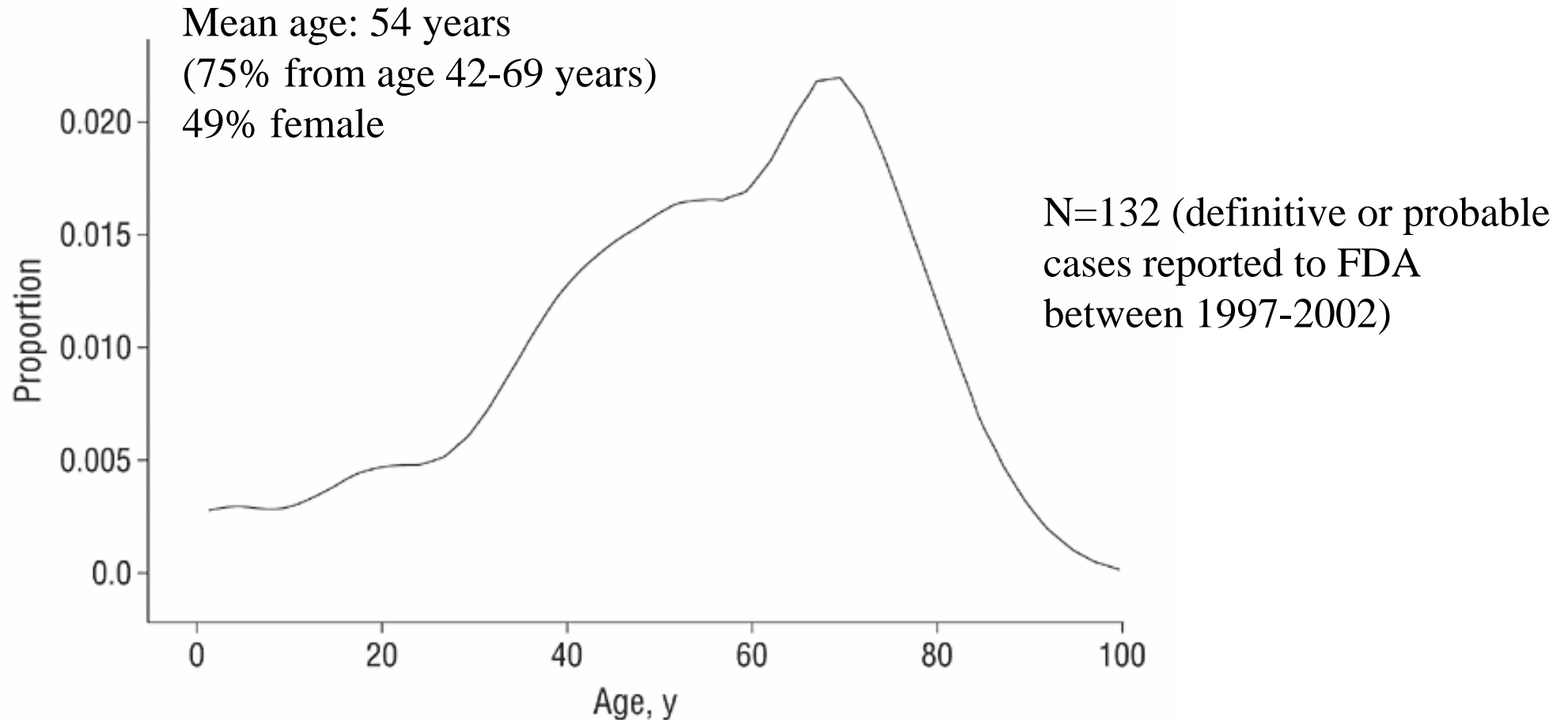
Benzocaine sprays are used in medical practice for locally numbing mucous membranes of the mouth and throat for minor surgical procedures or when a tube must be inserted into the stomach or airways. Their use is known to be occasionally associated with methemoglobinemia. However, cases of methemoglobinemia have also resulted from medication errors due to incorrect use of benzocaine sprays (e.g., longer duration or more frequent sprays than recommended). On February 8, 2006, the Veterans Health Administration (VA) announced the decision to stop using benzocaine sprays for these purposes. The FDA is aware of the reported adverse events and is reviewing all available safety data, but at this time is not planning action to remove the drugs from the market. Up until now, the FDA has concluded that the number of reported adverse events with these sprays has been low and, when properly used, these products can help make important procedures less uncomfortable for patients. This advisory applies only to *benzocaine sprays* used in the mouth and throat, *not* to other benzocaine products or to benzocaine sprays applied to exterior skin.

The FDA is again highlighting here safety information previously addressed by the Agency (see

# Methemoglobinemia (MHb)

- Elevated oxidized hemoglobin that cannot bind and transport oxygen
- Benzocaine
  - Oxidizing agent
  - Cases of cyanosis and life-threatening complications
- 818,439 cases of SAE reported to FDA 1997-2002
  - 132 cases of definite or probable MHb
  - 93 % was Benzocaine spray
  - 2 deaths (1.5%)
- Health professionals should be aware of MHb
  - “Just say no”
  - Treatment: IV methylene blue at 1 to 2 mg/kg of

# Age Distribution of Methemoglobinemia Cases with Benzocaine



# Complications of EGD

- Complications
  - Sedation complication, perforation
  - Sore throat (9.5%)
  - Abdominal discomfort (5.3%)
- Reported serious complication rates
  - Diagnostic EGD (0.13 - 0.24%)
  - Therapeutic EGD
    - Dilation (0.25%)
    - Achalasia pneumatic dilation (3.3%)
    - Prosthesis placement (7 - 15%) respectively

Newcomer et al. *Gastrointest Endosc Clin N Am* 1994;4:551-570.

Zubarik et al. *Am J Gastroenterol* 1999;94:1539-1545.

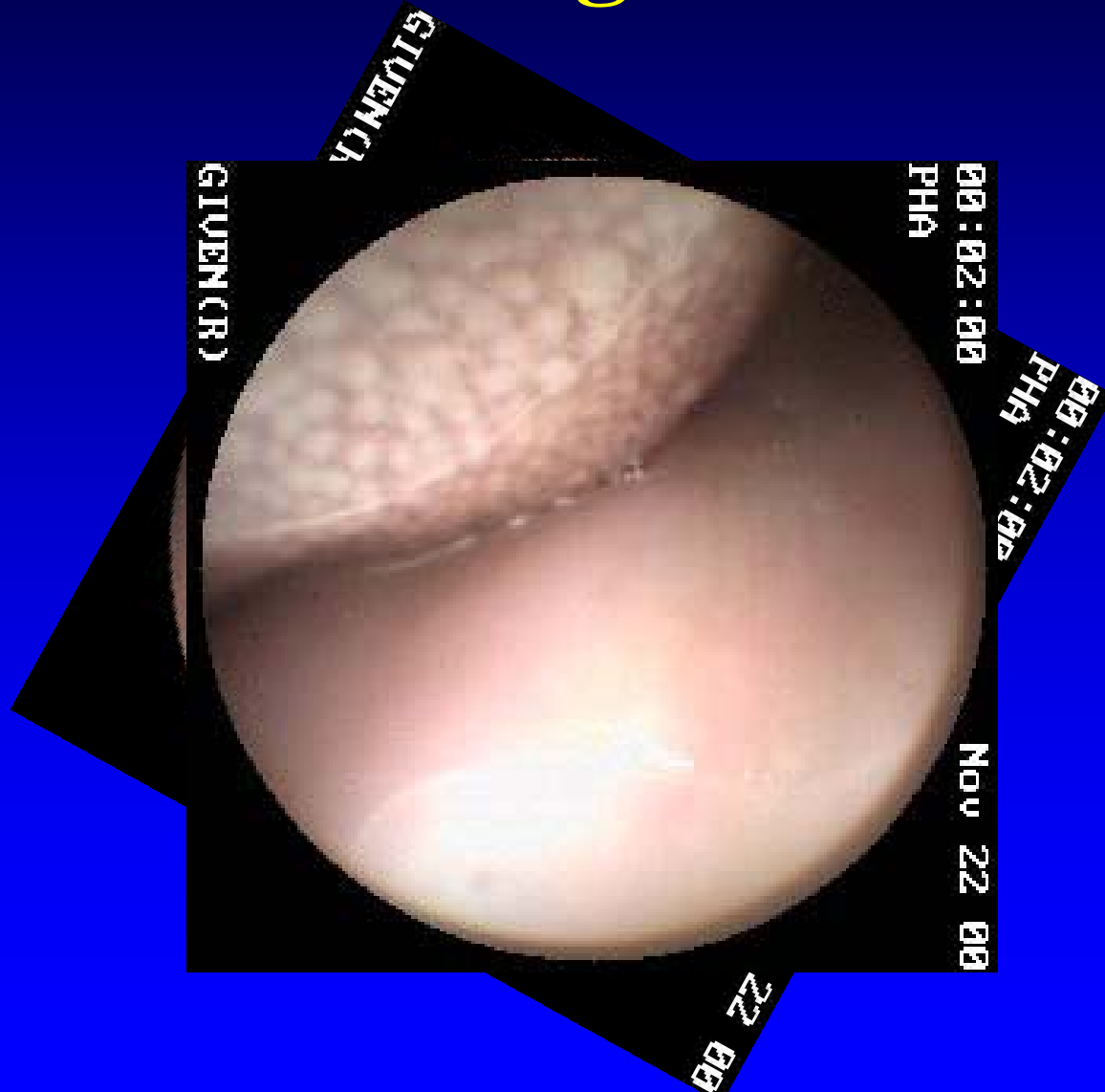
# Indications for EGD

- GERD
  - Alarm symptoms
  - Persistent symptoms despite therapy
  - Screening for Barrett's esophagus
- Dysphagia
- Persistent epigastric pain and dyspepsia
- UGI bleeding
- Screening for varices
- Etc.



**Normal EGD**

# Starting EGD



# Hypopharynx

Arytenoid  
medial wall

Anterior

True vocal cord

Arytenoid

Ventricular  
space

False vocal cord

Right

Left

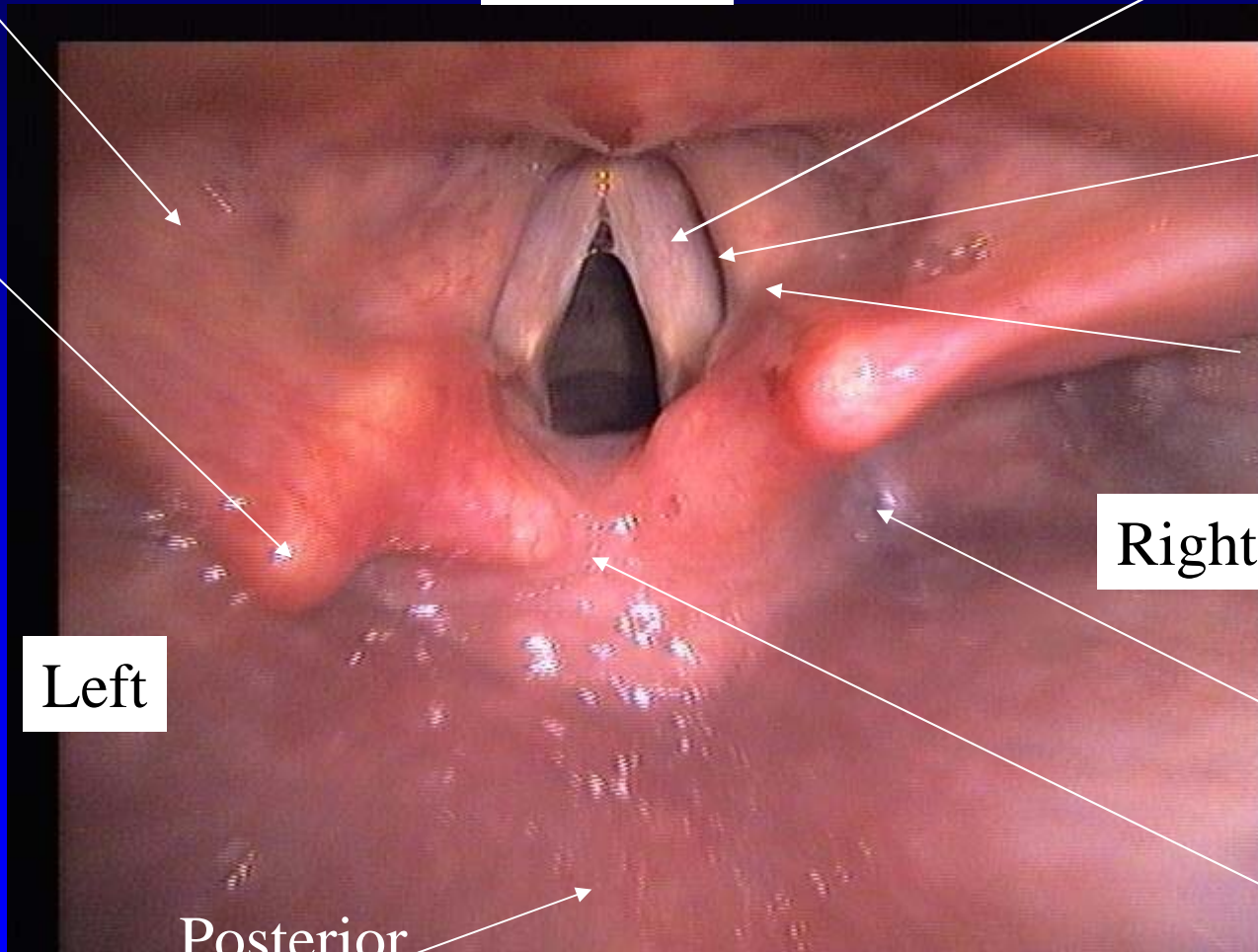
Pyriform sinus

Interarytenoid  
space

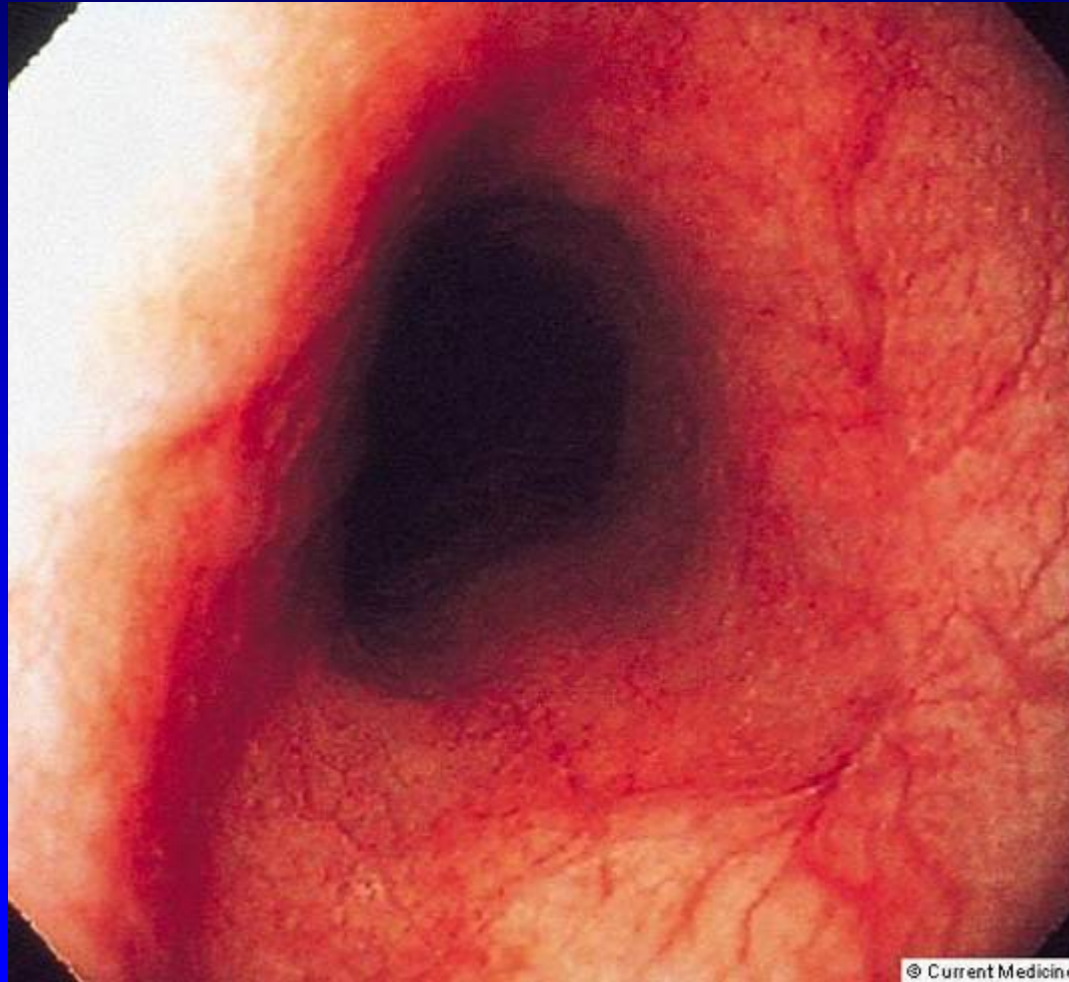
Posterior

pharyngeal wall

Posterior



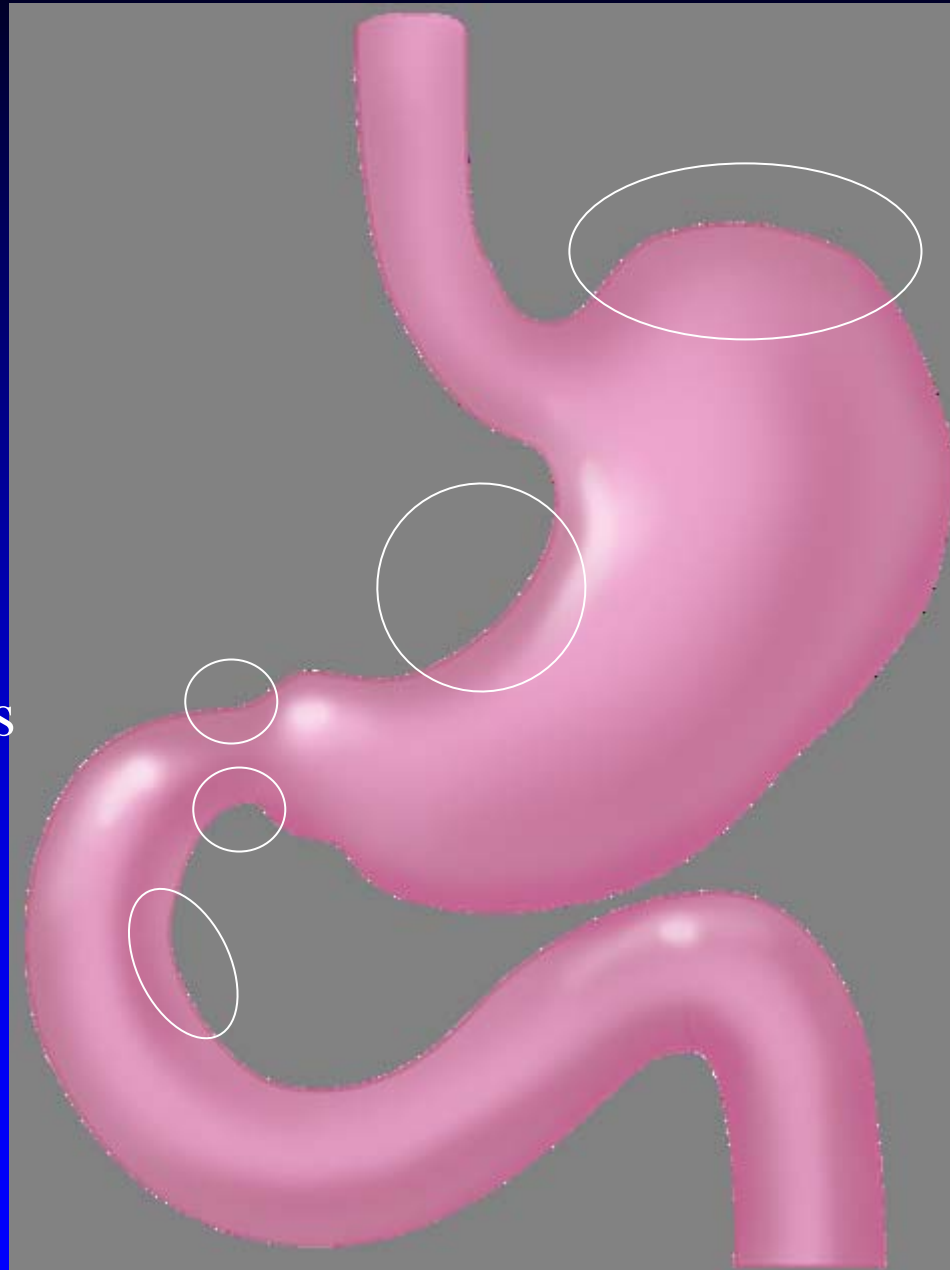
# Normal Esophagus





“Low Road”

