

Teaching Cognitive Skills

Question for Discussion

- Who is the audience?
- How do you teach fellows cognitive skills?
 - Setting
 - Style
 - Substance
- How does it fit in the structure of your program?
- Resources

Questions to Consider:

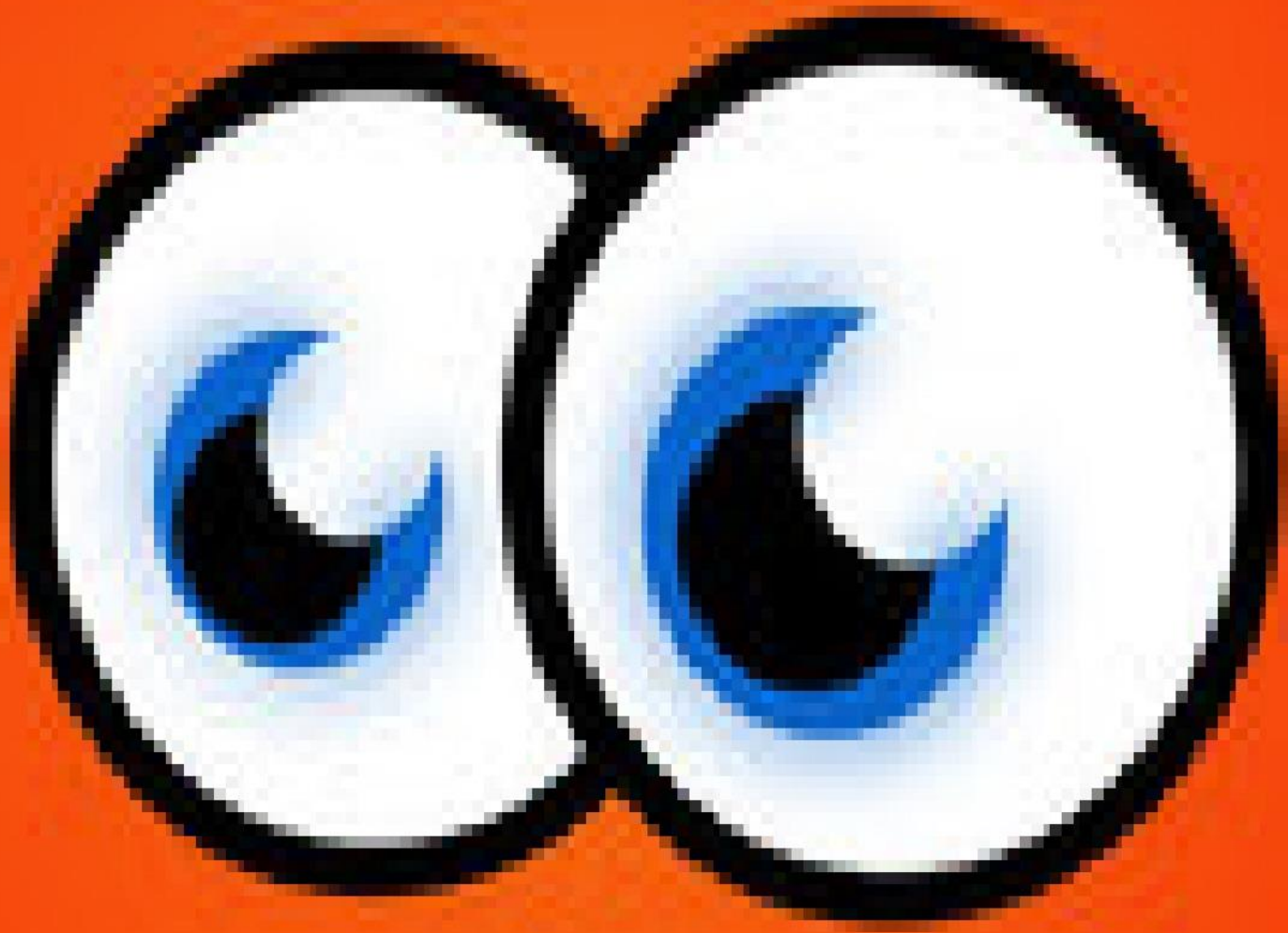
- How can the endoscopy teacher promote trainee detection and identification of abnormal findings?
- How much of this must be learned as pathology arises during cases?
- What resources or methods of exposure can make this learning process more efficient

Teaching Novices Cognitive Skills: Breaking it Down

- Teaching trainees to detect abnormalities—and not miss things
- Teaching trainees to correctly identify those abnormalities they discover
- Teaching trainees how to know what to do once they identify an abnormality

Tips for Teaching Novices to Recognize Abnormalities

- **Look closer**
 - Know what to look for [Normal vs. Abnormal]
- **Look slower**
- **Look more completely**
 - Know where to look



