

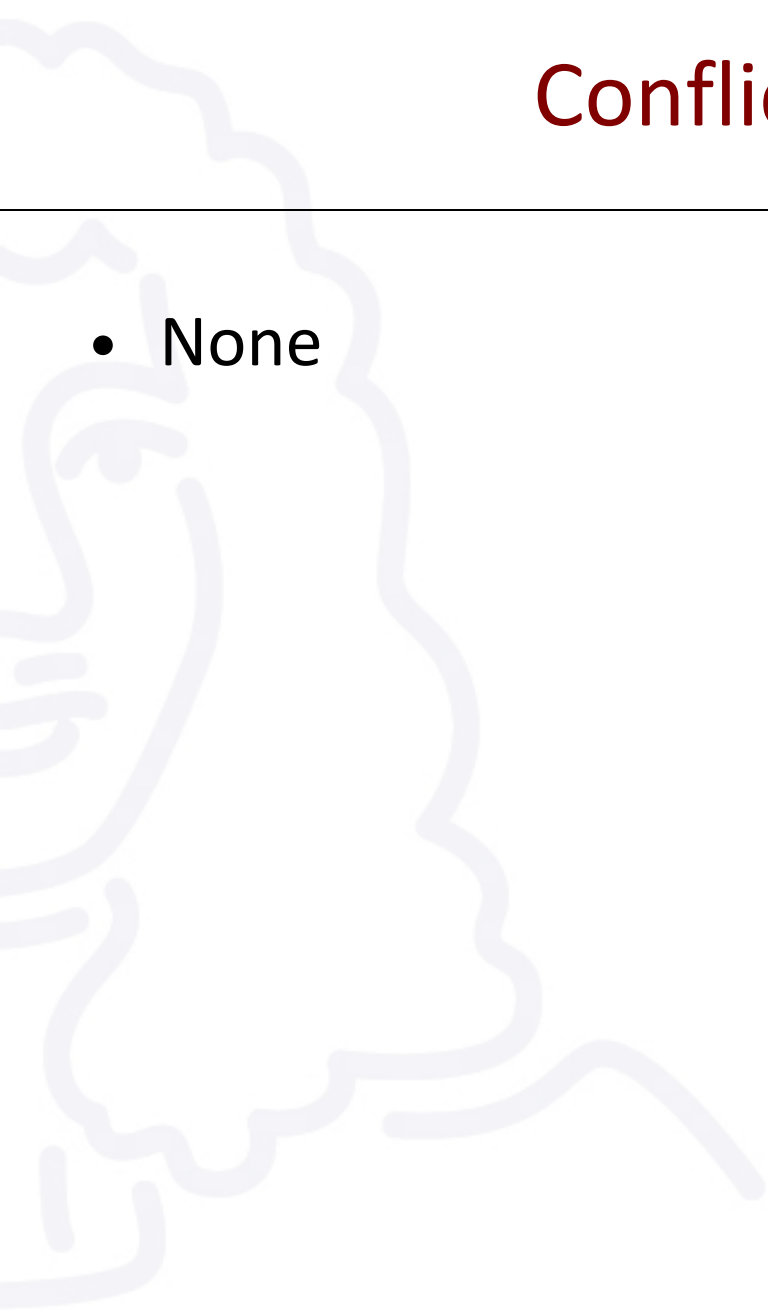
20-21 November 2017

Endoscopy; more than white light

Monique van Leerdam,
Gastroenterologist , NKI-AVL, Amsterdam
The Netherlands

Conflicts of interest

- None



Sigmoidoscopy/ Colonoscopy

- Detection of colorectal neoplasia
- Differentiation of colorectal neoplasia
- Diagnose submucosal invasion

Endoscopy

High quality endoscopy;

- Clean bowel
- Complete endoscopy
- Adequate withdrawal time
- High definition white light endoscope (detection)
- Conventional or virtual chromoendoscopy (characterisation)

Weak recommendation/ moderate quality evidence



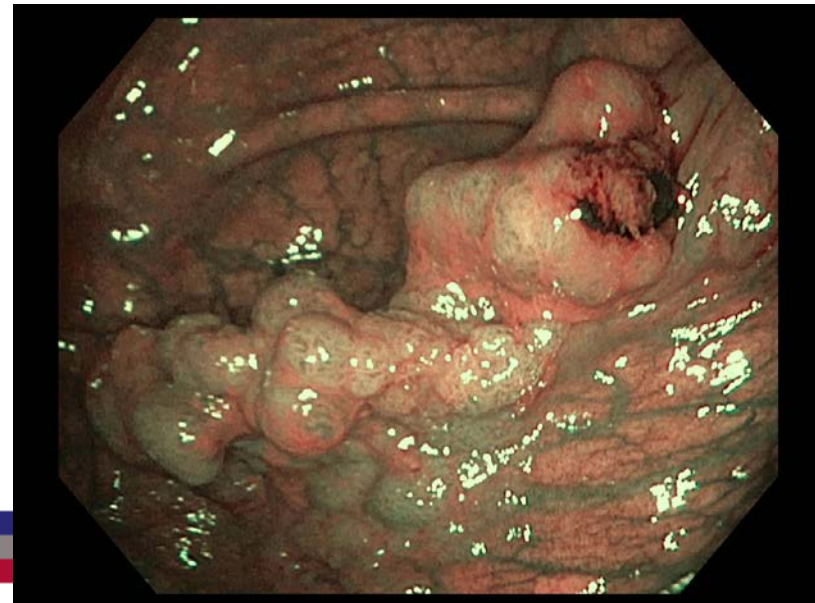
Advanced endoscopic imaging techniques

Useful for;

- Adequate delineation of margins (large sessile or nonpolypoid lesions)
- Prediction of the risk of invasive cancer and deep submucosal invasion
- Post resection surveillance for residual neoplasia

Weak recommendation/
moderate quality evidence

Kaminski et al, ESGE guideline Endoscopy 2014



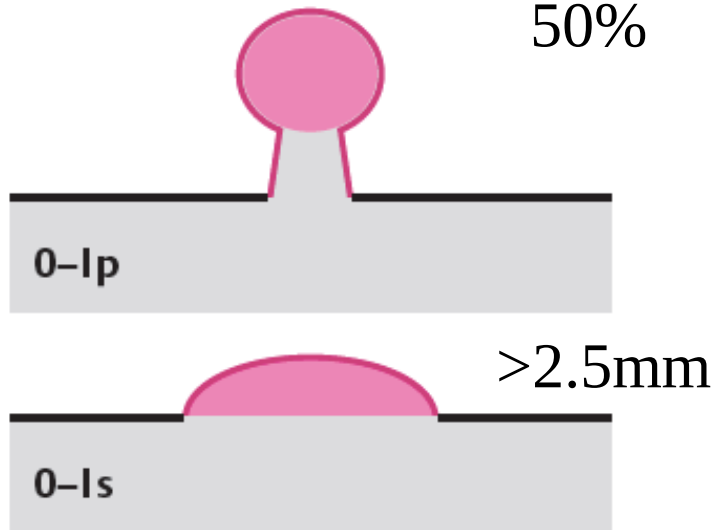
How to describe/ diagnose (early) CRC?

1. Exact location
2. *Morphological factors (Paris classification)*
3. Ulceration? (Y/N)
4. Size
5. Endoscopic pictures (5)
6. *Pit pattern*
7. *Vascular pattern*