“High Road”



○ EGD blind spots



# Retroflex



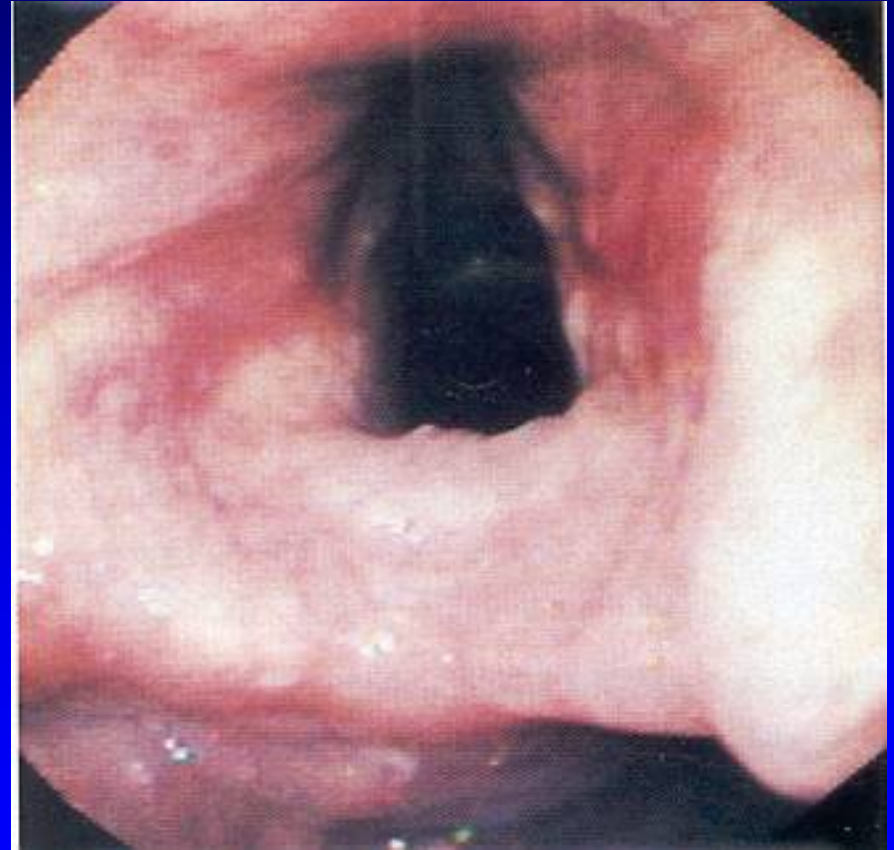
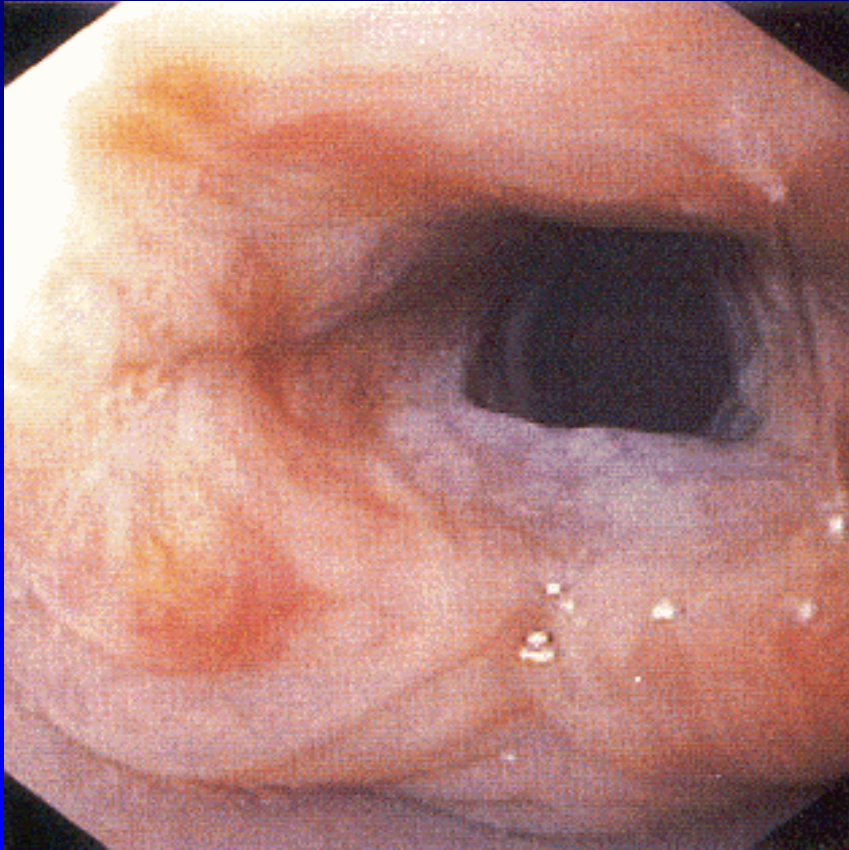
# Hypopharynx and Larynx



