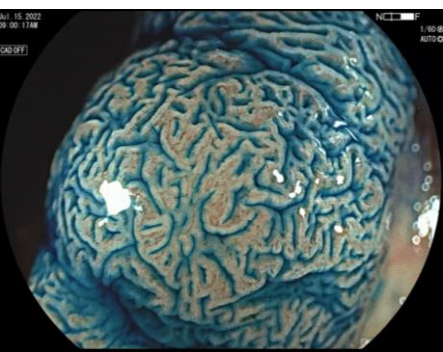
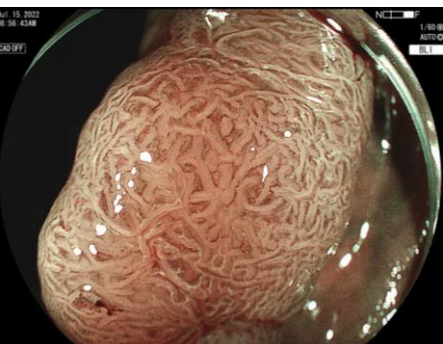
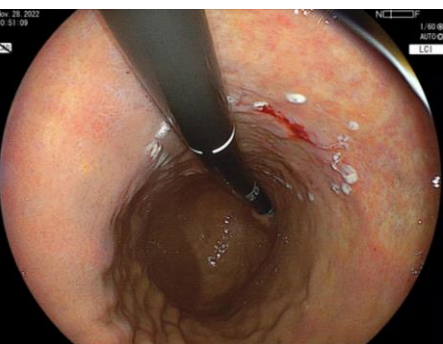
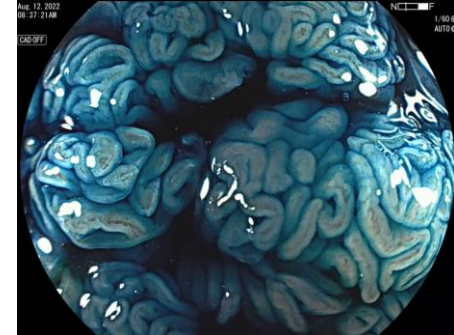
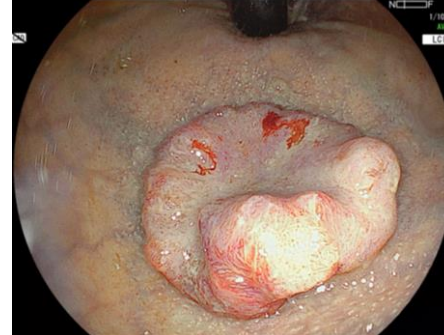
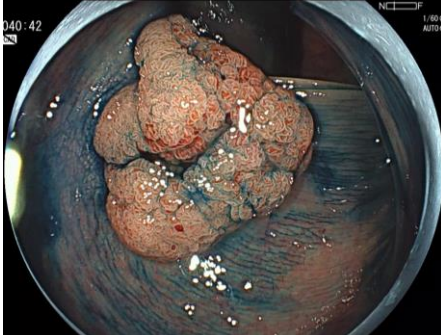
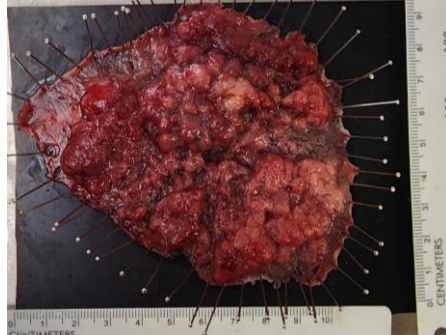
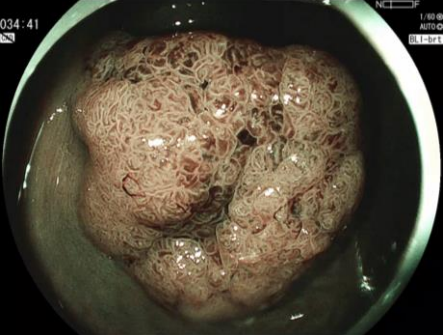




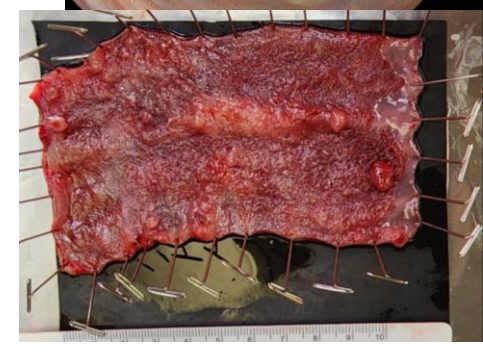
Colorectal Optical Diagnosis

Strategies for the Accurate Description of Colonic Lesions

Robert Bechara MD FRCPC

Gastroenterology and Advanced Therapeutic Endoscopy

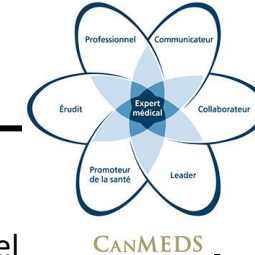
Kingston Health
Sciences Centre



Conflits d'intérêts potentiels

Nature des relations	Nom de l'organisation à but lucratif ou sans but lucratif
Les paiements directs incluant les honoraires	Vantage Endoscopy, Olympus
La participation à des comités consultatifs ou des bureaux de conférenciers	
Le financement de subventions ou d'essais cliniques	
Les brevets sur un médicament, un produit ou un appareil	
Tout autre investissement ou toute autre relation qu'un participant raisonnable et bien informé pourrait considérer comme un facteur d'influence sur le contenu de l'activité éducative	

Compétences CanMEDS



X	Expert médical (En tant qu'experts médicaux, les médecins assument tous les rôles CanMEDS et s'appuient sur leur savoir médical, leurs compétences cliniques et leurs attitudes professionnelles pour dispenser des soins de grande qualité et sécuritaires centrés sur les besoins du patient. Pivot du référentiel CanMEDS, le rôle d'expert médical définit le champ de pratique clinique des médecins .)
X	Communicateur (En tant que communicateurs, les médecins développent des relations professionnelles avec le patient et ses proches ce qui permet l'échange d'informations essentielles à la prestation de soins de qualité.)
	Collaborateur (En tant que collaborateurs, les médecins travaillent efficacement avec d'autres professionnels de la santé pour prodiguer des soins sécuritaires et de grande qualité centrés sur les besoins du patient.)
X	Leader (En tant que leaders, les médecins veillent à assurer l'excellence des soins, à titre de cliniciens, d'administrateurs, d'érudits ou d'enseignants et contribuent ainsi, avec d'autres intervenants, à l'évolution d'un système de santé de grande qualité.)
X	Promoteur de santé (En tant que promoteurs de la santé, les médecins mettent à profit leur expertise et leur influence en oeuvrant avec des collectivités ou des populations de patients en vue d'améliorer la santé. Ils collaborent avec ceux qu'ils servent afin d'établir et de comprendre leurs besoins, d'être si nécessaire leur porte-parole, et de soutenir l'allocation des ressources permettant de procéder à un changement.)
X	Érudit (En tant qu'érudits, les médecins font preuve d'un engagement constant envers l'excellence dans la pratique médicale par un processus de formation continue, en enseignant à des tiers, en évaluant les données probantes et en contribuant à l'avancement de la science.)
	Professionnel (En tant que professionnels, les médecins ont le devoir de promouvoir et de protéger la santé et le bien-être d'autrui, tant sur le plan individuel que collectif. Ils doivent exercer leur profession selon les normes médicales actuelles, en respectant les codes de conduite quant aux comportements qui sont exigés d'eux, tout en étant responsables envers la profession et la société. De plus, les médecins contribuent à l'autoréglementation de la profession et voient au maintien de leur santé.)

