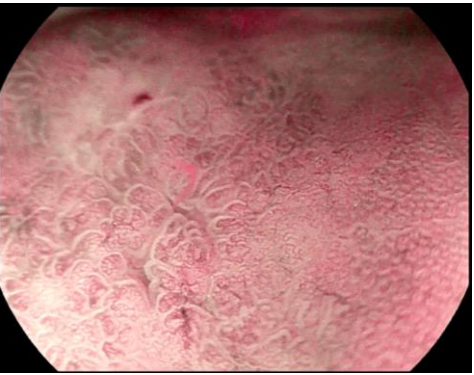


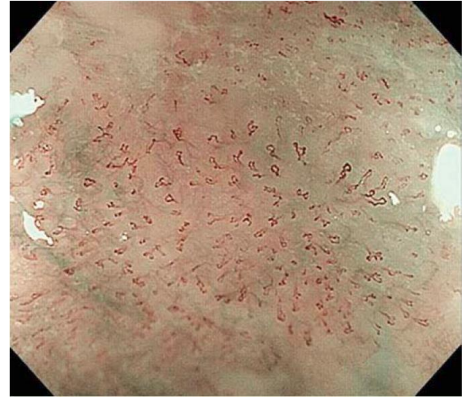
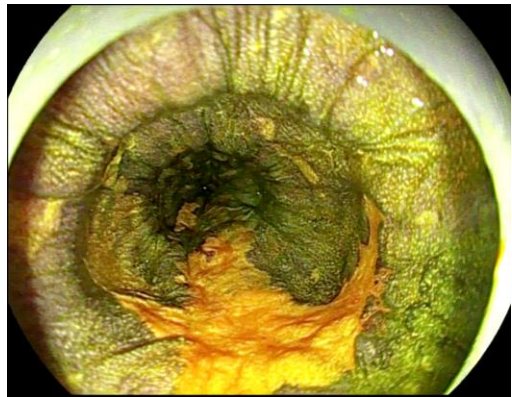
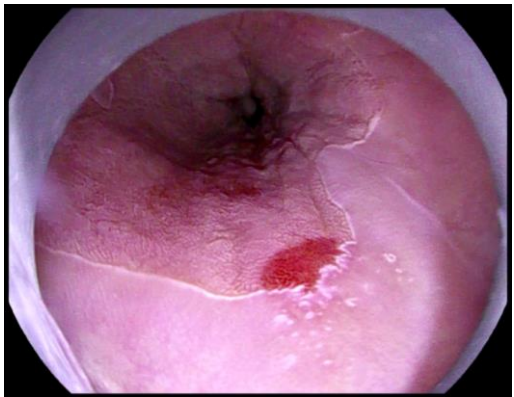
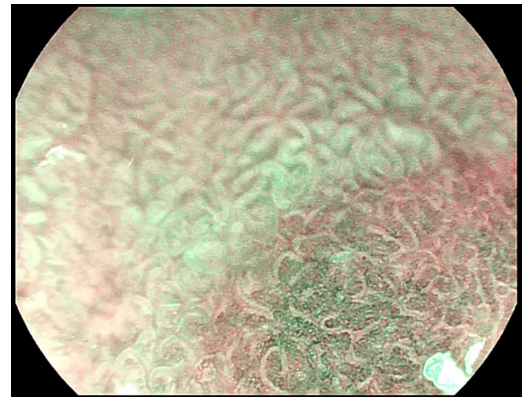
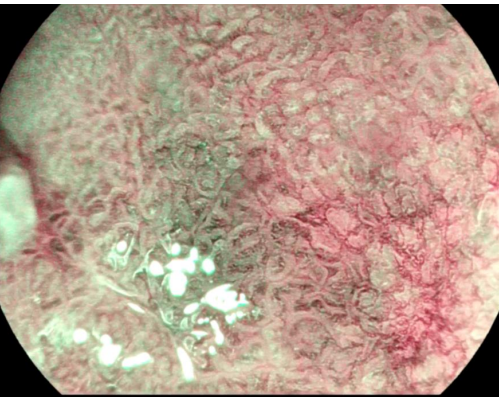
High Quality Gastroscopy



Banff Endoscopy Skills Conference



Robert Bechara MD FRCPC
Gastroenterology and Advanced Therapeutic Endoscopy
Kingston Health Sciences Centre



Faculty/Presenter Disclosure

- **Presenter:** Robert Bechara
- **Relationships that may introduce potential bias and/or conflict of interest:**
 - **Grants/Research Support:** Pentax
 - **Speakers Bureau/Honoraria:** Olympus
 - **Consulting Fees:** Olympus
 - **Other:**

Objectives

- Review the benefits of using image enhanced endoscopy to improve diagnostic yield in gastroscopy
- Outline key principles and landmark recognition in performing a high quality gastroscopy

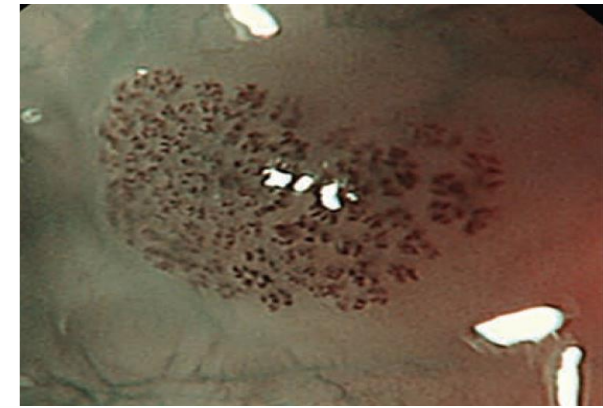
Outline

- Pharynx
 - Landmarks, mucosa and tips for endoscopic exam
- Esophagus
 - Landmarks, tips for endoscopic exam
- Stomach
 - Landmarks, mucosa (see gastric polyps talk), tips for endoscopic exam
- Duodenum

Luminal Anatomy-The pharynx:

- Nasopharynx
- **Oropharynx**
- **Hypopharynx**

Squamous Neoplasia: Image Enhanced Endoscopy



Characterization/prediction of depth

IPCL (intrapapillary capillary loops) introduced in 1997 by Dr. Inoue



Arima Classification introduced in 1998 by Dr. Arima



Unified classification by Japanese Esophageal Society 2017

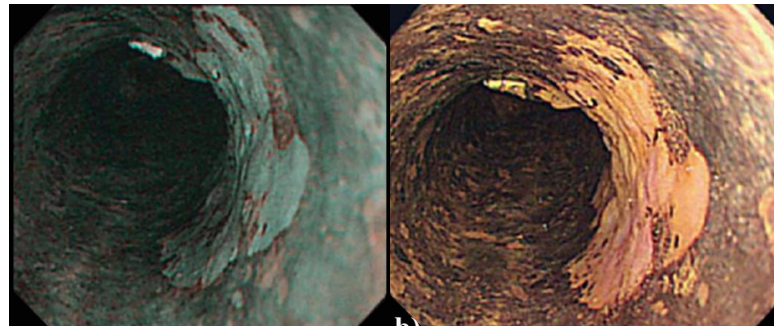
Overall accuracy of 91% with magnifying NBI

Squamous Neoplasia (Pharynx + Esophagus)

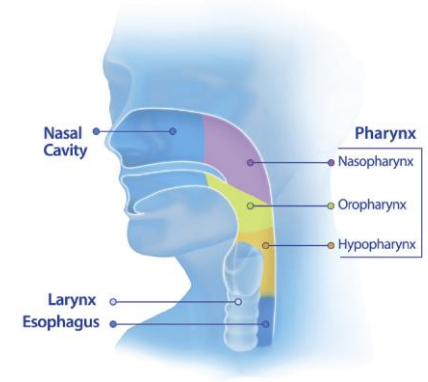
Image Enhanced Endoscopy

Detection

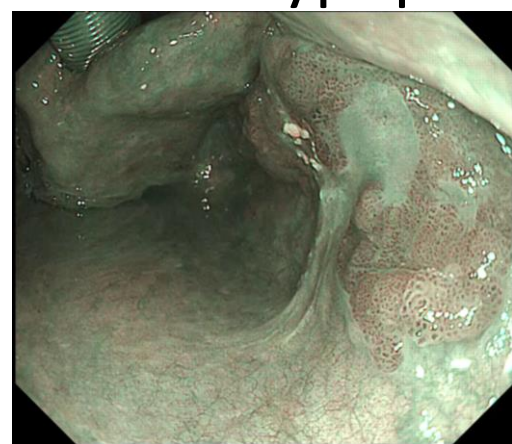
- Multi-center prospective RCT of 320 patients.
 - Diagnostic accuracy of ESCC with NBI vs. WLE: **90.2% vs 55.3%**
- Meta-analysis of 18 studies with >1900 patients.
 - NBI had improved specificity (per lesion analysis) compared with Lugols **65% vs. 37%**



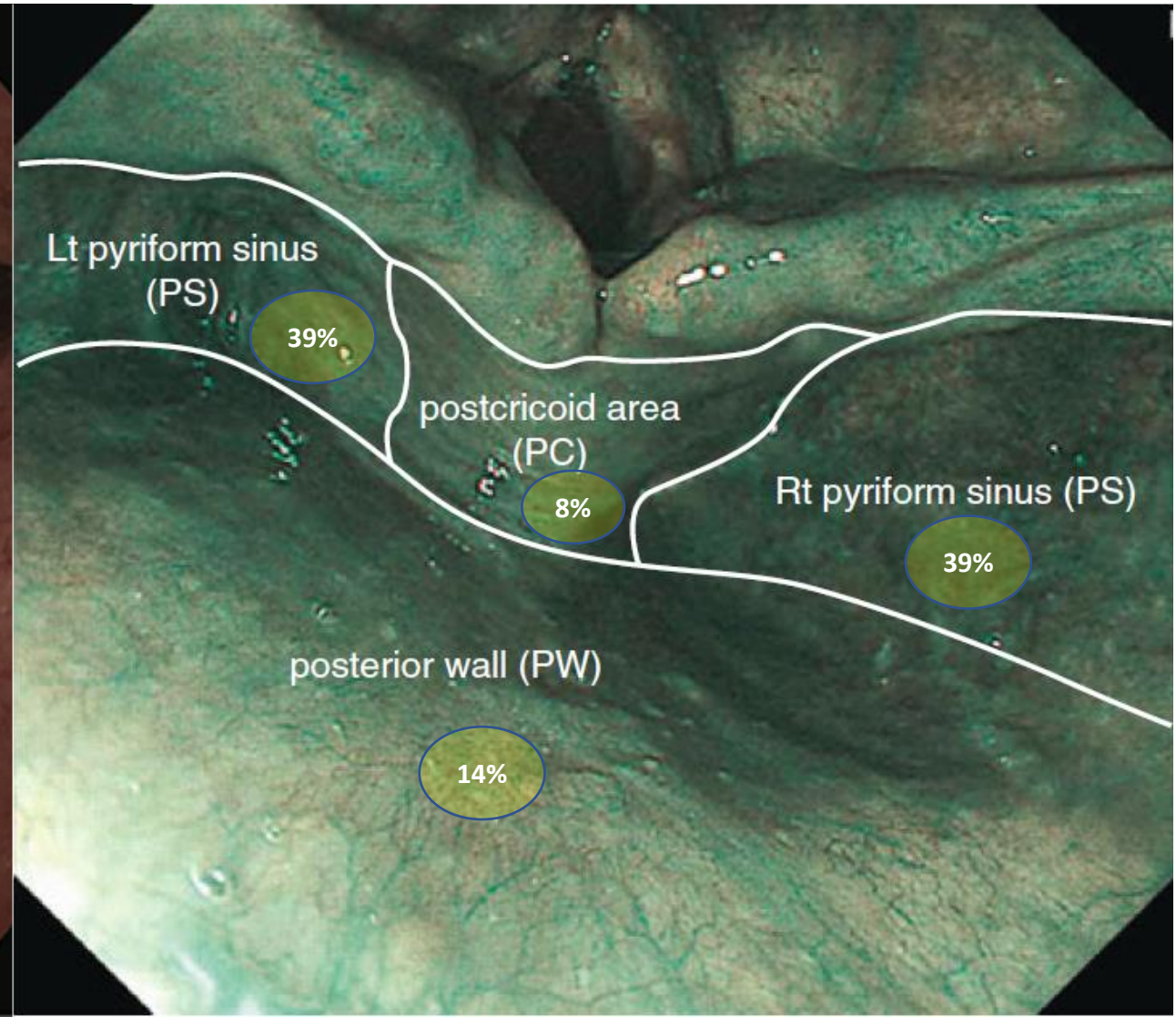
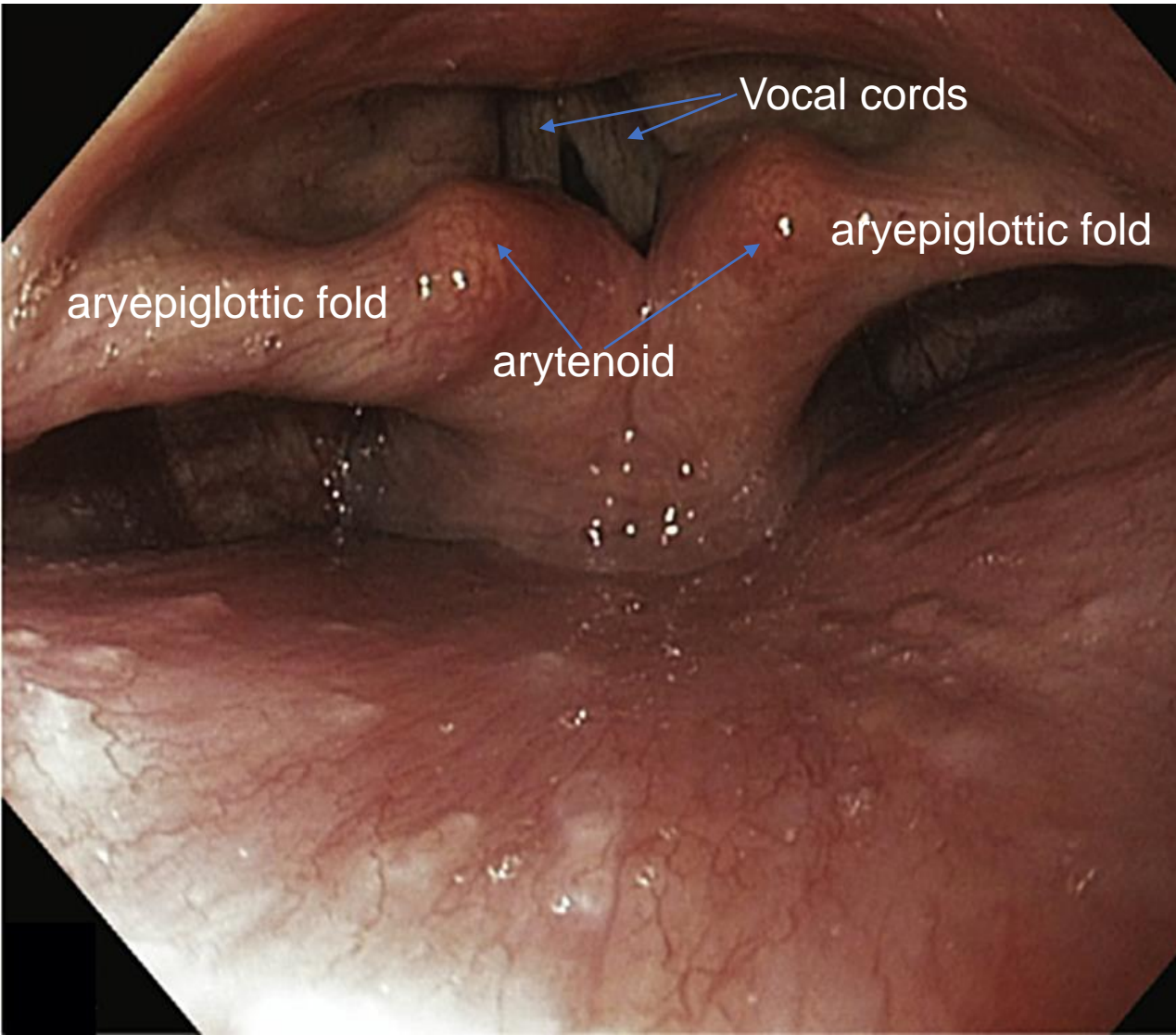
Importance of a thorough exam