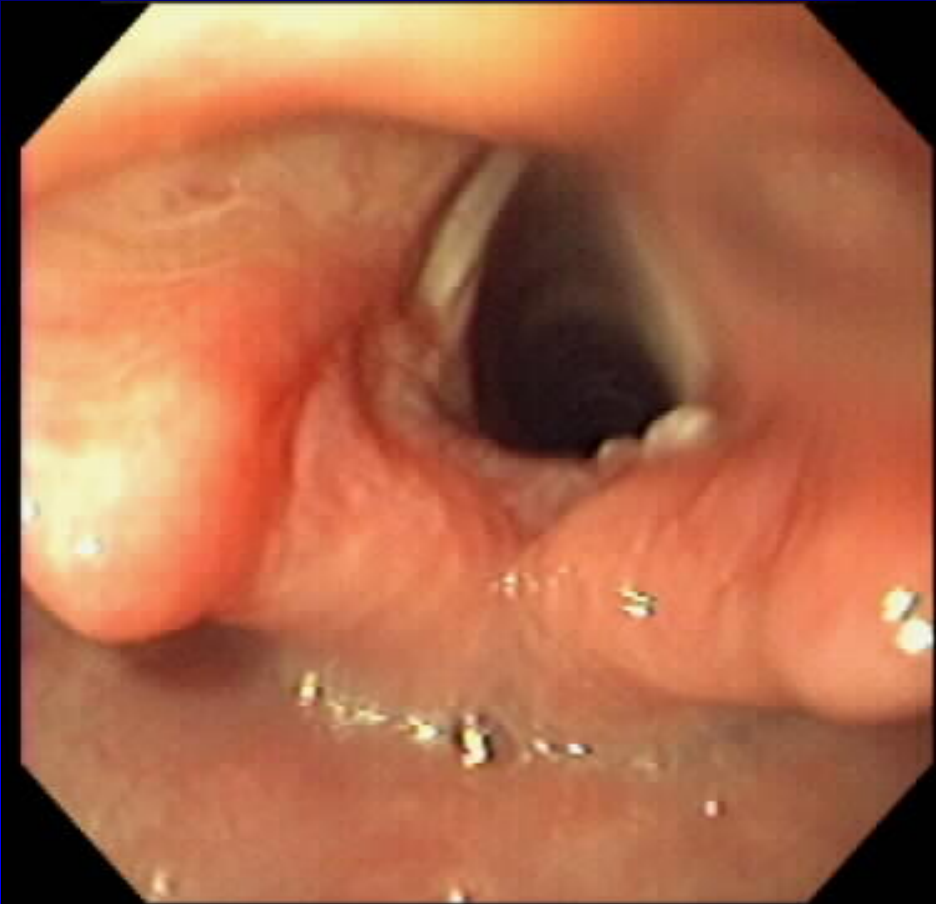
# Epiglottitis Edema



# Interarytenoid Edema

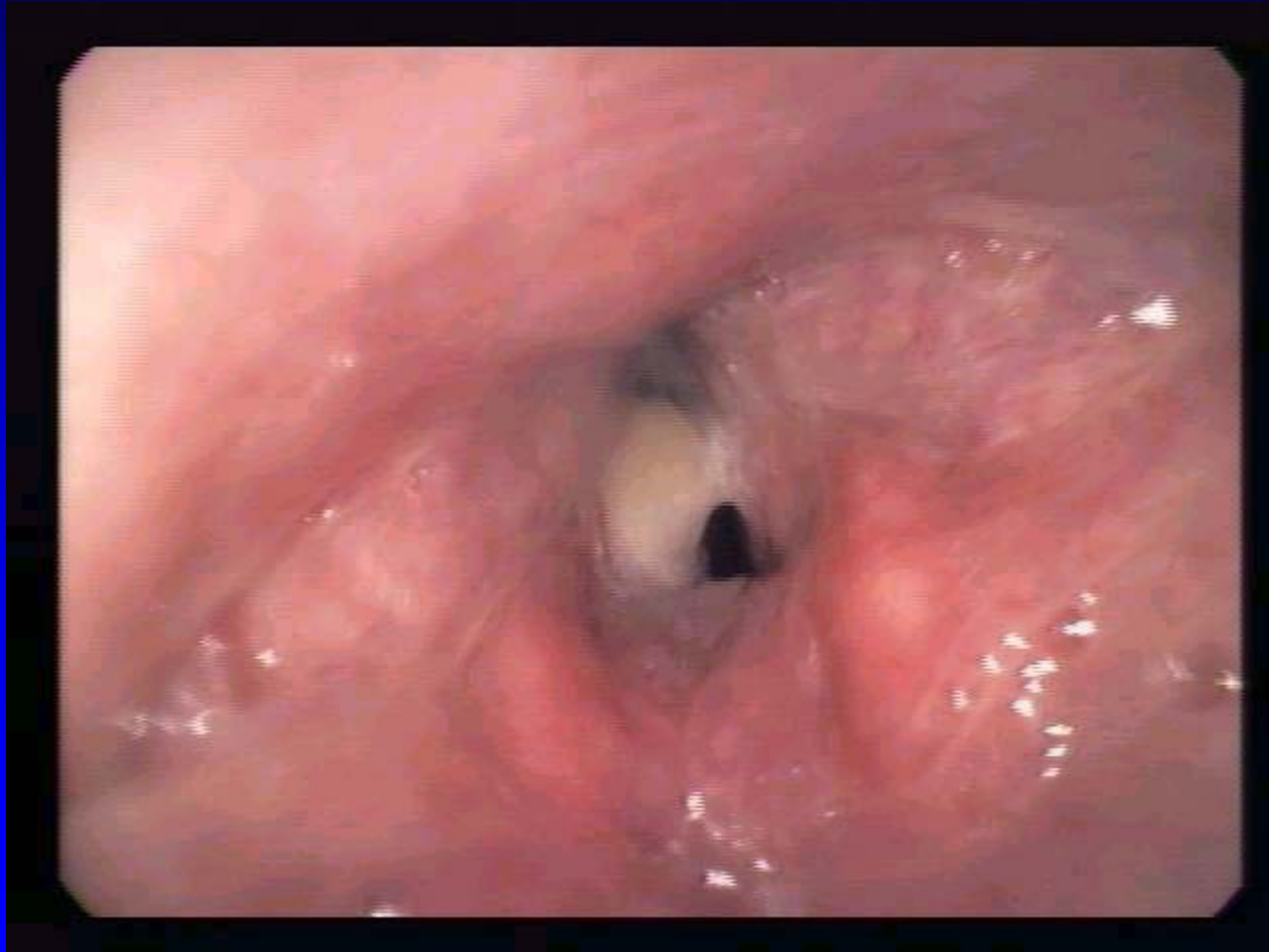


# Vocal Cord Granuloma

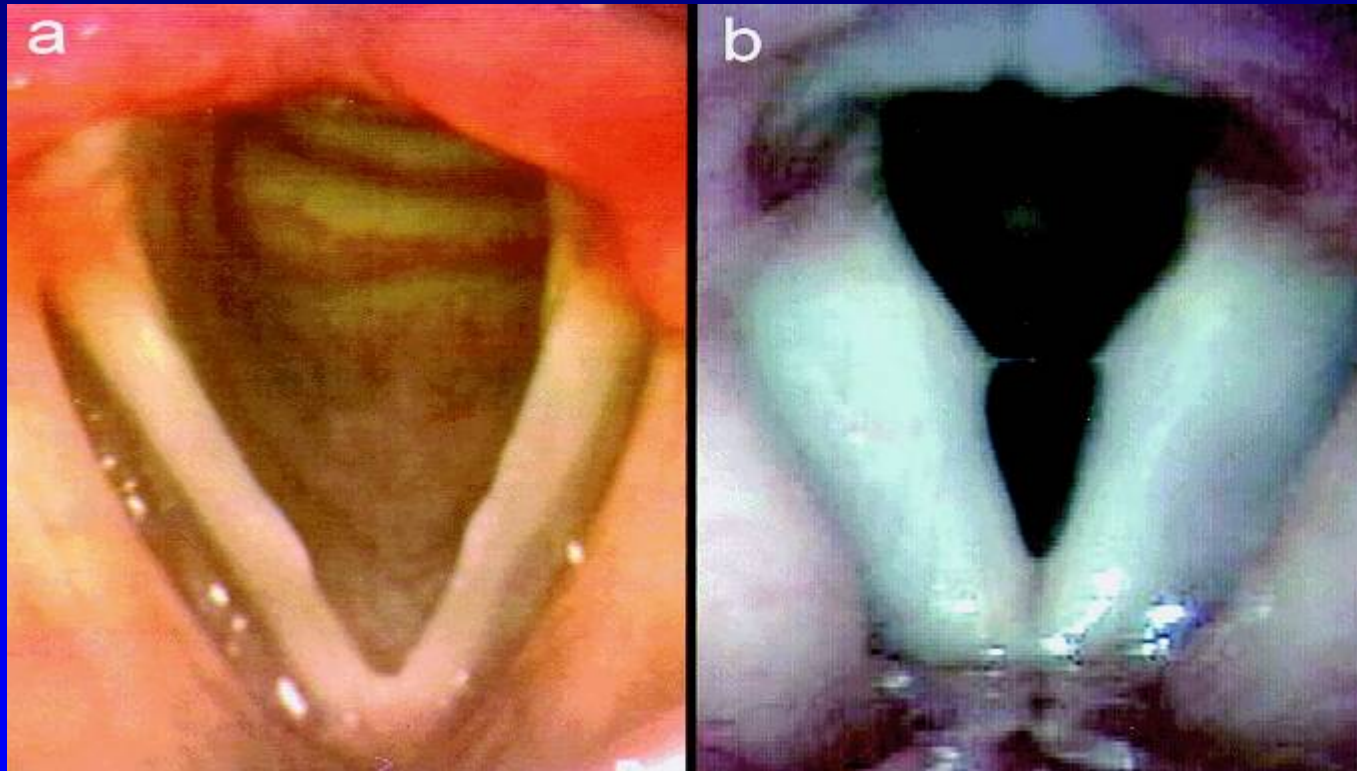




# Vocal Cord Granuloma



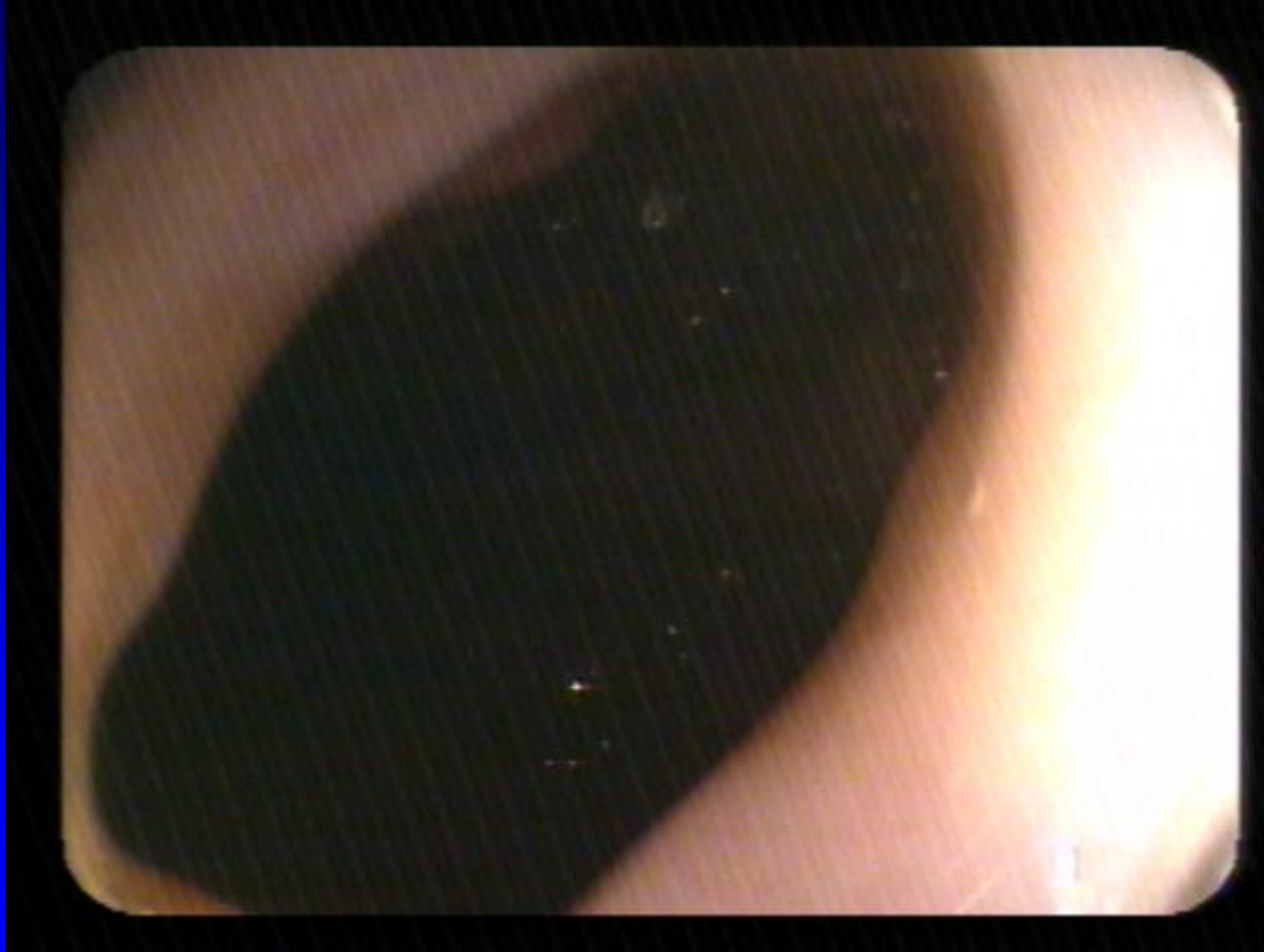
# Ventricular Obliteration



# Sarcoidosis



# Resistance at the UES: Don't push too hard



Zenker's Diverticulum

# Zenker's Diverticulum





# Zenker's Diverticulum

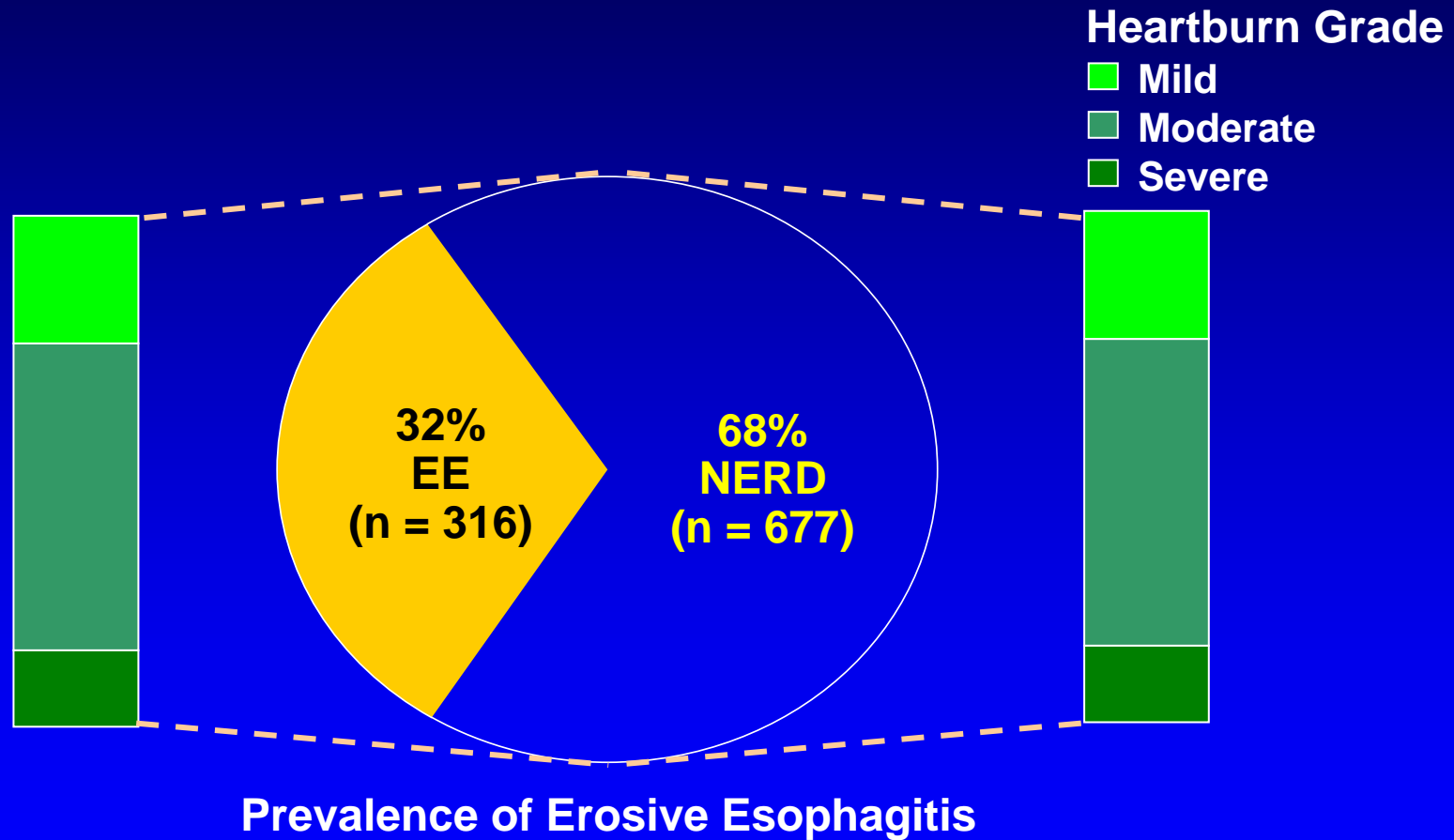


# Zenker's Diverticulum



# EGD for GERD

# 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.

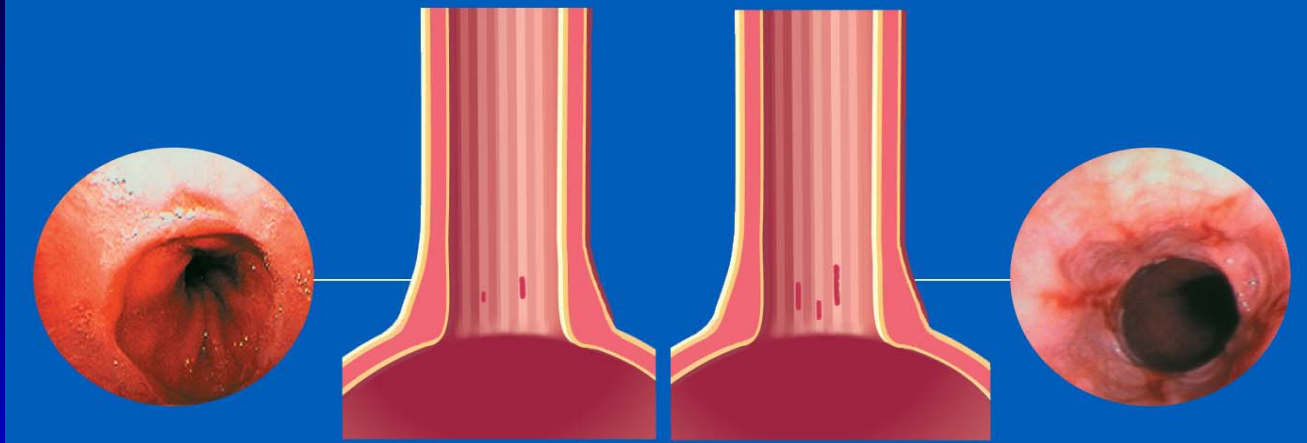
# Diagnostic Testing for GERD

	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

# LA Classification of Erosive Esophagitis

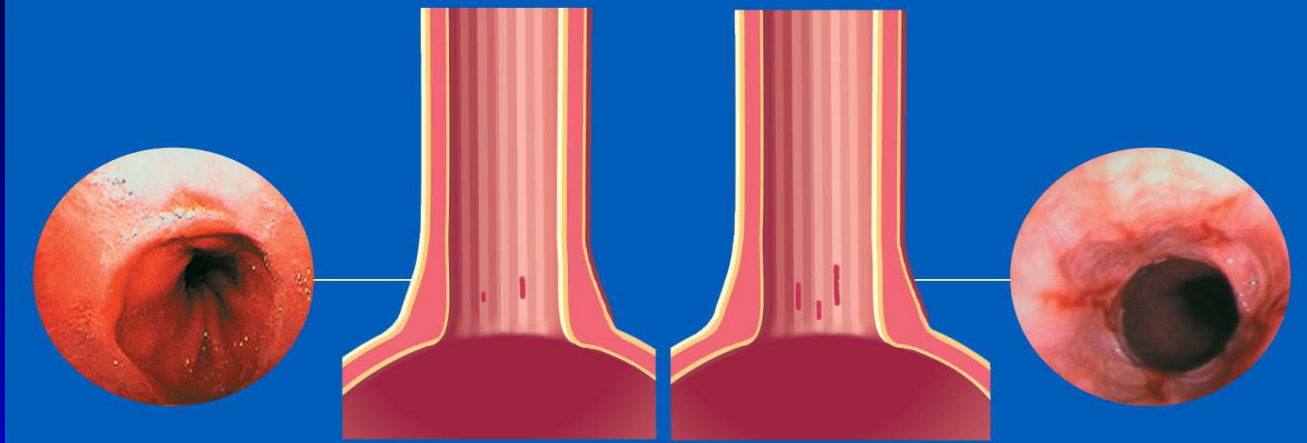
## LA Grade A

Isolated mucosal breaks  $\leq 5$  mm long



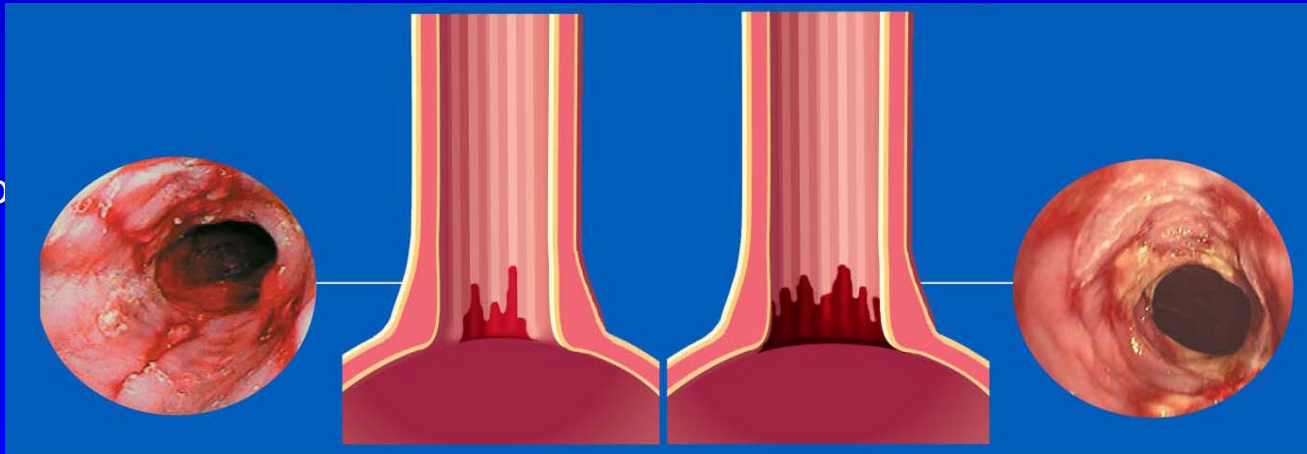
## LA Grade B

Isolated mucosal breaks  $> 5$  mm long



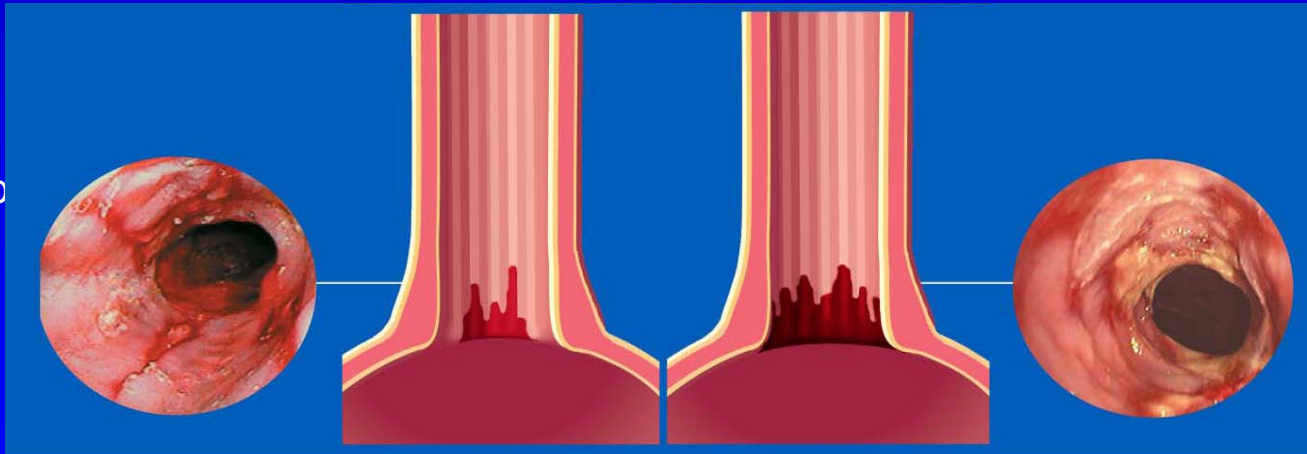
## LA Grade C

Mucosal breaks **bridging** the tops of folds but involving  $< 75\%$  of the circumference



## LA Grade D

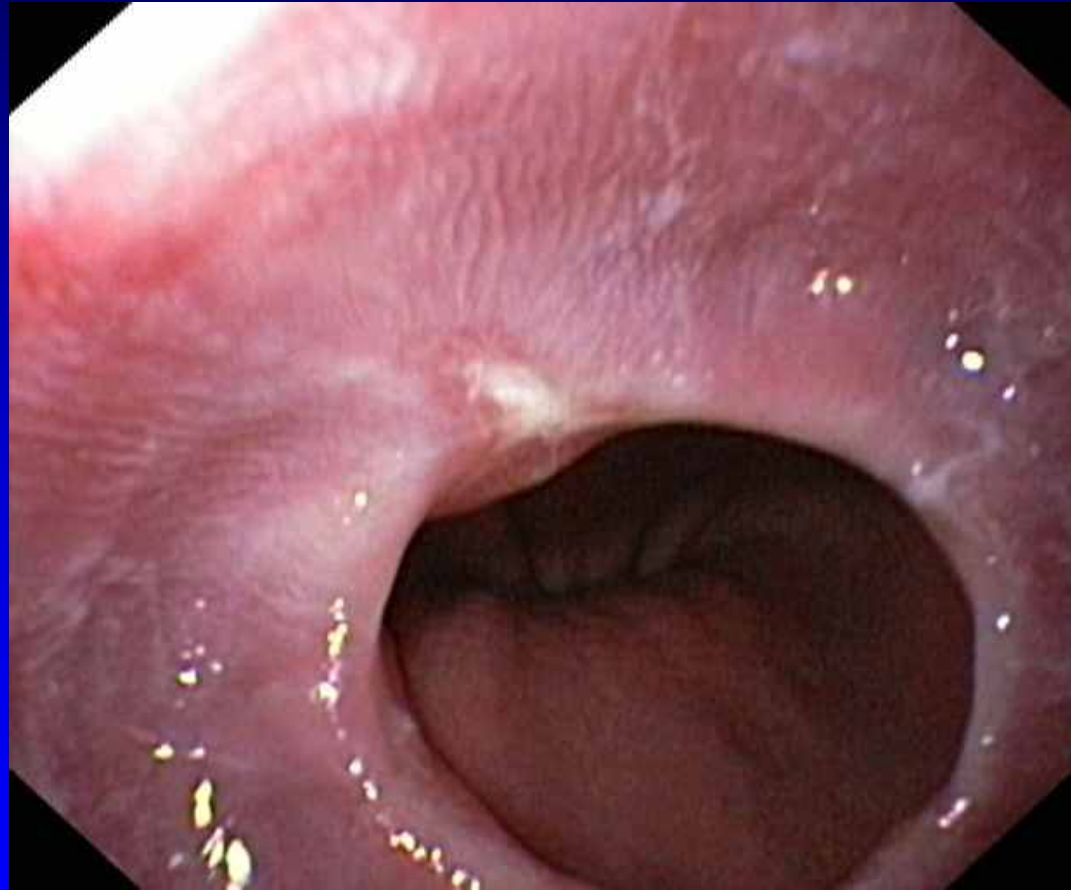
Mucosal breaks bridging the tops of folds and involving  $> 75\%$  of the circumference



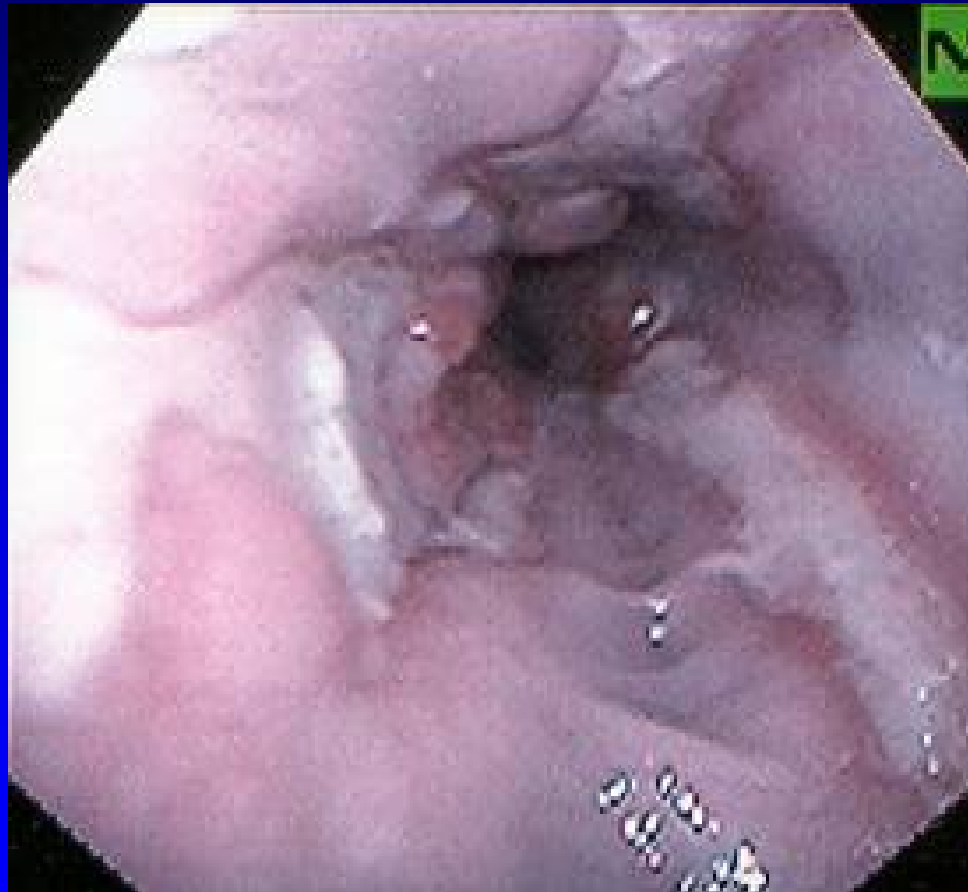
A = Los Angeles.