Morphology; Paris classification

I

50%

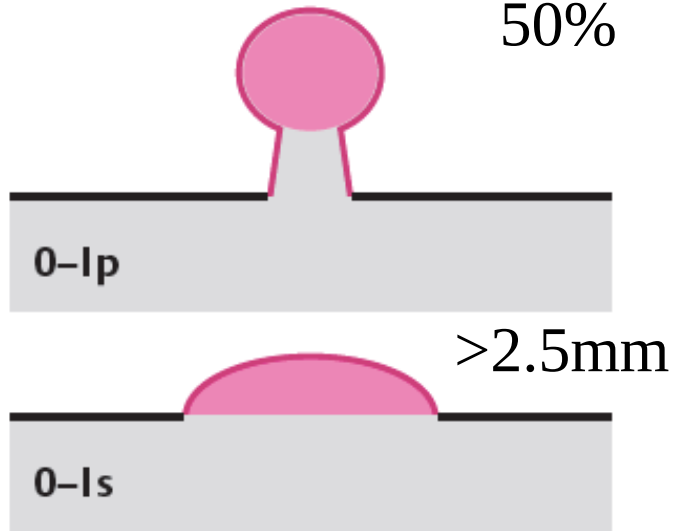


Lambert, Endoscopy 2005

Morphology; Paris classification

I

50%

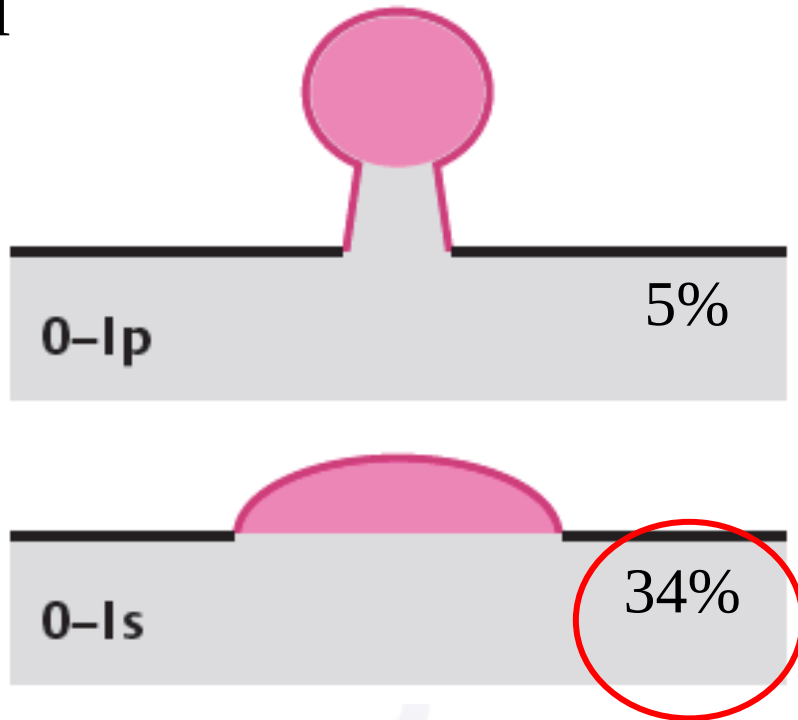


II

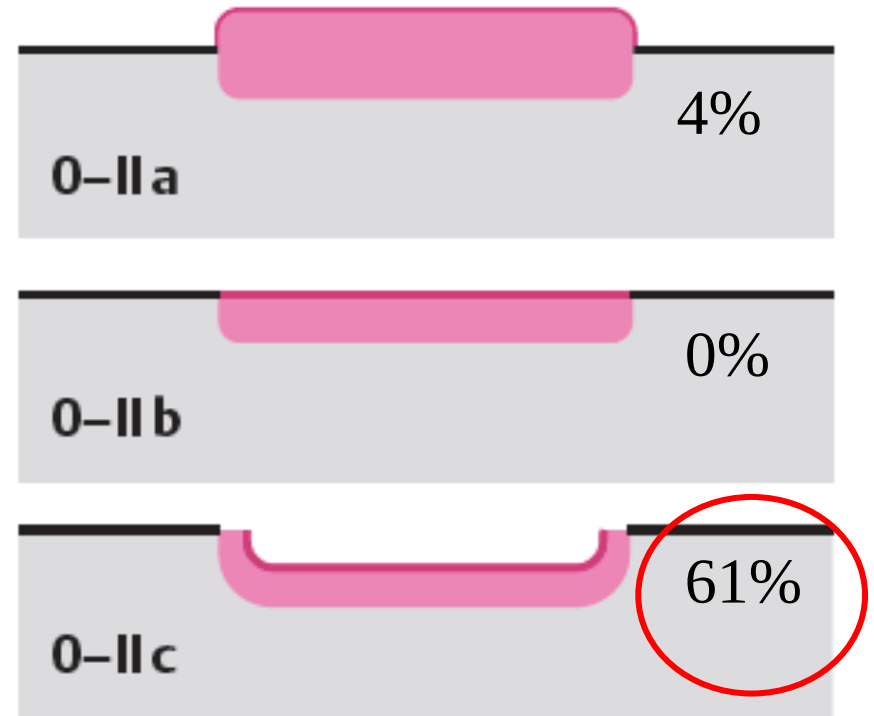


Paris class.; % of submucosal invasion

I



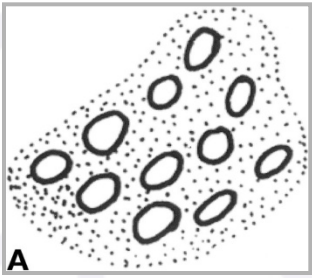
II



Mucosal patterns

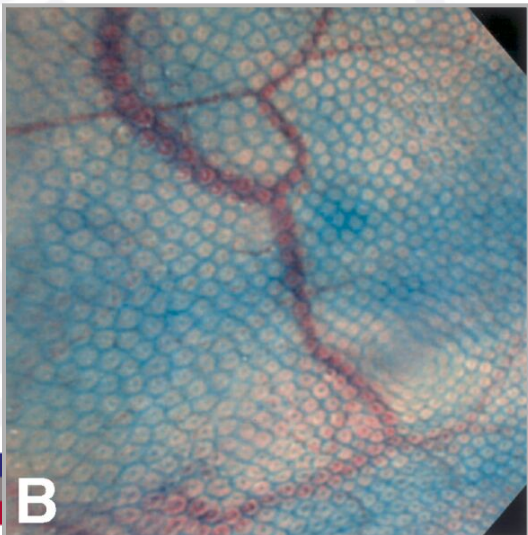
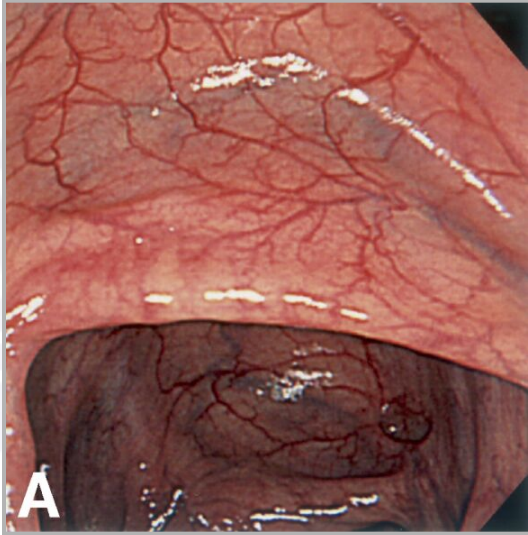
Kudo pit pattern (Magnifying endoscope; x80)

- Microarchitecture of pits, epithelial crests and ridges
- Together with chromoendoscopy or NBI