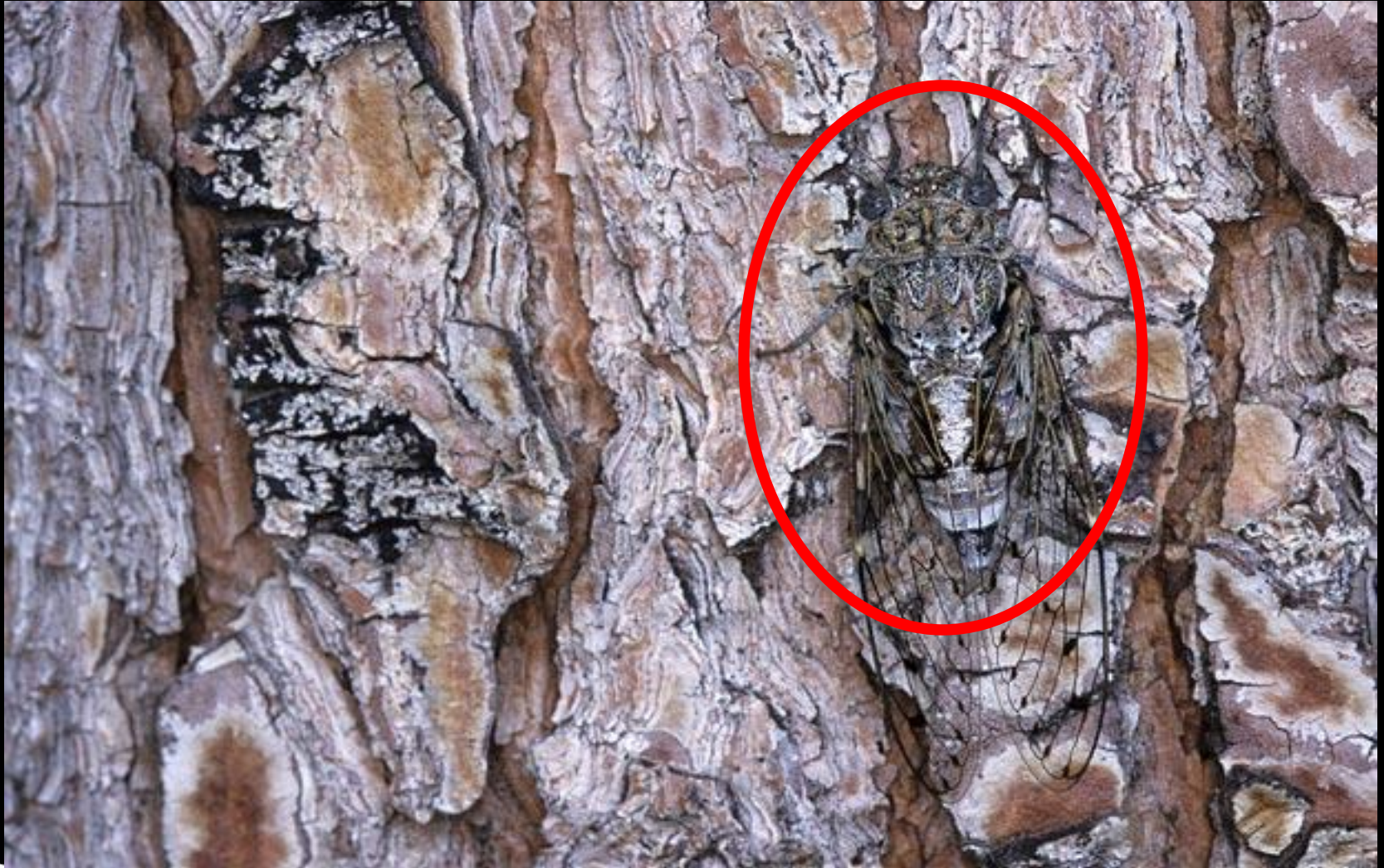
LOOKING CLOSELY

Freeze Frame

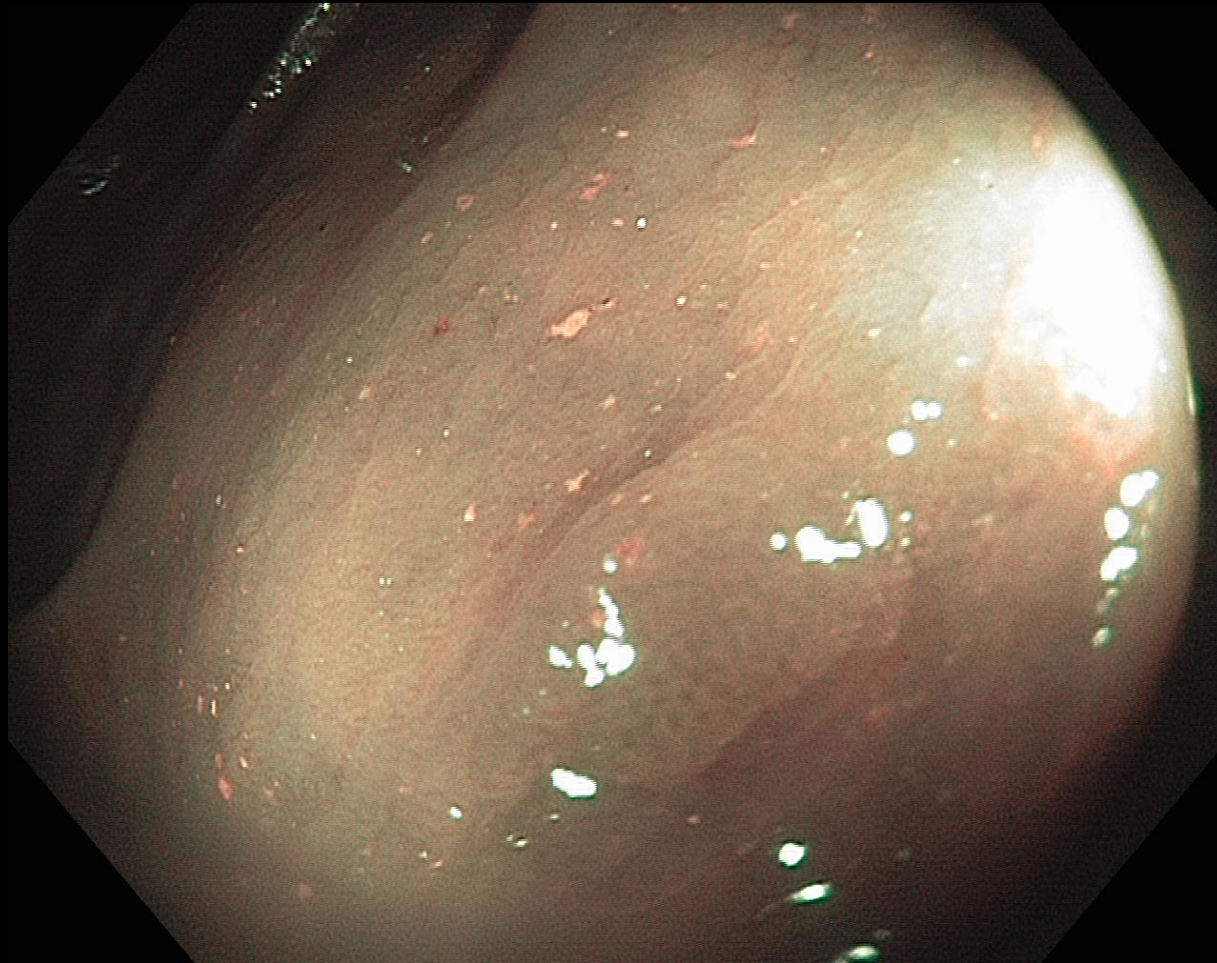