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

# LA Grade A Esophagitis

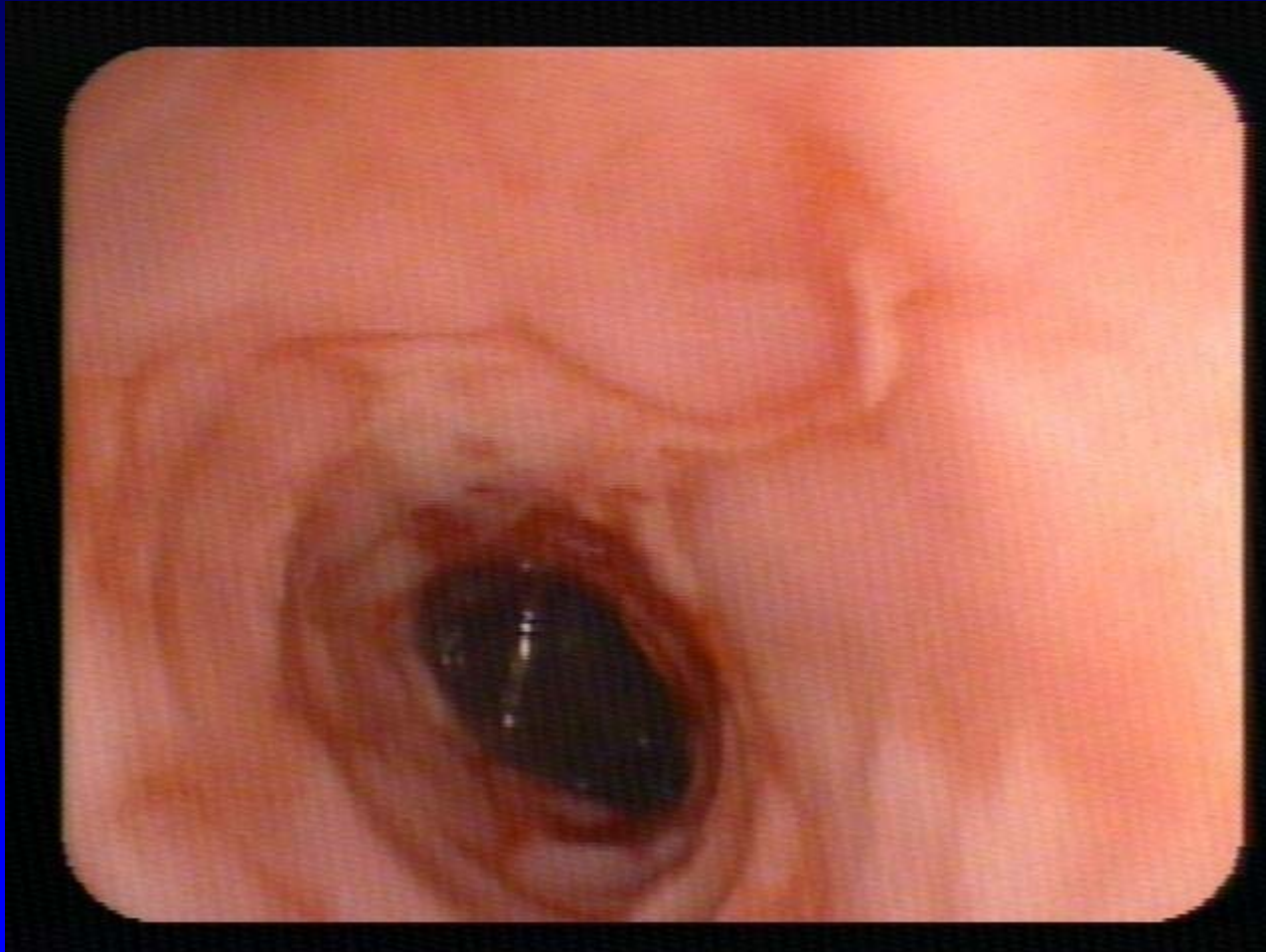


# LA Class C Esophagitis





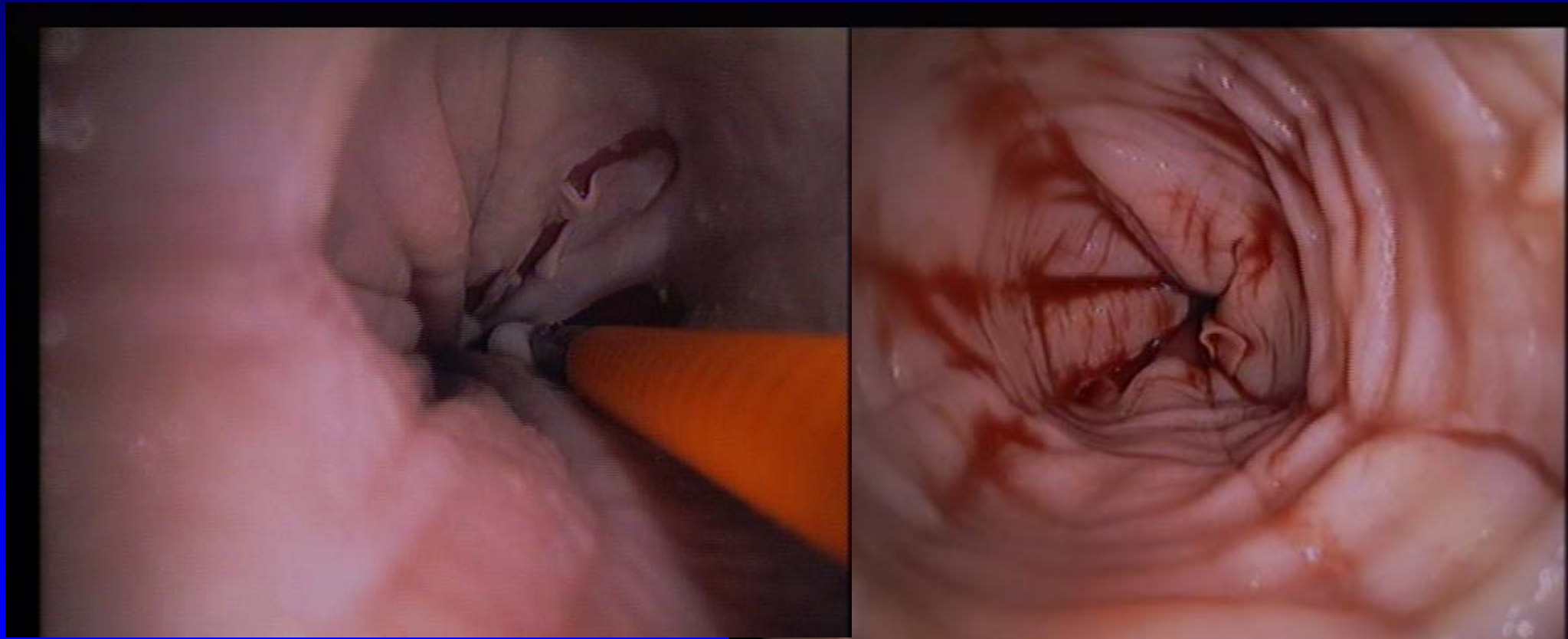
# LA Class D Esophagitis



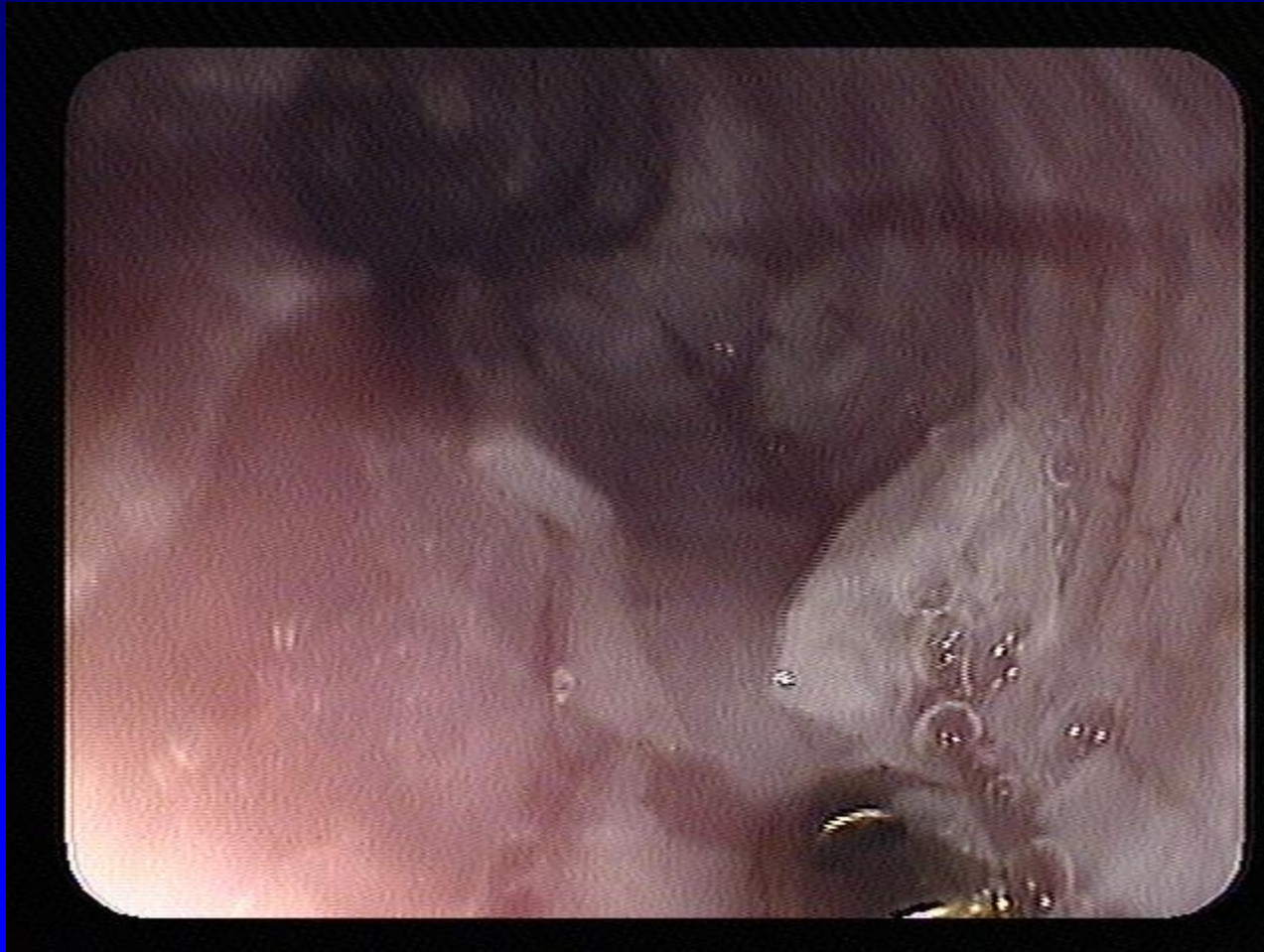
# Esophageal Scarring



# Mucosal Sloughing (Esophagitis Dissecans Superficialis)

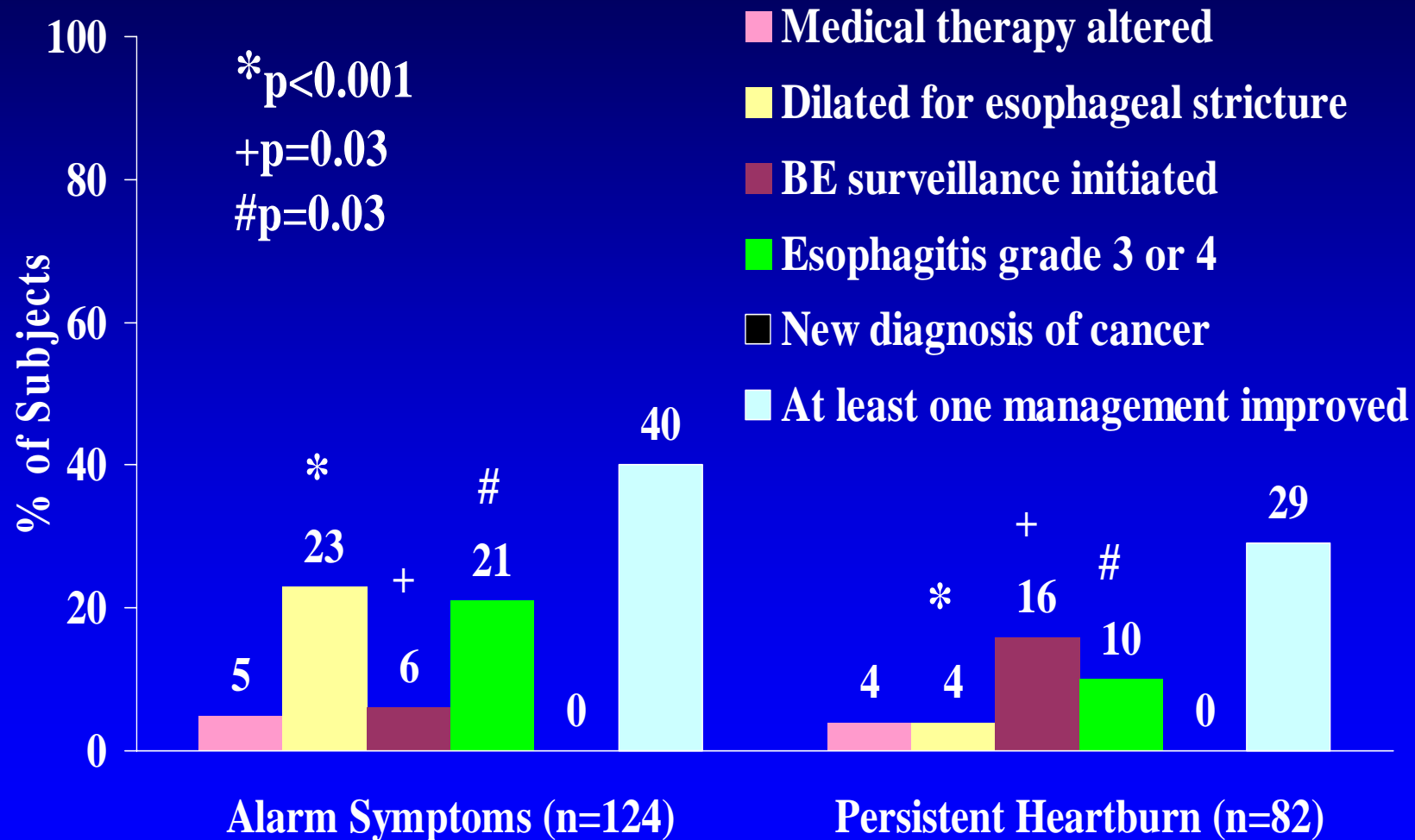


# **GERD: Mucosal Sloughing (Esophagitis Dissecans Superficialis)**





# EGD Improving the Management of GERD



# Barrett's Esophagus

# Barrett's Esophagus



# Barrett's Esophagus with Erosion





# Barrett's Esophagus with Stricture



# Barrett's Esophagus with Nodule



# Barrett's Esophagus with Nodular Surface



# Barrett's Esophagus with Nodular Surface



# Esophageal Inflammatory Diseases



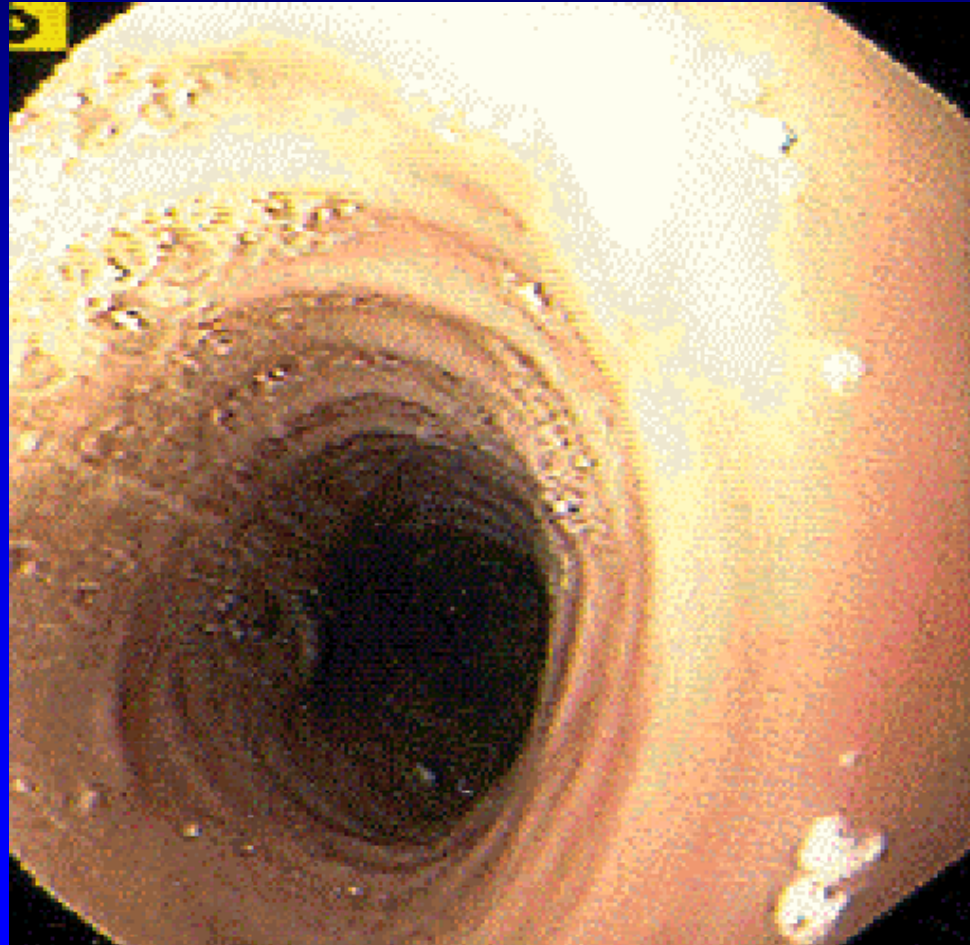
# **25 yr old WMM with recurrent intermittent food impaction**



# Endoscopic Features of Eosinophilic Esophagitis are Variable

- Inflammation along entire esophagus
  - Granularity
  - Loss of vascular pattern
  - Linear furrow (“vertical lines”)
  - Whitish papules
- Strictures anywhere in the esophagus
  - Circumferential rings
  - Proximal strictures
  - GEJ stricture
  - Long-segment strictures (small caliber esophagus)
- Can be normal