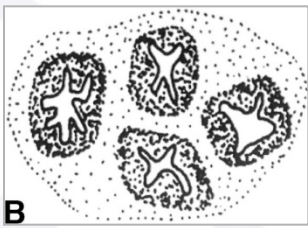


Kudo I

Round pits, regular in size and arrangement

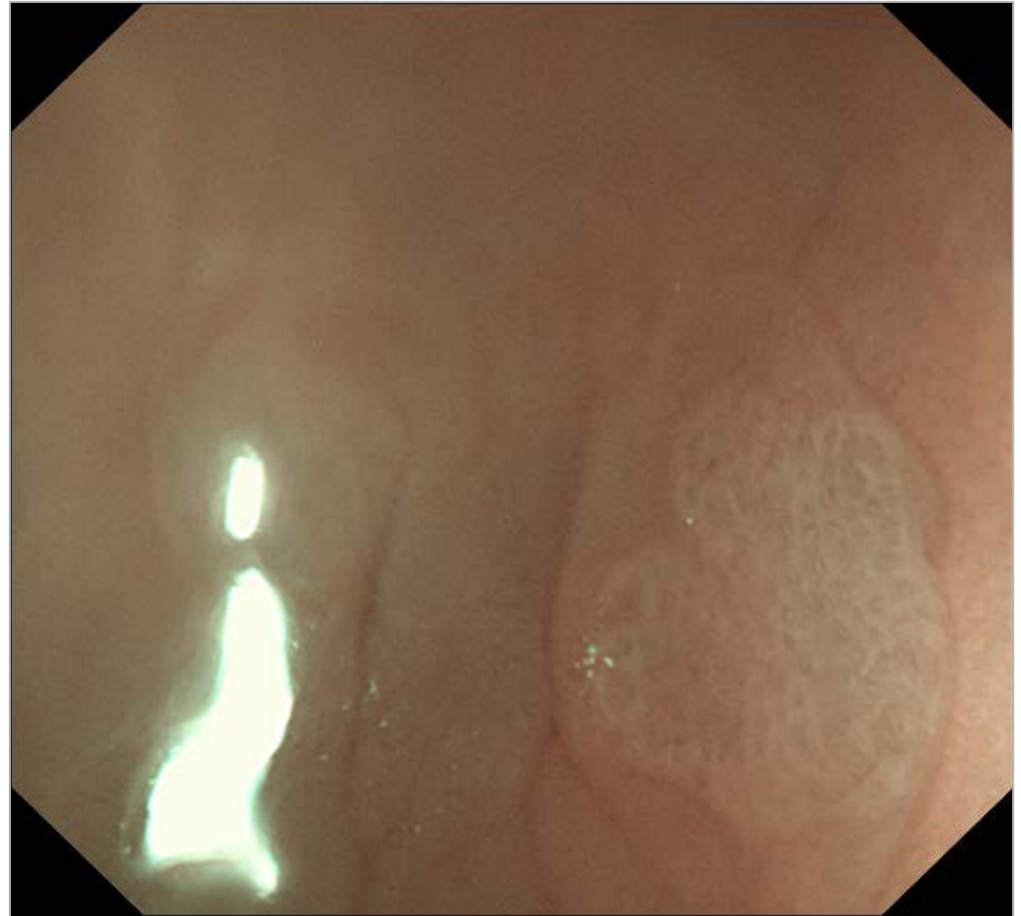
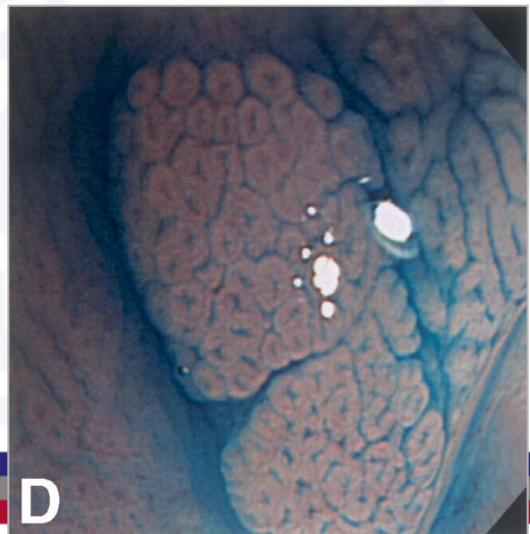
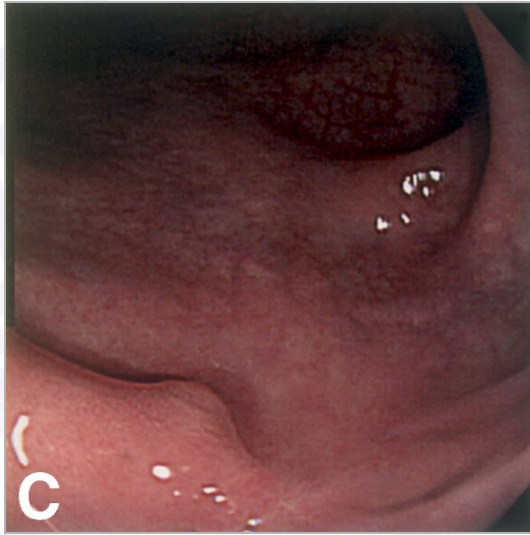


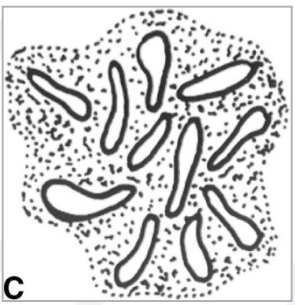
Kudo Endoscopy 2001



Kudo II

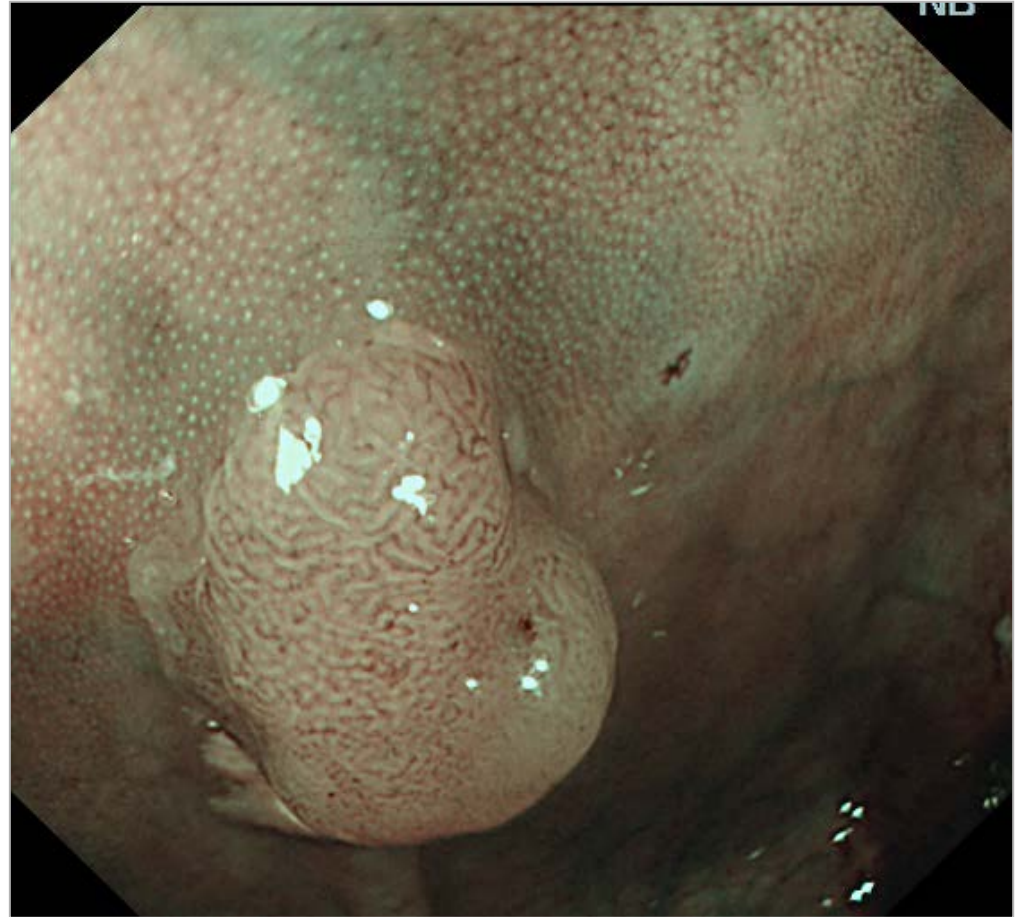
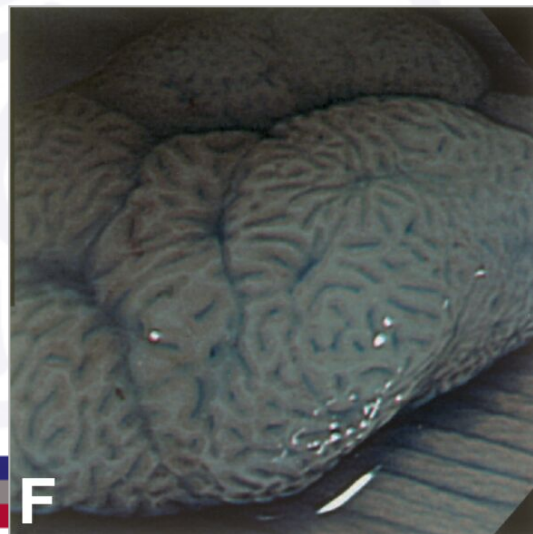
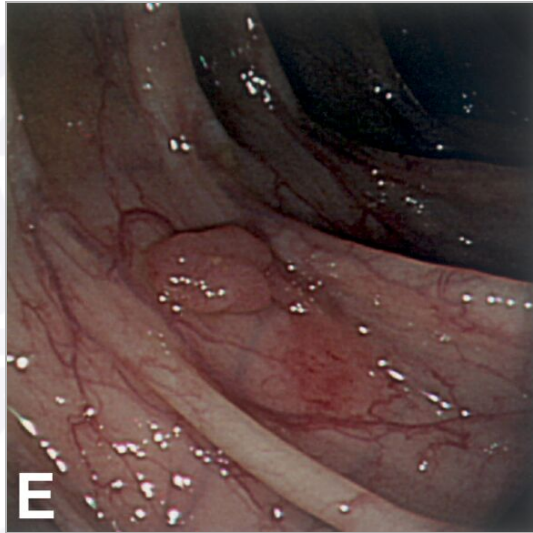
Larger star-shaped pits
hyperplastic polyp