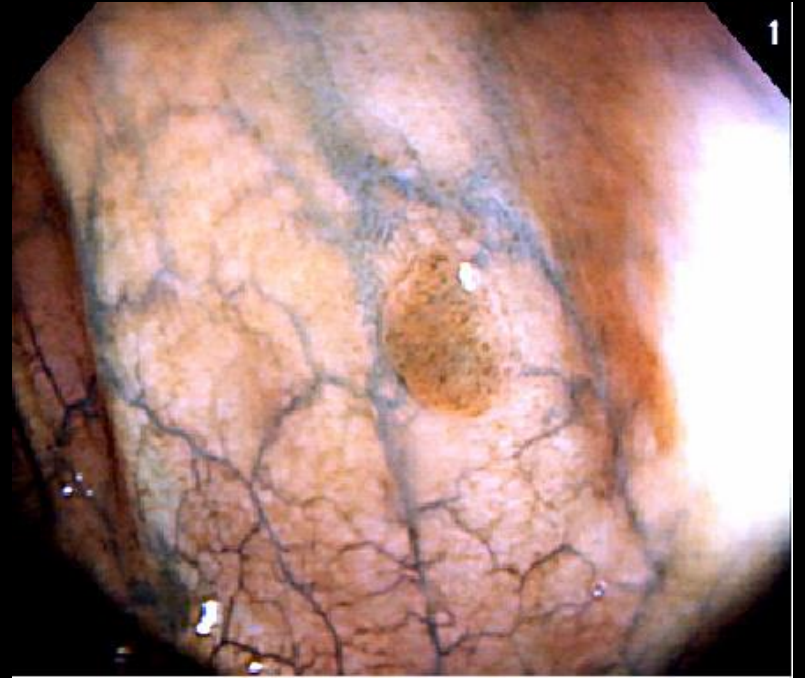
- Capture button allows more than taking nice pictures
- Image stabilization allows time to assess details