- The hypopharynx accounts for ~85% of early oropharyngeal and hypopharyngeal cancers.
- 63% of previously unknown head and neck 1^o cancers originated in the hypopharynx.

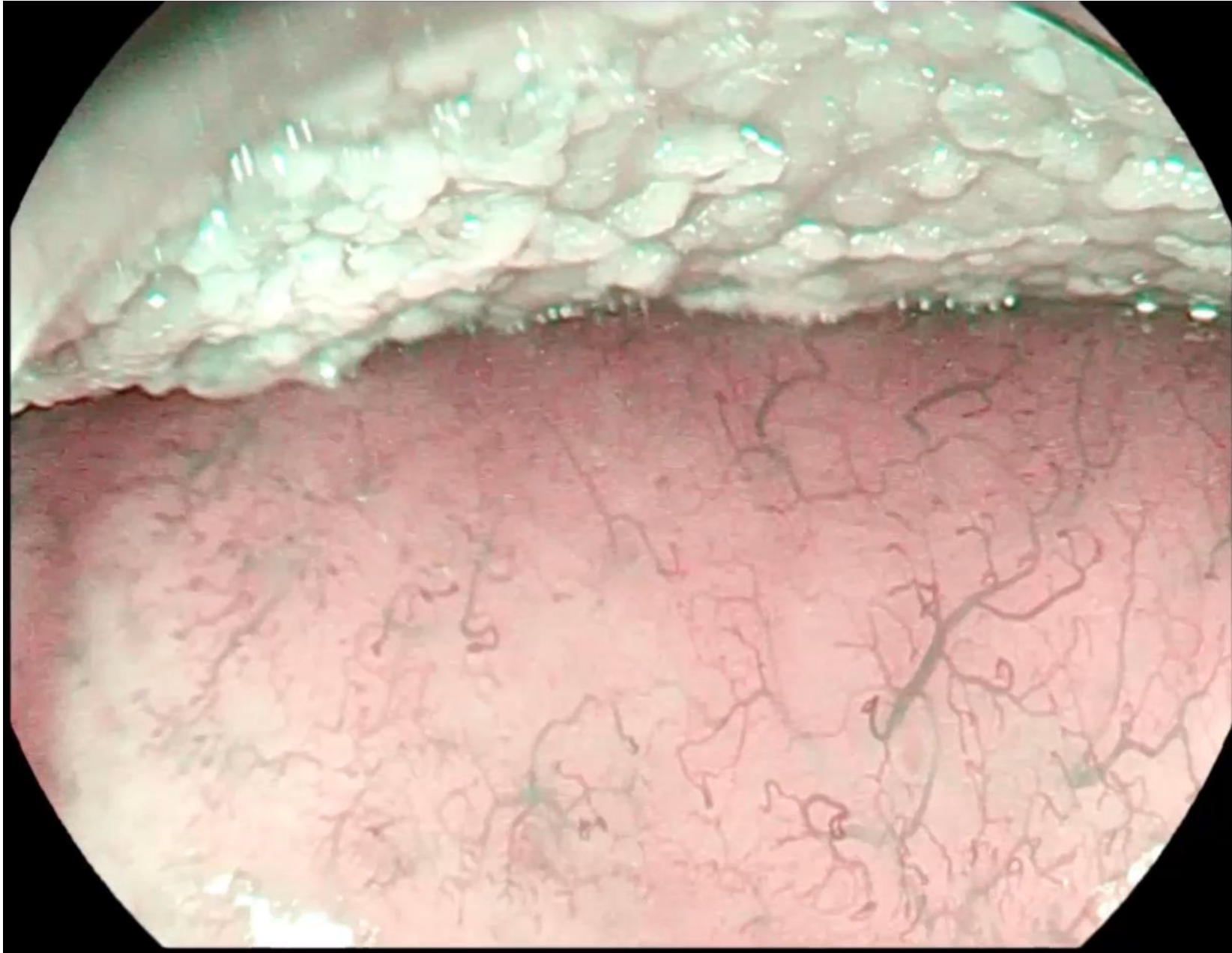


Luminal Anatomy-The hypopharynx



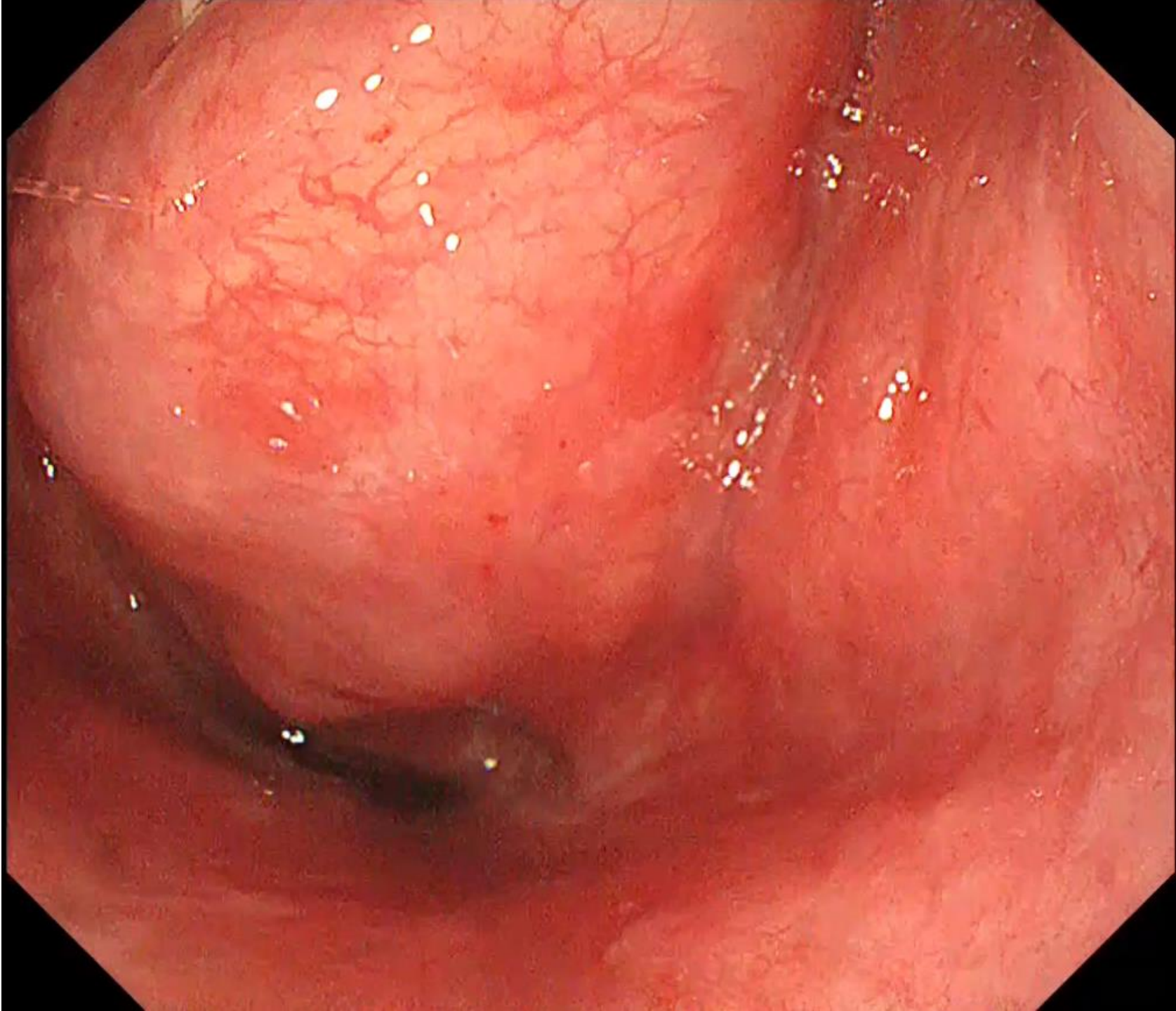
Case 1

67yo man with ETOH cirrhosis presenting for screening EGD.



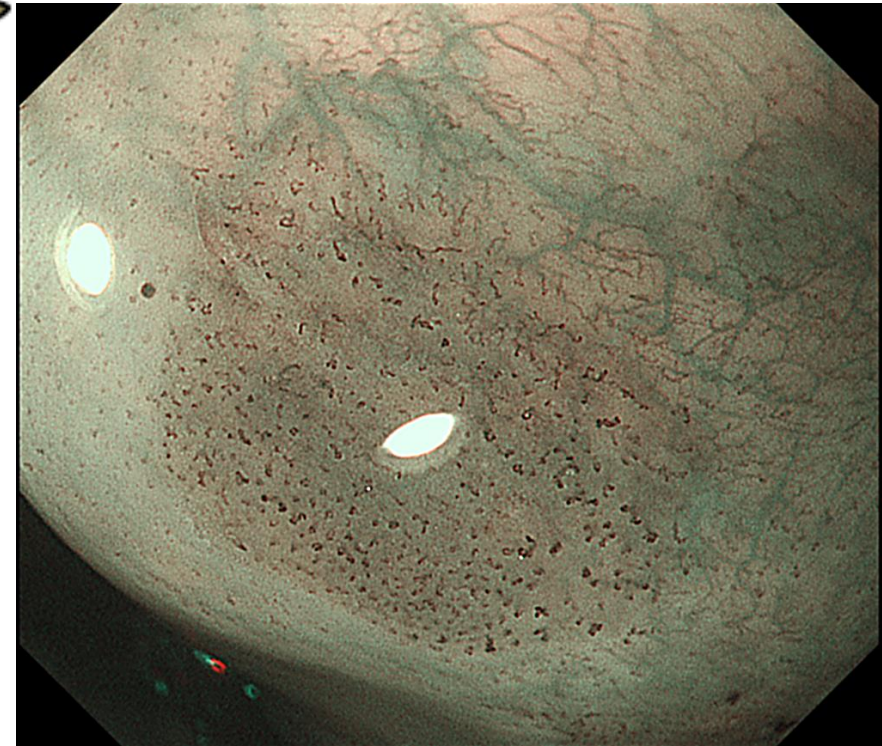
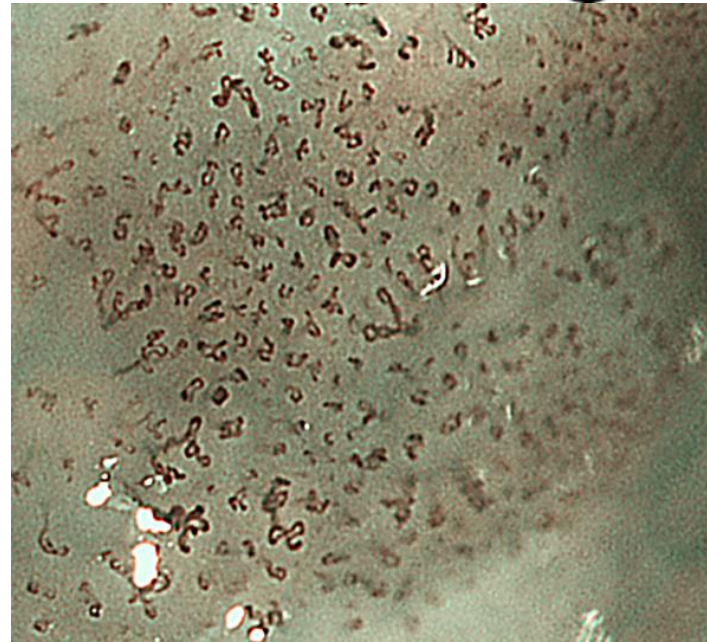
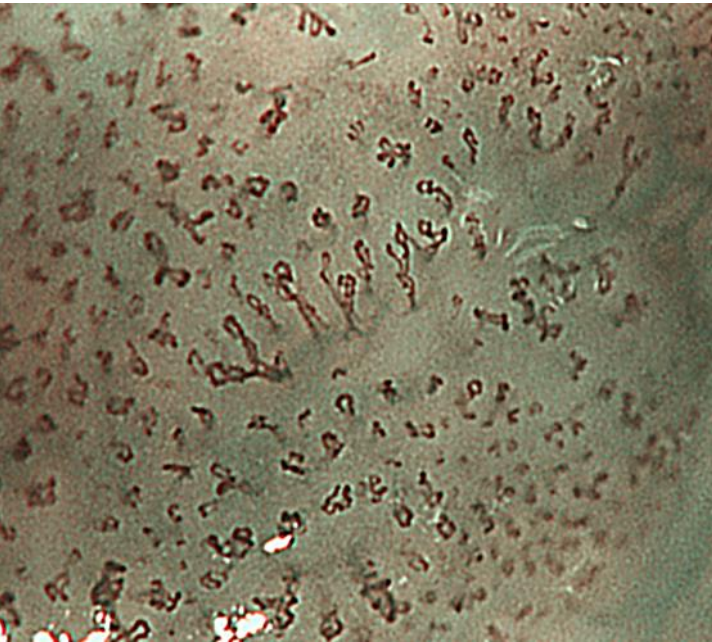
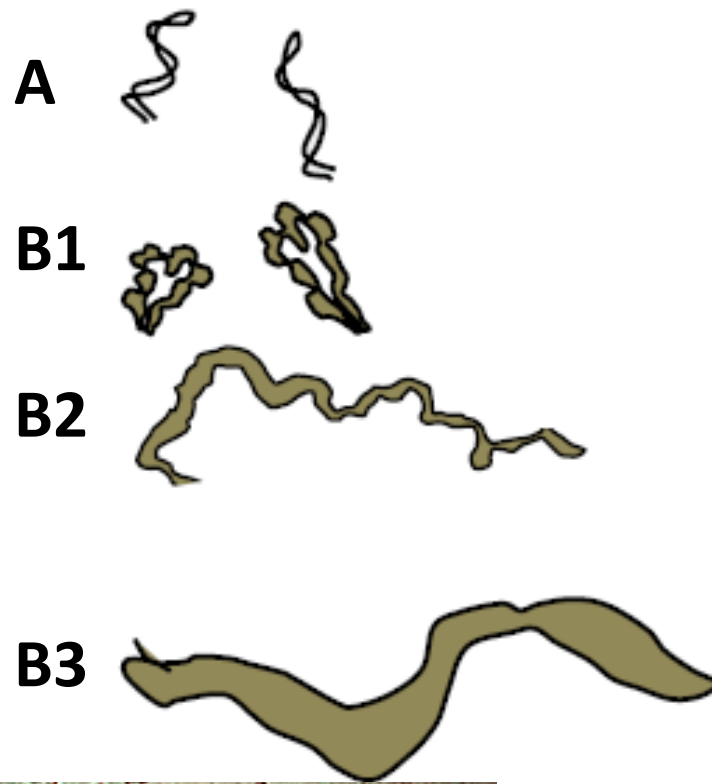
Case 2