Objectives

- Discuss the macroscopic & microscopic assessment of colonic lesions
- Identify high-risk gross morphologic features of colon polyps
- Apply NICE & JNET classifications for colon polyps



Outline

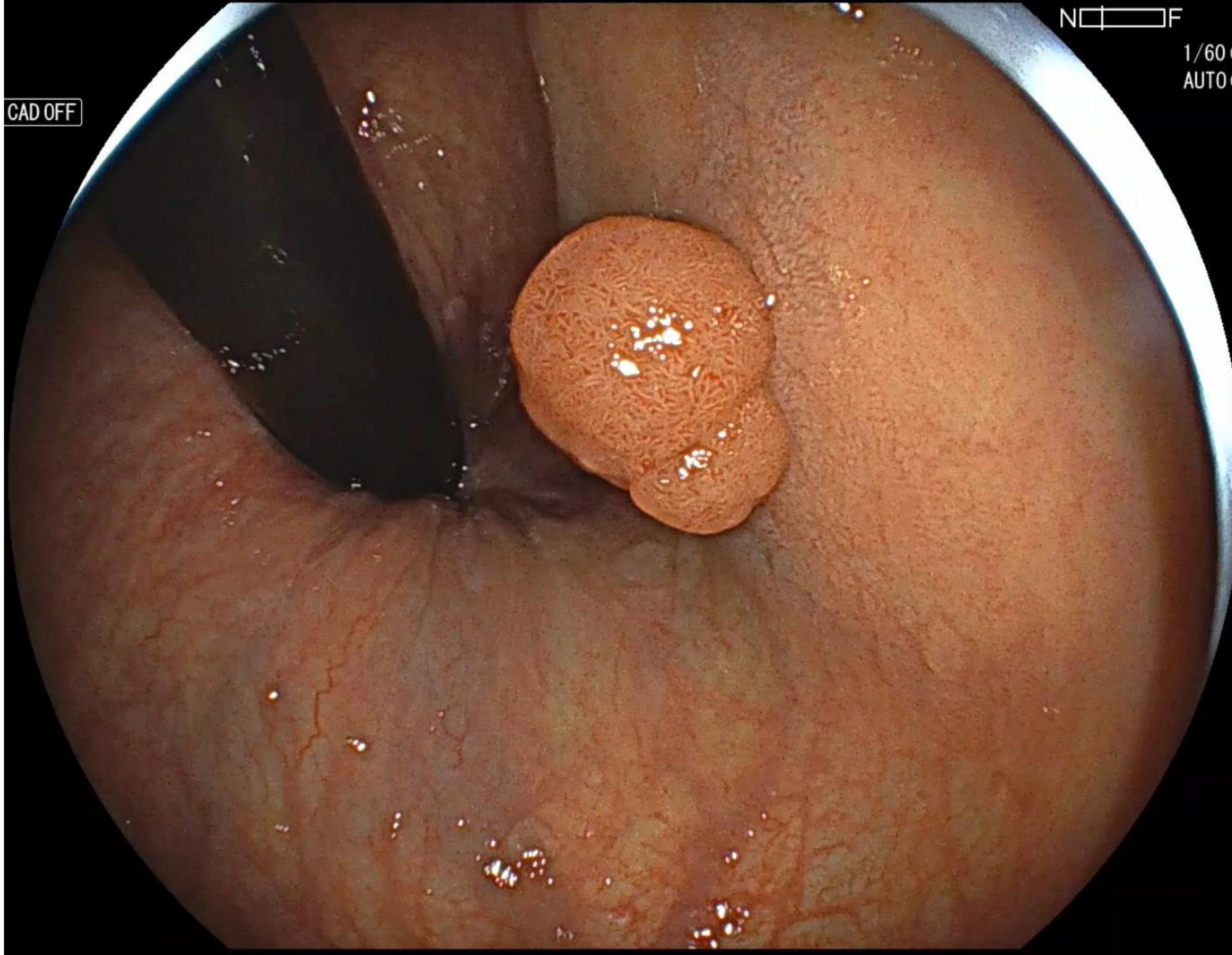
- Cases
- Macroscopic assessment
 - Lateral Spreading Tumor Classification
 - High-Risk Gross Morphologic Features
- Microscopic assessment
 - NBI International Colorectal Endoscopic (NICE) Classification
 - Japan NBI Expert Team (JNET) Classification
- Back to cases

PollEv.com/robertbechara300

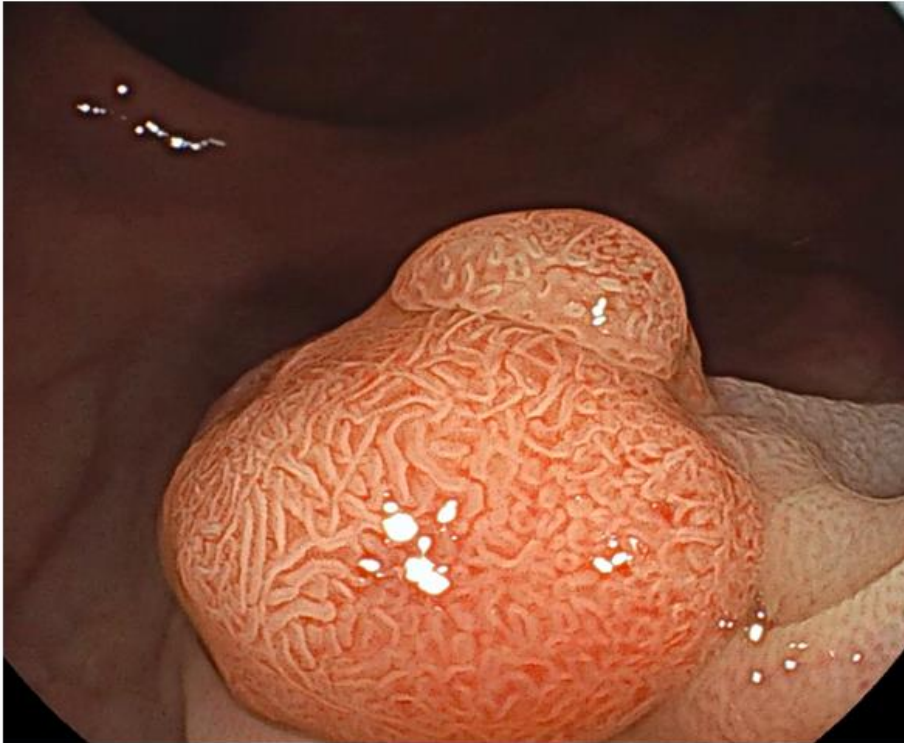


Case#1

- 51F, screening for Family history of CRC+



What's your immediate management for this Rectal polyp (51 year old female screening for family history)



Remove now(Hot/cold snare, EMR)

0%

Defer and book EMR on a therapeutic list

0%

ESD (perform or refer)

0%

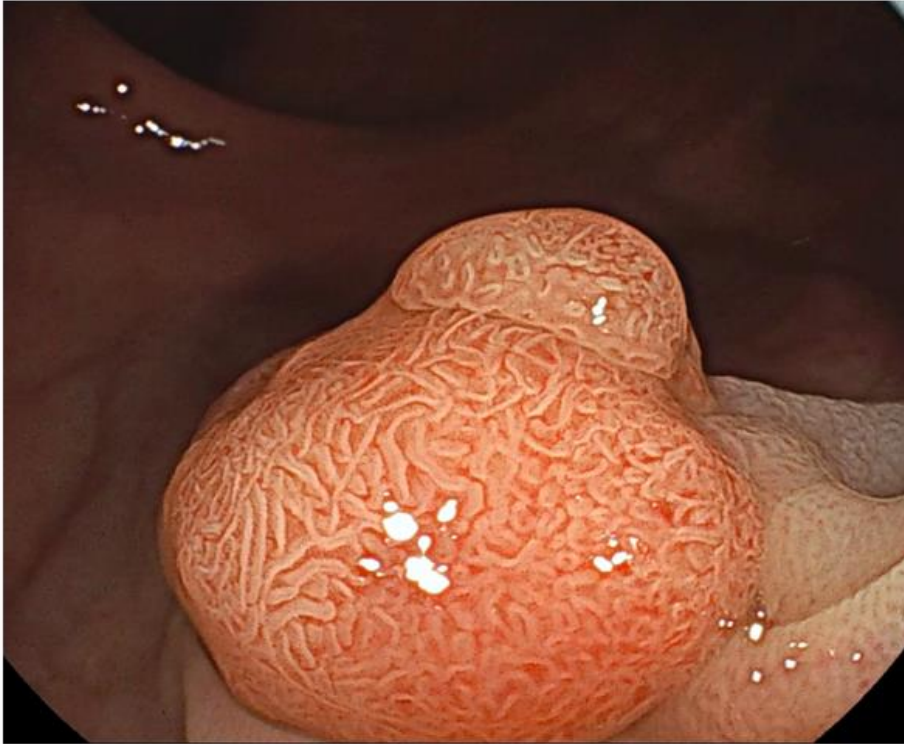
Refer for surgical resection

0%

Other

0%

What's your best prediction of pathology?