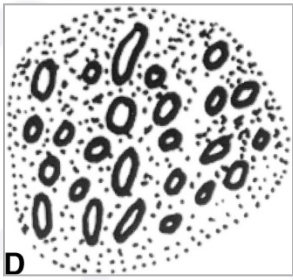


Kudo III L

Elongated pits (L=long)
tubular adenoma

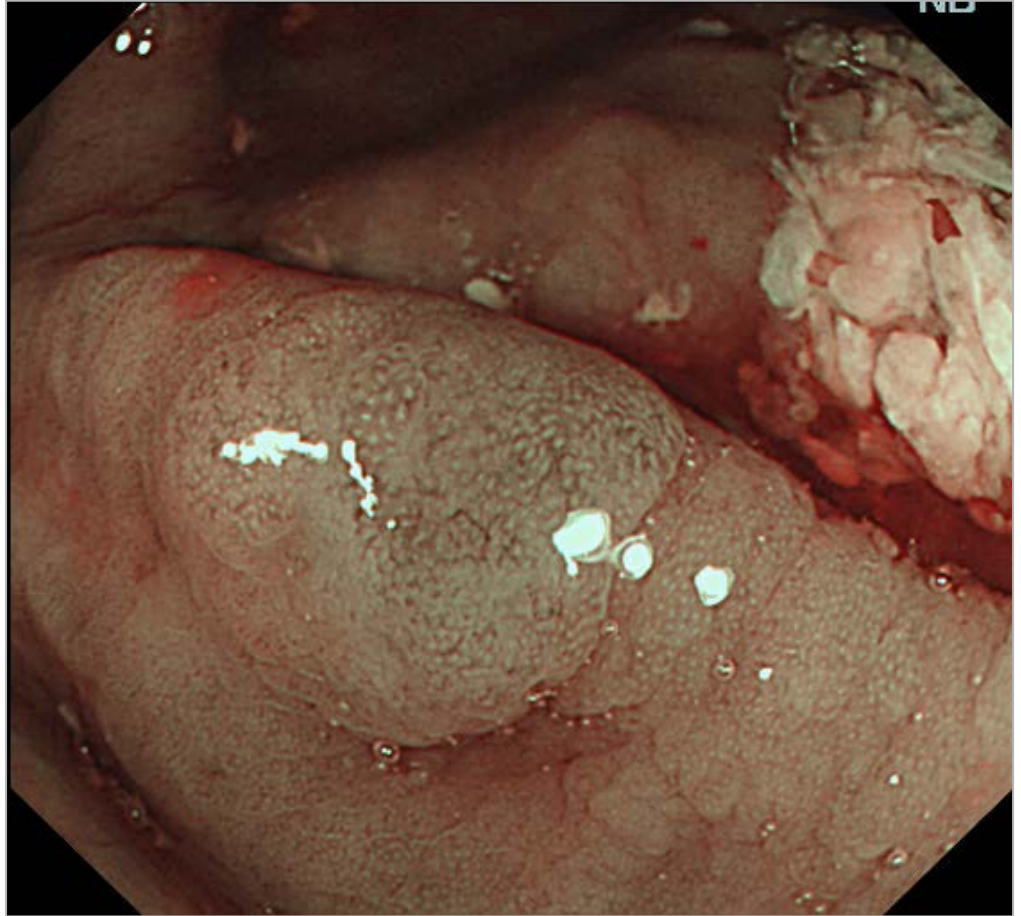
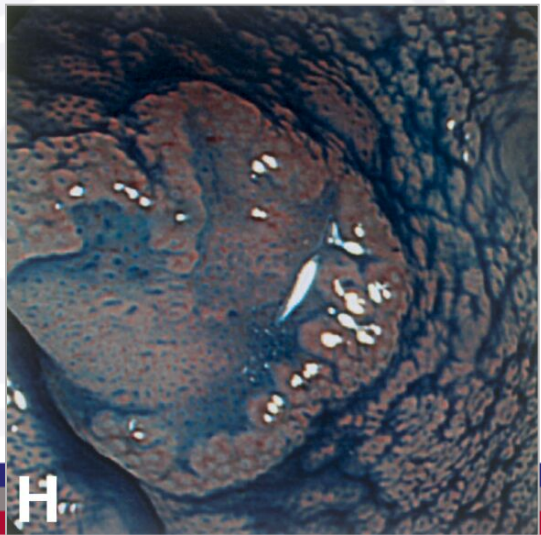
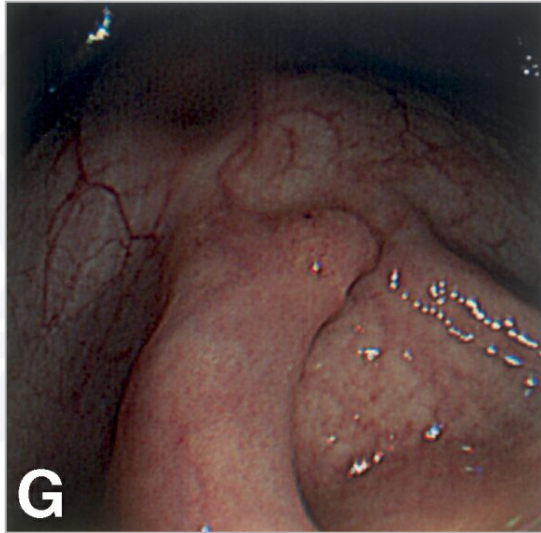


Kudo Endoscopy 2001



Kudo III S

Irregular round smaller pits
tubular adenoma



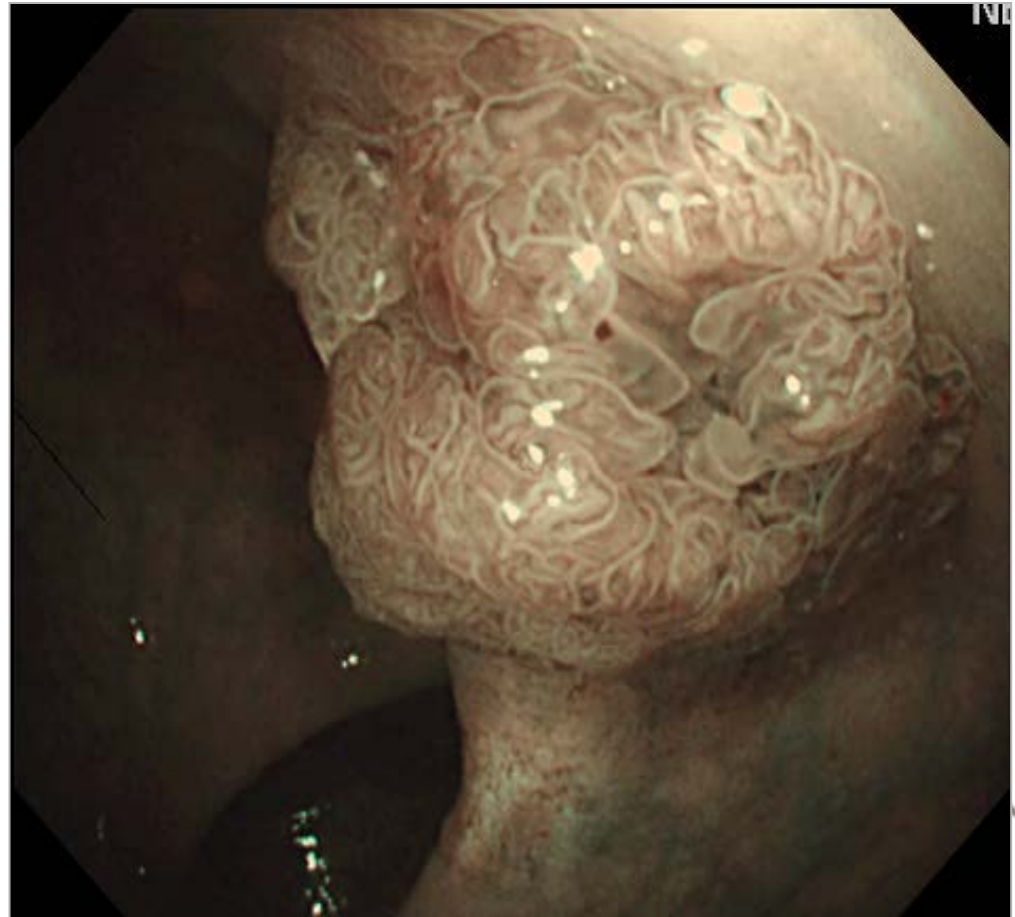
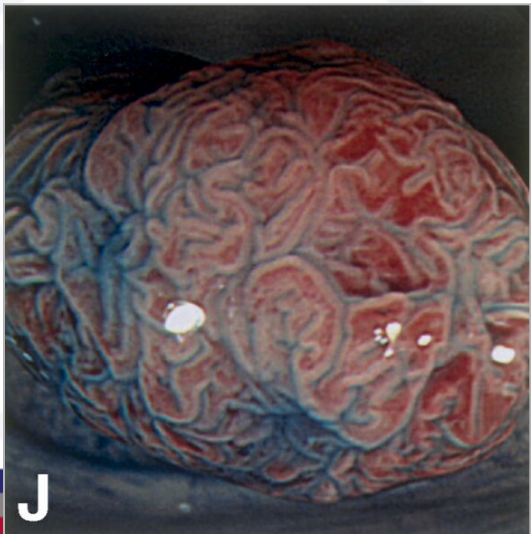
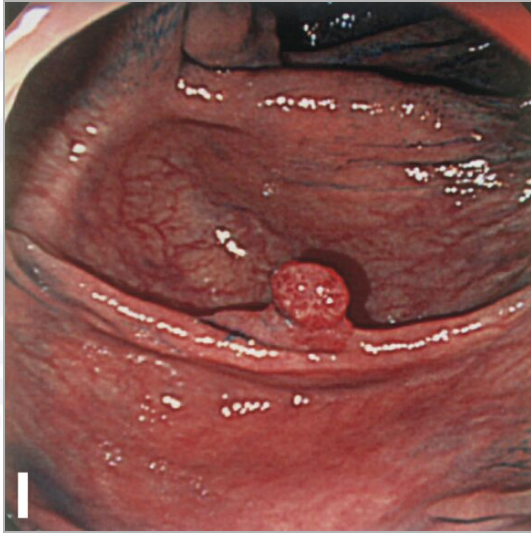
Kudo Endoscopy 2001