54 yo man
with prior
squamous
carcinoma
removed via
ESD in the
esophagus .



Case 2

- A. Non-neoplastic (A)
- B. M1-M2(B1)
- C. M3-Sm1 (B2)
- D. Sm2- (B3)



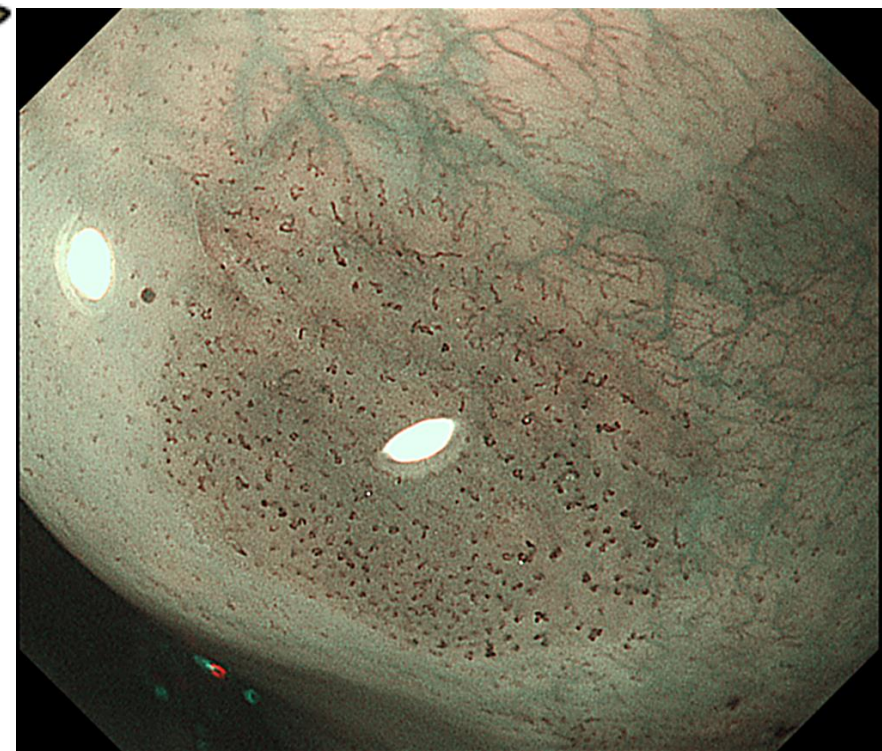
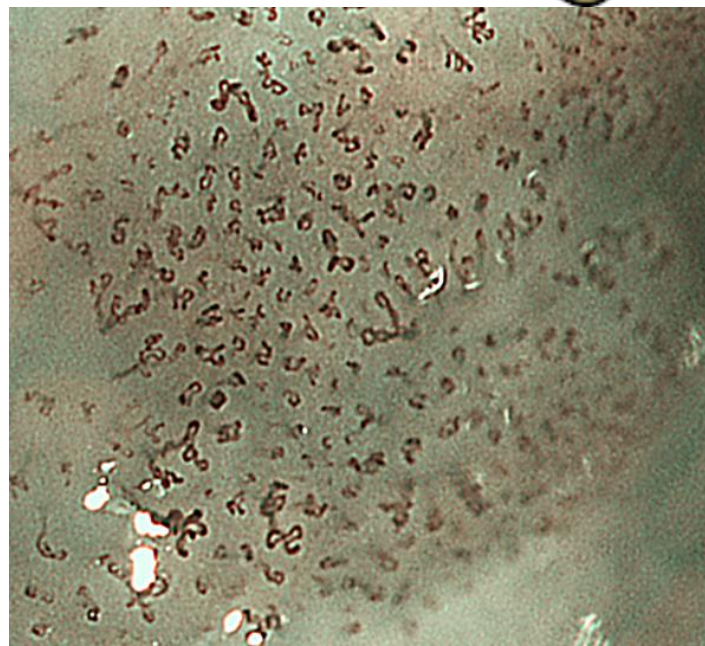
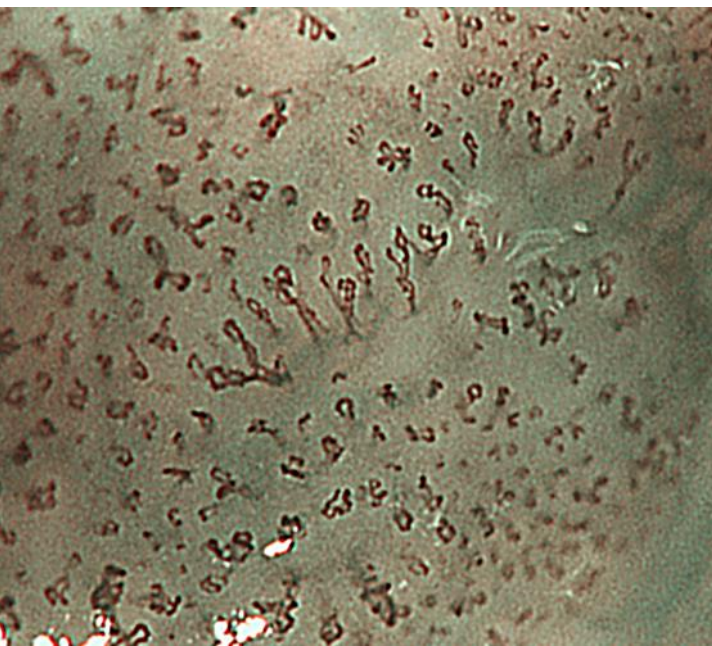
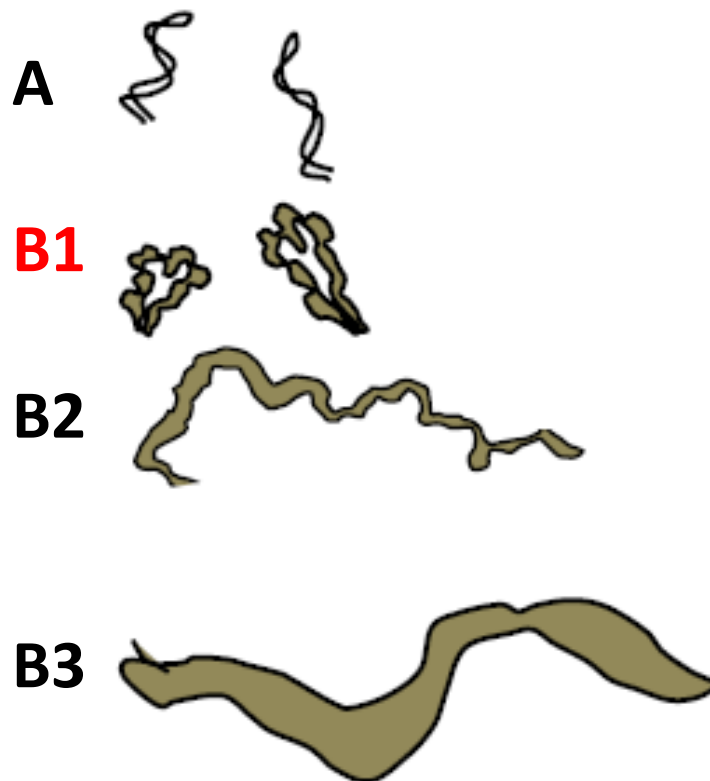
Case 2

A. Non-neoplastic (A)

B. M1-M2(B1)

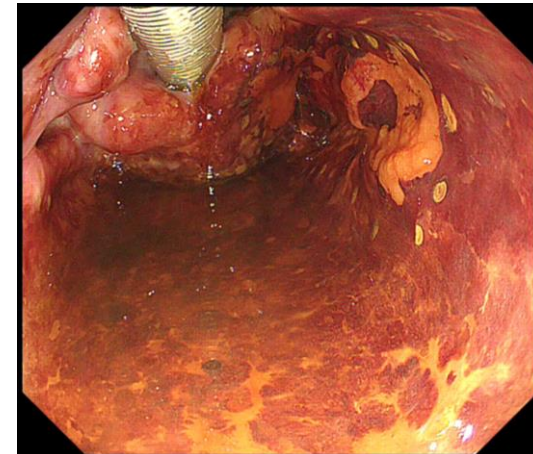
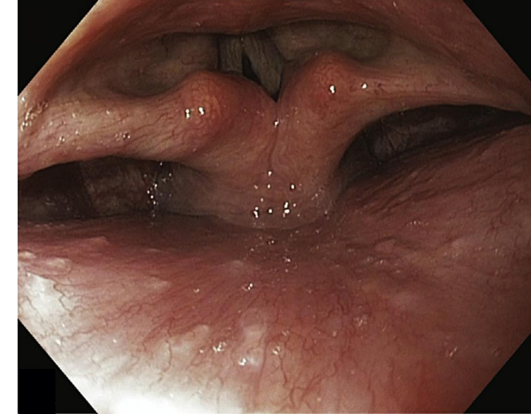
C. M3-Sm1 (B2)

D. Sm2- (B3)



My Approach: Pharyngeal exam

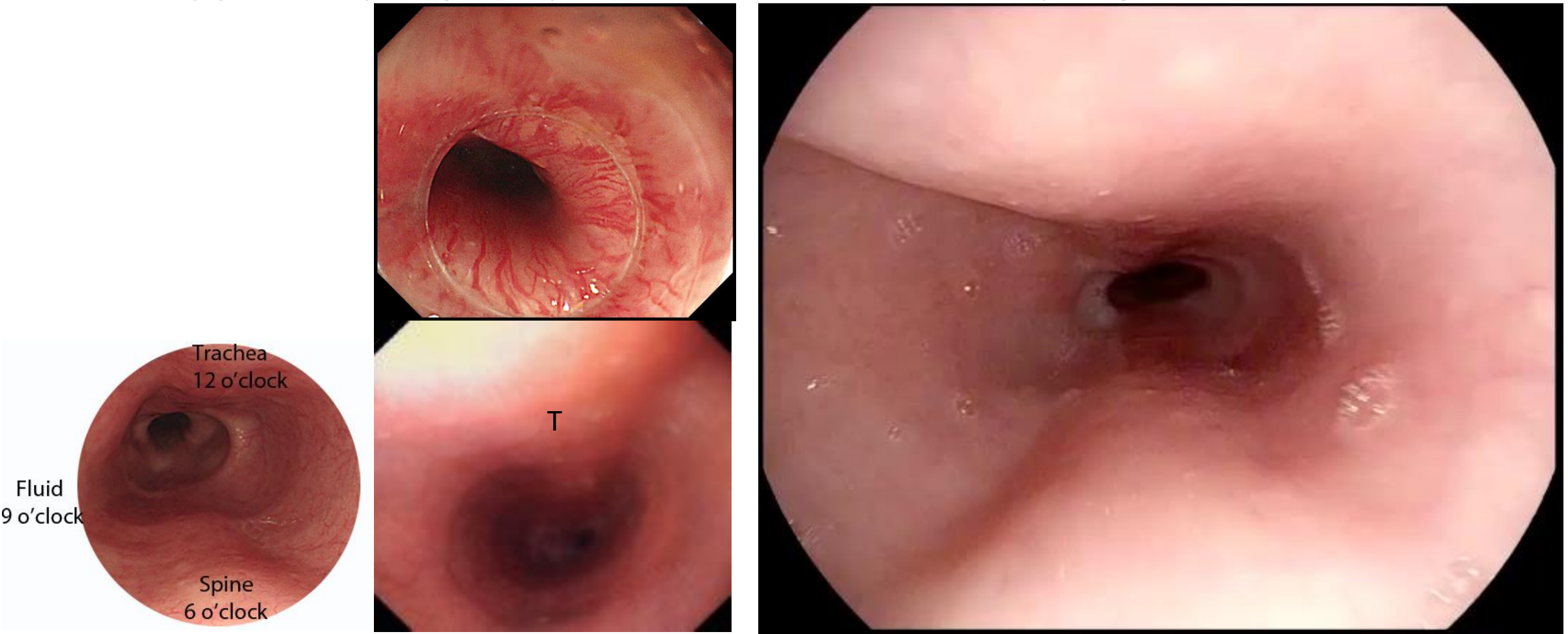
- **Suction** any secretions. Identify landmarks
- **Macroscopic** examination
 - White light
 - Image enhanced endoscopy (NBI/BLI/OE-1)
- **Microscopic** exam of specific lesions
 - White light, image enhanced endoscopy
 - Compare to adjacent normal mucosa
- **+/- Supplemental**
 - Lugols (2.5%): ONLY if intubated