Look for Subtle Alterations



Notice Color Differences





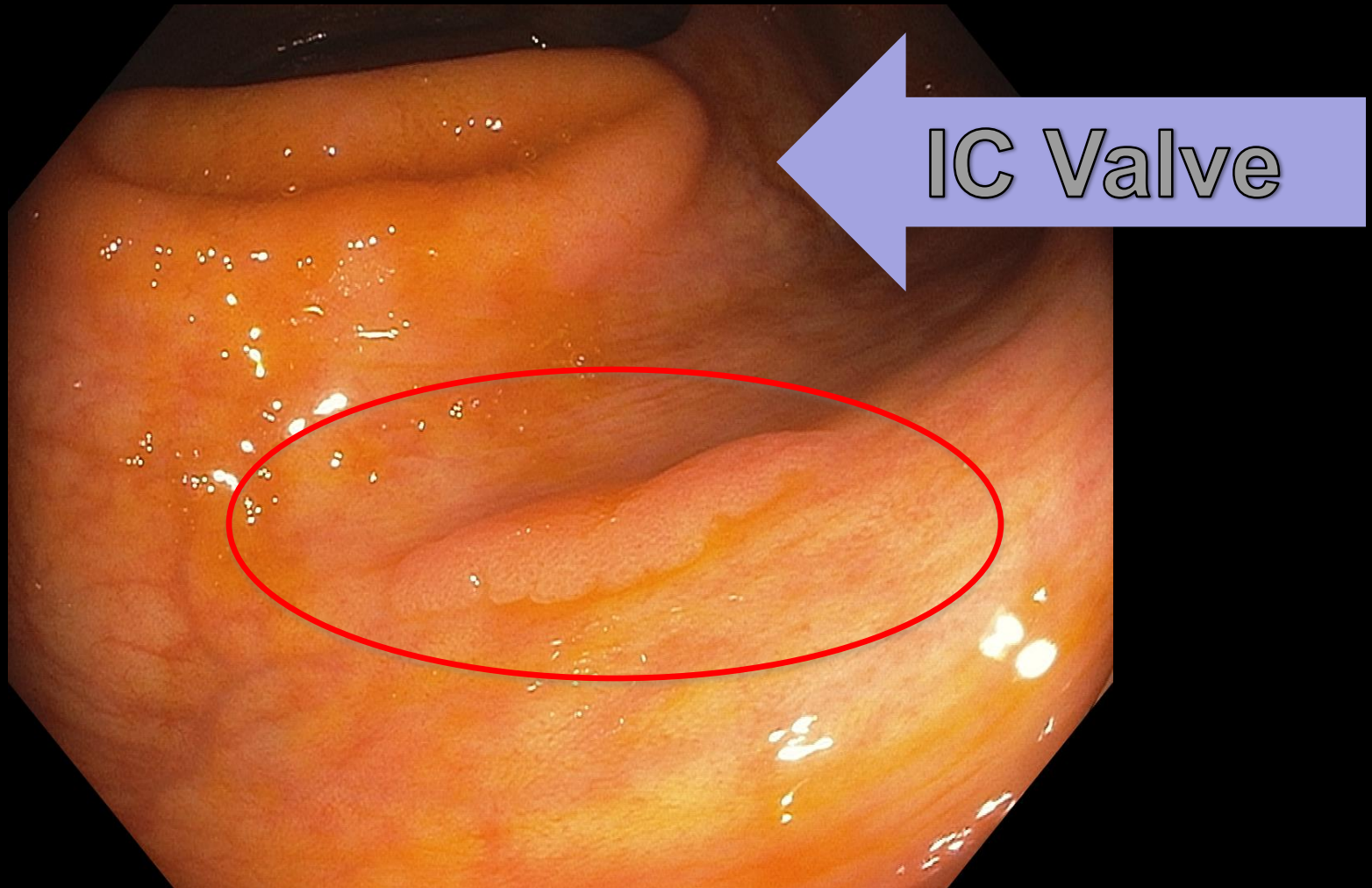
Detection—Close Focus





Detection of Tiny Cancer

Know Where to Look!



Detection: Know What to Look For and Where to Look: Mucous & Debris / Egg-Drop Soup



Tadepalli U. et al. *Gastrointest Endosc* 2011;1360-1368.

Knowing What to Look For: Anything Unusual Below?





This aerial reconnaissance photo of the San Cristobal medium range ballistic missile site No. 3 in Cuba, is one of 27 photos given to Sen. Kenneth Keating, R-NY, February 7, 1963, by Defense Secretary Robert McNamara to document the administration's claim that Russian offensive missiles have been withdrawn. This photo, the Department of Defense says, shows the site at its maximum readiness on October 27, 1962. (AP Photo/U.S. Defense Department)

Steps in Learning Pattern Recognition:

- Lesion characterization: knowing what it is that you are seeing
 - Identify component features of pathologies
 - Process sum of all features and deduce the most likely pathology with varying confidence
 - Alternatively, based on exposure to multiple examples recognize the entire pattern as a whole akin to facial recognition

Feathers + Web feet + Beak,
and it Flies = A Duck

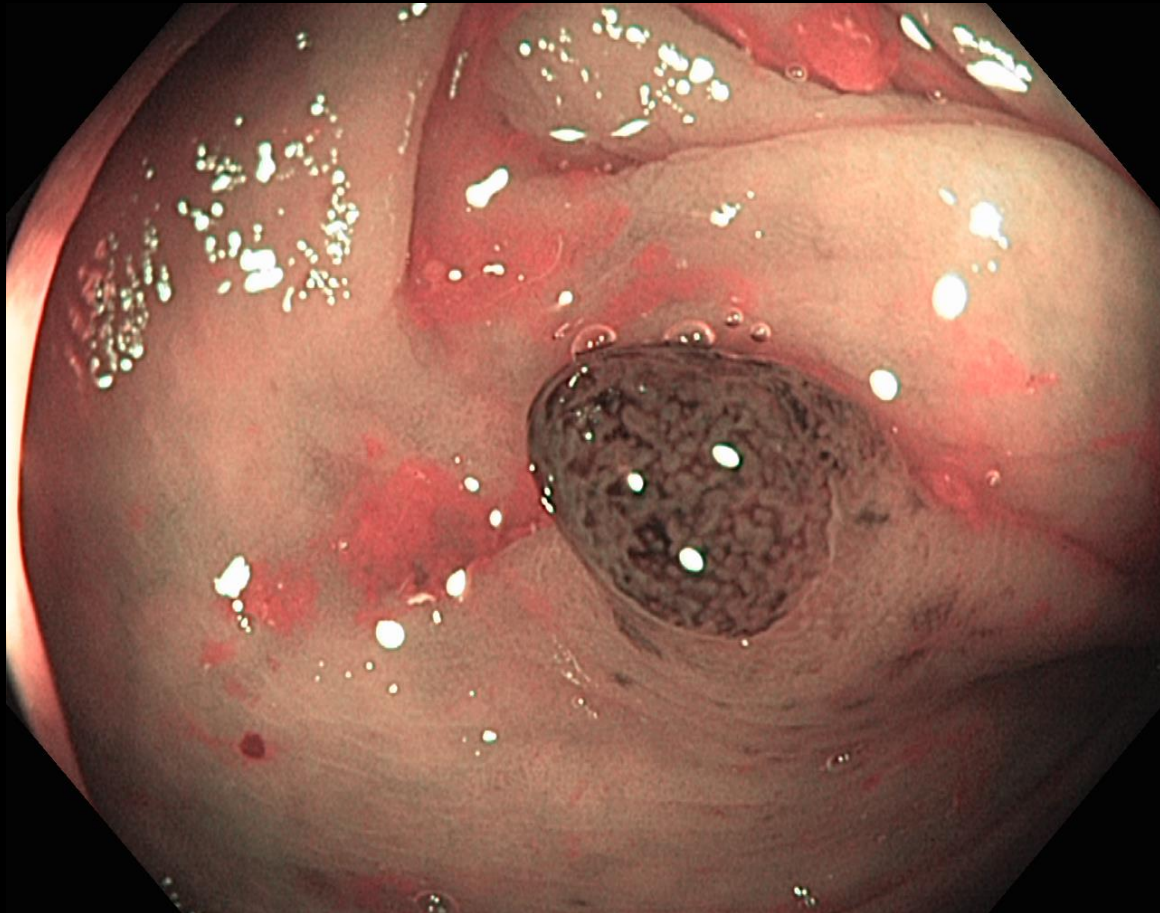


OR . . .