# Eosinophilic Esophagitis: Circumferential Rings

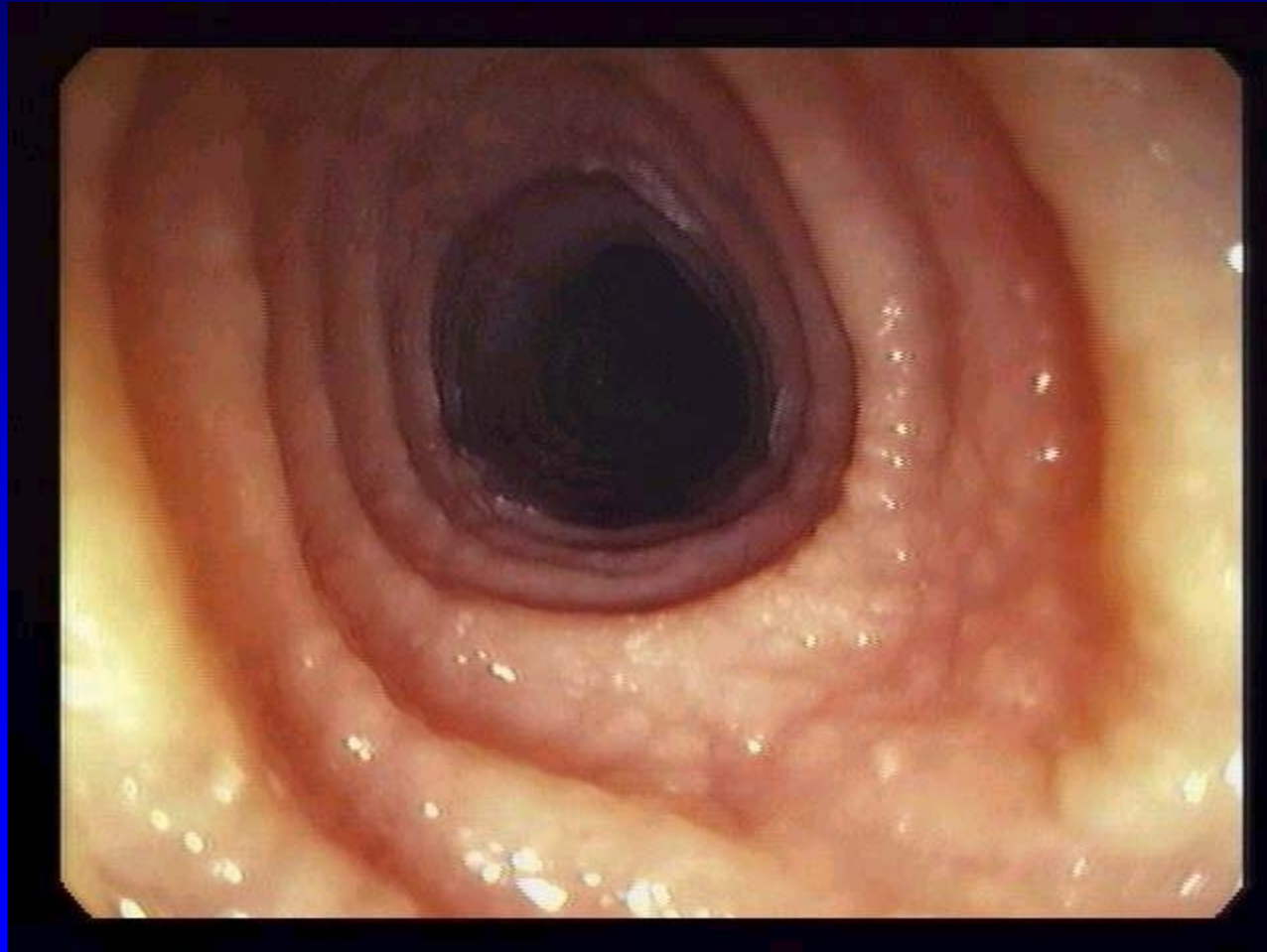




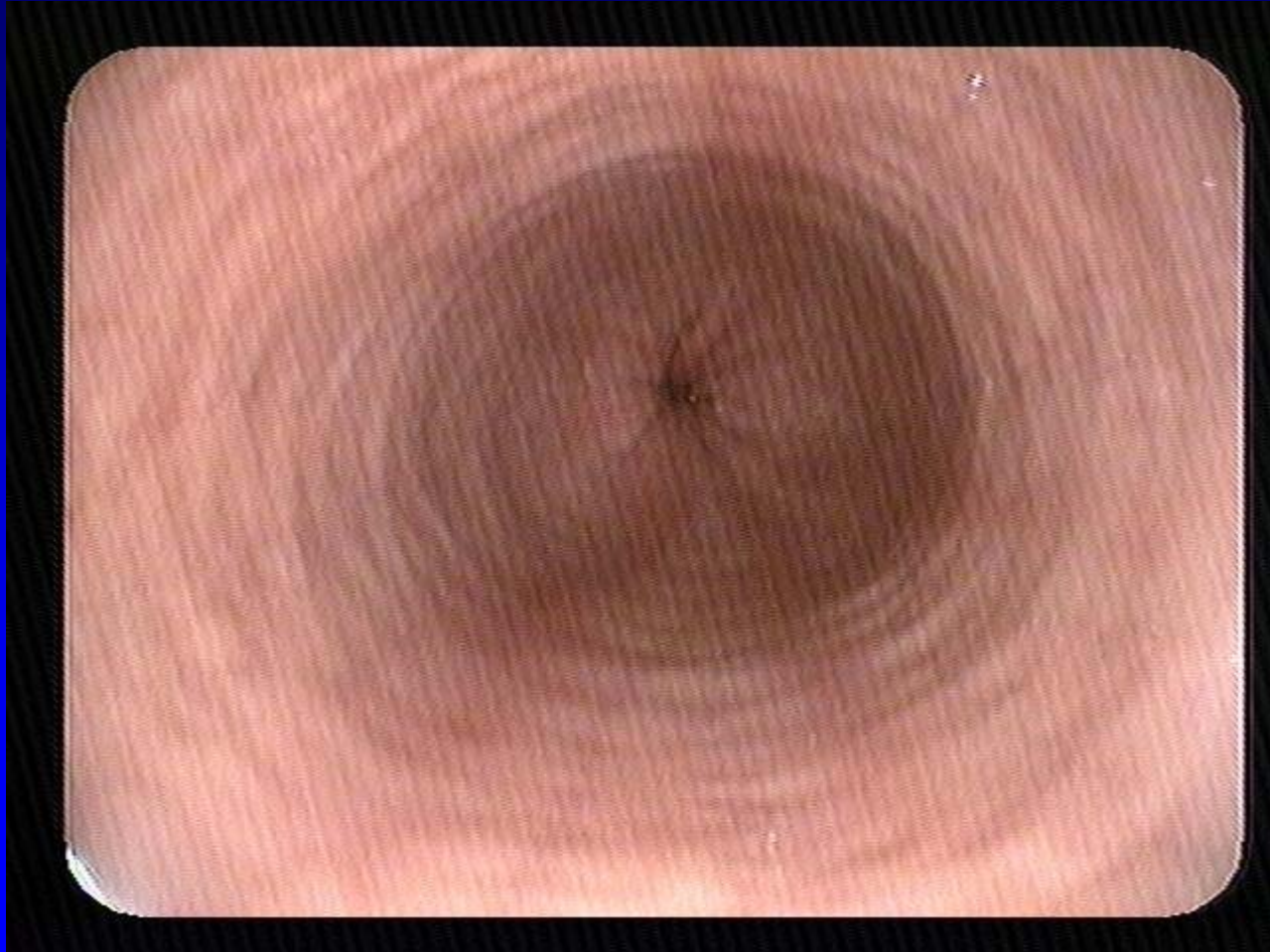
# Eosinophilic Esophagitis



# Eosinophilic Esophagitis: Granularity



# **Eosinophilic Esophagitis: Loss of Vascular Pattern**

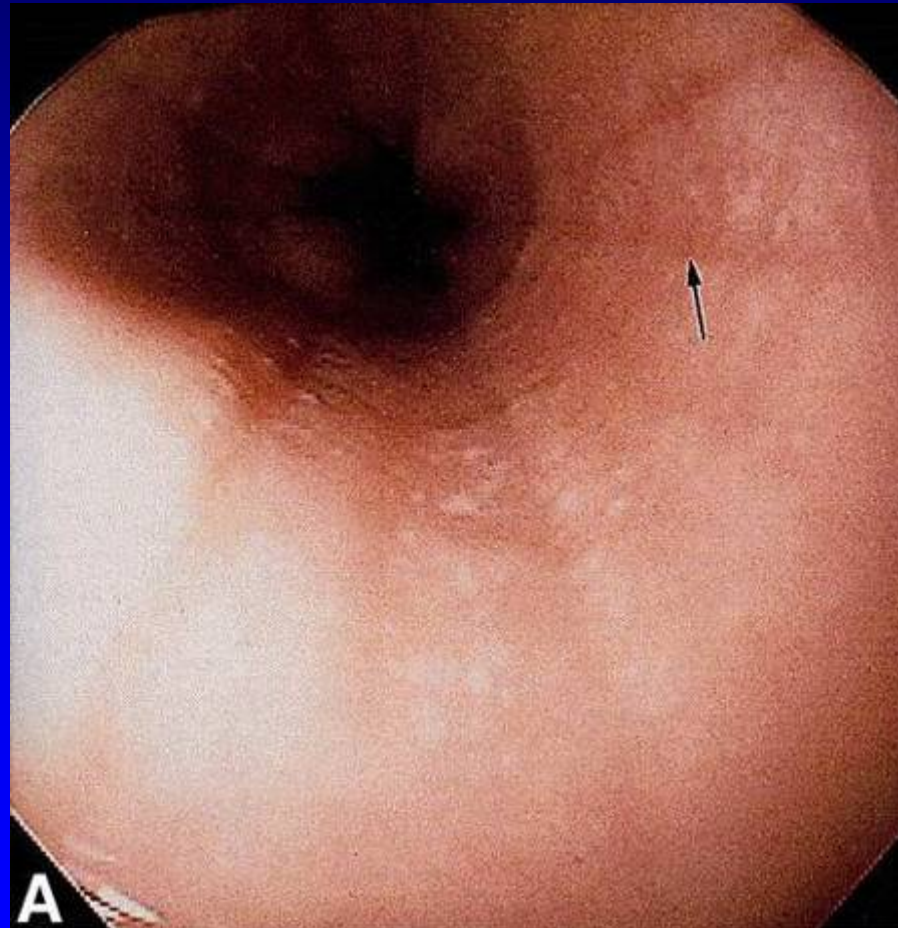


# **Eosinophilic Esophagitis: Loss of Vascular Pattern**





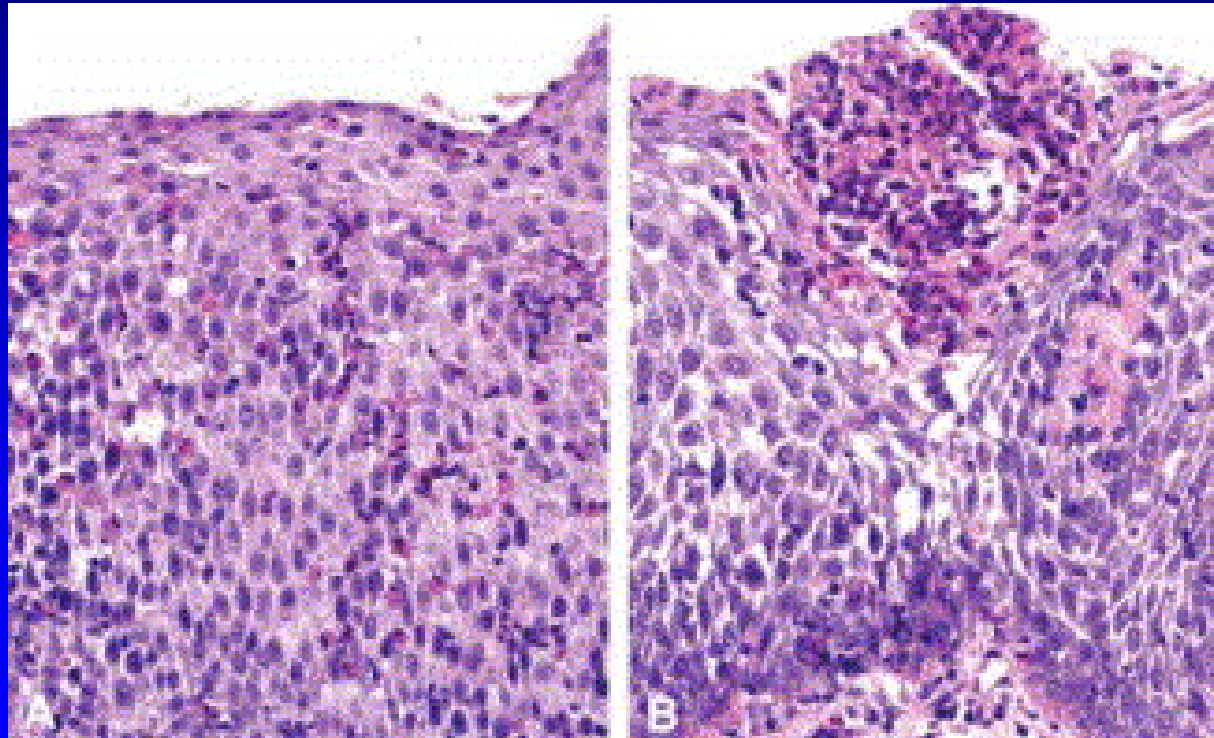
# Eosinophilic Esophagitis: Linear Furrows