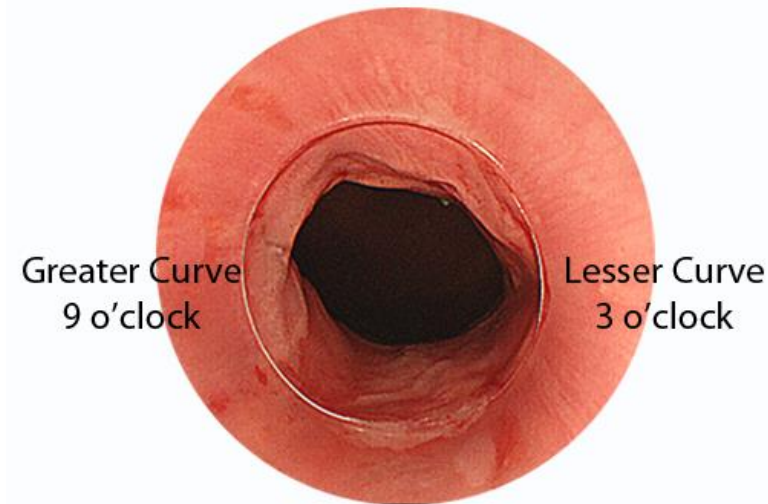
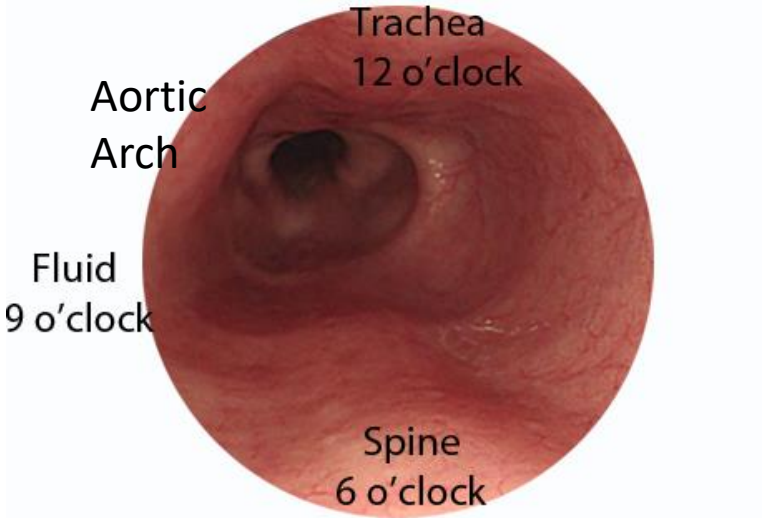
Esophagus

Luminal Anatomy-Esophagus

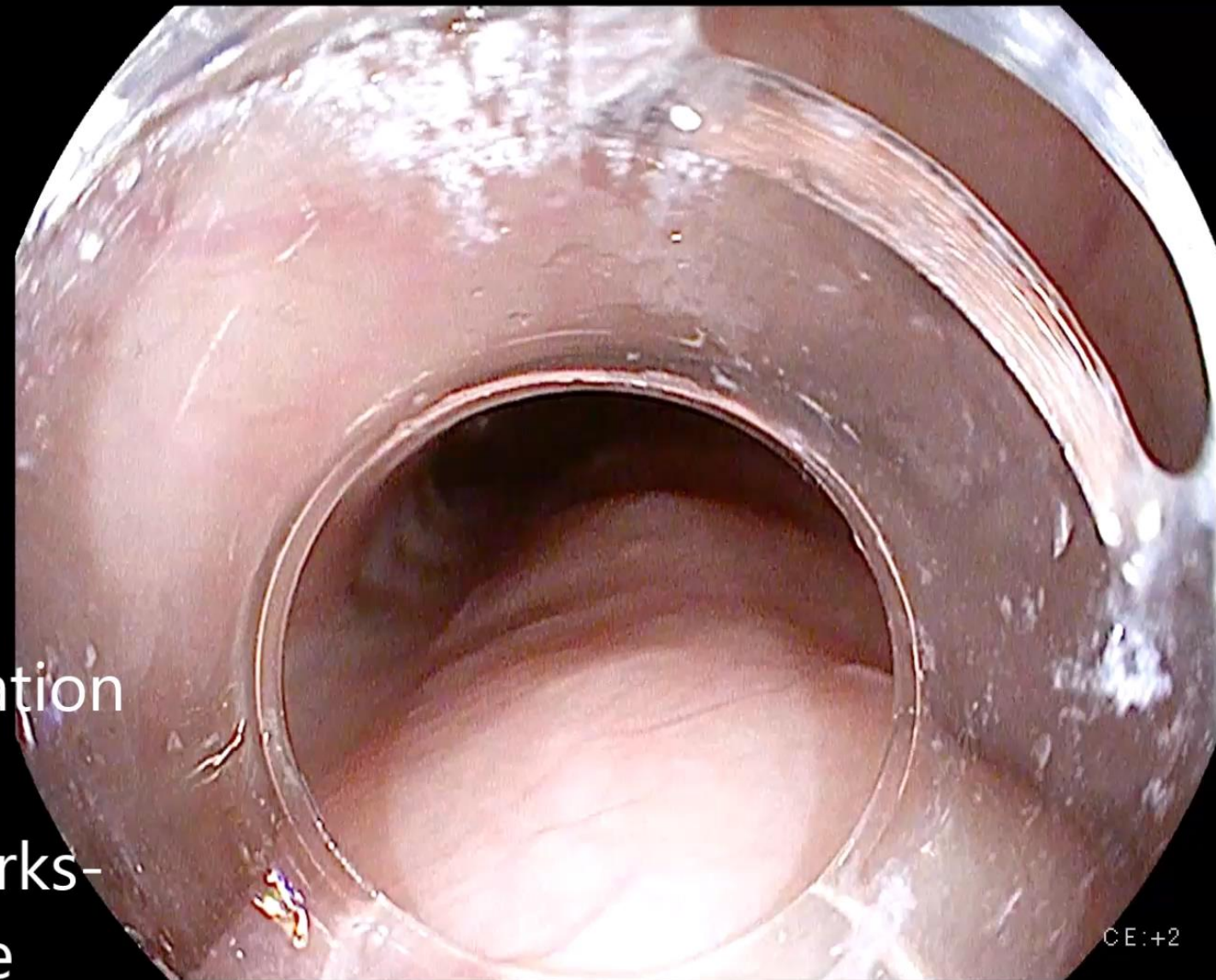
- Upper Esophageal sphincter and cervical esophagus~14-20cm



Luminal Anatomy-Esophagus



Identification
of
Landmarks-
Spine



Importance of Thorough Exam

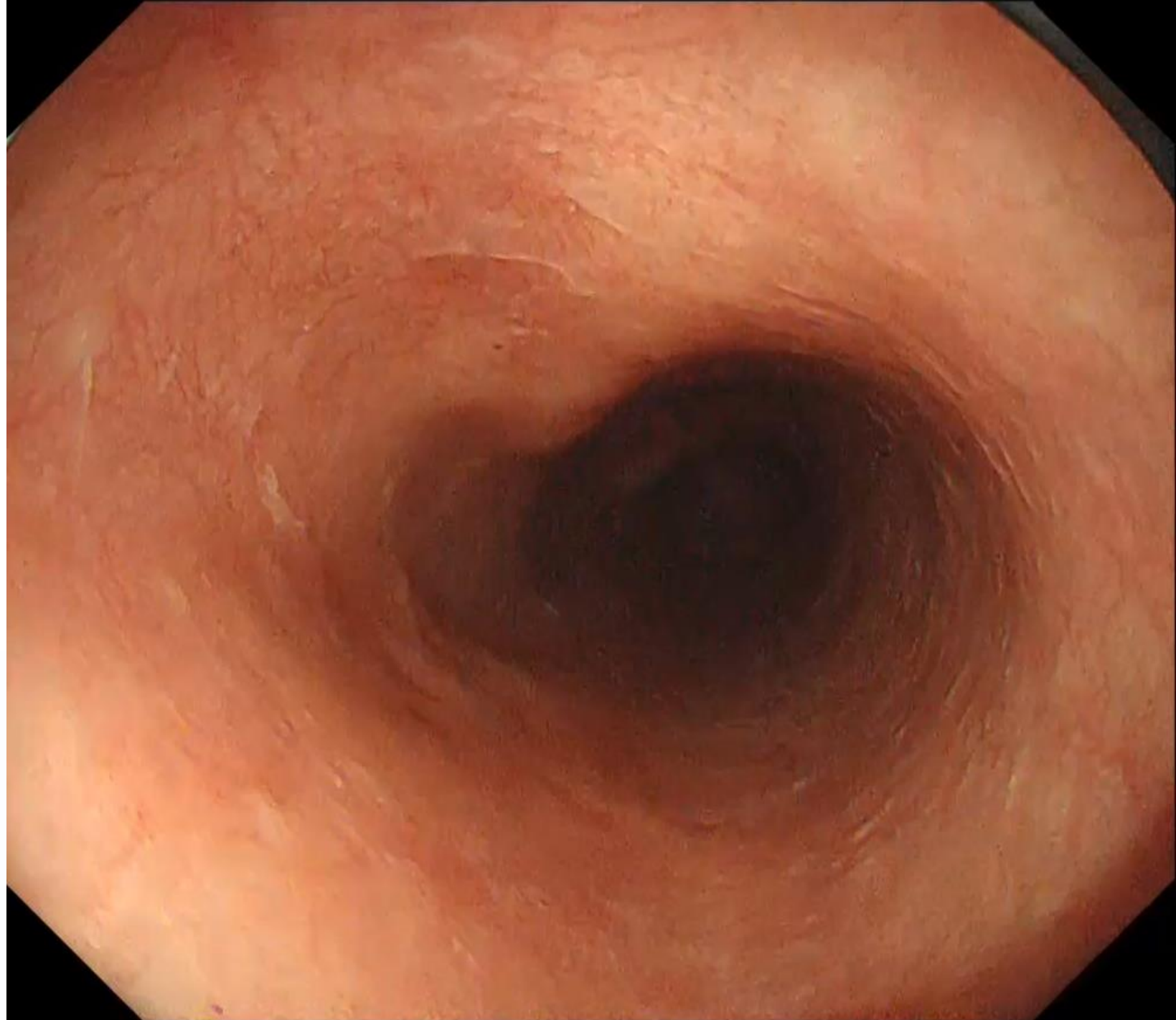
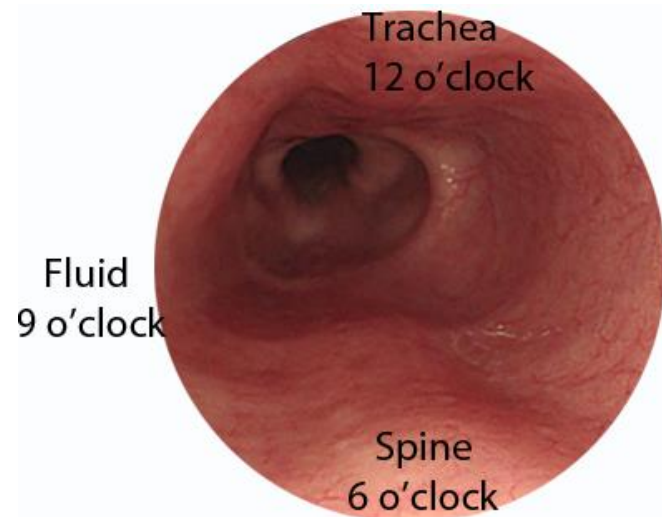
- Miss rate of esophageal carcinoma (squamous or adenocarcinoma) 6-25%

Case 3

66yo female, 40-pack year smoker.