Adenoma — low-grade dysplasia

0%

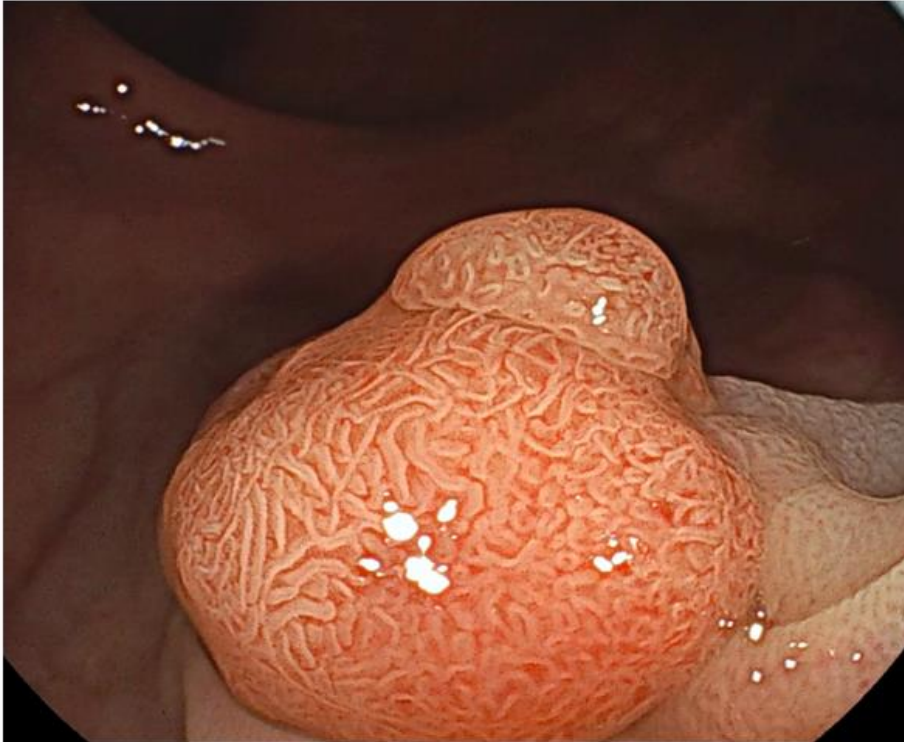
High-grade dysplasia / superficial submucosal carcinoma

0%

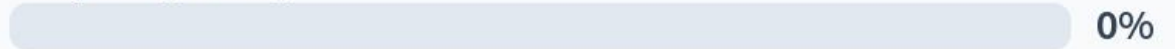
Deep submucosally invasive carcinoma

0%

How confident are you in your predicted pathology?



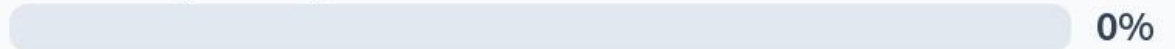
Very low (0–20%)



Low (21–40%)



Moderate (41–60%)



High (61–80%)

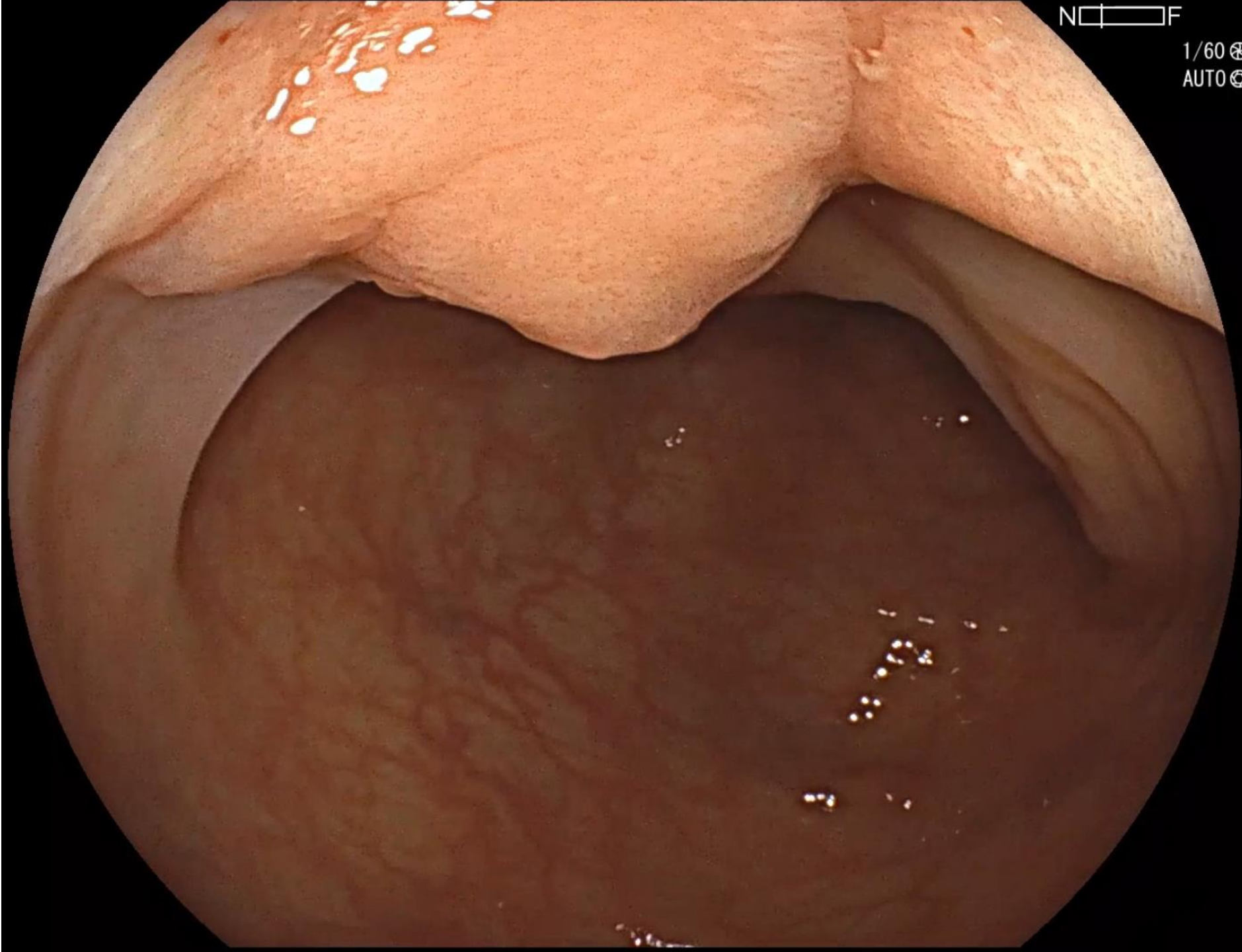


Very high (81–100%)



Case#2

- 77M, FIT+, splenic-flexure polyp.



What's your immediate management for this splenic-flexure polyp (77M, FIT+)



Biopsy only today; await pathology

0%

EMR now

0%

Defer and book EMR on a therapeutic list

0%

ESD (perform or refer)

0%

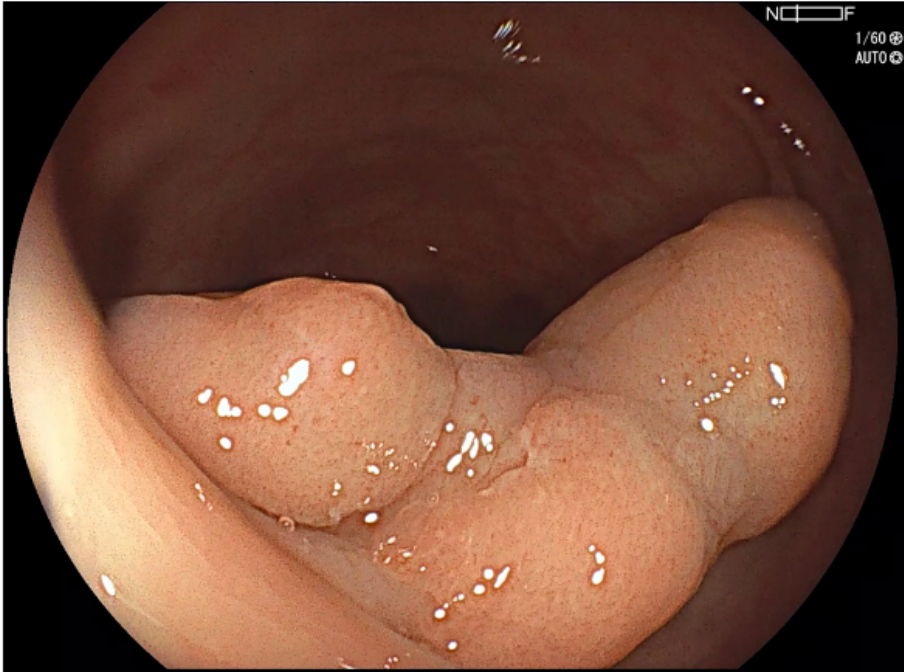
Refer for surgical resection

0%

Other

0%

What's your best prediction of pathology?