It Looks Like a Duck = A Duck!

Teach Characteristic Features

- Stark color difference from surrounding mucosa
- Thick brown vessels around white structures
- Branched & oval white structures surrounded by brown



Recognizing and Identifying Atypical and Worrisome Lesions

How Would You Maximize the Teaching Moment
When Your Fellow Encounters This Finding?



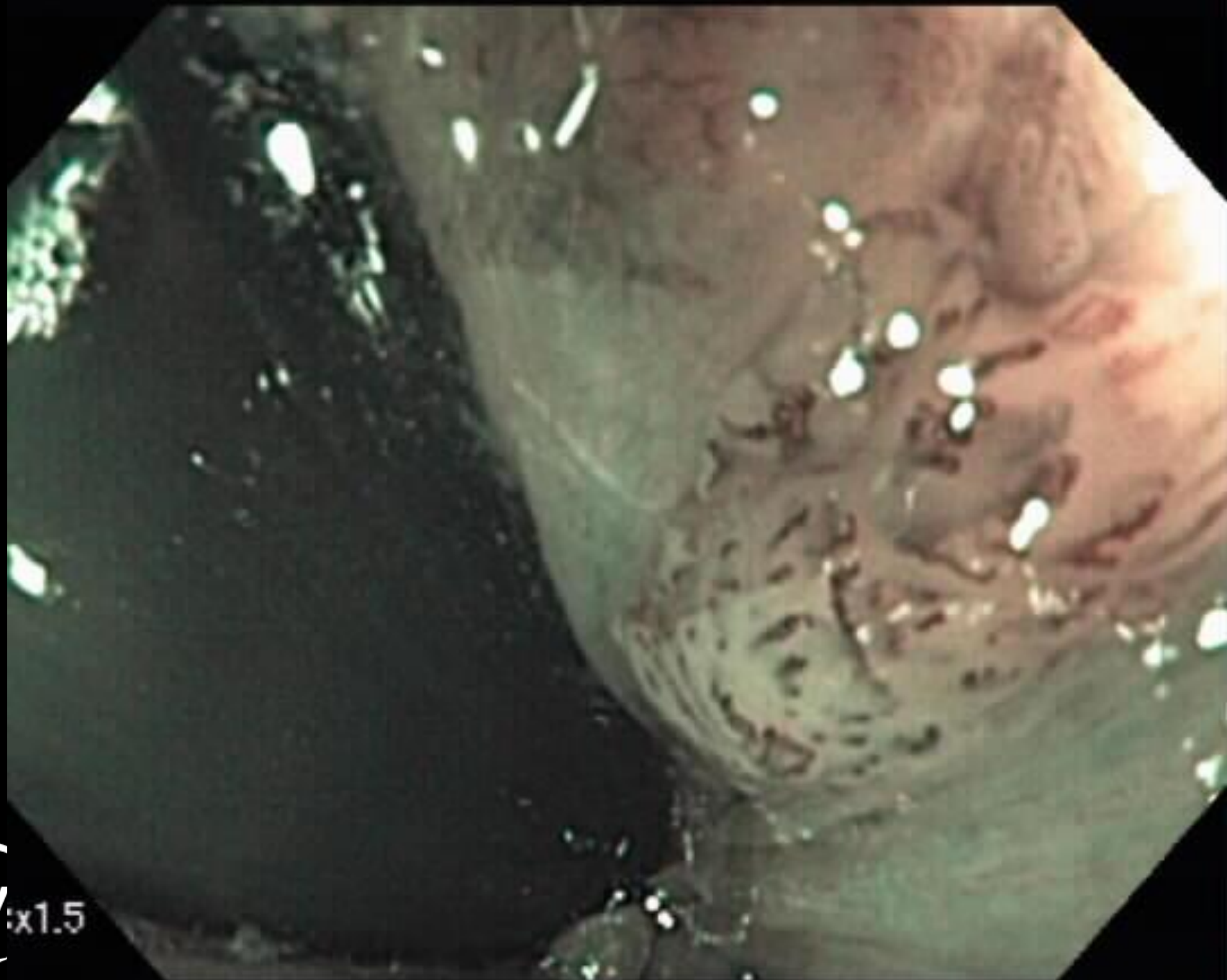
How do novices actually get this cognitive training?

- What are the practical considerations in your program?
- What resources do you use outside the endo unit?
- How do you deal with infrequent pathologies?

Detection & Recognition:

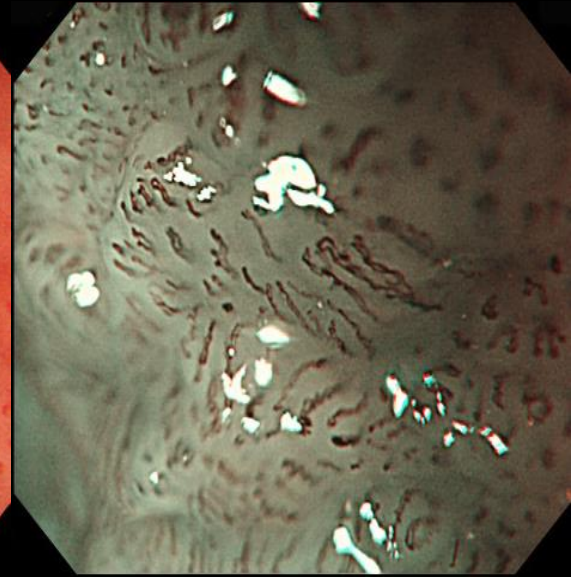
Case Scenario

- 2 cases of routine screening colonoscopy
- “On-demand colonoscopy” with no indication of any particular increased risk for neoplasia
- No history of major co-morbid illnesses, abnormal immune function, or particular abdominal or perirectal complaints
- Normal pre-procedure routine lab tests