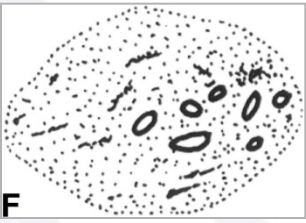


Kudo IV

Gyrus like, branched pits
Villous adenoma

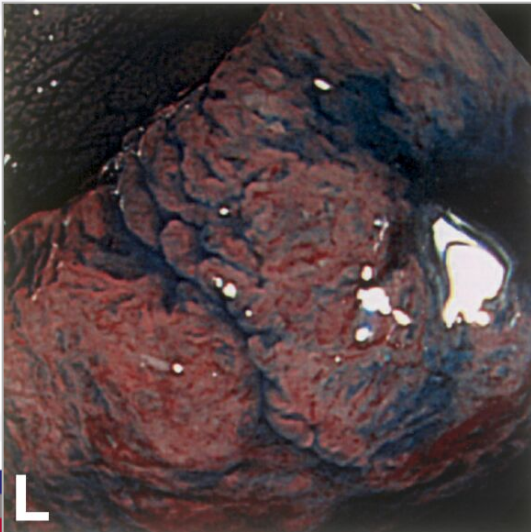
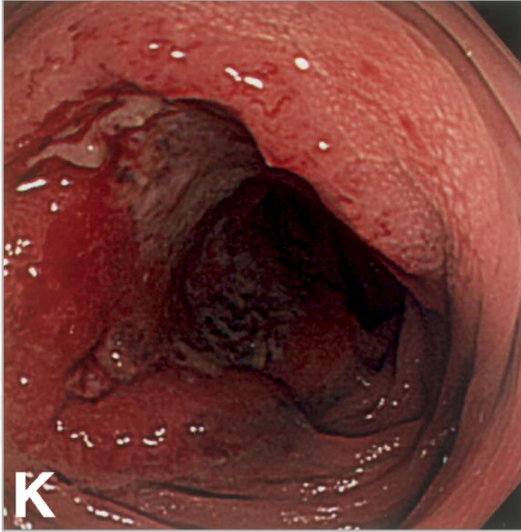
22% in carcinomas





Kudo V

Irregular shaped/arranged
nonstructural



Kudo Endoscopy 2001

Kudo V; % Submucosal invasion

- Kudo V pit pattern; > 40% submucosal invasion
- Sensitivity for submucosal invasion in European cohort study 60-79%

Kudo Endoscopy 2001, Vd Vlugt Endo int open 2016

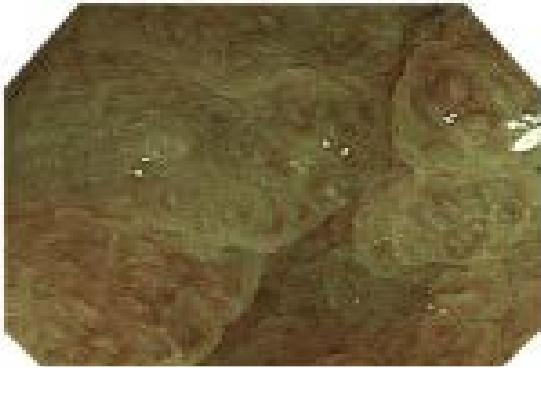
Vascular pattern

Narrow band imaging (NBI)

- Set of filters is interposed;
- Incidence photons are emitted in 2 narrow bands of wavelengths (blue and red);
- Improves the definition of the surface and the vessels are highly contrasted in dark brown

NICE

(NBI International Colorectal Endoscopic Classification)*

	Type 1	Type 2	Type 3
Color	Same or lighter than background	Browner relative to background (verify color arises from vessels)	Brown to dark brown relative to background; sometimes patchy whiter areas
Vessels	None, or isolated lacy vessels coursing across the lesion	Brown vessels surrounding white structures**	Has area(s) of disrupted or missing vessels
Surface Pattern	Dark or white spots of uniform size, or homogeneous absence of pattern	Oval, tubular or branched white structure surrounded by brown vessels**	Amorphous or absent surface pattern
Most likely pathology	Hyperplastic	Adenoma***	Deep submucosal invasive cancer
Examples			
			

* Hayashi et al, Gastrointest Endosc 2013

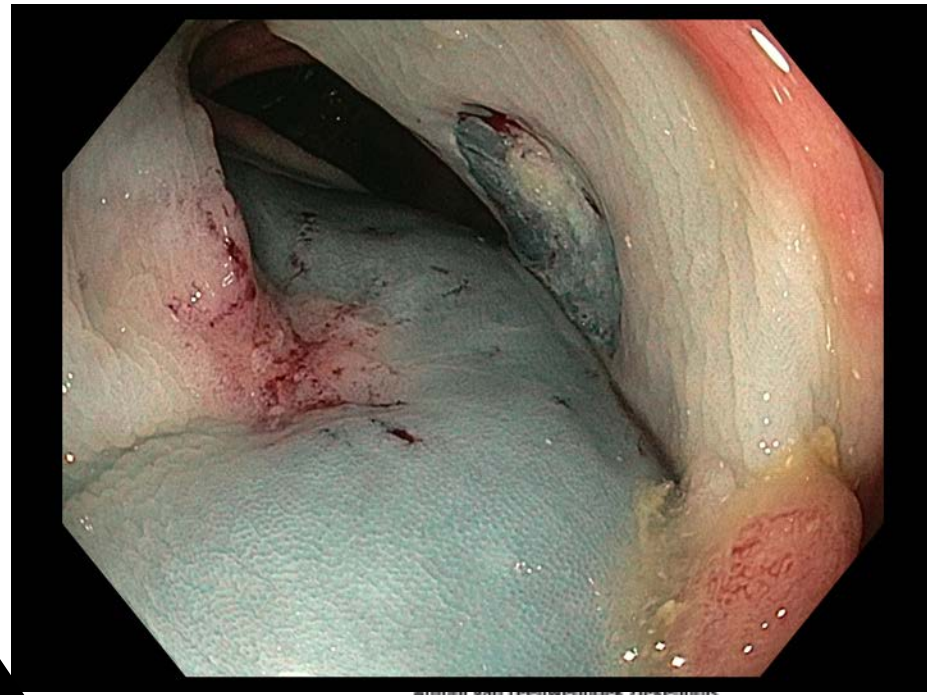
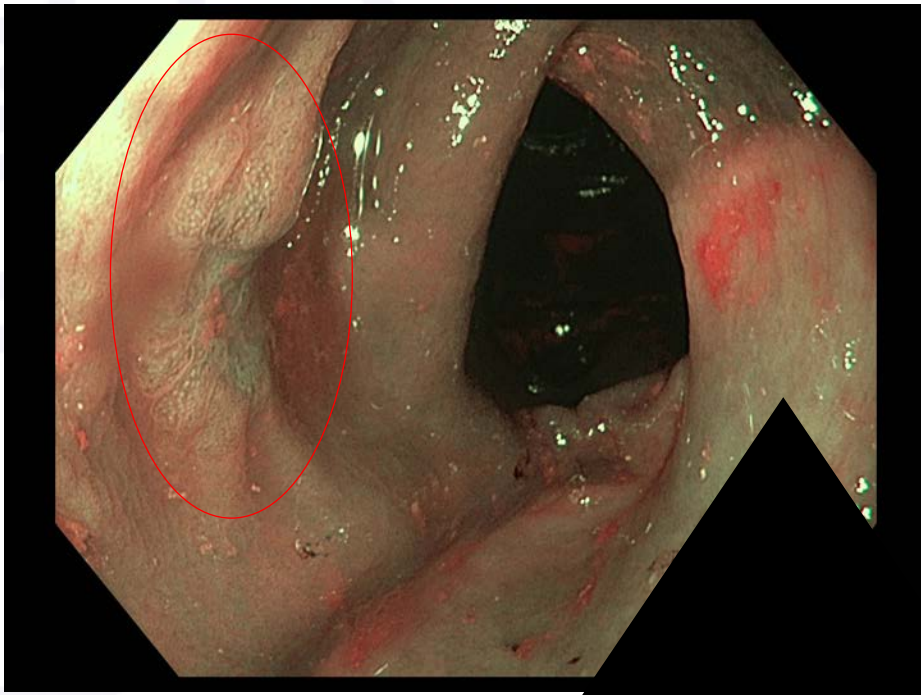
NICE; performance characteristics predicting deep submucosal invasion