Adenoma — low-grade dysplasia

0%

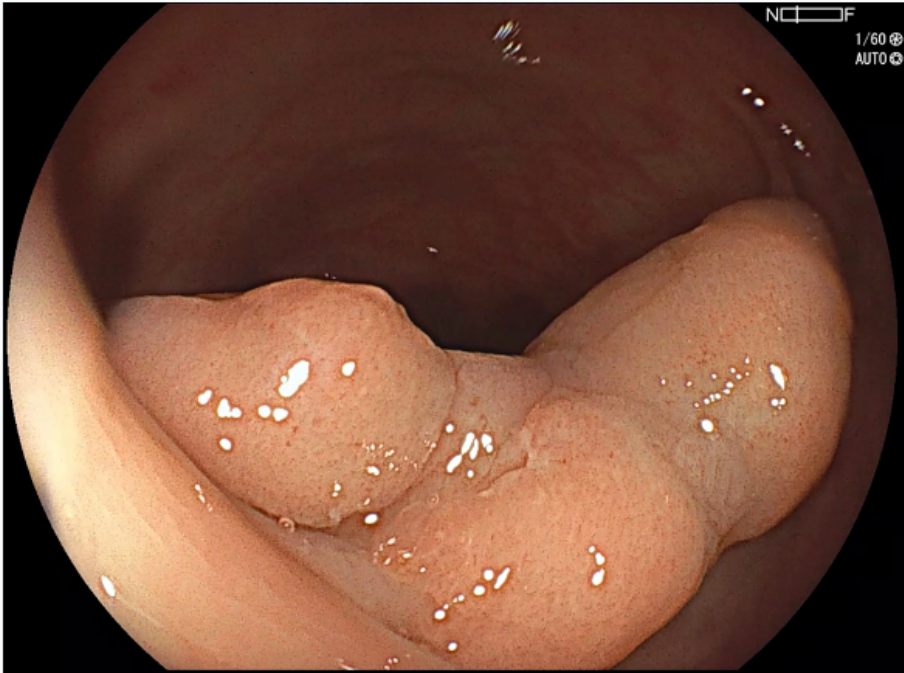
High-grade dysplasia / superficial submucosal carcinoma

0%

Deep submucosally invasive carcinoma

0%

How confident are you in your predicted pathology?



Very low (0–20%)

0%

Low (21–40%)

0%

Moderate (41–60%)

0%

High (61–80%)

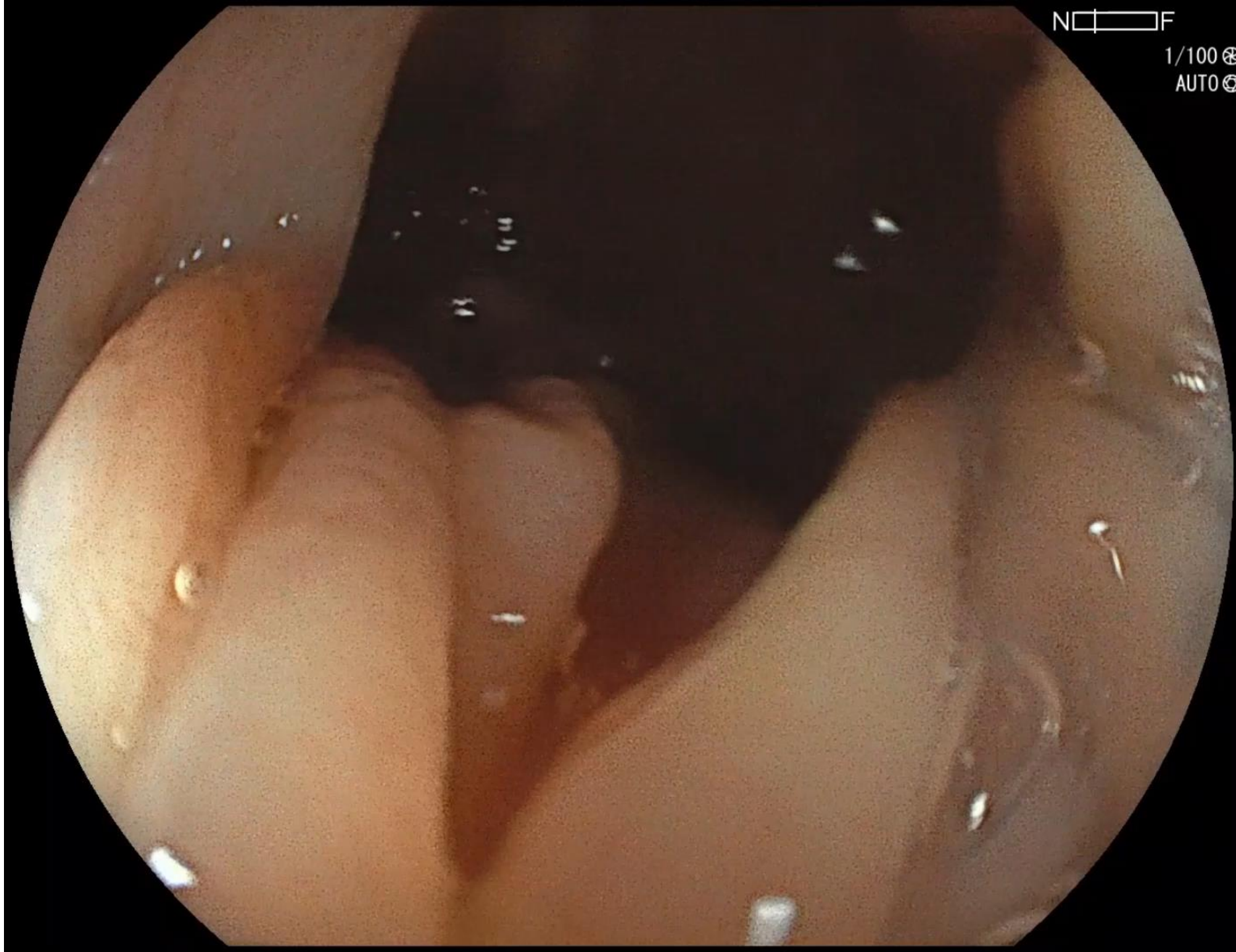
0%

Very high (81–100%)

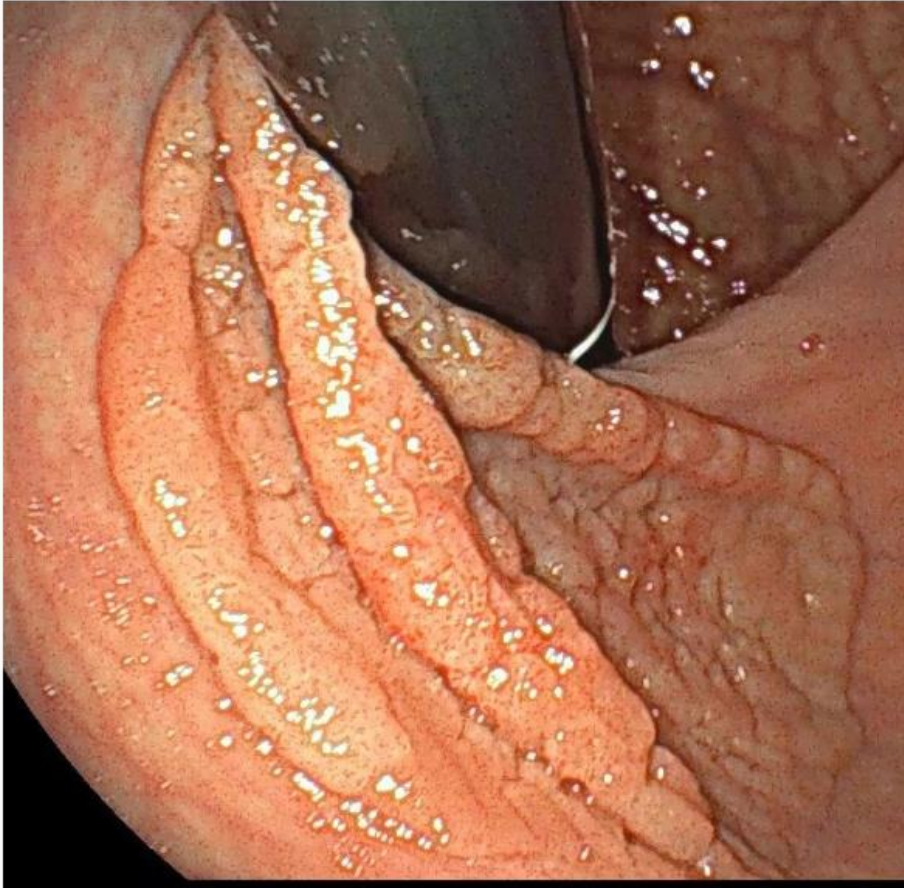
0%

Case#3

- 49F with BRBPR referred for colonoscopy; a polyp was identified in the proximal rectum.