NY: x1.5

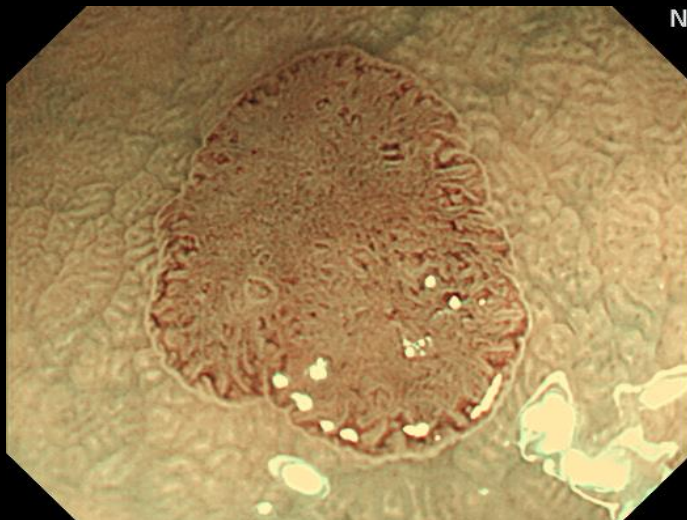
Squamous esophagus IPCL patterns (intra-epithelial papillary capillary loops)



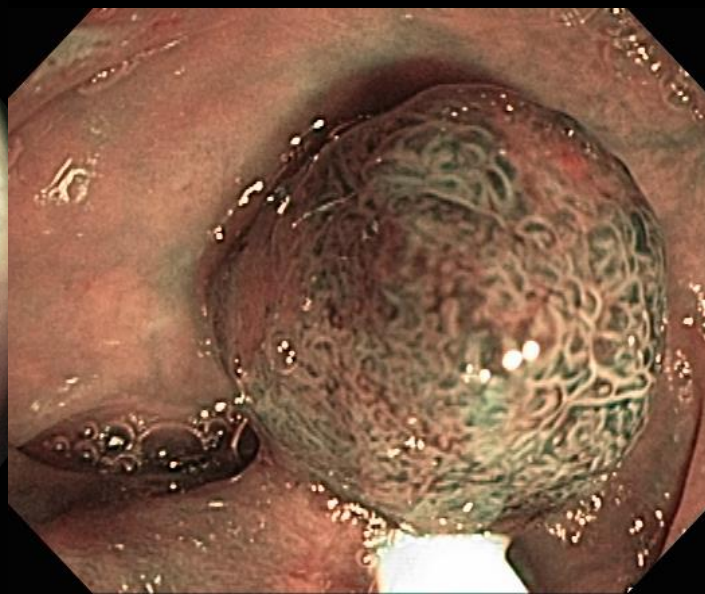
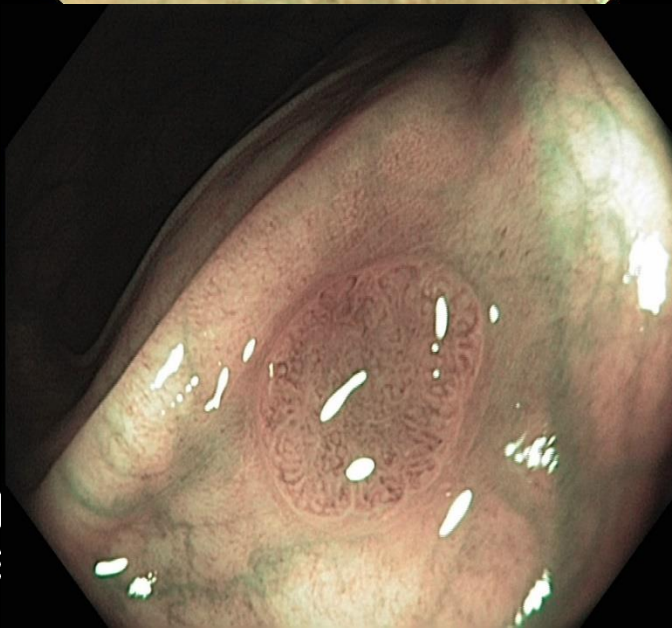
Tips to Didactic Presentations of Imaging Material

- Theoretical background-how it works
- Introduce characteristic features to identify
- Provide many examples
 - Annotate images to clearly point out identifying features
 - Illustrate contrasting features
- Testing with feedback