# Eosinophilic Esophagitis: White Papules



# Eosinophilic Esophagitis

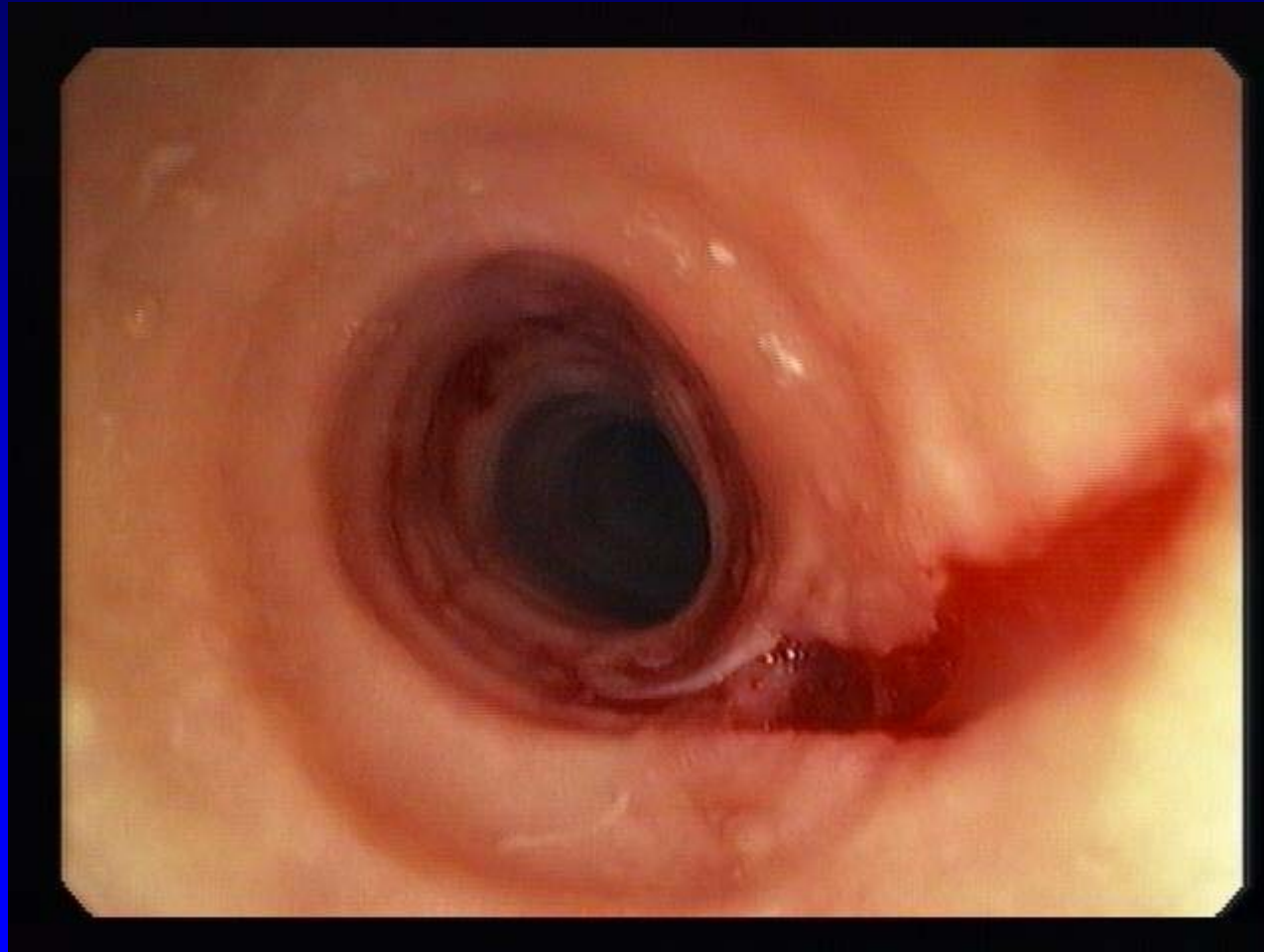




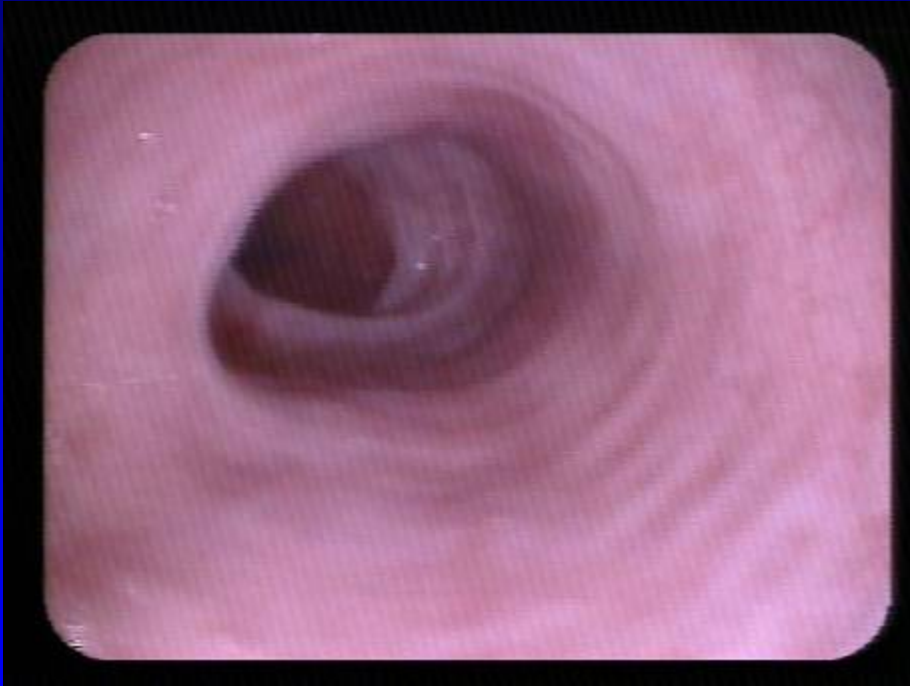
# Eosinophilic Esophagitis: Ulceration



# Eosinophilic Esophagitis after dilation



# **Eosinophilic Esophagitis: Persistent Dysphagia**

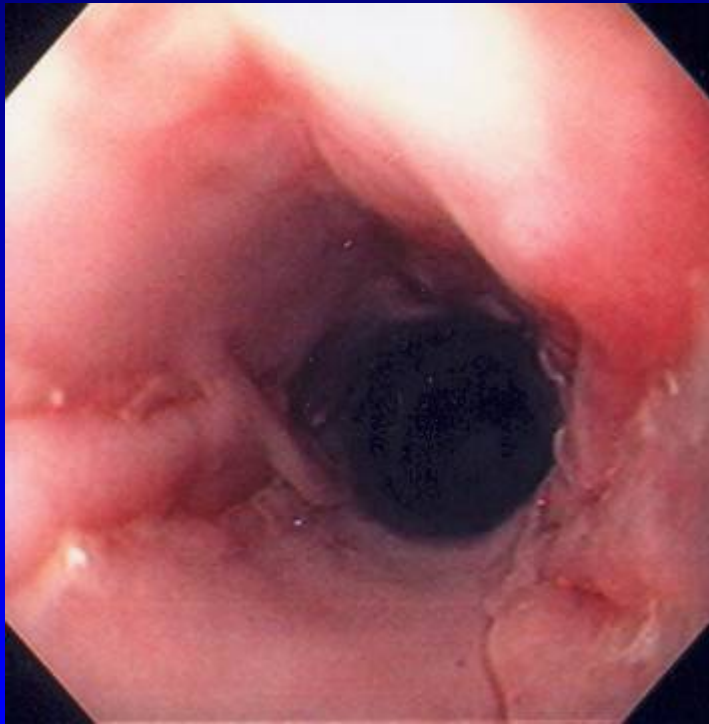


**Before Dilation**



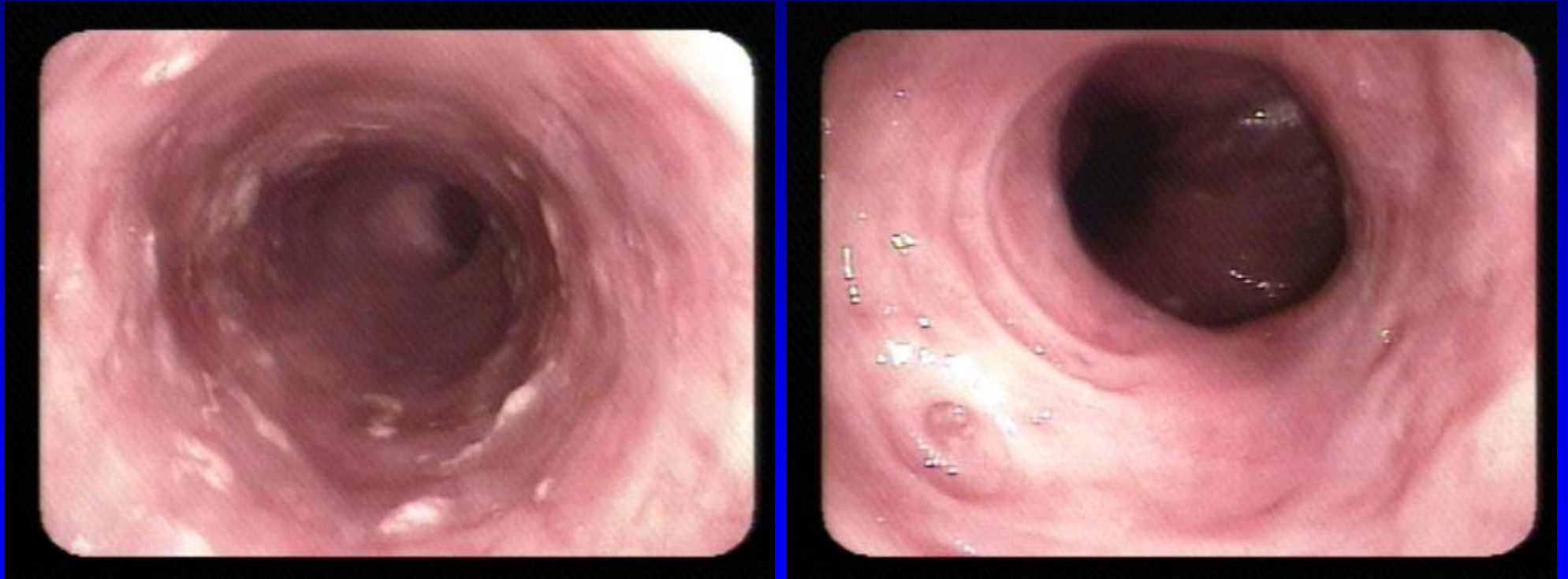
**After Dilation**

**36 yr old female with dysphagia, patient  
of Dryden but he is out of town**



Crohns of the esophagus

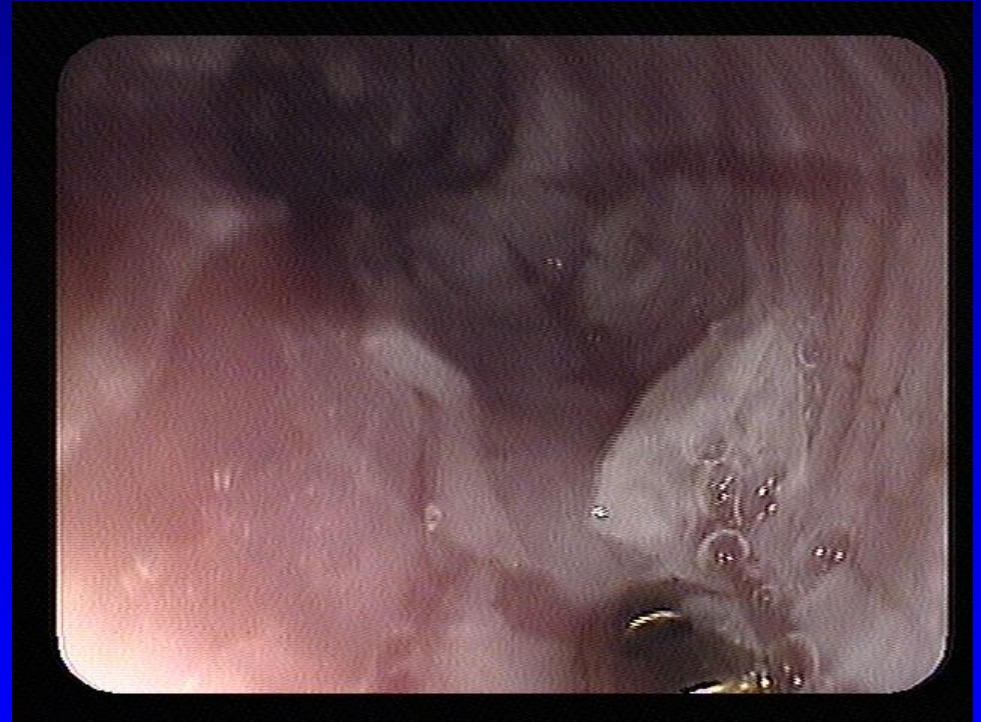
# 42 yr old female with dysphagia with h/o AIDS



Pseudo-diverticulum from past CMV esophagitis

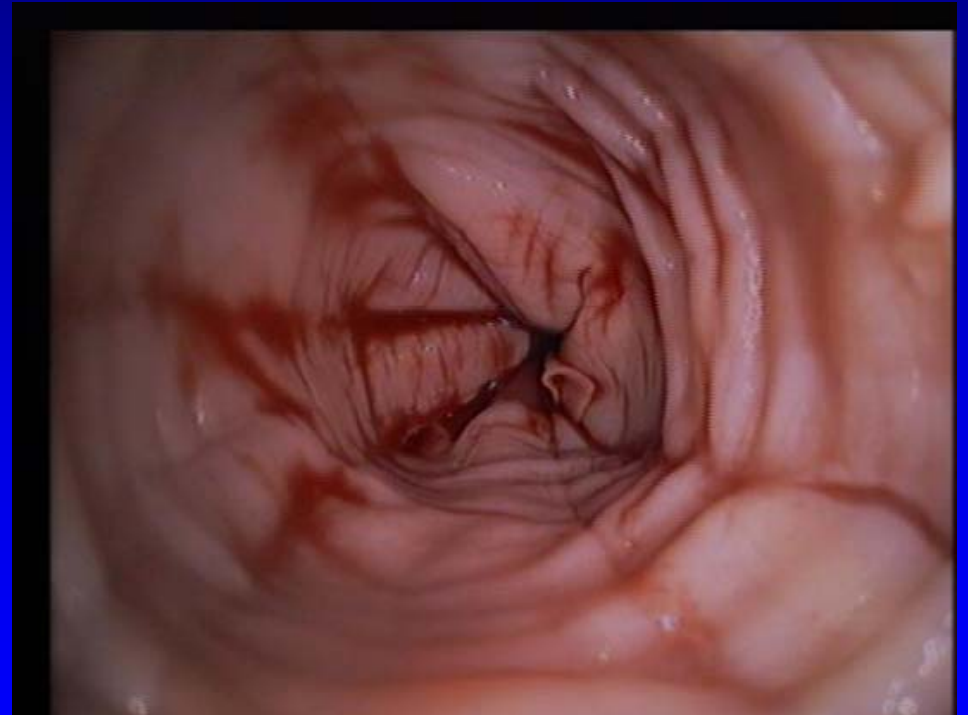
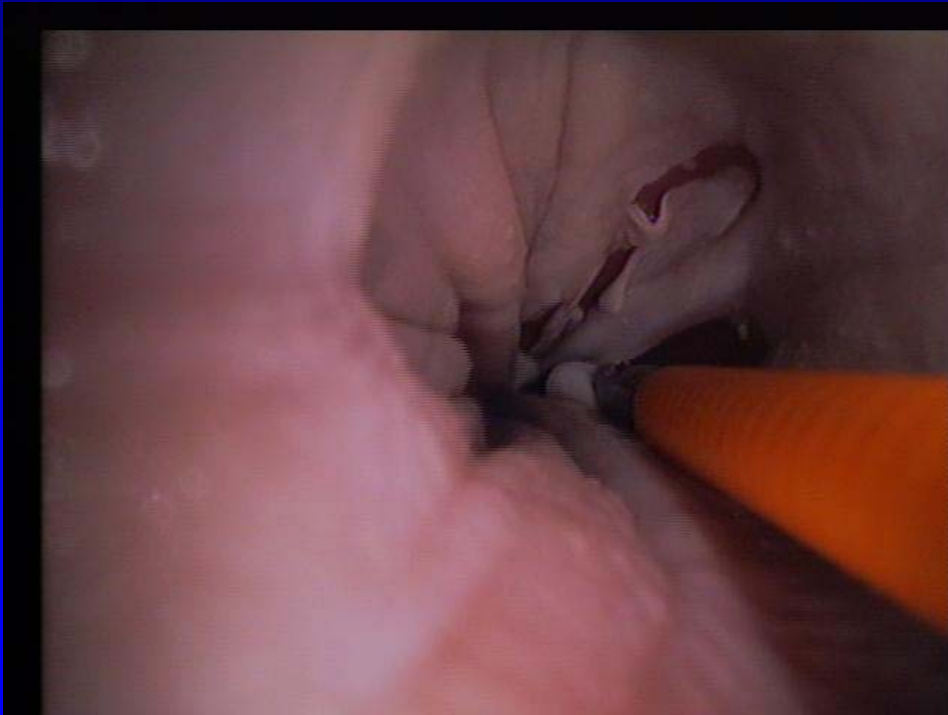


# 37 yr female with progressive odynophagia and dysphagia



**Mucosal Sloughing (Esophagitis Dissecans Superficialis)**

# Mucosal Sloughing (Esophagitis Dissecans Superficialis)





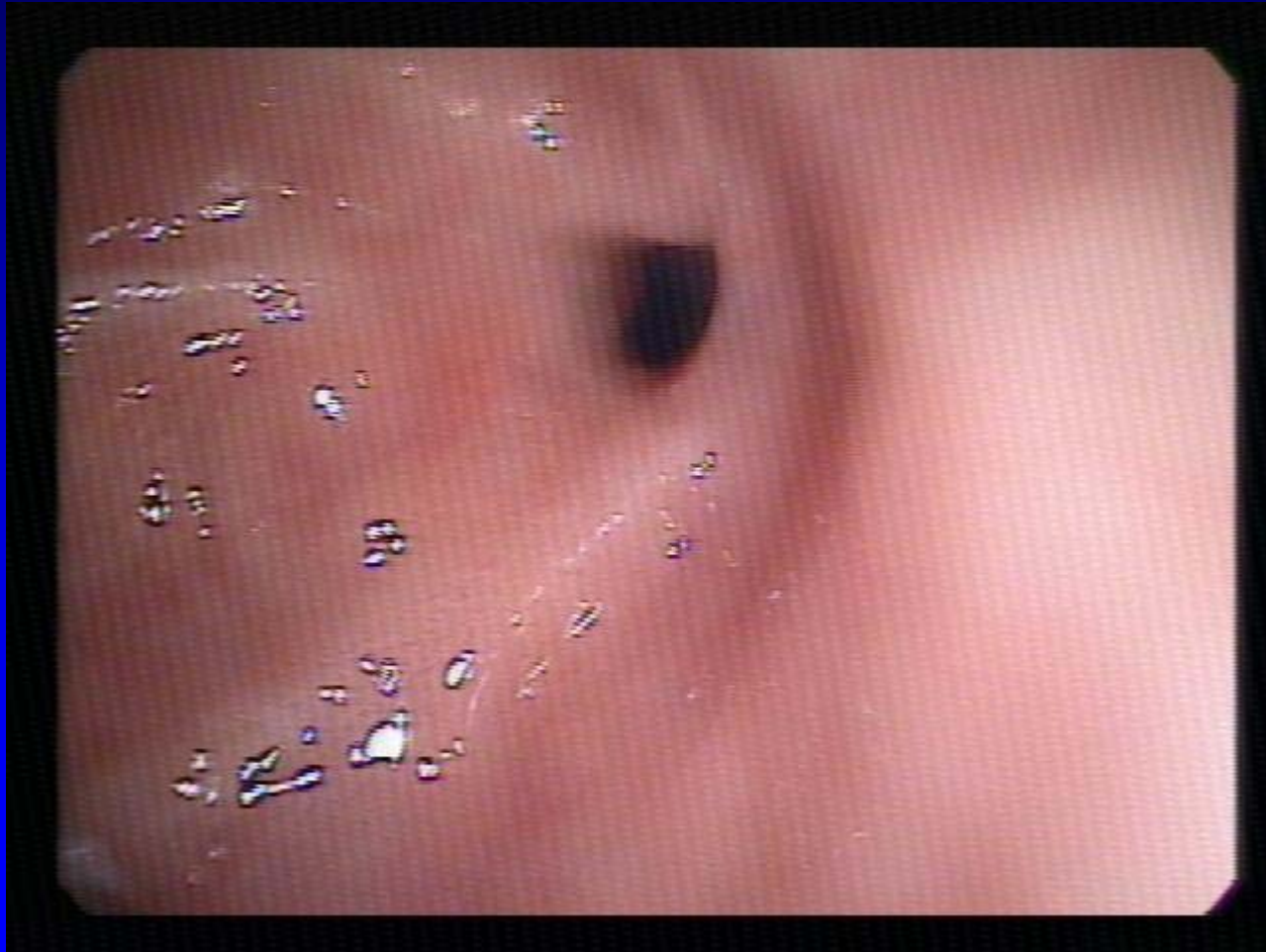
# 21 yr old nursing student with acute odynophagia