Endoscopy for chronic cough ?Reflux

Reddish mucosa at ~27cm



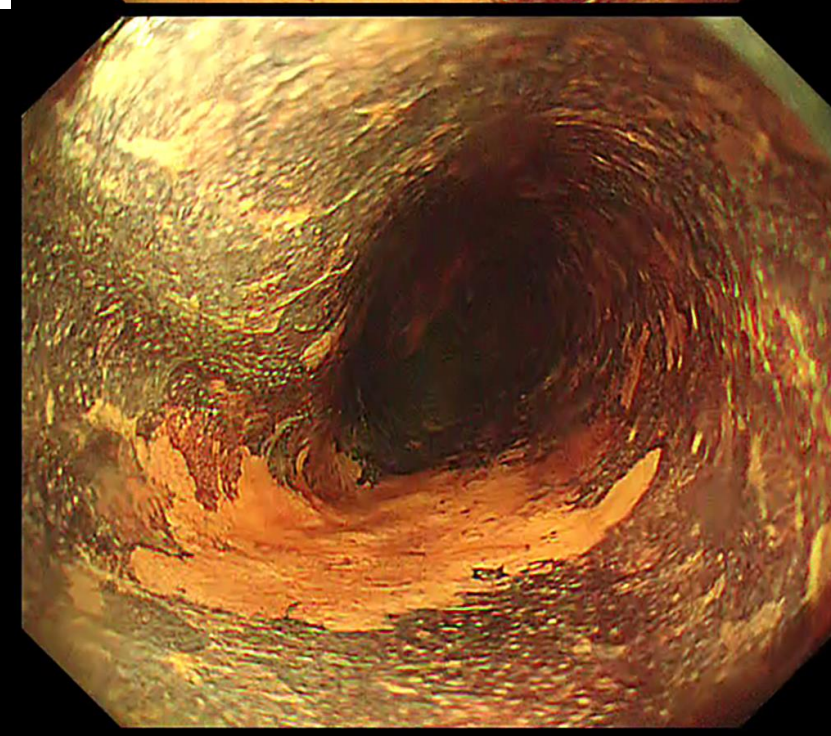
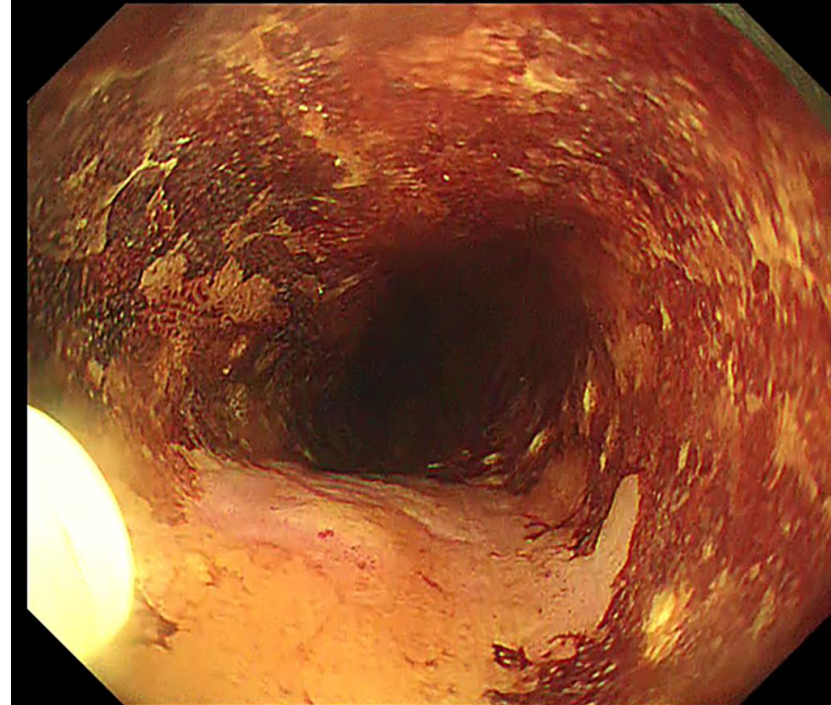
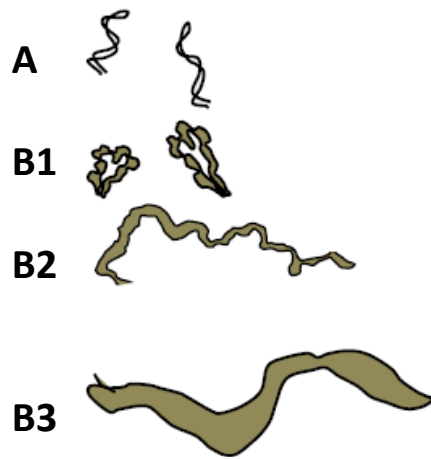
Case 3

A. Non-neoplastic (A)

B. M1-M2(B1)

C. M3-Sm1 (B2)

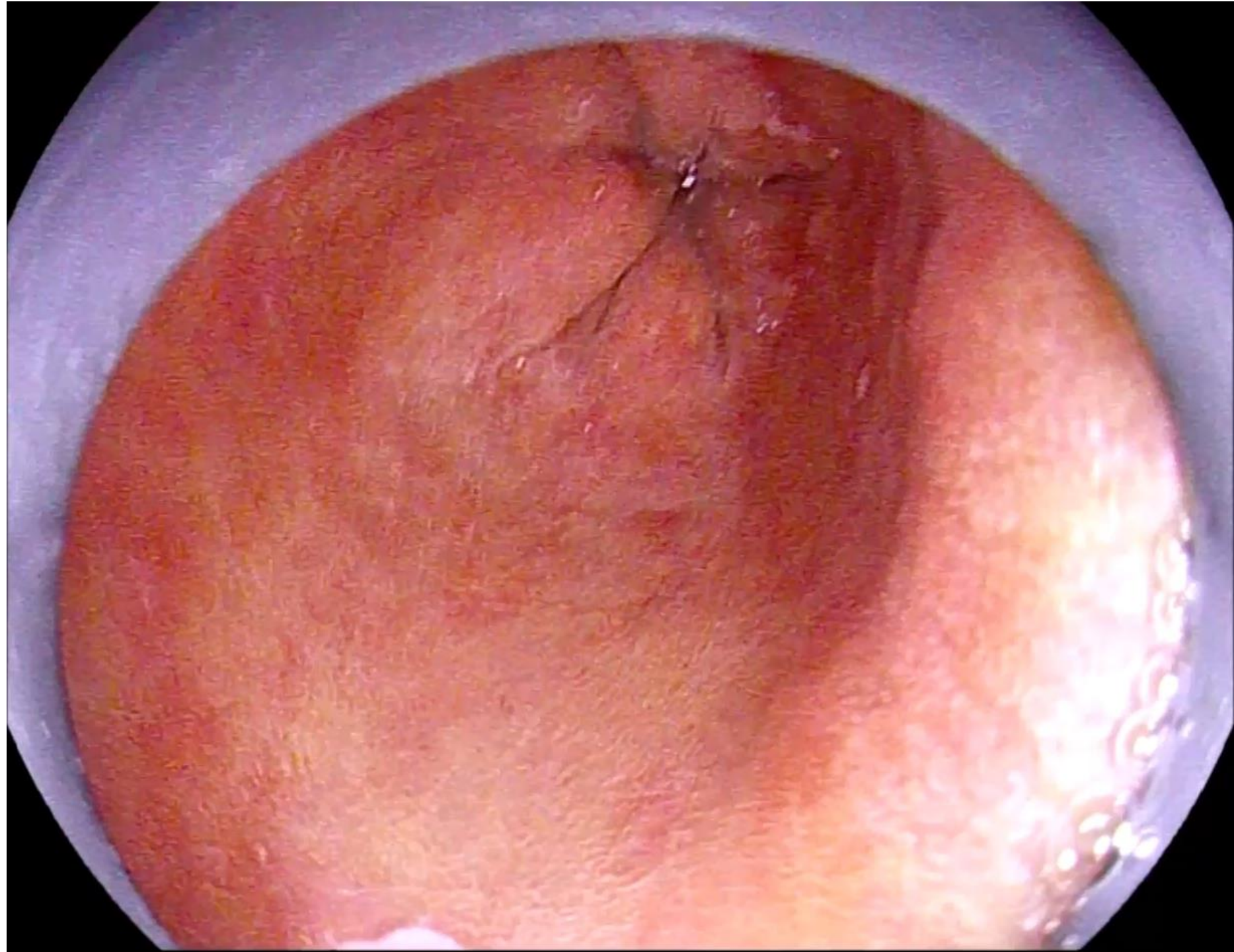
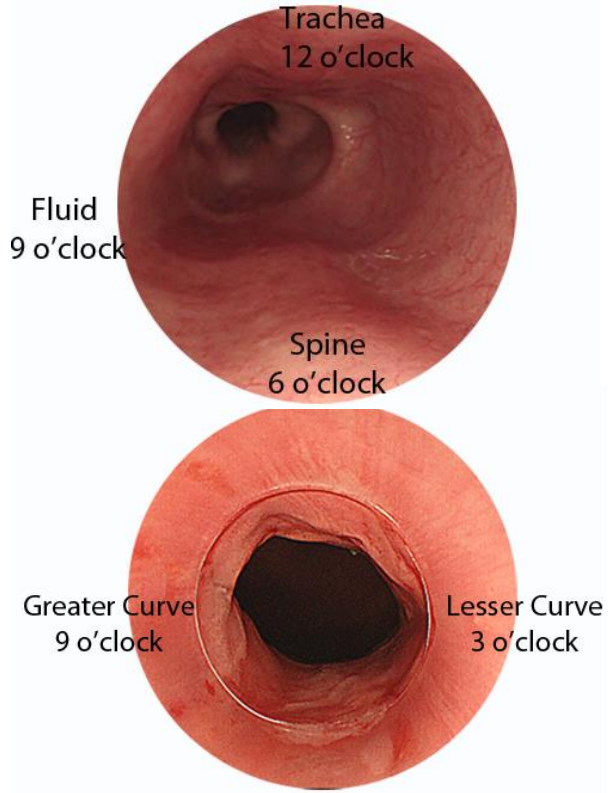
D. Sm2- (B3)



Case 4

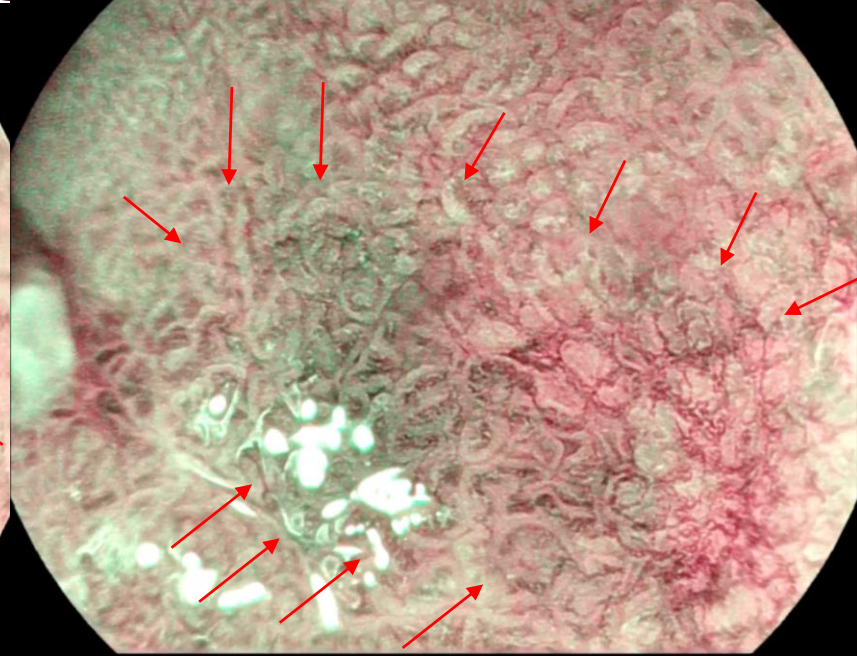
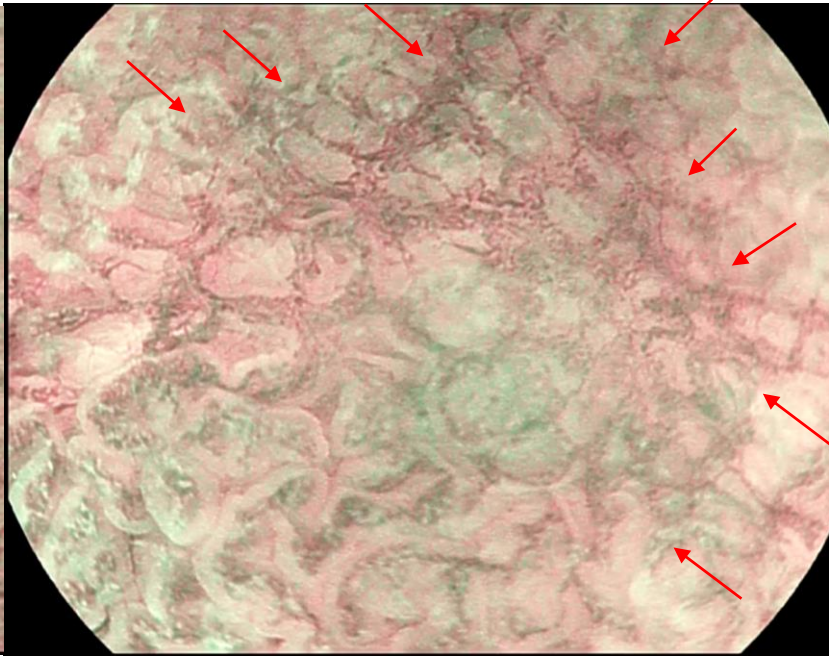
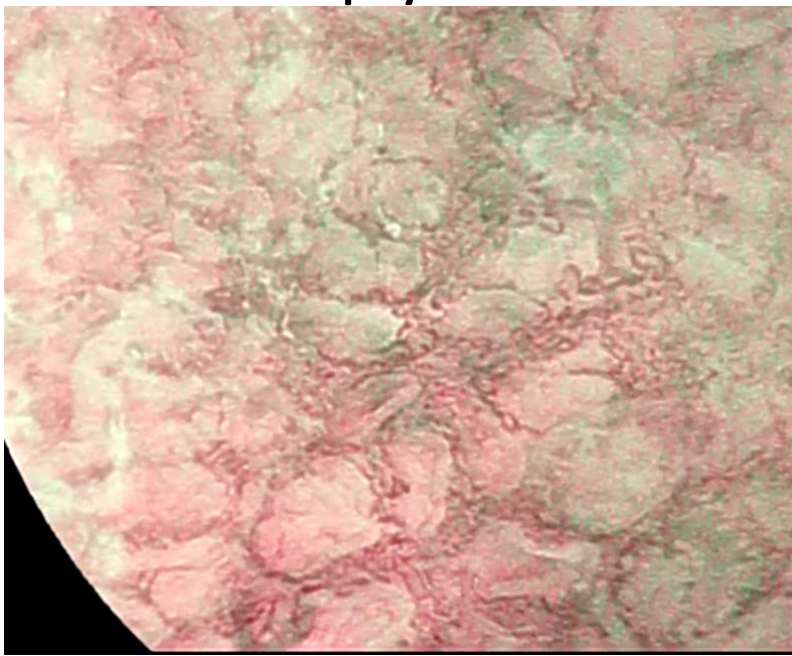
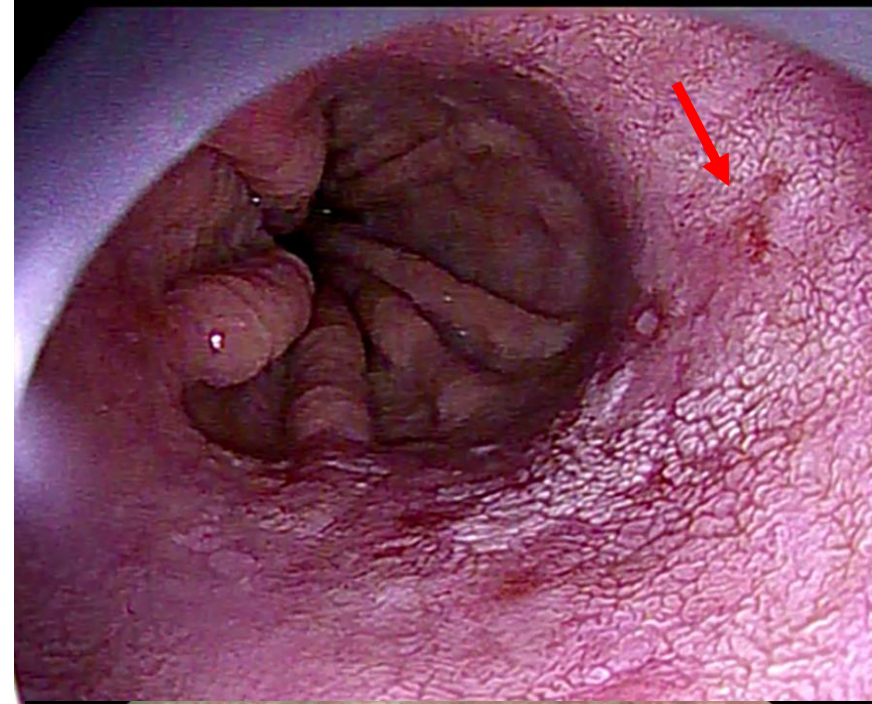
53yo man with
known long
segment Barrett's.