Repetition of Examples is Key



NE

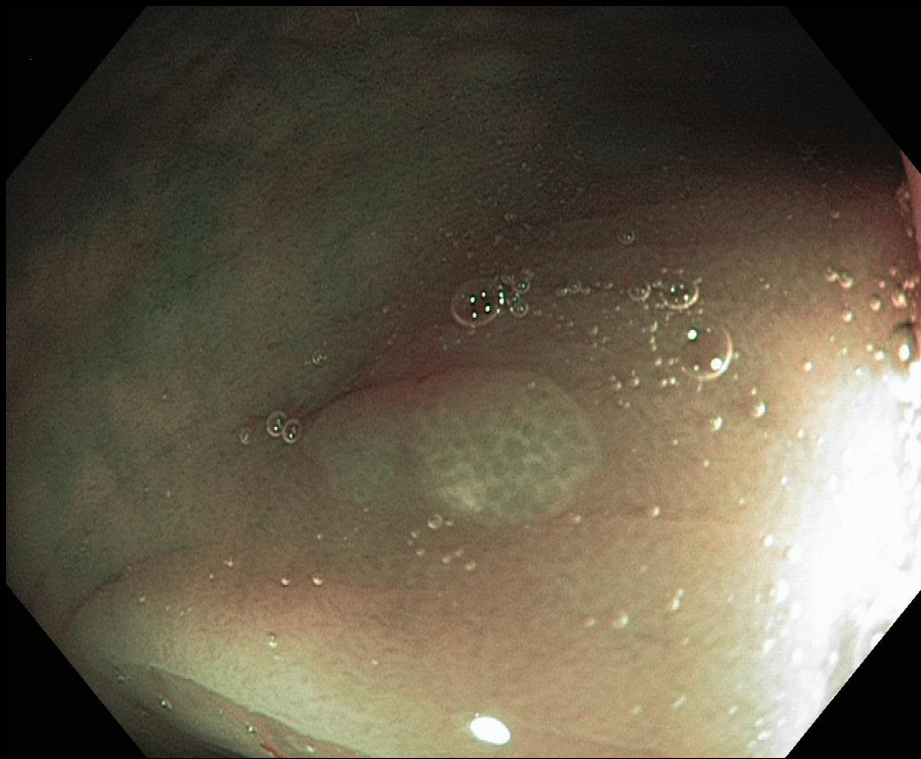


Annotated Images Helpful

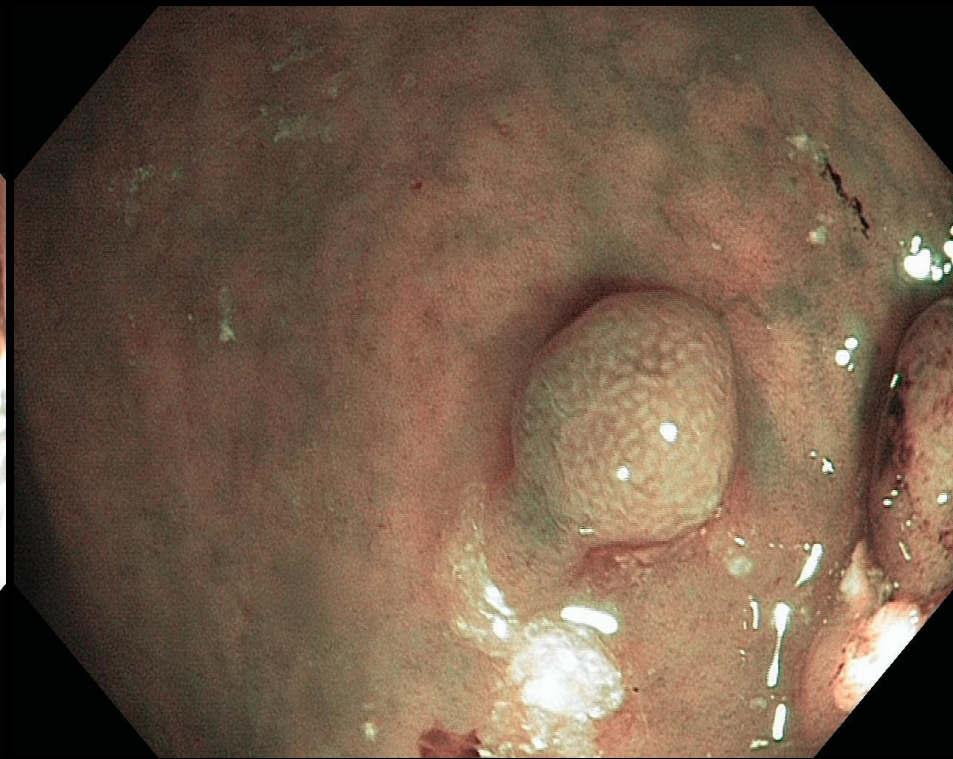
Linear or convoluted
tubular structures

Tubulogyrus pattern - Adenoma

NBI patterns- Areas of Confusion: Juxtapose Contrasting Findings



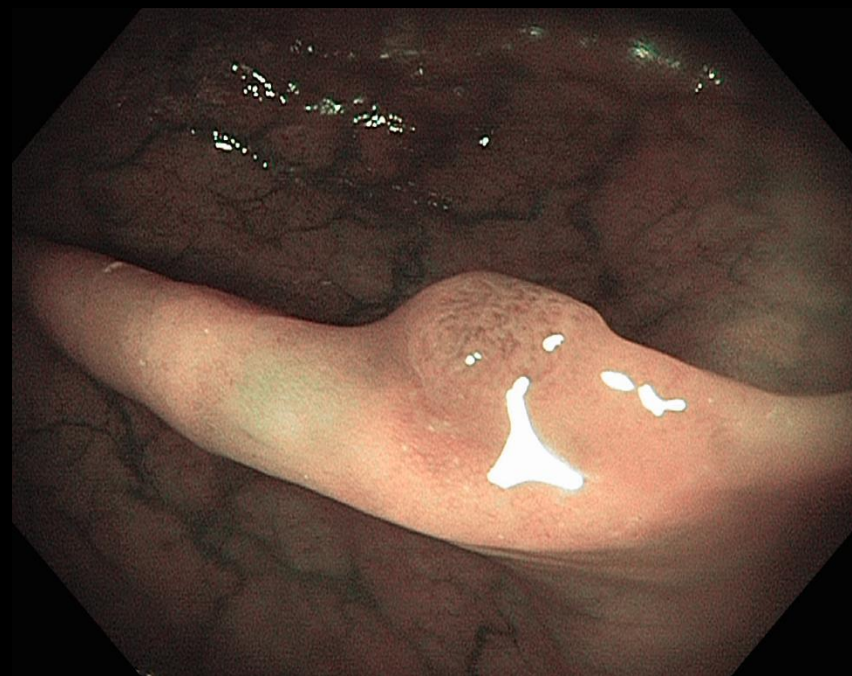
Circular pattern with dots
(Hyperplastic polyp)