	Overall predictions, % (95% CI)	High-confidence predictions, % (95% CI)
Accuracy	75.6 (0.71-0.80)	84.1 (0.79-0.88)
Sensitivity	83.3 (0.76-0.89)	86.8 (0.79-0.92)
Specificity	70.0 (0.63-0.76)	81.5 (0.74-0.88)
NPV	85.4 (0.79-0.90)	86.9 (0.80-0.92)
PPV	66.5 (0.59-0.73)	81.4 (0.74-0.88)

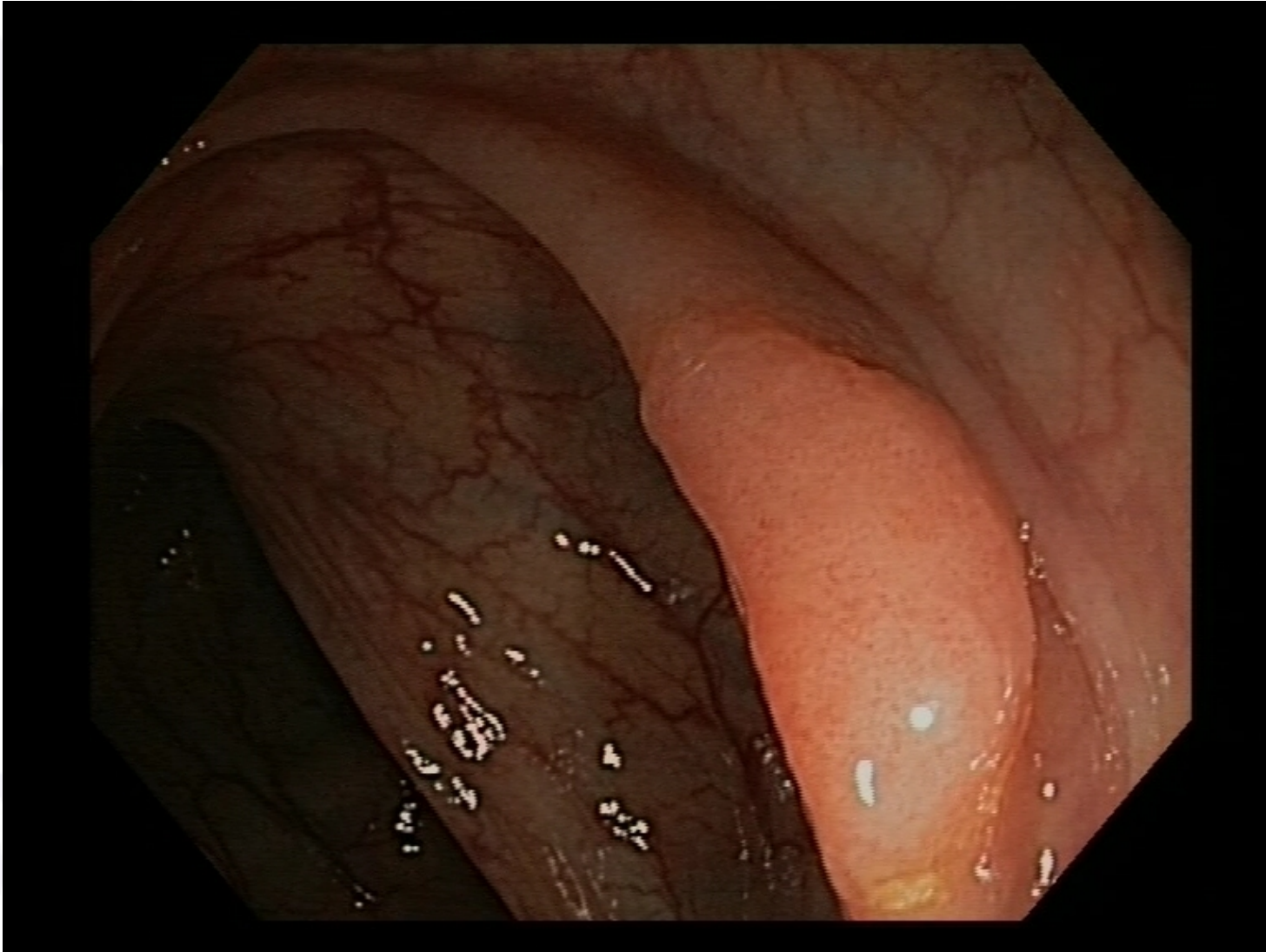
CI, Confidence interval; NPV, negative predictive value; PPV, positive predictive value.

Non-lifting sign

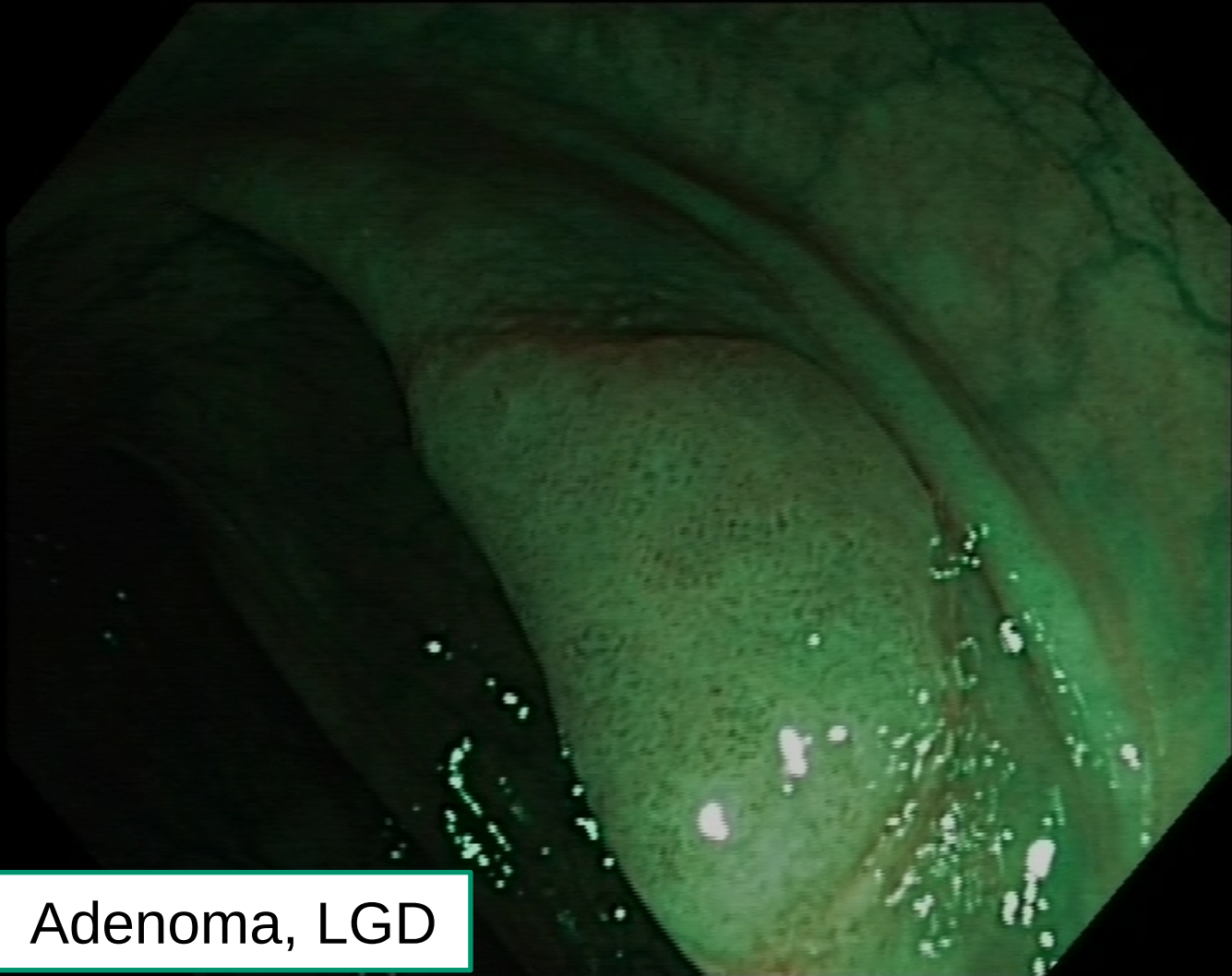
- Very suspicious for submucosal invasion