What's your immediate management for this rectal polyp? (49F, BRBPR)



Biopsy only today; await pathology

0%

EMR now

0%

Defer and book EMR on a therapeutic list

0%

ESD (perform or refer)

0%

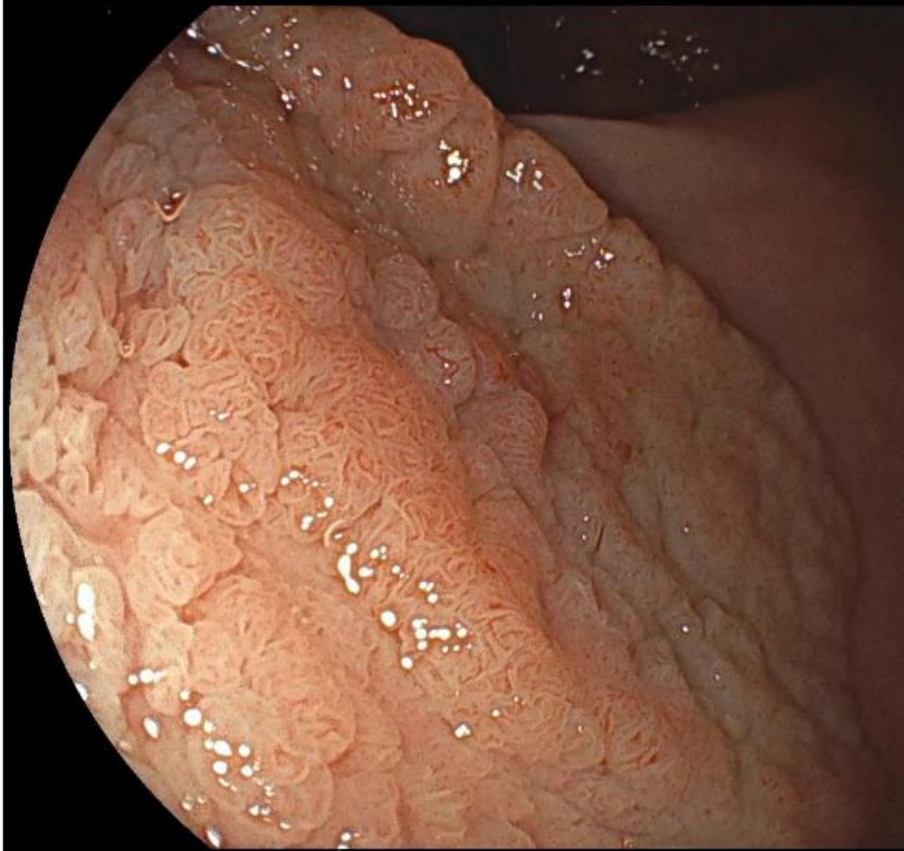
Refer for surgical resection

0%

Other

0%

What's your best prediction of pathology?



Adenoma — low-grade dysplasia

0%

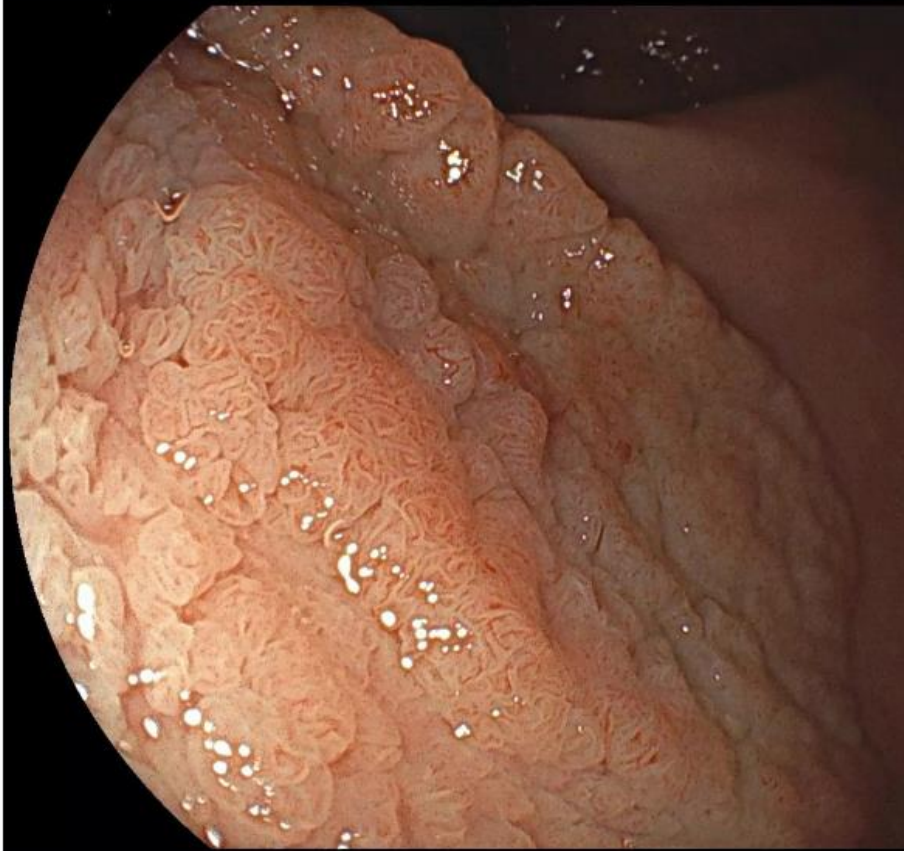
High-grade dysplasia / superficial submucosal carcinoma

0%

Deep submucosally invasive carcinoma

0%

How confident are you in your predicted pathology?



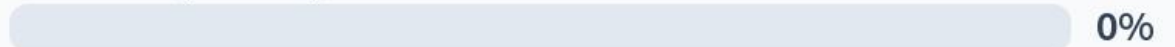
Very low (0–20%)



Low (21–40%)



Moderate (41–60%)



High (61–80%)

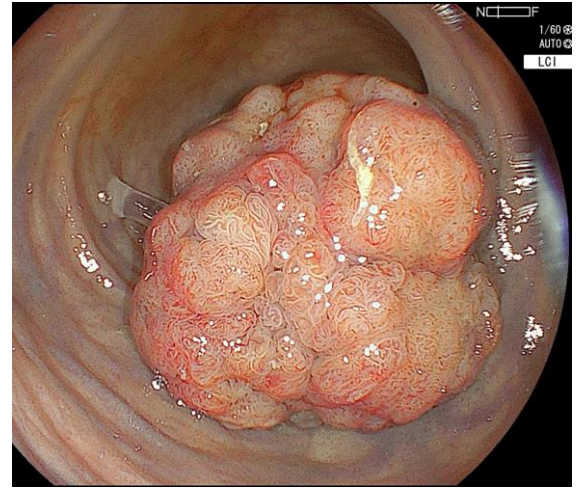


Very high (81–100%)



Why Optical Diagnosis Matters

Suboptimal endoscopic cancer recognition in colorectal lesions in a national bowel screening programme



- In 3622 colonoscopies, 92 T1 CRC were diagnosed pathologically
 - 39% were correctly recognized as cancer → 11% required surgery
 - 61% NOT recognized as cancer → 41% required surgery
 - ~60% surgical resection was due to piecemeal removal

Why Optical Diagnosis Matters



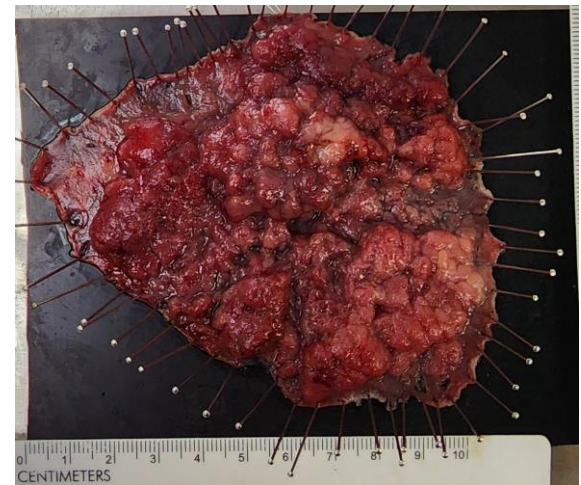
- 386 patients with polyps sent for surgery were retrospectively reviewed
 - Minor complications 23.9%, major 4%
- 16% (~62) of polyps “*contained an area of invasive cancer*” with most of them Sm1, with remaining 324 mucosal polyps

~300+ (80%) could have been resected endoscopically!