Round or Oval pattern
(Adenoma)

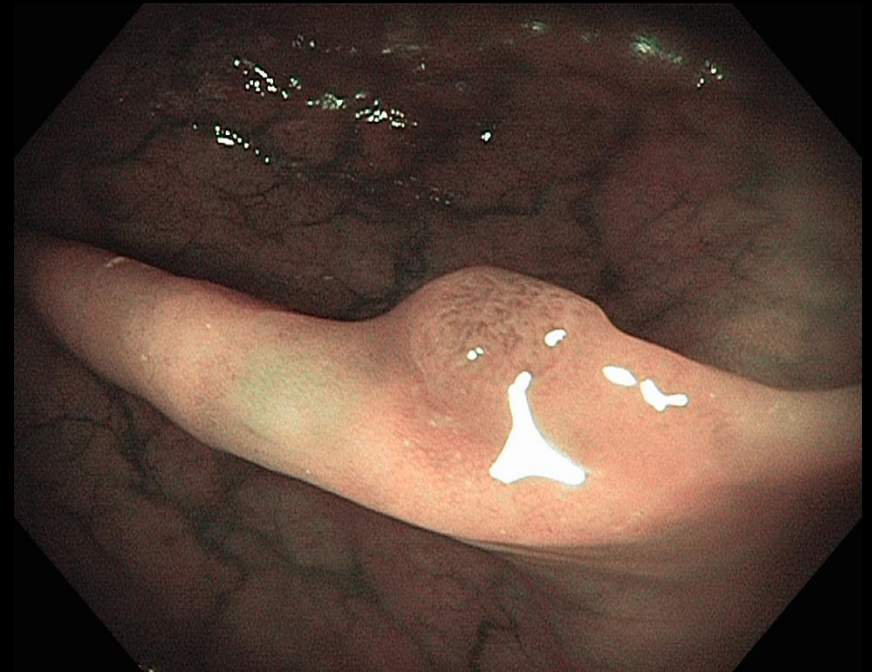
Exercise: Examples for Practice

- Polyp Color:
 - () Brown from vessels
 - () Same as background
- Polyp Vessels:
 - () Brown around white
 - () None or lacy
- Surface Pattern of Polyp:
 - () Oval, tubular or branched white surrounded by vessels
 - () Dark spots surrounded by white



Immediate Review of Answers

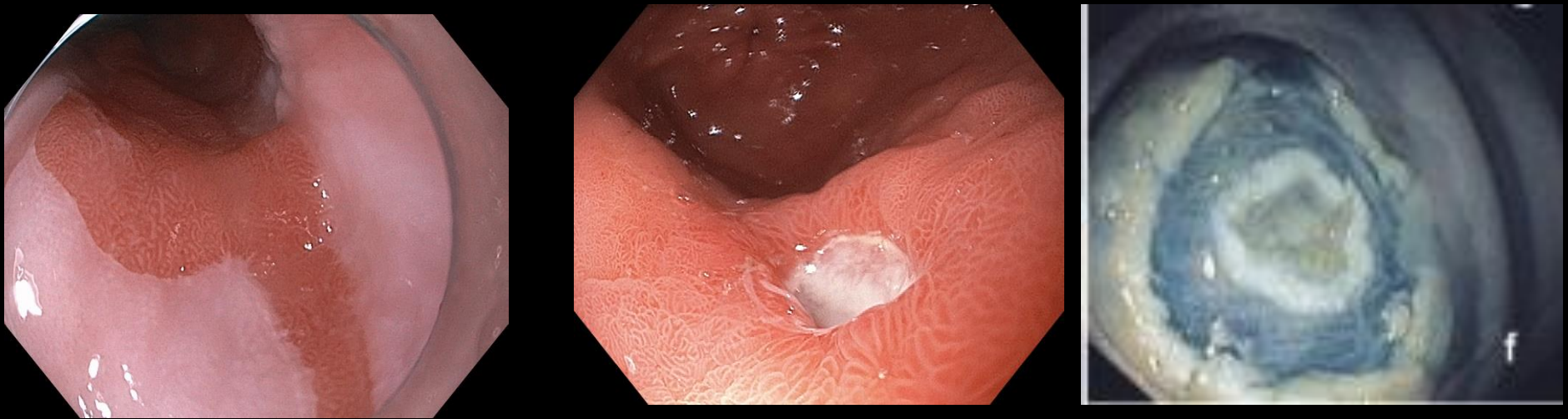
- Polyp Color:
 - (☒) Brown from vessels
 - (☐) Same as background
- Polyp Vessels:
 - (☒) Brown around white
 - (☐) None or lacy
- Surface Pattern of Polyp:
 - (☒) Oval, tubular or branched white surrounded by vessels
 - (☐) Dark spots surrounded by white



Teaching Appropriate Management of Endoscopic Findings

- Intra-procedure teaching
- Post-procedure activities
- Real time endotherapy decision making
- When and how best to sample
- Understanding quality indicators
- Maximizing safety/minimizing risk
- EBM awareness and application

Cognitive Teaching: Management of Endoscopic Findings



Summary Discussion:

Any Take Home Ideas?