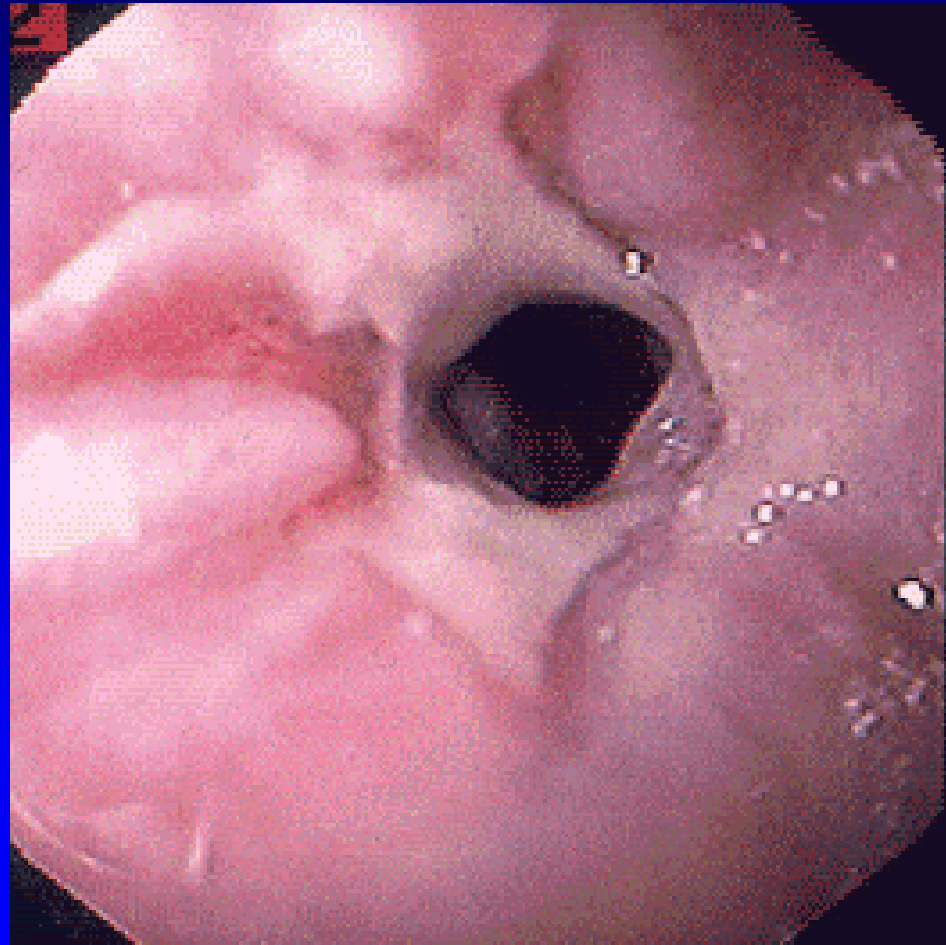
Pill esophagitis from doxycycline

# EGD for Dysphagia

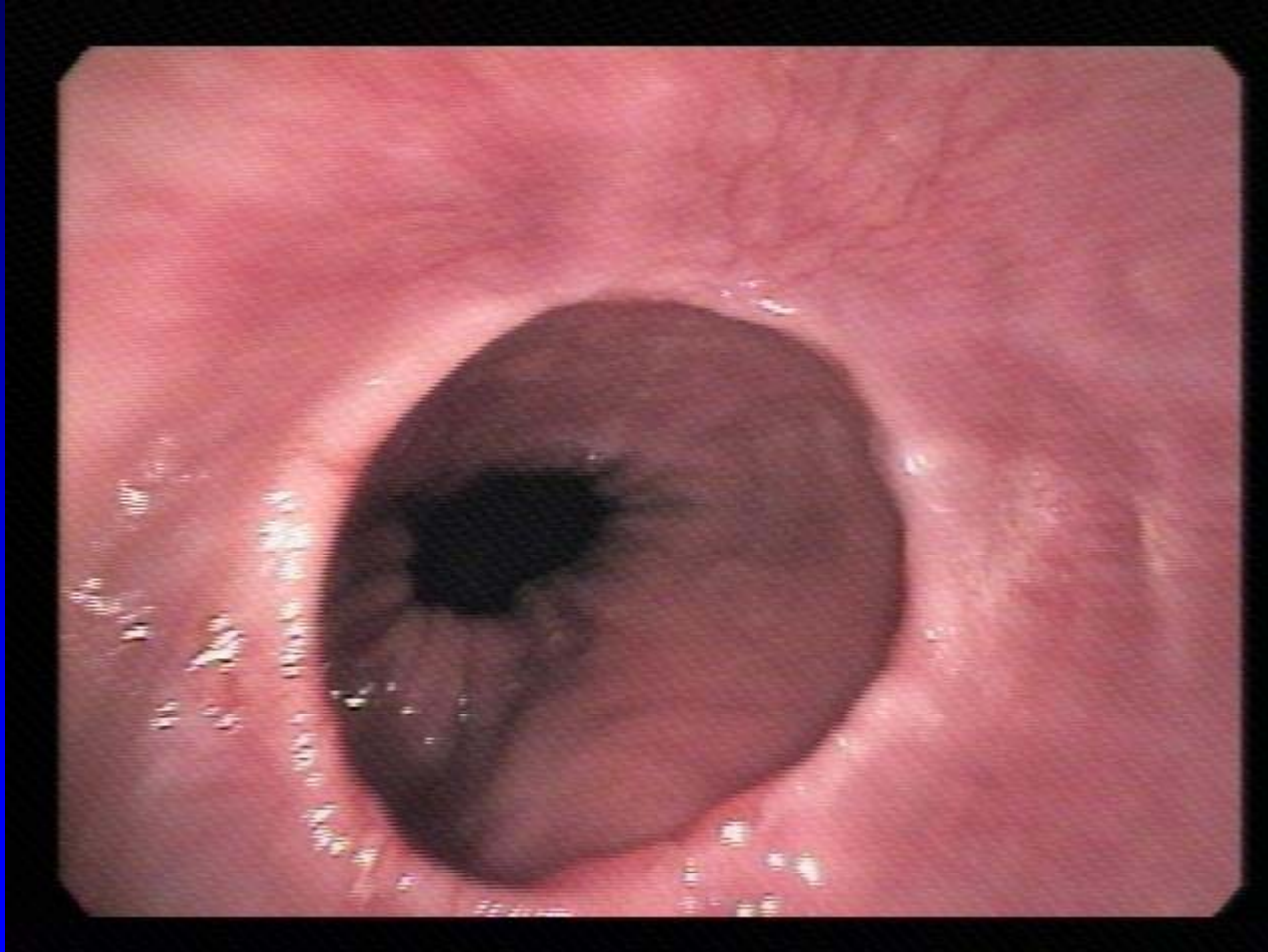
# Esophageal Stricture



# GEJ Peptic Stricture

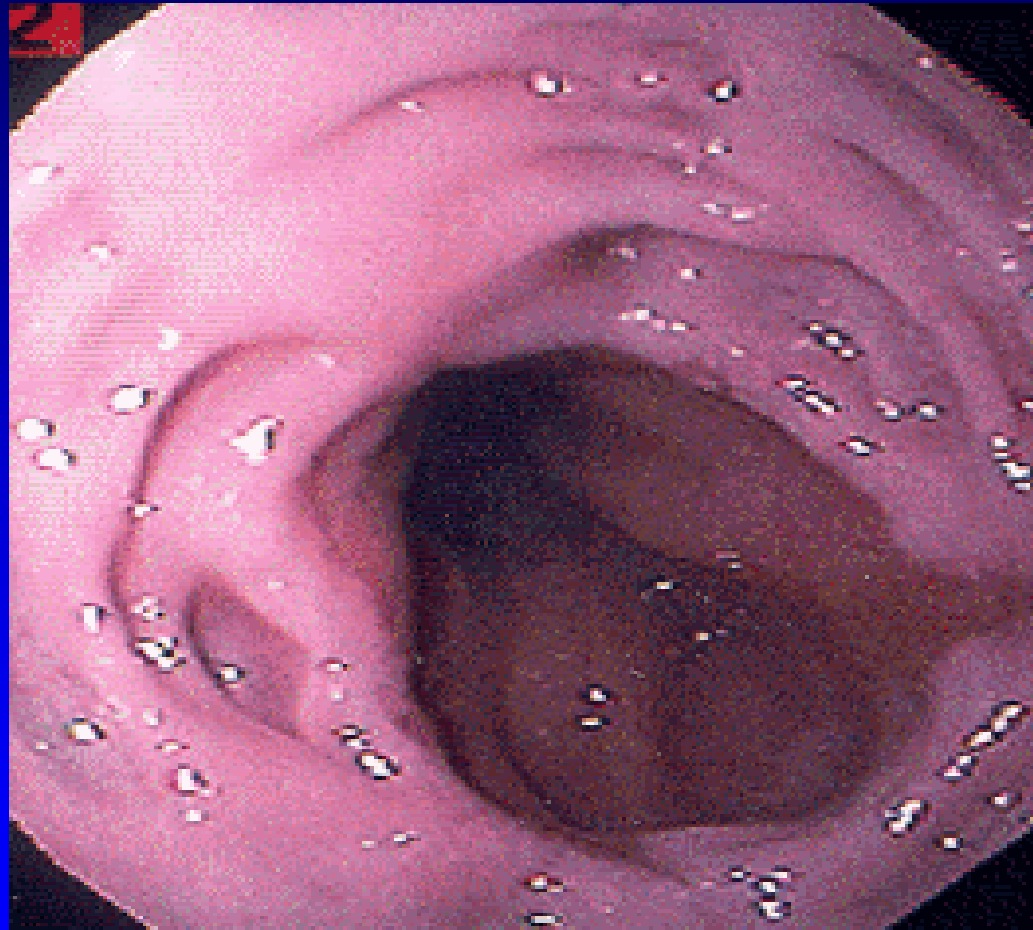


# **50 yr old doctor with dysphagia attending a drug dinner Ruth Chris's Steak House**



**Schatzki's Ring (Peptic Stricture)**

# 42 yr old policeman with dysphagia



Esophageal stricture and scarring from chronic GERD



# 82 yr old male with chronic intermittent dysphagia and chest pain



“Cork screw esophagus” or type III achalasia or esophageal spasm



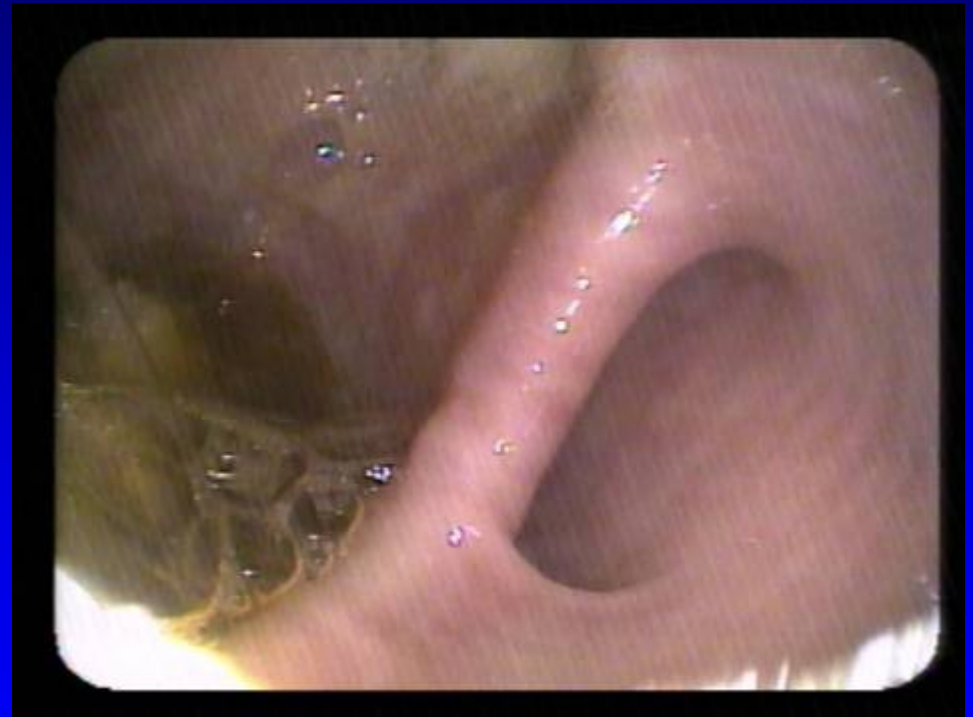
# Esophageal Spasm



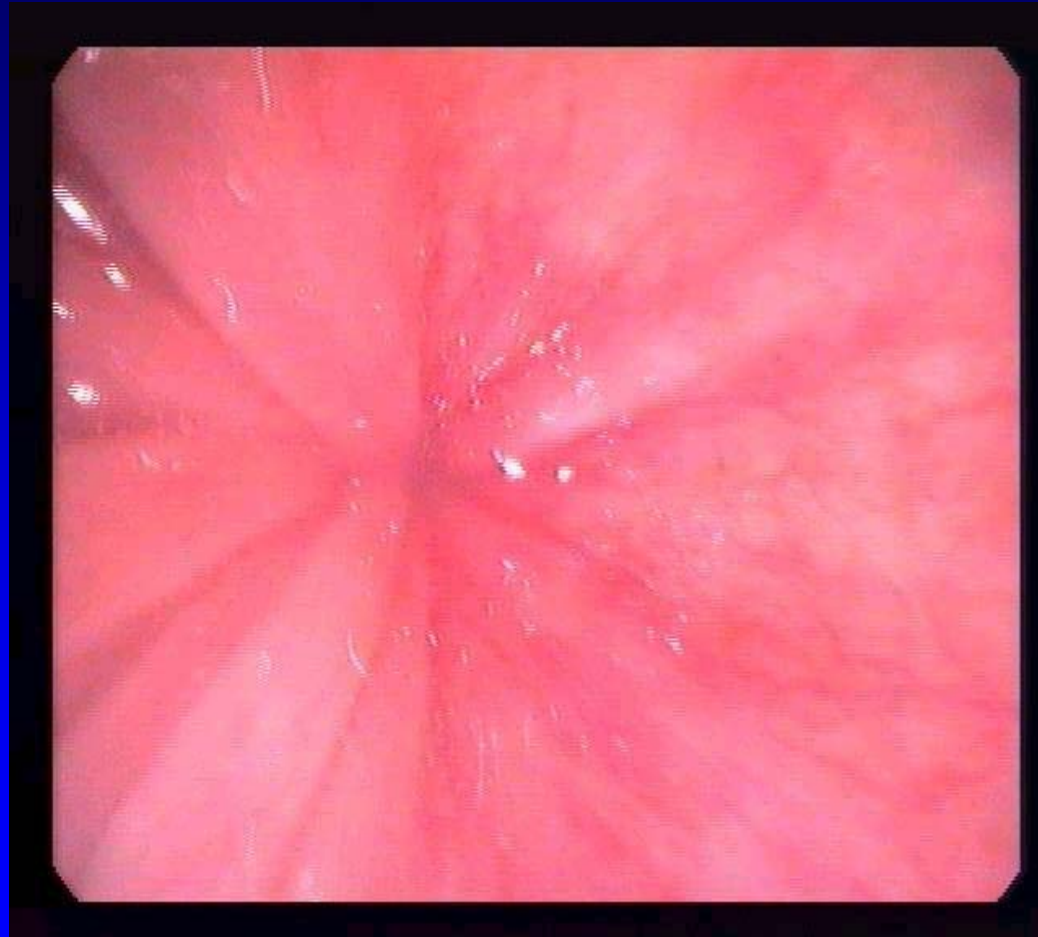
# Mid Esophageal Diverticulum



# Esophageal Diverticulum



# 60 yr old male with dysphagia to liquids and solids



Achalasia

# Achalasia: Esophageal Stasis



# Achalasia with Esophageal Stasis





# Extrinsic Compression

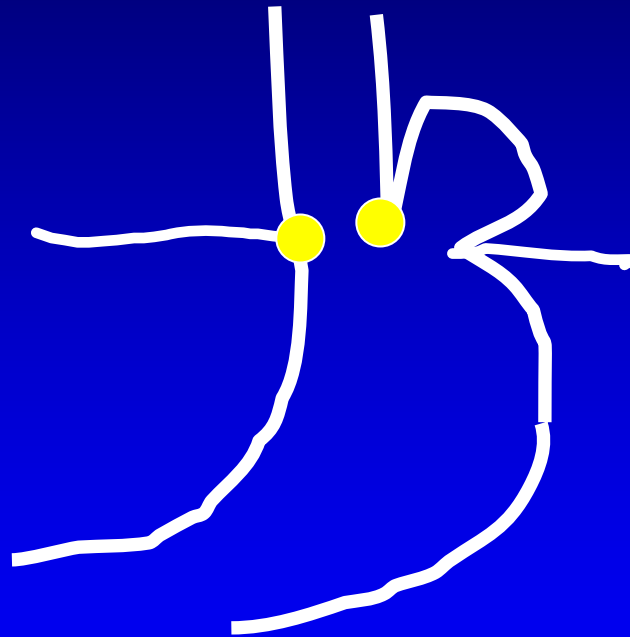


# Hiatal Hernias

# Types of Hiatal Hernias



**Type 1: Sliding**

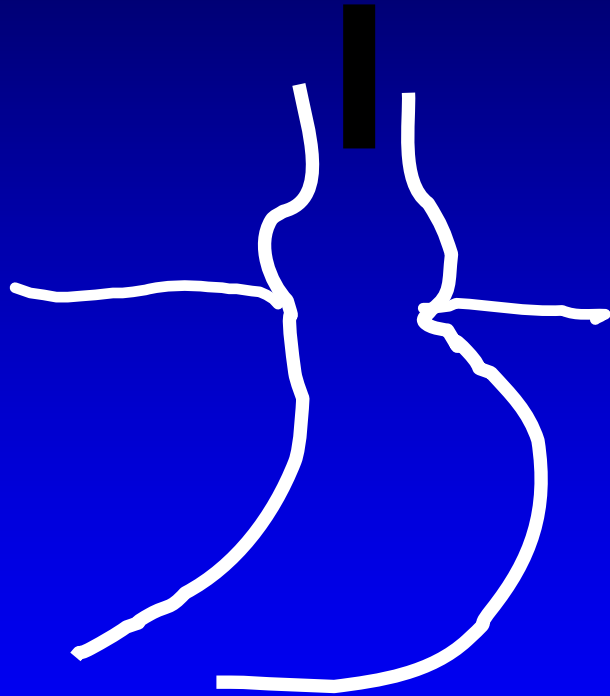


**Type 2: True  
Paraesophageal**

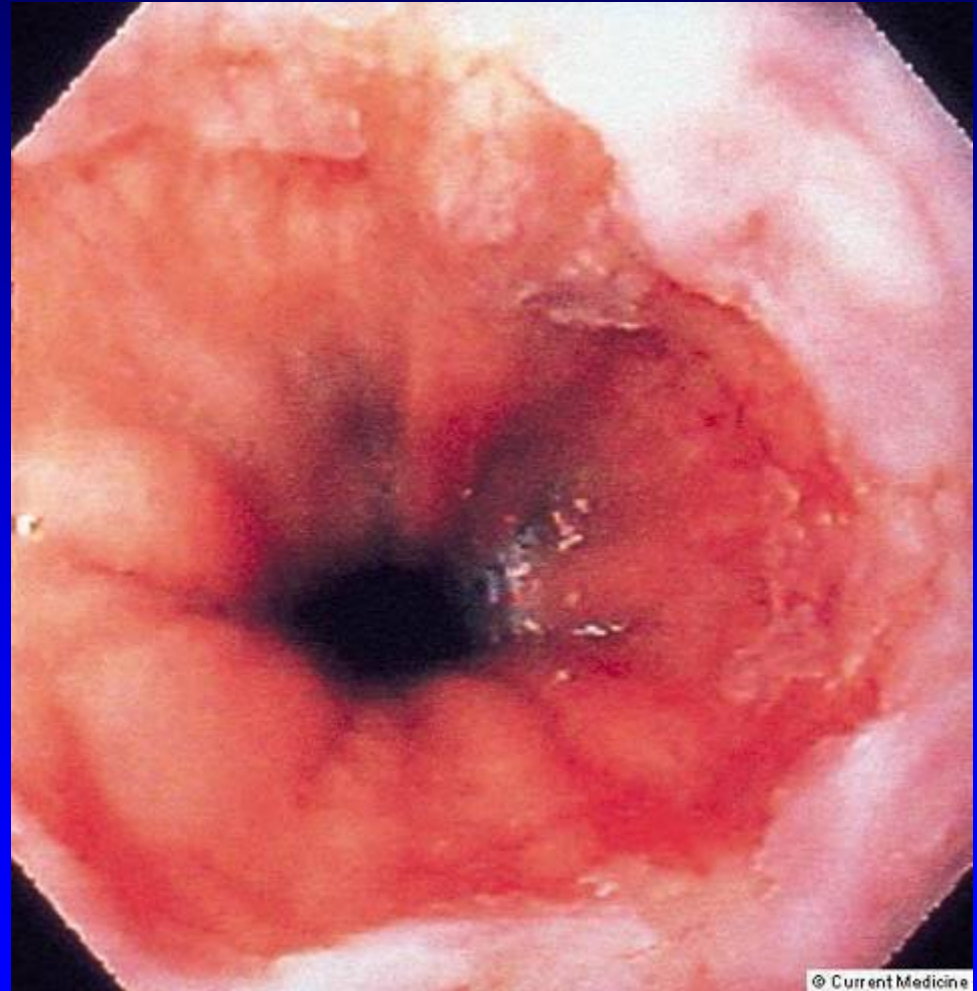


**Type 3: Mixed  
Paraesophageal**

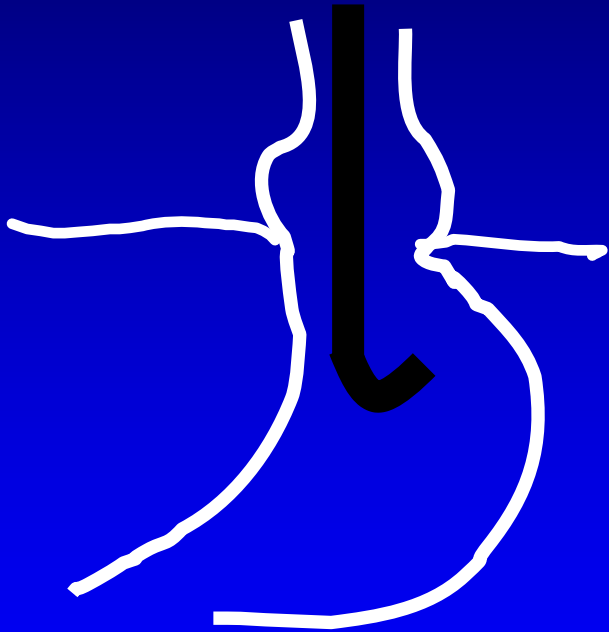
# Type 1: Sliding Hiatal Hernia



Type 1: Sliding



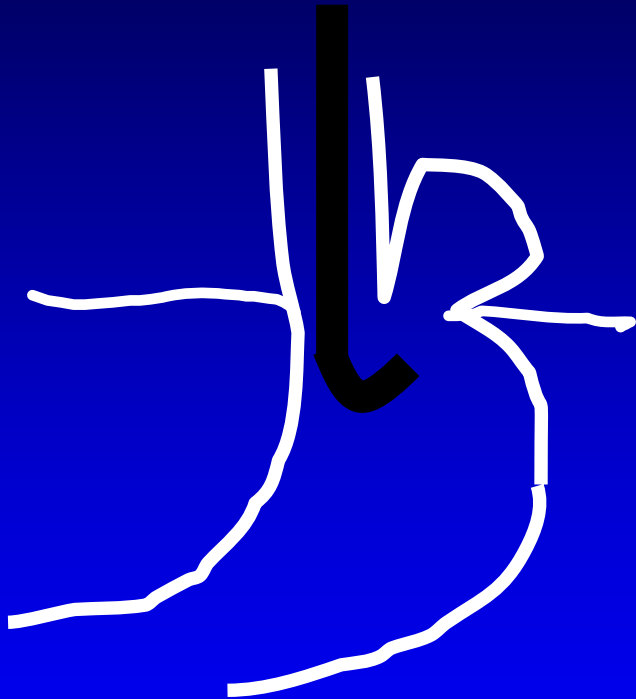
# Type 1: Sliding Hiatal Hernia



Type 1: Sliding