Surveillance EGD



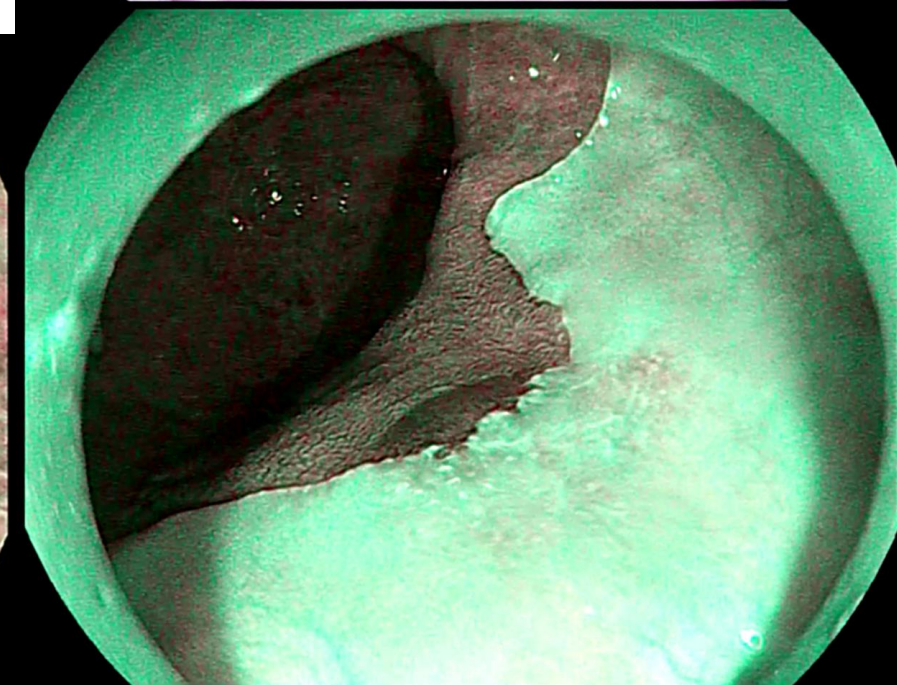
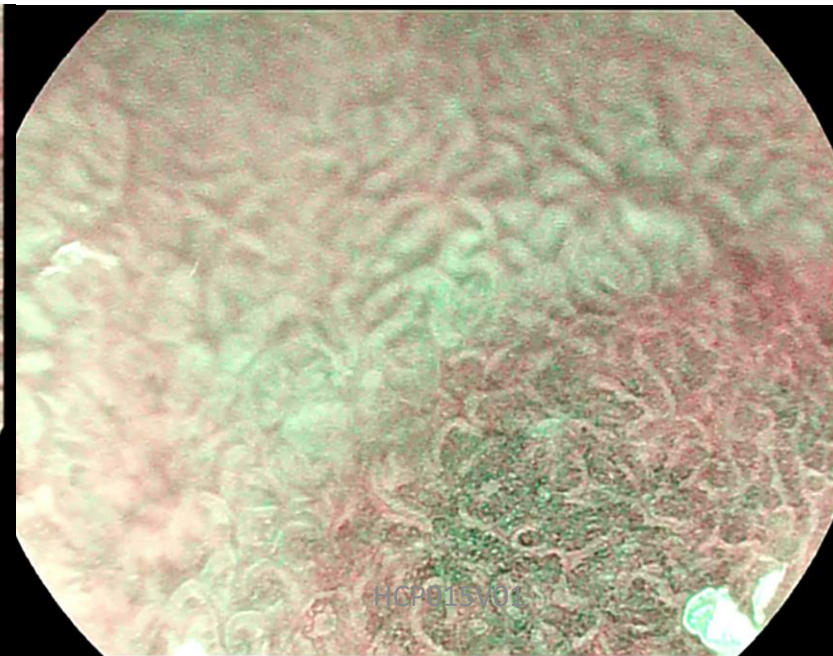
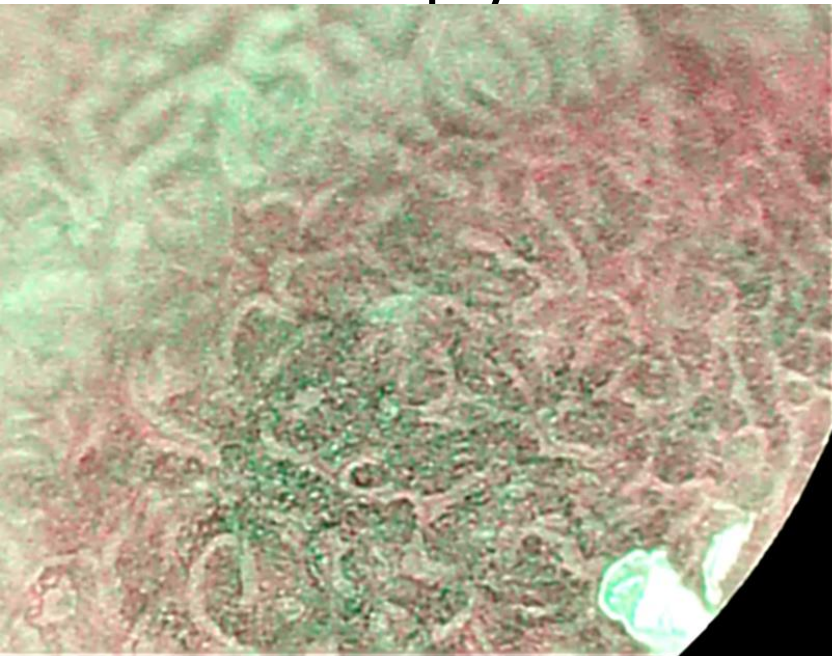
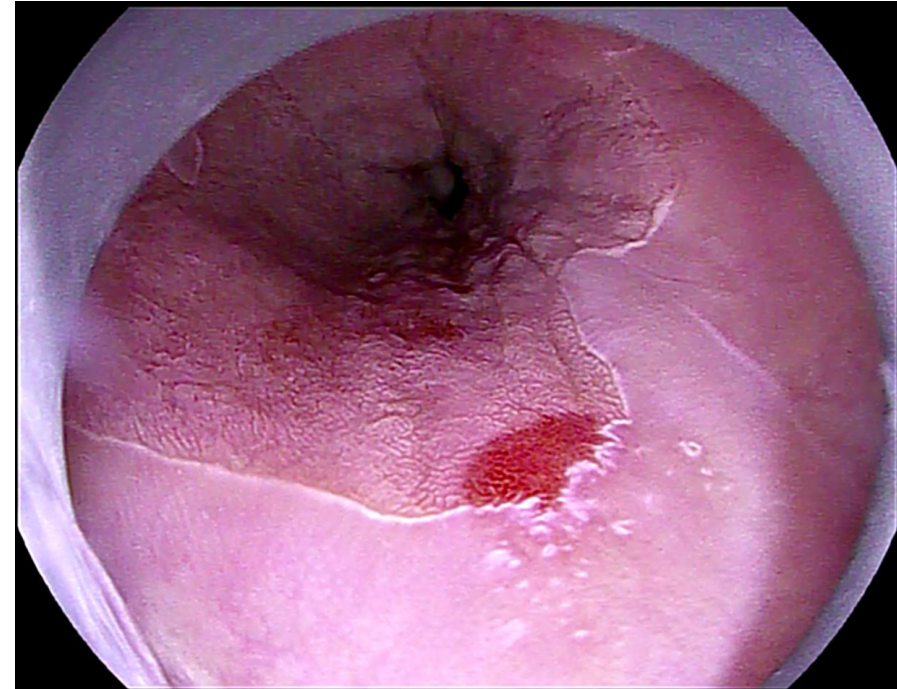
Case 4

- A. Non-neoplastic
- B. LGD
- C. HGD-Sm1
- D. Deeply invasive

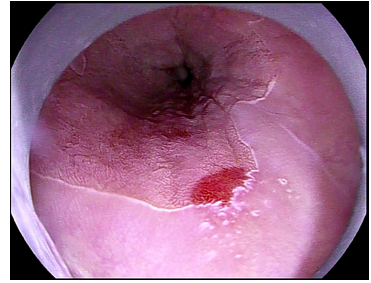


Case 4

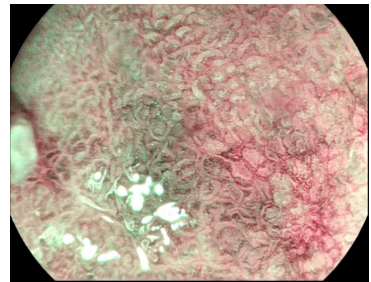
- A. Non-neoplastic
- B. LGD
- C. HGD-Sm1
- D. Deeply invasive



Tips for Barrett's Exam

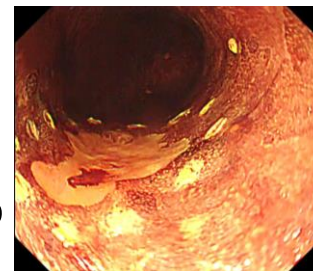
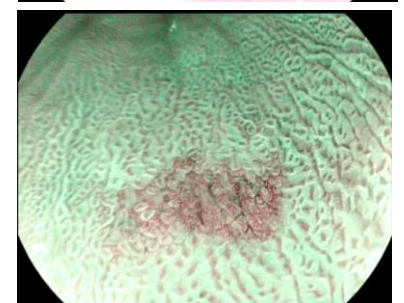
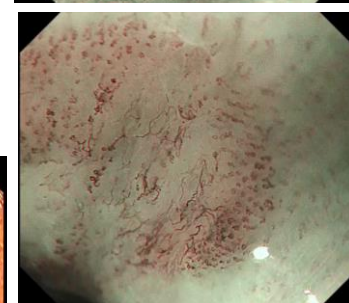
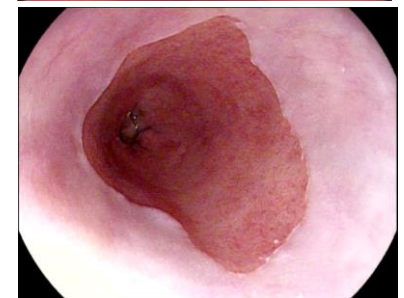
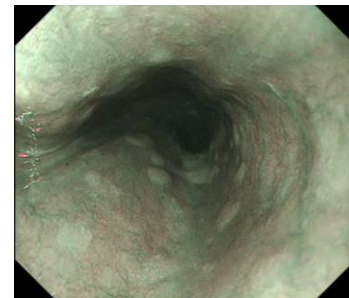
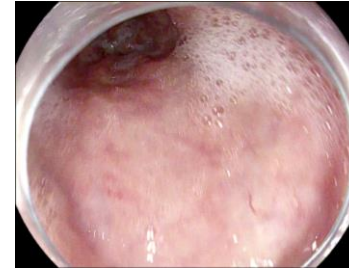


- Spend *at least* 1 min/cm of Barrett's examining → **improved detection of HGD/EAC ~6x**
- Pay close attention to proximal segment/right wall → **Higher incidence of HGD/EAC ~6x**
- Use acetic acid (1.5-3%) → **increases yield detection HGD/EAC ~15x vs random Bx**
- Use NBI(BLI/OE1) → **improved detection of HGD/EAC**