Why Optical Diagnosis Matters

Morbidity and Mortality After Surgery for Nonmalignant Colorectal Polyps: A 10-Year Nationwide Analysis

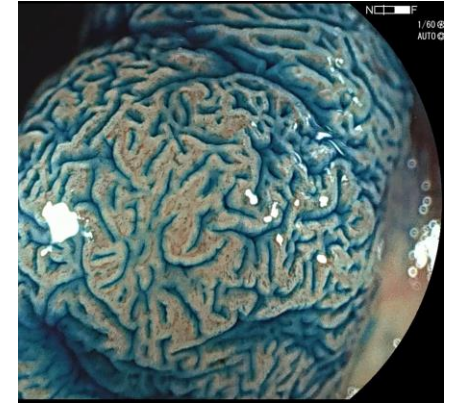
- Data were analyzed from the National Inpatient Sample for 2005–2014
- ~262,800 surgeries for non-malignant colorectal polyps
- Outcomes:
 - In-hospital mortality: **0.8%**
 - Morbidity: **25.3%**



Optical Diagnosis vs Biopsy: Predicting Colorectal Lesion Pathology



- Single center; 111 colorectal lesions, median diameter 4cm
 - Compared biopsy vs optical diagnosis against final histology
- Optical diagnosis:
 - LGD (low-risk): Accuracy 88%, PPV 83%, NPV 89%
 - HGD/SM1 (intermediate): Accuracy 80%, PPV 78%, NPV 90%
 - Deep $\geq$ SM2 (high-risk): Accuracy 92%, PPV 100%, NPV 91%
- Biopsy vs final histology: Concordance 28% ($\approx$ 70% upstaged)

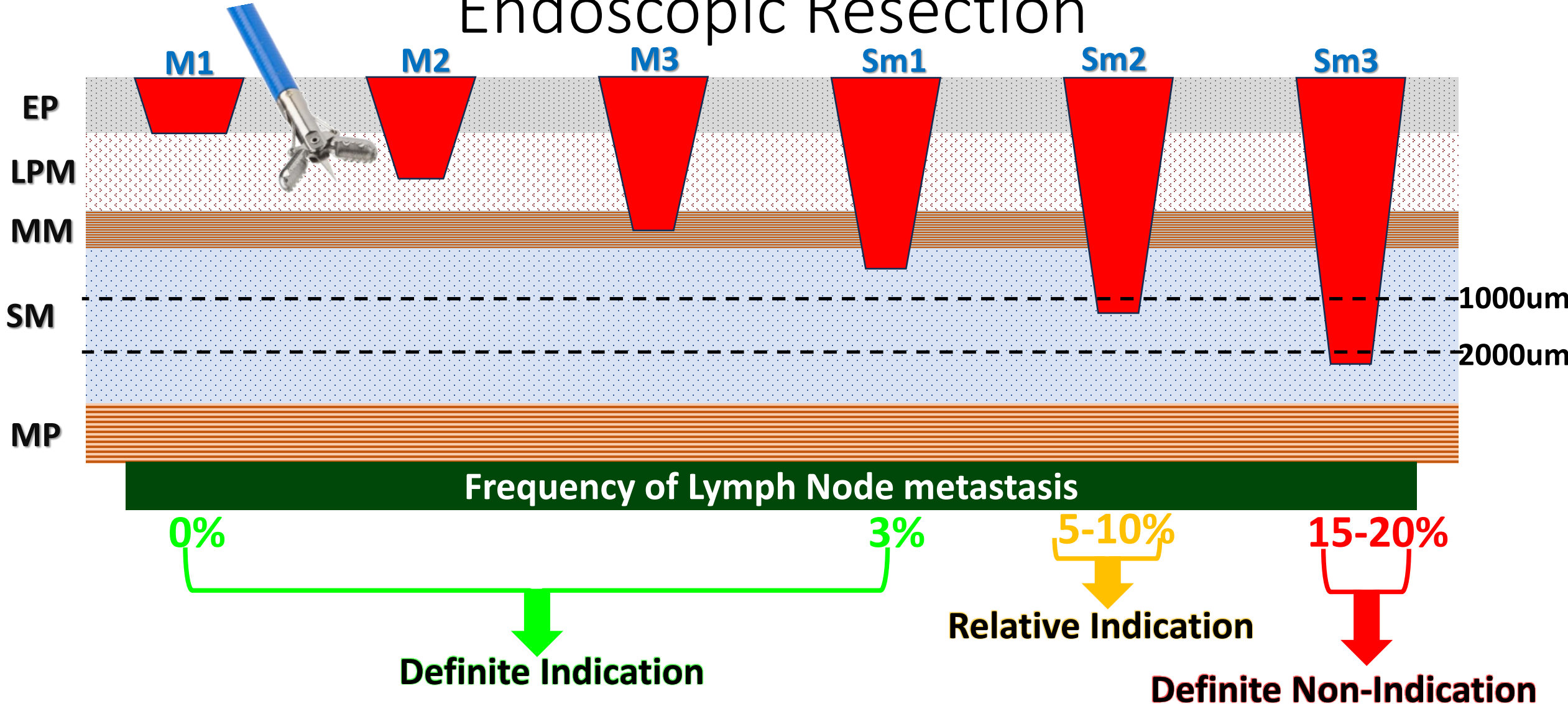


Don't base management on biopsy alone. High-quality optical diagnosis is superior to random lesional biopsy

The Hubris of Biopsy



Colorectal Adenocarcinoma Endoscopic Resection



Expansion of endoscopic resection indications?

Deep submucosal invasion is not an independent risk factor for lymph node metastasis in T1 colorectal cancer: a meta-analysis

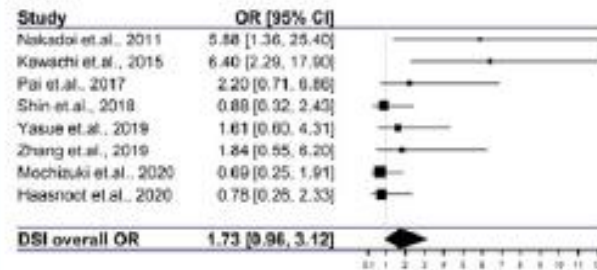
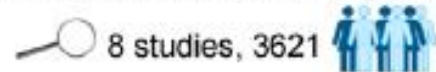
DSI in relation to LNM in univariable analysis



Overall LNM-rate: 11.2%

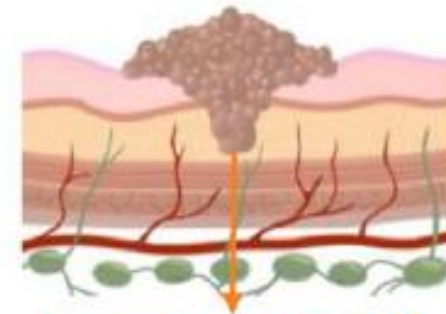
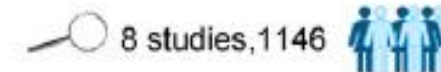
OR 2.58 (95% CI 2.10-3.18)

DSI in relation to histological high-risk* factors in multivariable analysis



OR 1.73 (95% CI 0.96-3.12)

DSI as solitary risk factor for LNM



Absolute risk: 2.6%

DSI should be reconsidered as *strong* indicator for oncologic surgery



Gastroenterology

DSI (deep submucosal invasion); LNM (lymph node metastasis); OR (odds ratio).
*poor differentiation grade, lymphovascular invasion and high-grade tumor budding