# Type 2: True Paraesophageal Hernia

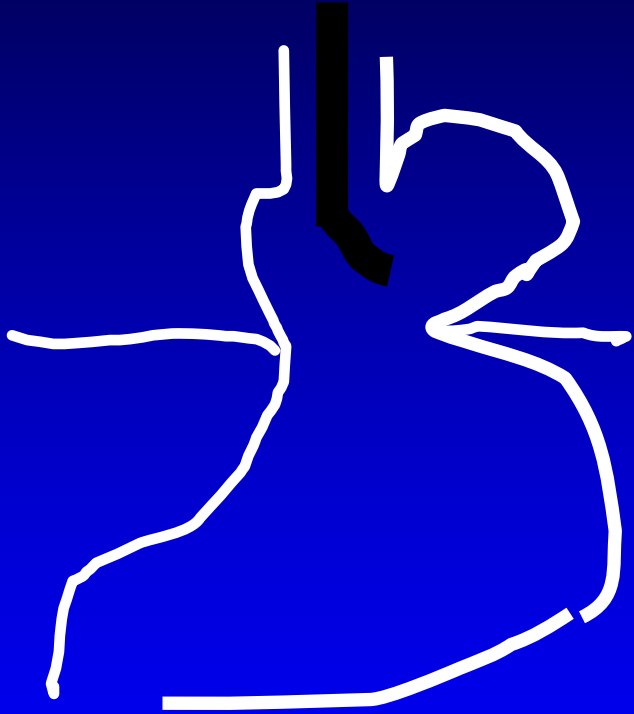


**Type 2: True  
Paraesophageal**





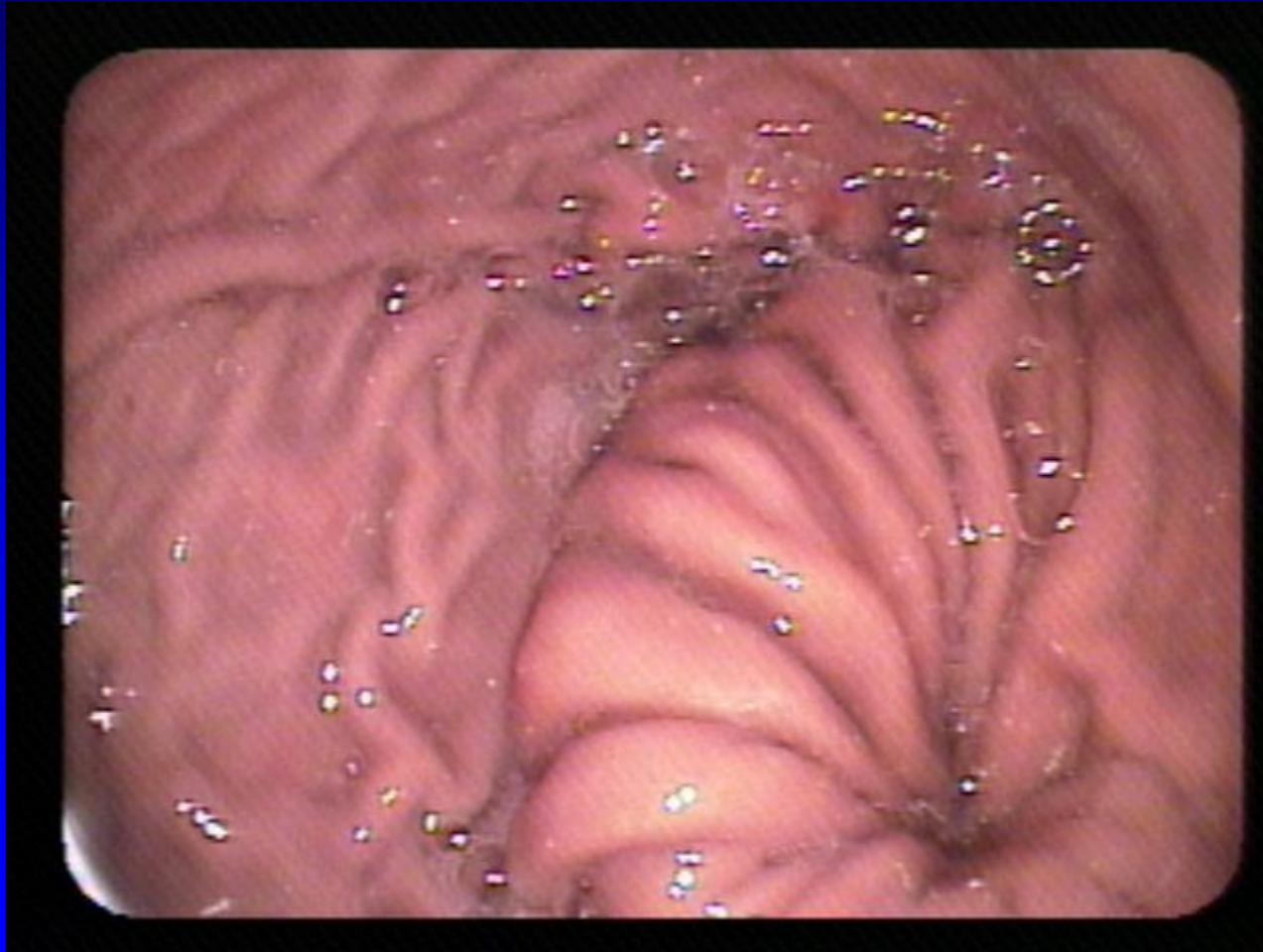
# Type 3 Mixed Paraesophageal Hernia



**Type 3: Mixed  
Paraesophageal**

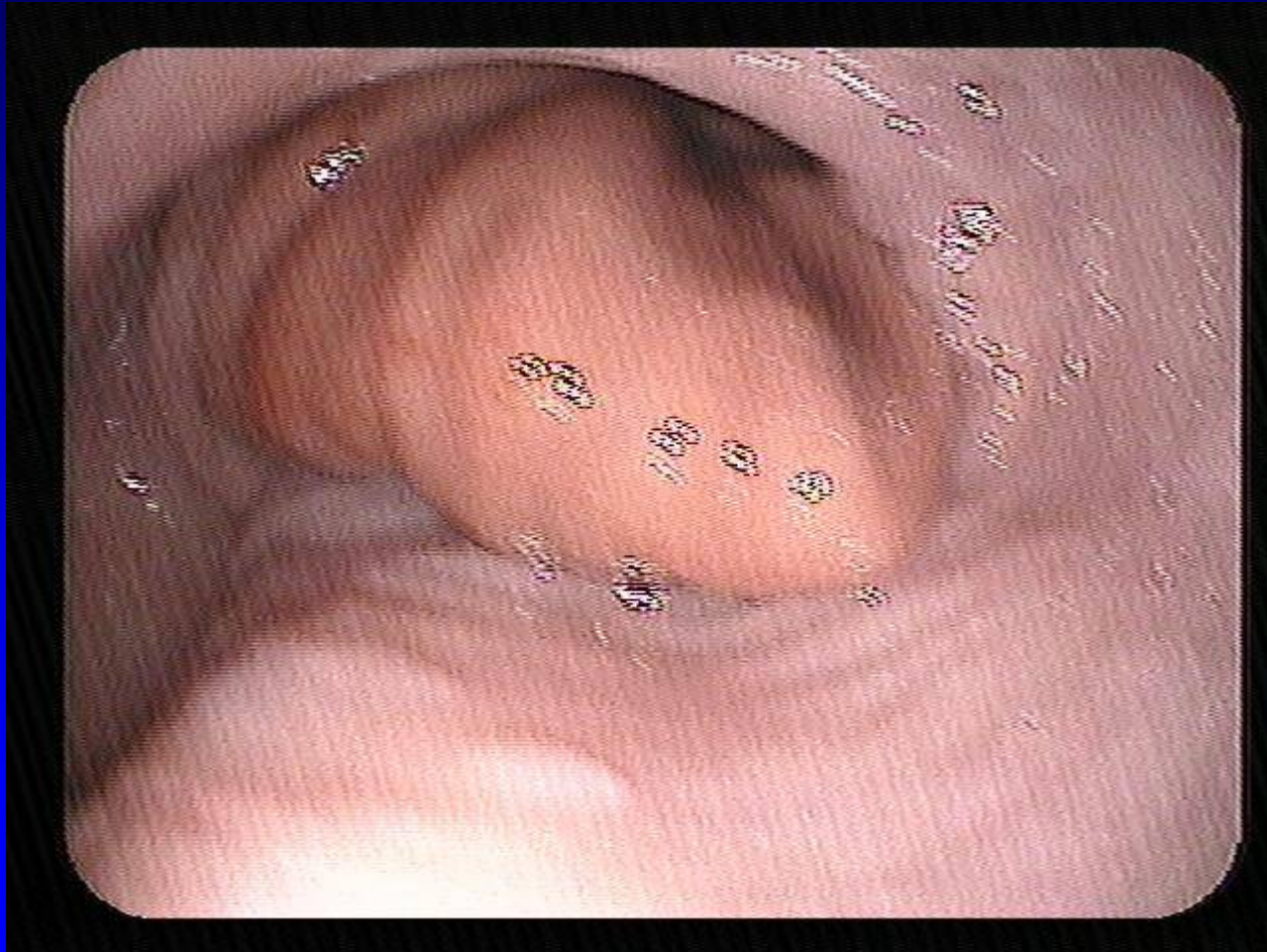


**65 yr old female with acute vomiting  
and postprandial chest pain**



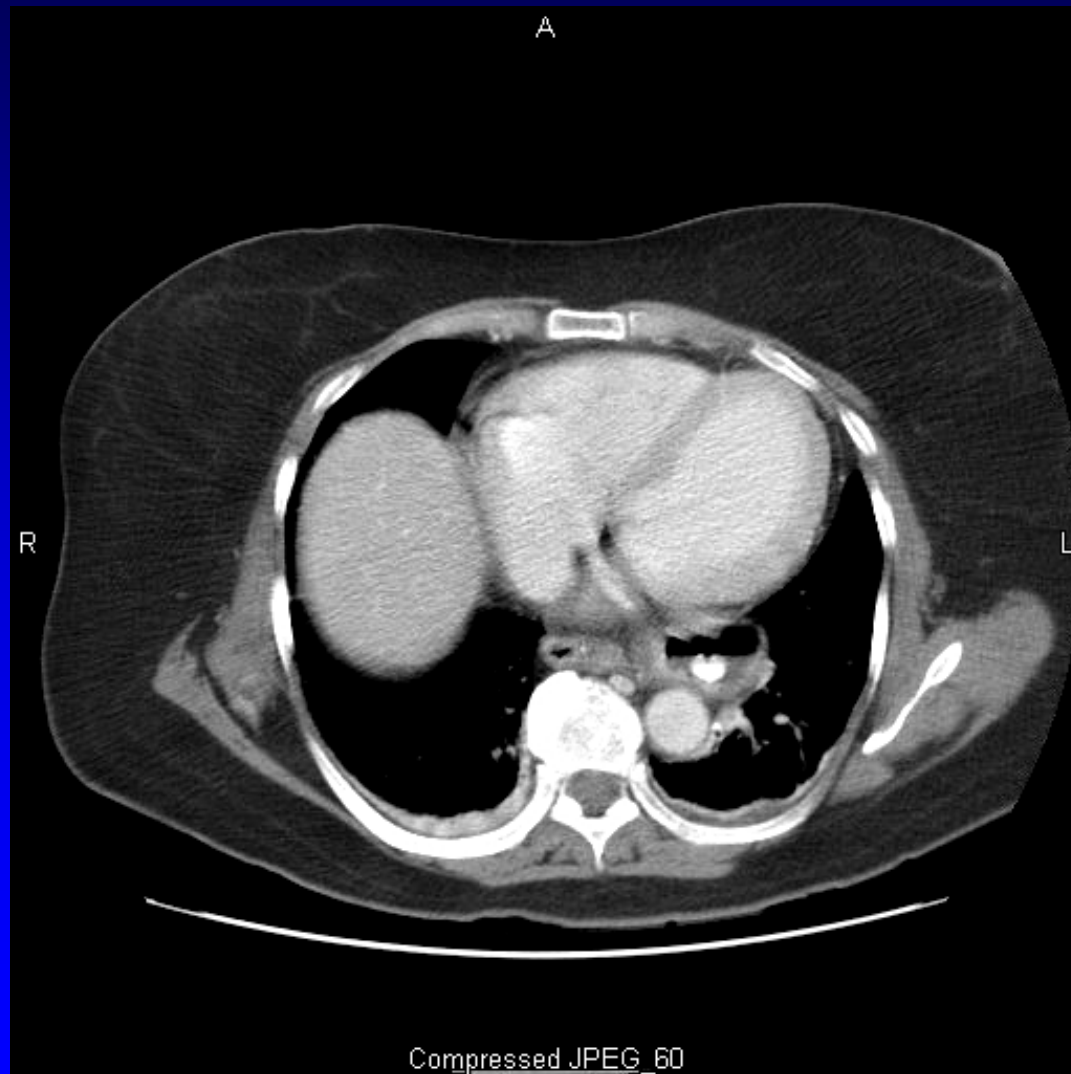
**Type 3 Mixed Paraesophageal Hernia**

# 50 yr old male with nocturnal choking



**Prolapsing paraesophageal hernia**

# Paraesophageal Hernia



# EGD for Dyspepsia

“Scope and sign off”

OR

“Patient needs a doctor, not an endoscopist”



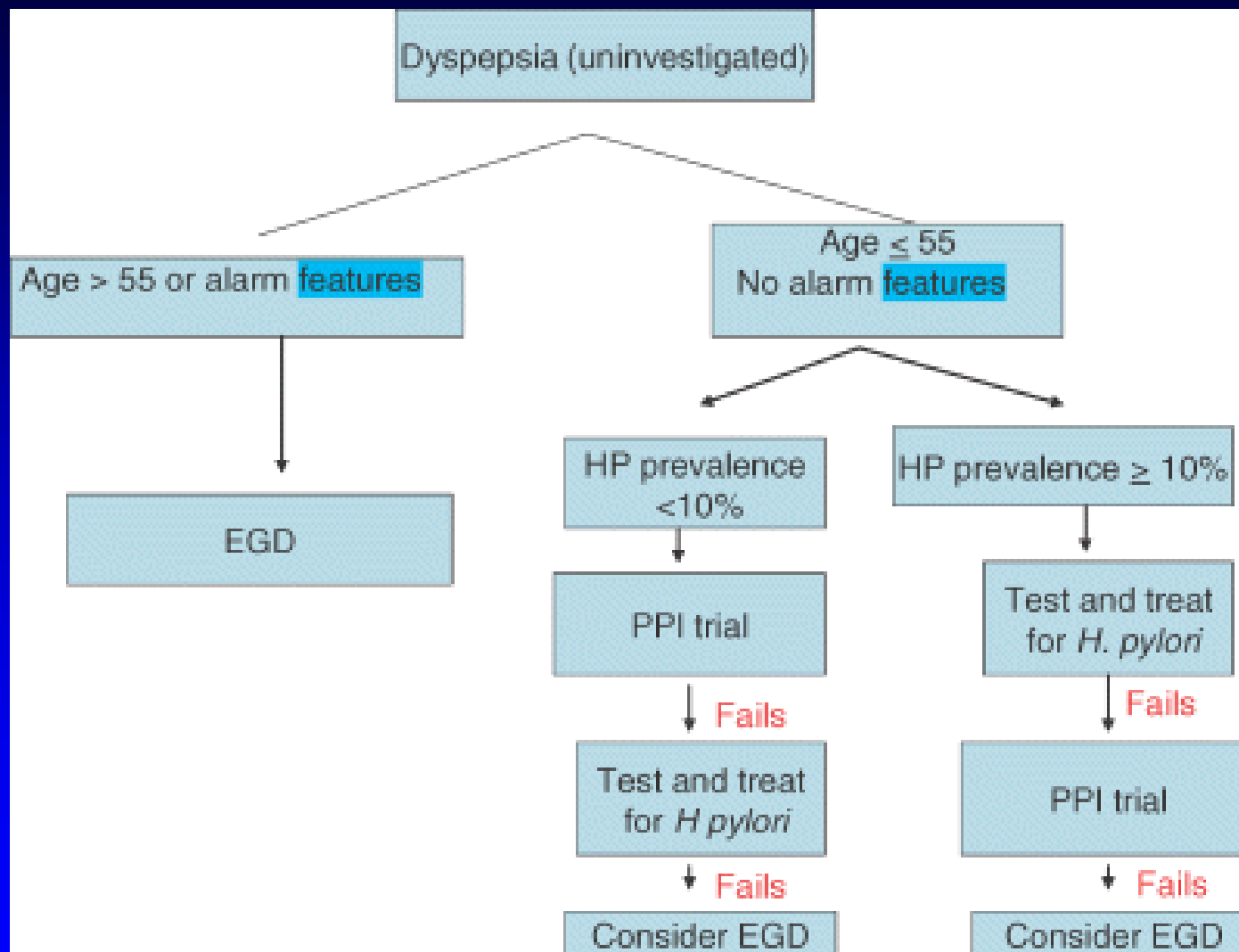
**Uninvestigated dyspepsia**

**vs.**

**Investigated dyspepsia**

**(functional, non-ulcer or  
endoscopy-negative dyspepsia)**

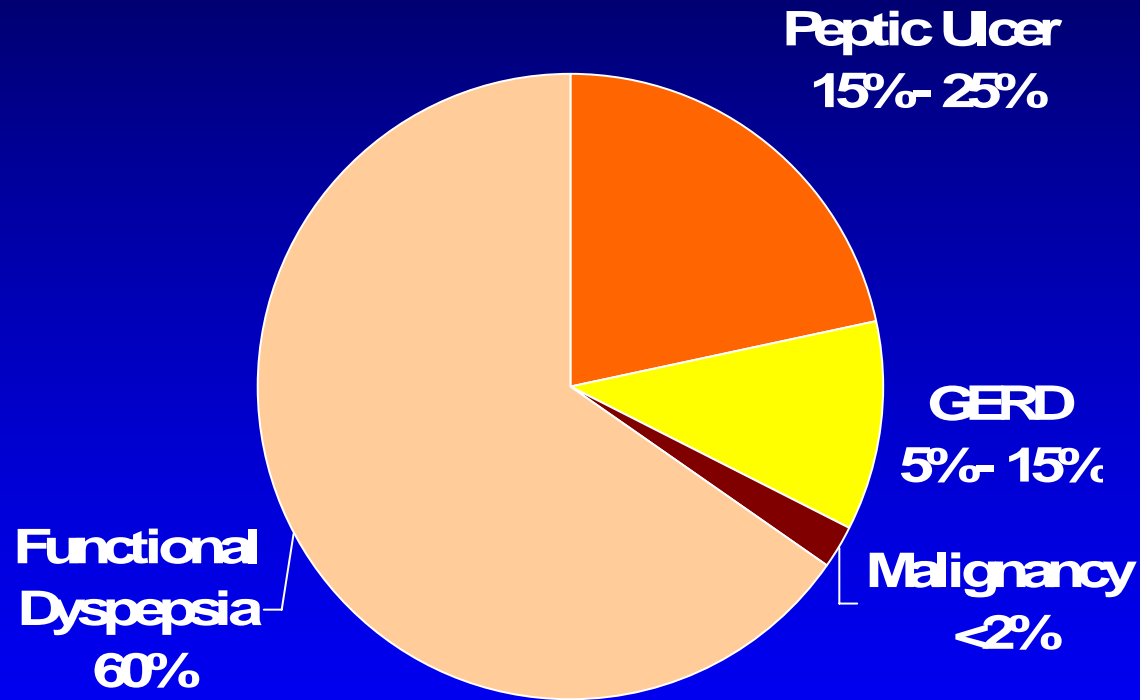




# Alarm Features of Dyspepsia

- New onset at age >55 years
- Unexplained weight loss >10%
- Progressive dysphagia
- Gastrointestinal bleeding
- Iron deficiency anemia
- Persistent vomiting
- Previous esophagogastric cancer
- Previous documented peptic ulcer
- Family history of gastrointestinal cancer
- Lymphadenopathy or abdominal mass on exam

# Non-Ulcer (“Functional”) Dyspepsia is Very Common



# EGD: Summary

- What is the indication and what are you looking for?
  - GERD, dysphagia, dyspepsia, others
- Pick the right scope
- “EGD is an Art”