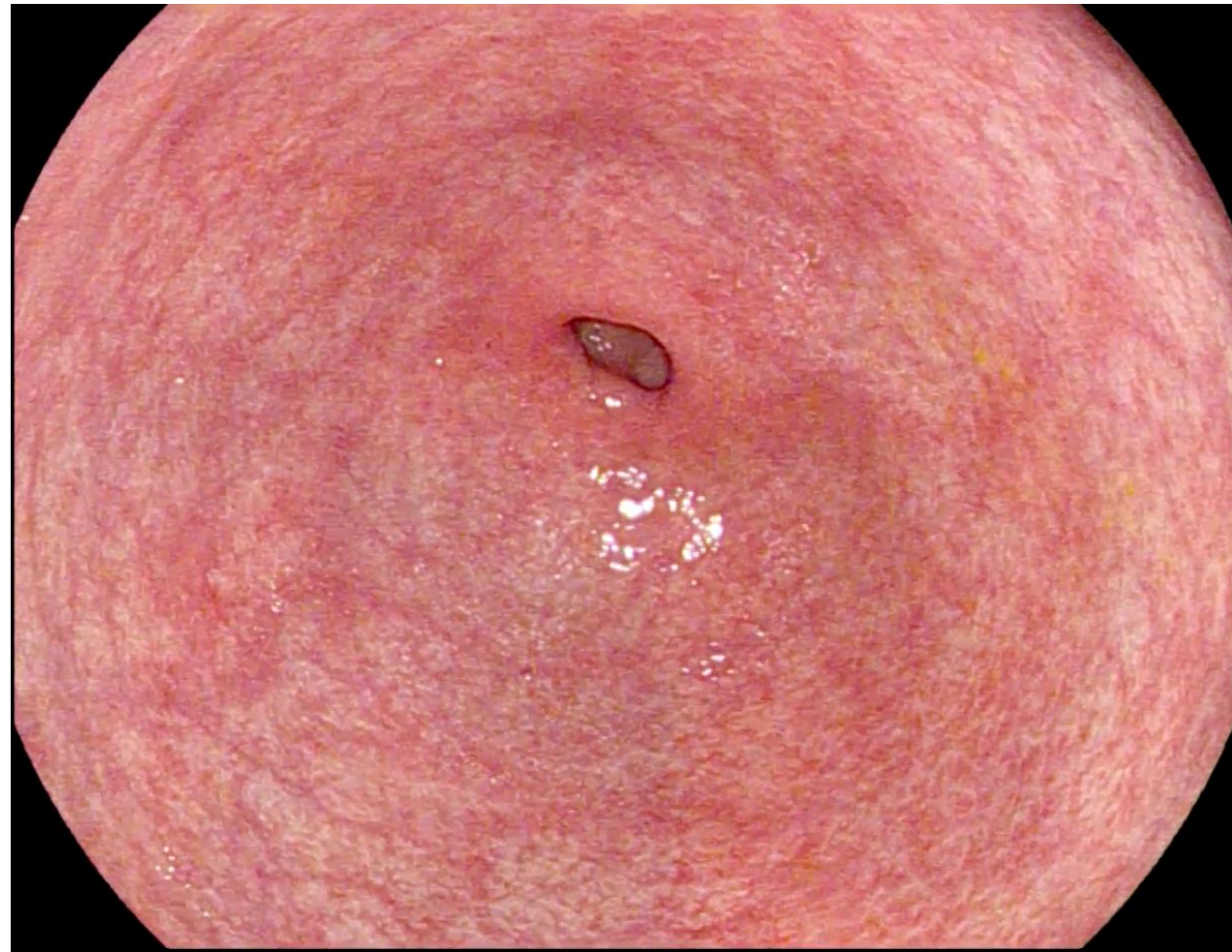
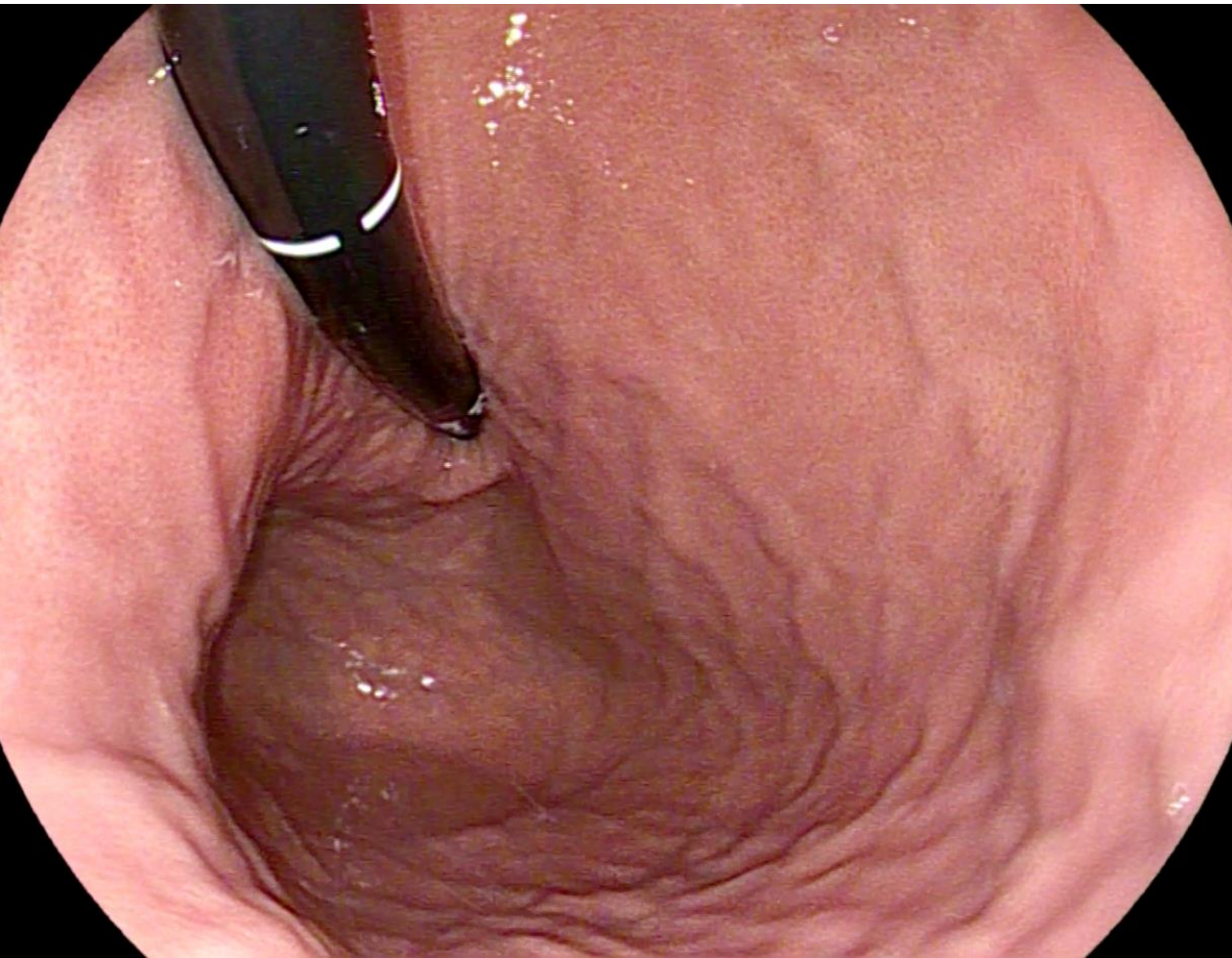


My Approach: Esophageal Exam

- **Clean** the esophagus and identify landmarks
- **Macroscopic** examination
 - White light
 - Image enhanced endoscopy (NBI/BLI/OE-1) for squamous
 - Image enhanced endoscopy all modalities for Barretts
- **Microscopic** exam of specific lesions
 - White light, image enhanced endoscopy
 - Compare to adjacent normal mucosa
- **+/- Supplemental**
 - Squamous Lugols 2.5%: Repeat Macro/Micro
 - Barrett's Acetic Acid 1.5%: Repeat Macro/Micro

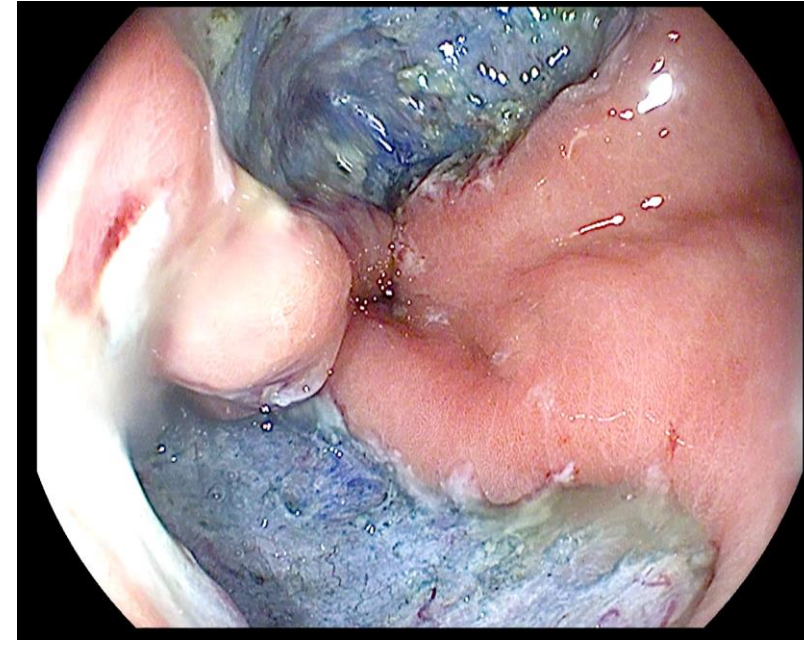
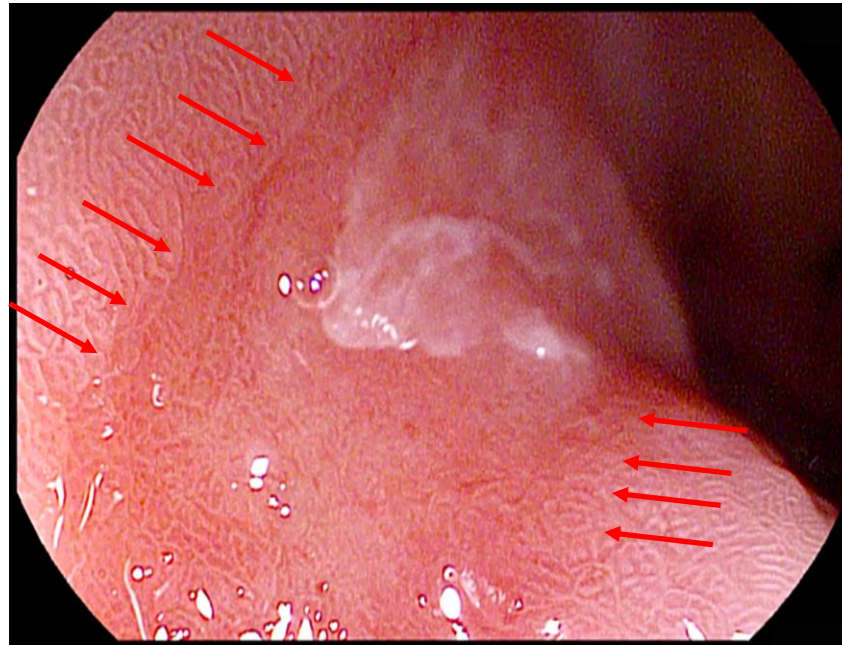
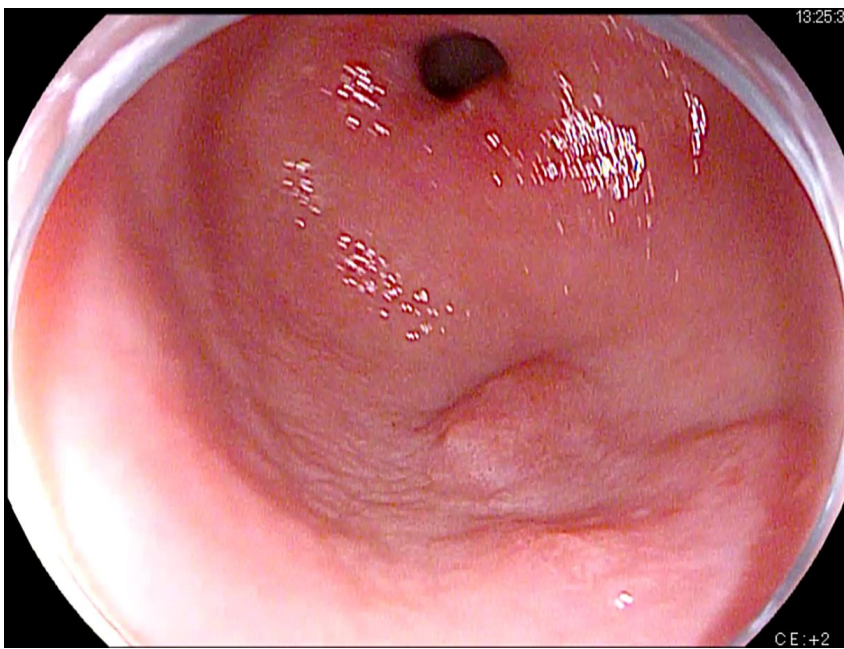


Gastric Examination



Importance of a Thorough Exam

- There is a ~25% miss rate of early gastric cancers
 - In high risk patients can be up to 75%!(Japan/Korea)

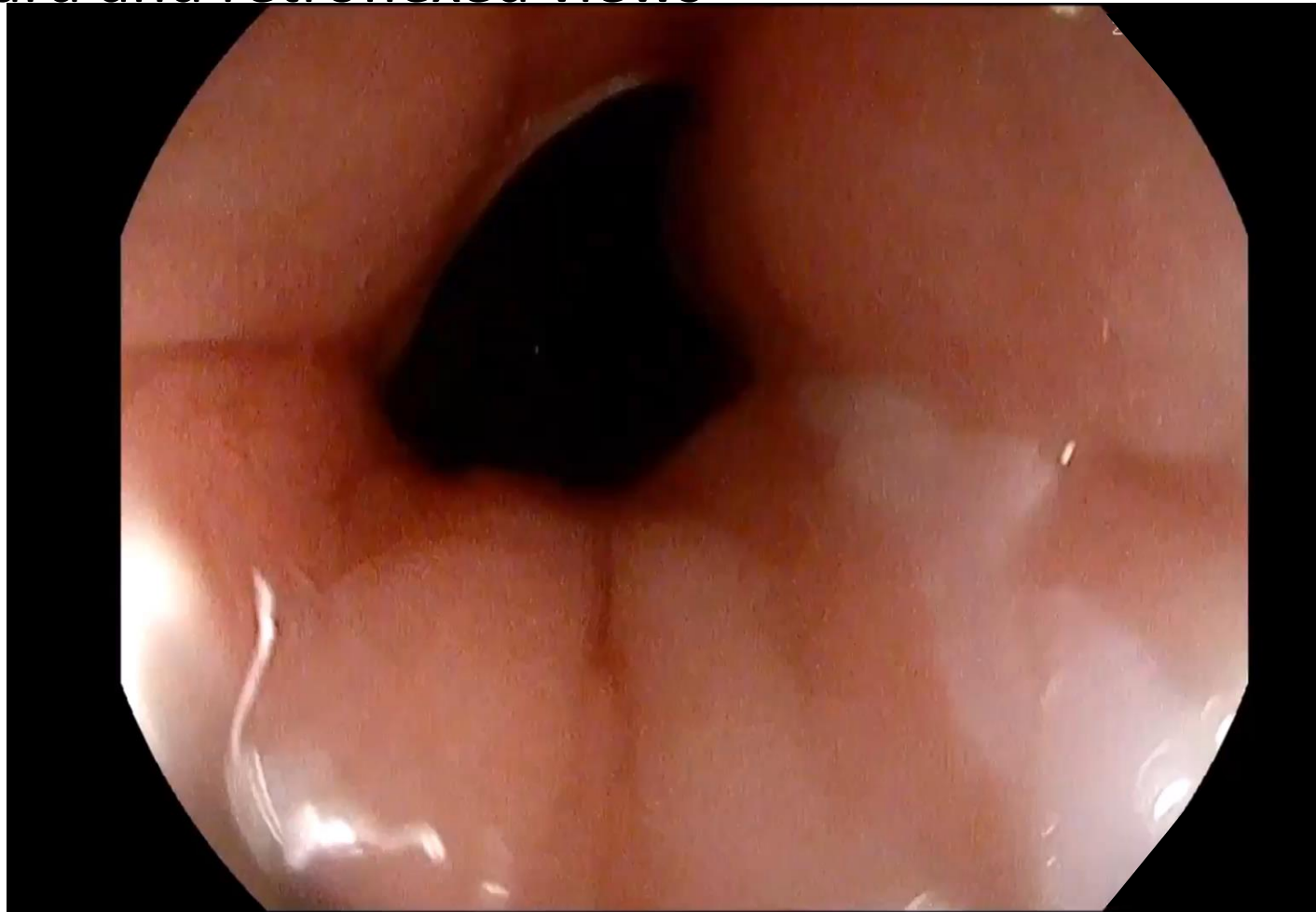


Menon, S. & Trudgill, N. How commonly is upper gastrointestinal cancer missed at endoscopy? A meta-analysis. *Endoscopy international open* 2, E46-50(2014).