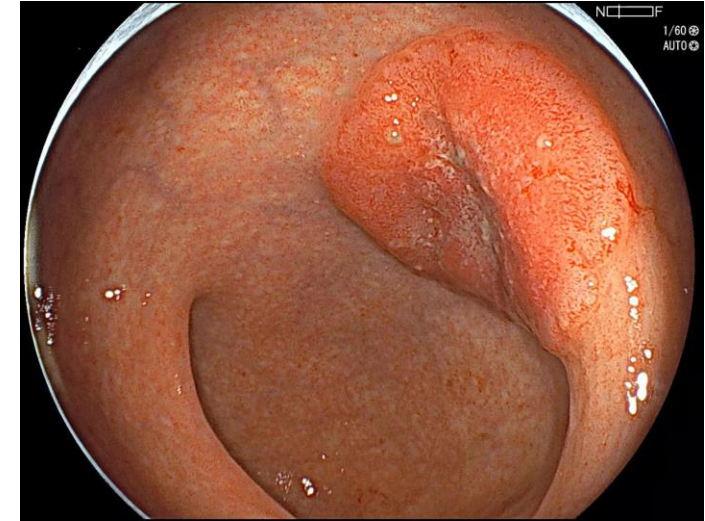
Colorectal Optical Diagnosis

- **Macroscopic assessment**

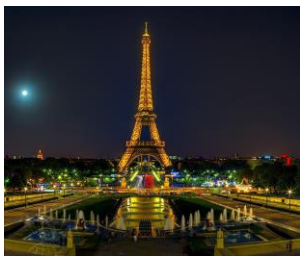
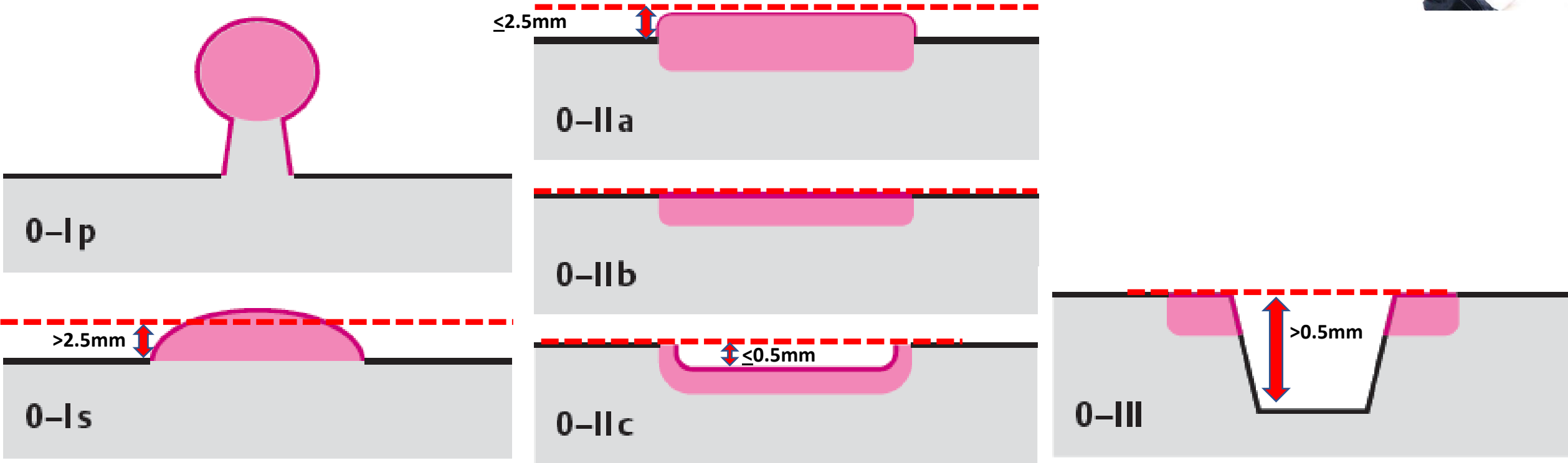
- Paris
- **Lateral Spreading Tumor Classification**
- High-Risk Gross Morphologic Features

- Microscopic assessment

- NBI International Colorectal Endoscopic (NICE) Classification
- Japan NBI Expert Team (JNET) Classification



Macroscopic Assessment: Paris Classification

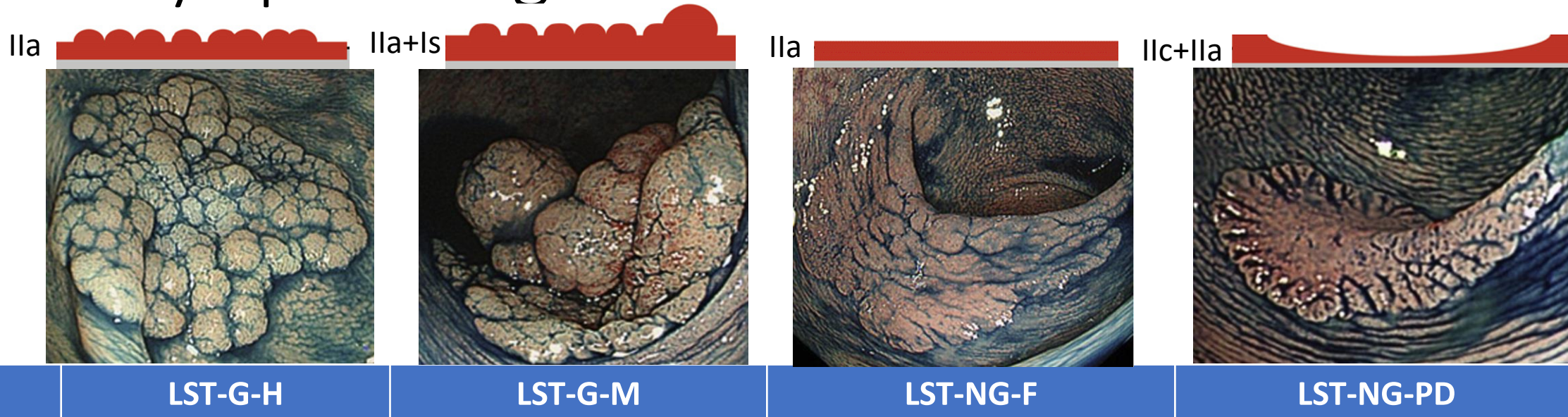


The Paris endoscopic classification of superficial neoplastic lesions esophagus, stomach, and colon. GIE, 2003.

Macroscopic Assessment: Paris Classification

	5 mm or less	6-10 mm	11-15 mm	16-20 mm	21 mm or more
<i>0-I</i>					
<i>Ip + Is</i>	0/5400 (0%)	49/4045 (1.2%)	80/1002 (8%)	58/330 (17%)	56/187 (30%)
<i>0-IIa,b</i>					
<i>Ila + Iib</i>	2/6214 (<0.1%)	2/1015 (0.2%)	9/493 (1.8%)	17/165 (10%)	53/235 (23%)
<i>0-IIc</i>					
<i>All Ic</i>	17/236 (7%)	58/132 (44%)	42/63 (67%)	18/20 (90%)	13/15 (87%)
<i>0-III</i>					
<i>III</i>	0	0	0	0	0
Total	19/11,850 (<0.2%)	109/5,192 (2%)	131/1,558 (8%)	93/1,523 (18%)	122/437 (28%)

Laterally Spreading Tumor Classification

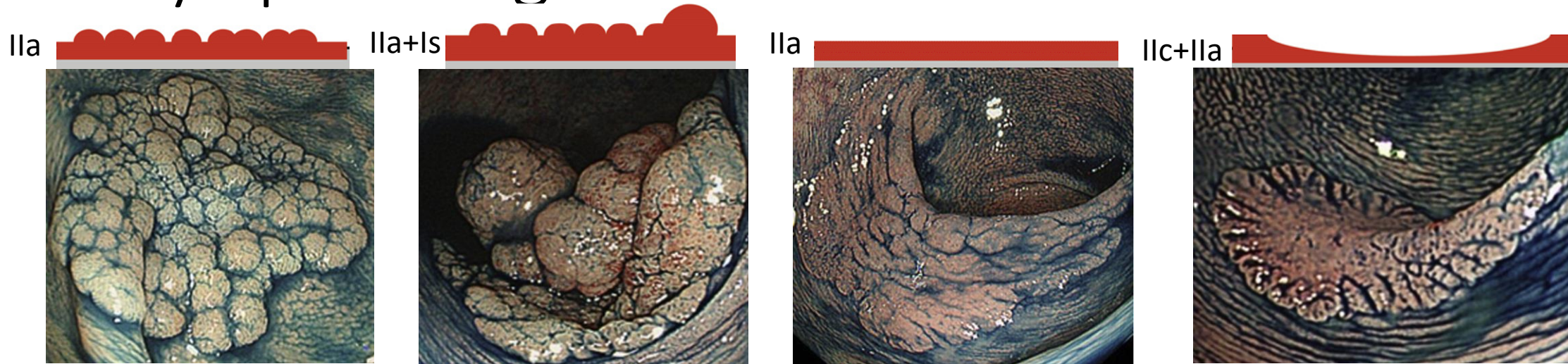


Ishigaki, T. *et al.* Treatment policy for colonic laterally spreading tumors based on each clinicopathologic feature of 4 subtypes: actual status of pseudo-depressed type. *Gastrointestinal endoscopy* **92**, 1083-1094.e1086, (2020).

Rex DK, Hassan C, Bourke MJ. The colonoscopist's guide to the vocabulary of colorectal neoplasia: histology, morphology, and management. *Gastrointest Endosc* 2017;86:253-263.