Case 1

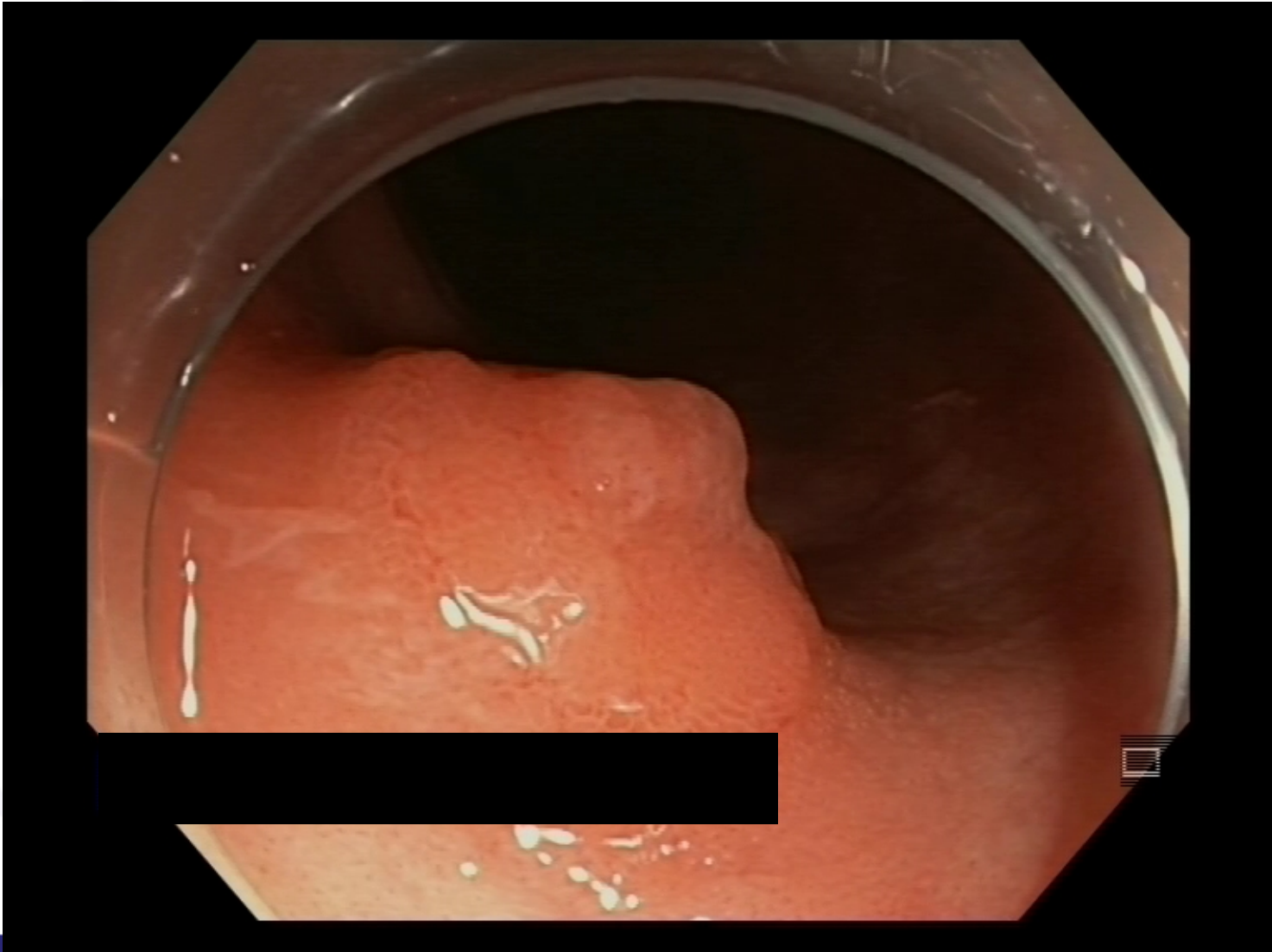


Case 1



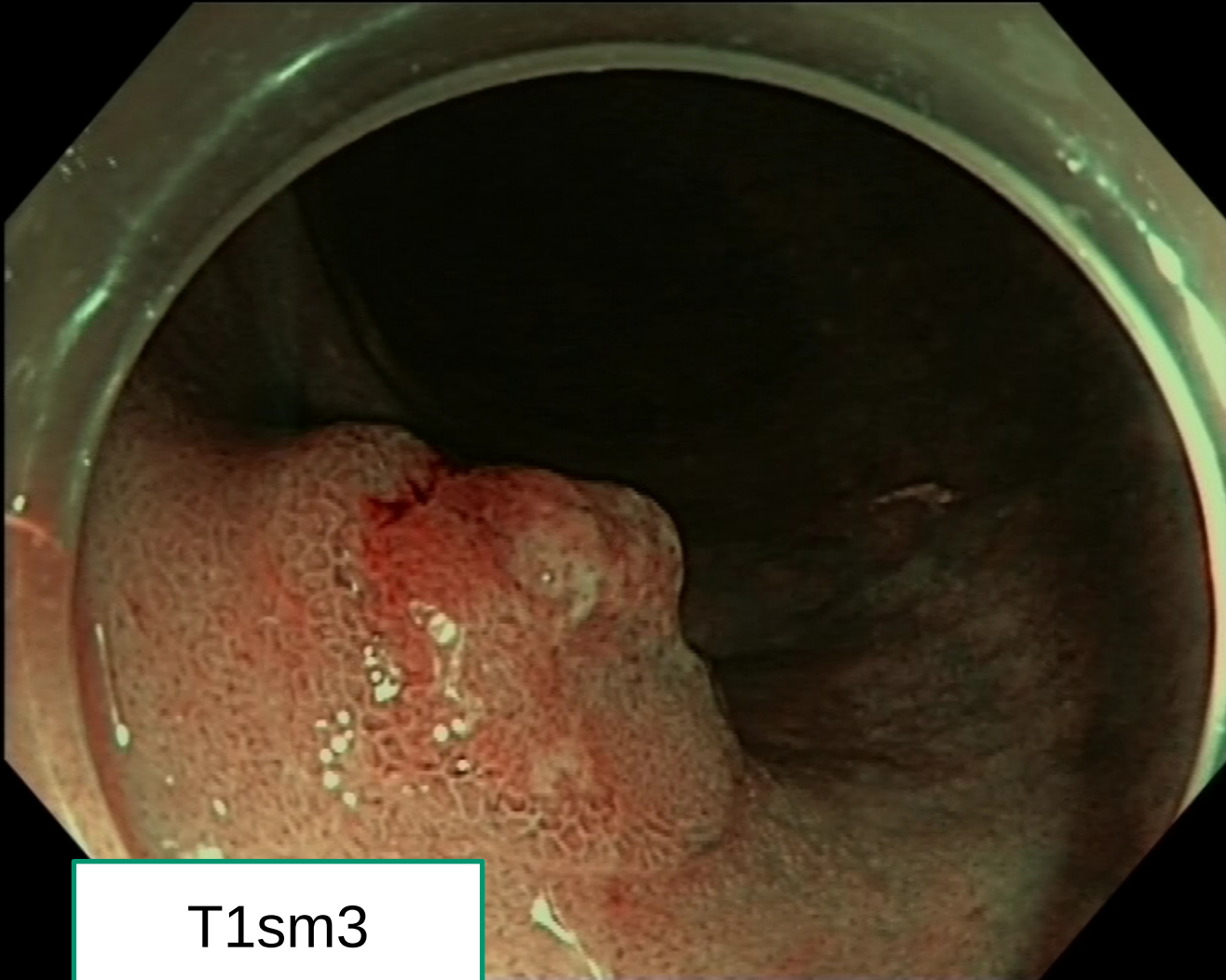
Adenoma, LGD

Case 2



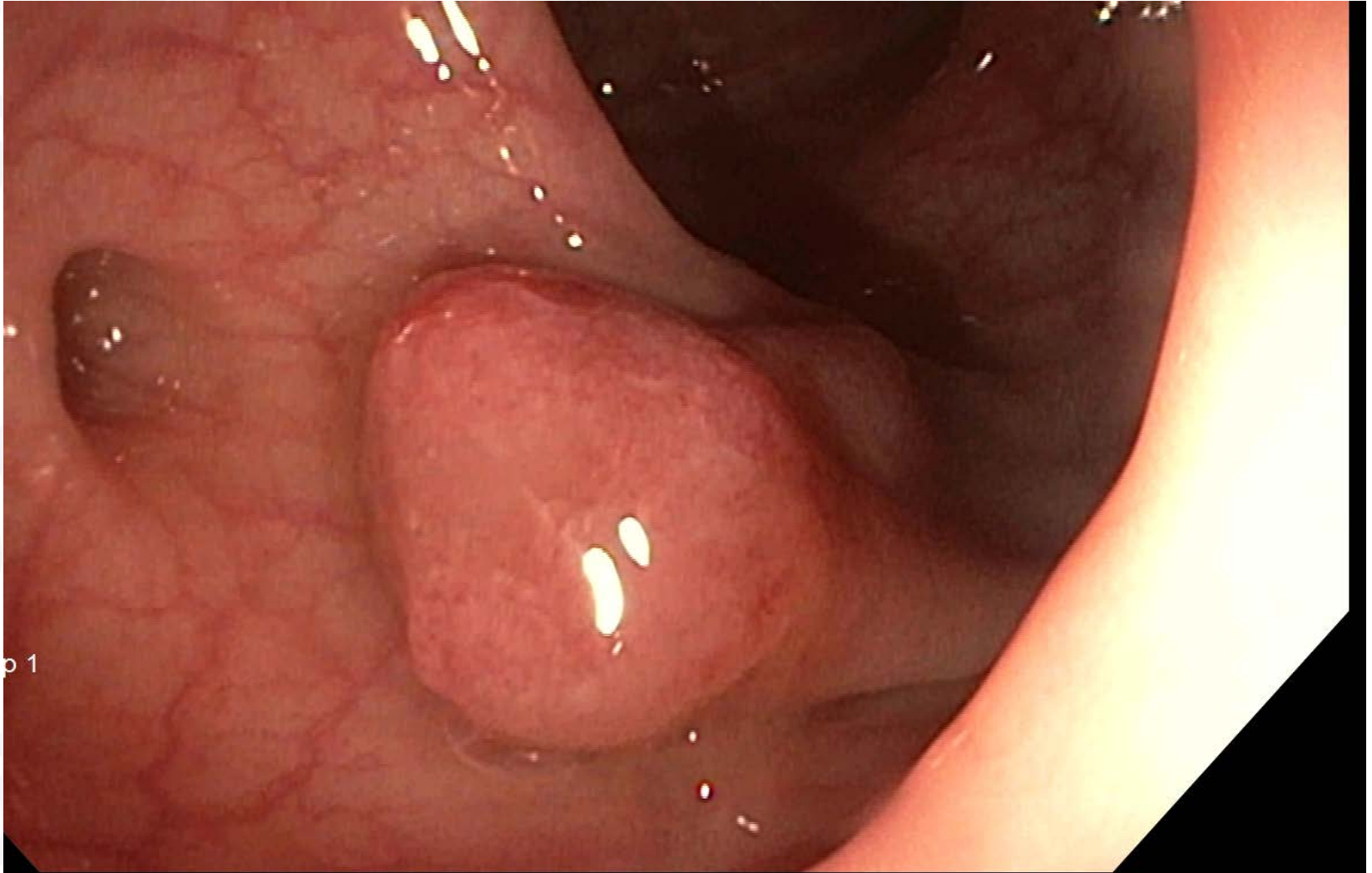
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Case 2



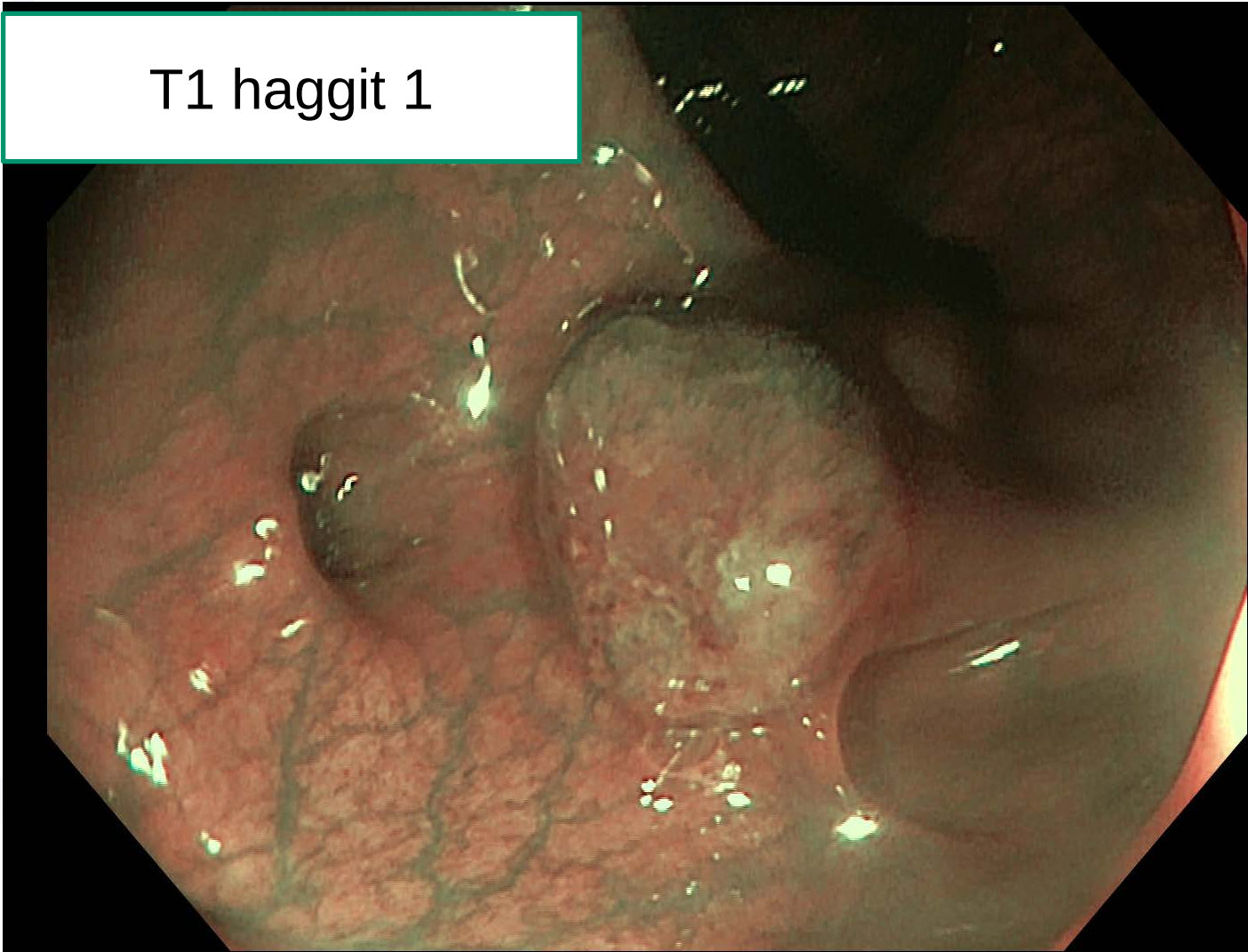
T1sm3

Case 3



Case 3

T1 haggit 1



Endoscopy; more than white light

- High definition endoscopes
- Magnification (near focus)
- Advance imaging techniques
- Paris classification
- Kudo pitt-pattern
- NICE
- Submucosal invasion
- Margin of the lesion