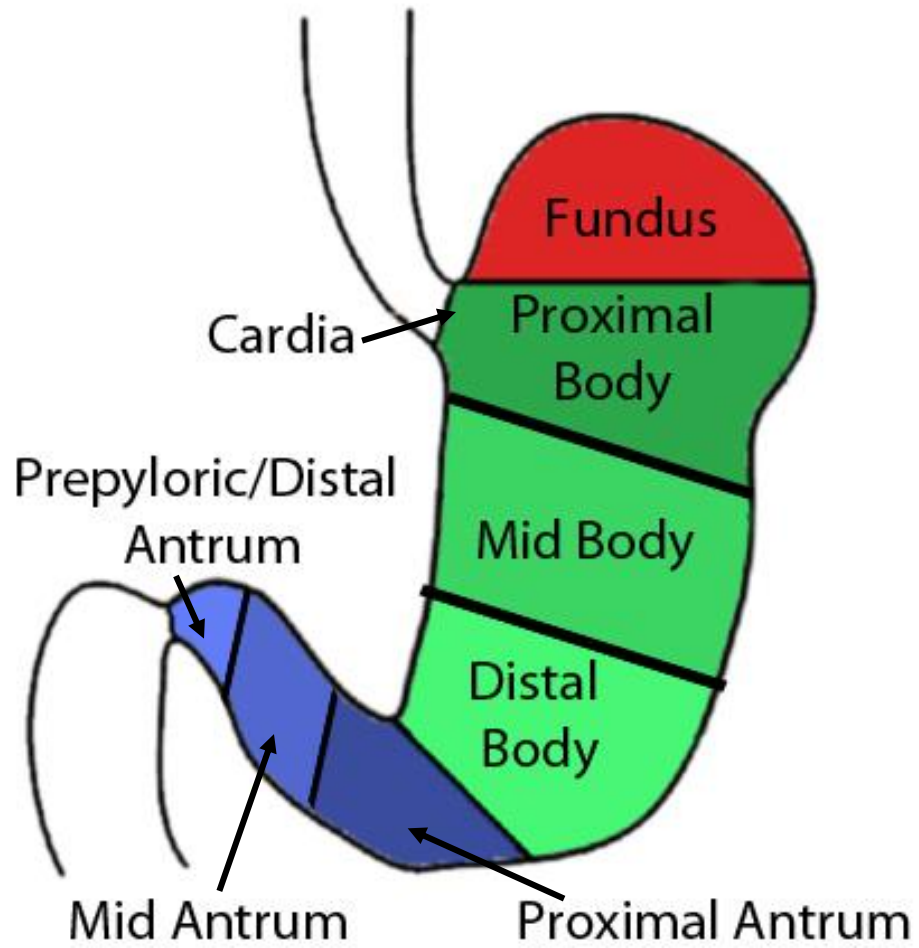
Shimodate, Y. *et al.* Gastric superficial neoplasia: high miss rate but slow progression. *Endoscopy international open* 5, E722-e726 (2017).

Importance of a Thorough Exam

- GEJ-Forward and retroflexed views

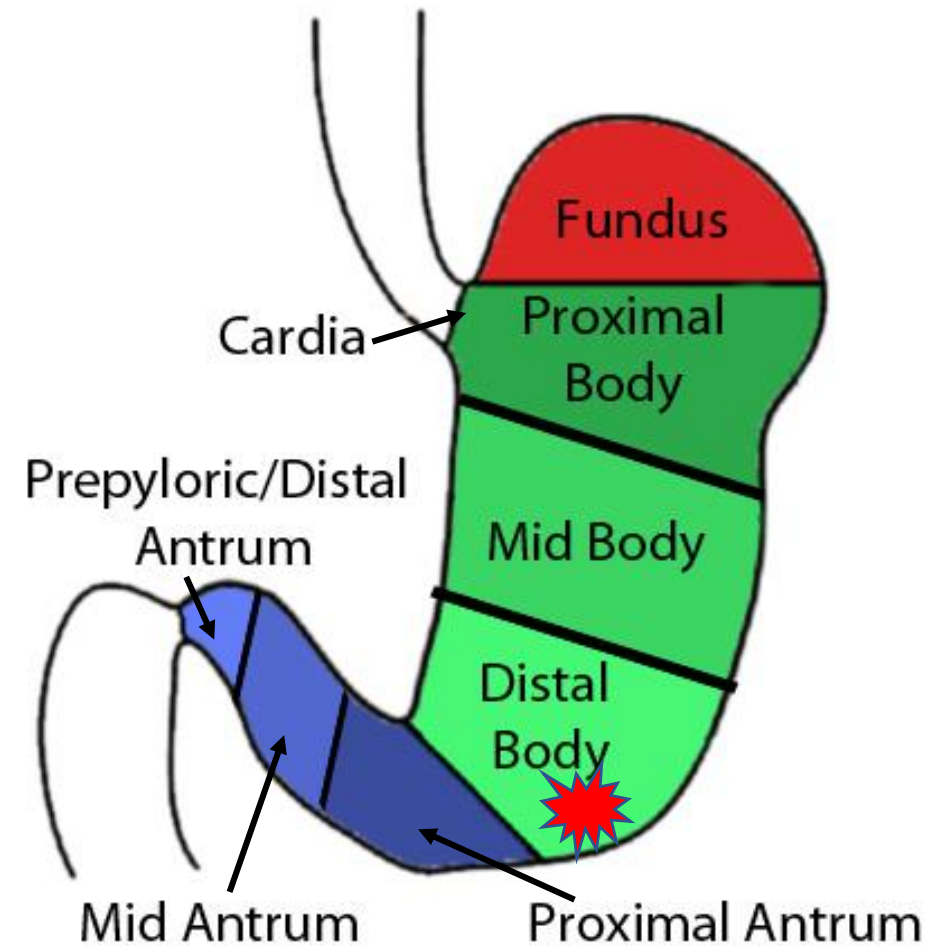


Luminal Anatomy-Stomach



Where are lesions most commonly missed?

- Distal third of the stomach (Distal body-Proximal antrum) ~85%



Tips for Gastric Exam

Systematic screening protocol (SSP)

Yao, K. The endoscopic diagnosis of early gastric cancer. *Ann Gastroenterol* **26**, 11-22 (2013).

Zhang, Q. *et al.* Training in early gastric cancer diagnosis improves the detection rate of early gastric cancer: an observational study in China. *Medicine (Baltimore)* **94**, e384, (2015).

Curtin, B. F. *et al.* 94 – Systematic Screening Protocol for the Stomach is Superior to Standard Endoscopy for the Detection of Early Malignancy in Hereditary Gastric Cancer Syndrome Patients. *Gastroenterology* **156**, S-22, (2019).

Tips for Gastric Exam

- Cleaning
 - The addition of mucolytic (N-acetylcysteine) and defoaming agents (simethicone) result in superior mucosal views.
 - Optimal timing for pre-procedure mucolytic + defoaming agents is 10-30min
- Examination time
 - Spend at least 7 minutes examining the UGI tract
 - Endoscopists with mean EGD examination times ≥ 7 minutes identified **3-fold** more gastric neoplastic lesions than endoscopists that spent < 7 min

Monrroy, H. *et al.* Use of N-acetylcysteine plus simethicone to improve mucosal visibility during upper GI endoscopy: a double-blind, RCT. *Gastrointestinal endoscopy* **87**, 986-993, (2018).

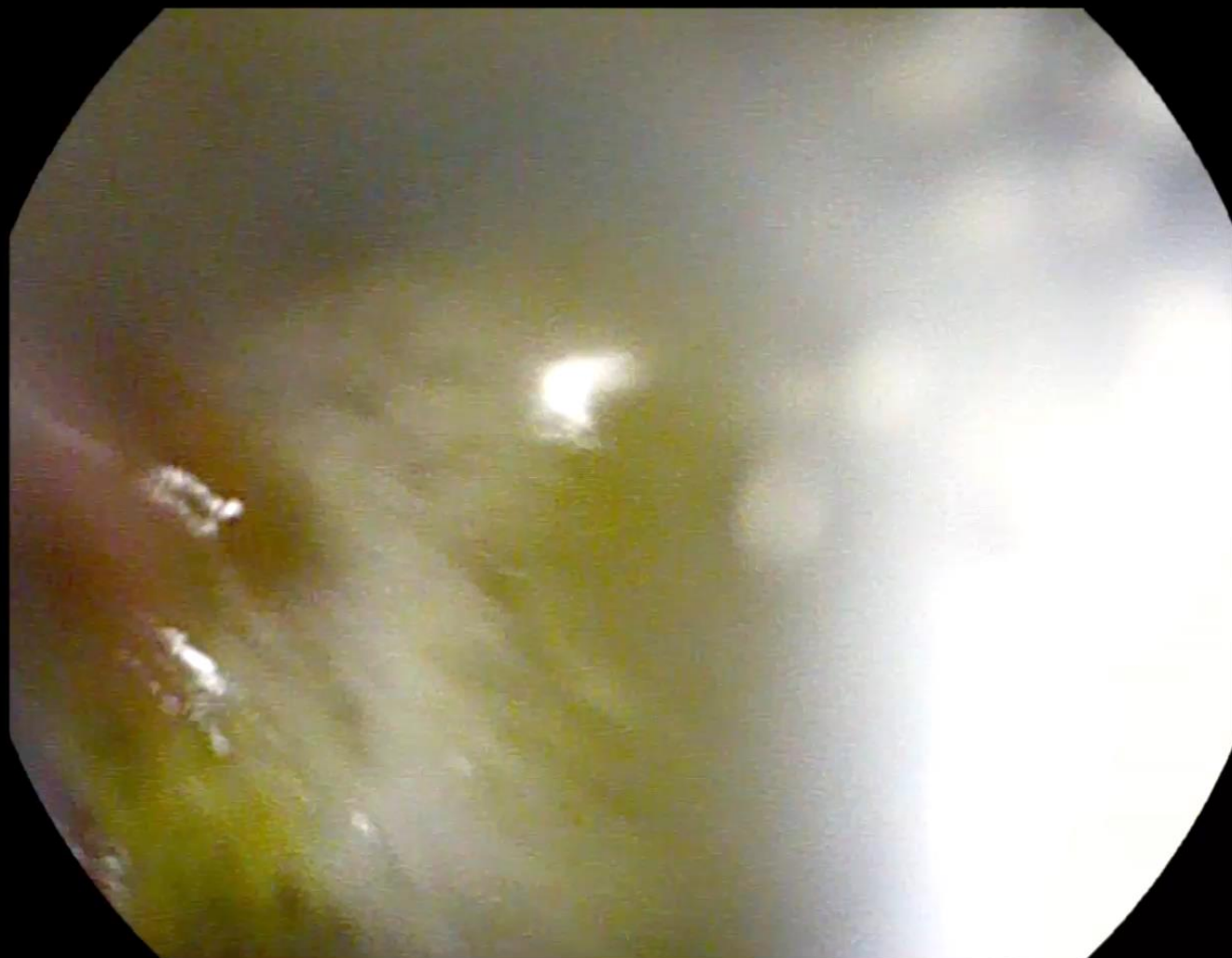
Chen, H. *et al.* Pre-medication to improve esophagogastroduodenoscopic visibility: a meta-analysis and systemic review. *Hepatogastroenterology* **61**, 1642-1648 (2014).

Teh, J. L. *et al.* Longer examination time improves detection of gastric cancer during diagnostic upper gastrointestinal endoscopy. *Clinical gastroenterology and hepatology*: **13**, 480-487.e482, (2015).

Importance of cleansing

Mar/15/2019

09:09:04



Name
ID
Age
Sex
Comment

Dr.
KHSC

CE:+1

W T

My Approach: Gastric exam

- **Clean** the stomach and identify landmarks
- **Macroscopic** examination
 - White light SSP
 - Image enhanced endoscopy (LCI, OE-2), SSP
- **Microscopic** exam of specific areas
 - White light, image enhanced endoscopy (NBI/BLI/OE-1)
- **+/- Supplemental**
 - Indigo Carmine: Repeat Macro/Micro

Summary

- Pharyngeal and Esophageal squamous neoplasia
 - NBI/BLI/OE-1 are the preferred modes for detection
- Identify Esophageal/Gastric landmarks
- Barrett's Neoplasia
 - Acetic acid and NBI are useful for improving detection of HGD/EAC
 - Spend at least 1min/cm Barrett's and pay attention to proximal area and right hemisphere
- Gastric Neoplasia
 - Use defoaming agent and mucolytic to achieve clear views
 - Spend at least 7 minutes on EGD exam maximize detection of neoplasia
 - Systematic examination of the stomach to improve detection of neoplasia

Thank you!