Burgess NG, Hourigan LF, Zanati SA, et al. Risk Stratification for Covert Invasive Cancer Among Patients Referred for Colonic Endoscopic Mucosal Resection: A Large Multicenter Cohort. *Gastroenterology* 2017;153:732-742.

Laterally Spreading Tumor Classification



LST-G-H

LST-G-M

LST-NG-F

LST-NG-PD

Risk of SMI

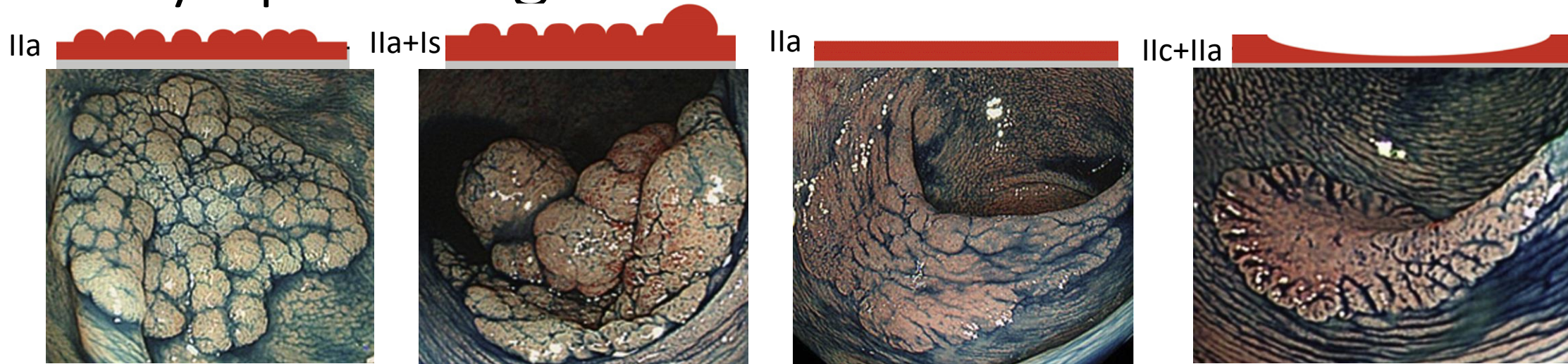
Low ~1%

Intermediate~15%

Intermediate~10%

High ~40%

Laterally Spreading Tumor Classification



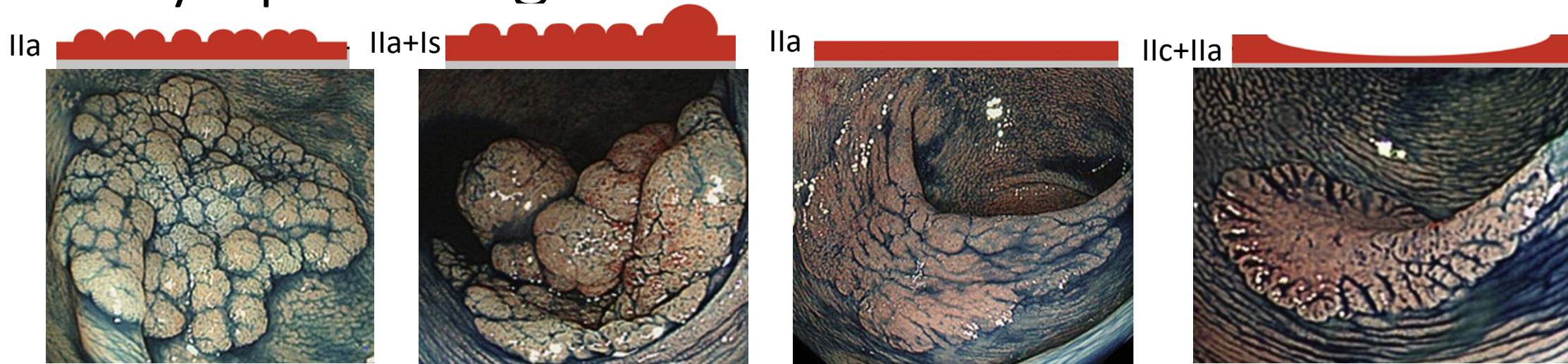
	LST-G-H	LST-G-M	LST-NG-F	LST-NG-PD
Risk of SMI	Low ~1%	Intermediate~15%	Intermediate~10%	High ~40%
Fibrosis	Low	Low-intermediate	Low-intermediate	High

Ishigaki, T. *et al.* Treatment policy for colonic laterally spreading tumors based on each clinicopathologic feature of 4 subtypes: actual status of pseudo-depressed type. *Gastrointestinal endoscopy* **92**, 1083-1094.e1086, (2020).

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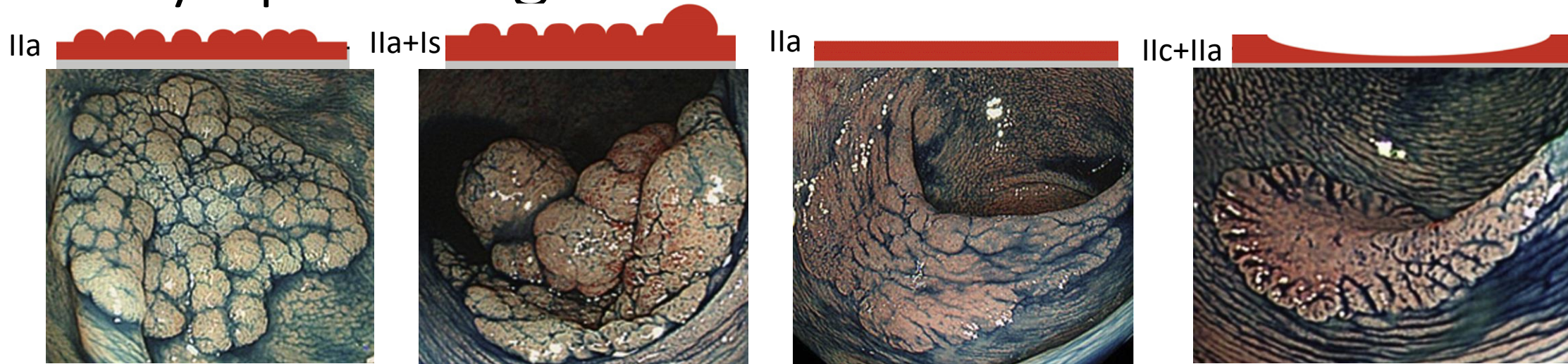
	LST-G-H	LST-G-M	LST-NG-F	LST-NG-PD
Risk of SMI	Low ~1%	Intermediate~15%	Intermediate~10%	High ~40%
Fibrosis	Low	Low-intermediate	Low-intermediate	High
Submucosal lift	Very good	Good	Fair	Poor

Ishigaki, T. *et al.* Treatment policy for colonic laterally spreading tumors based on each clinicopathologic feature of 4 subtypes: actual status of pseudo-depressed type. *Gastrointestinal endoscopy* **92**, 1083-1094.e1086, (2020).

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Laterally Spreading Tumor Classification



	LST-G-H	LST-G-M	LST-NG-F	LST-NG-PD
Risk of SMI	Low ~1%	Intermediate~15%	Intermediate~10%	High ~40%
Fibrosis	Low	Low-intermediate	Low-intermediate	High
Submucosal lift	Very good	Good	Fair	Poor
Resection difficulty(EMR)*	Low	Intermediate	Low-intermediate	High

**my opinion from experience and extrapolation from literature*

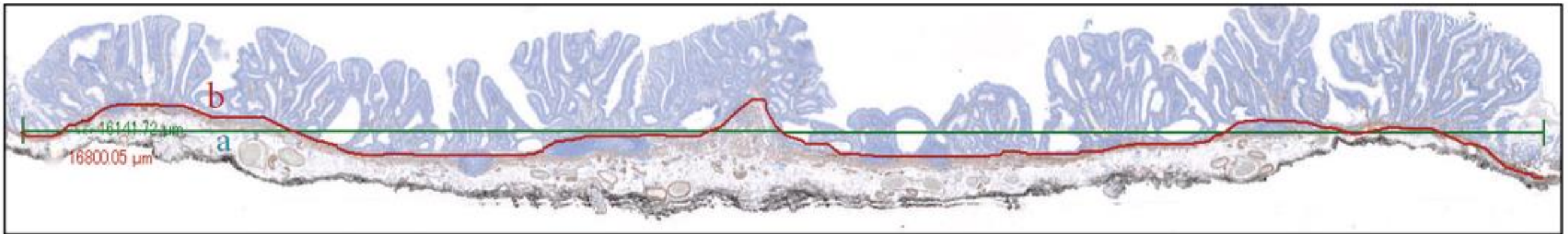
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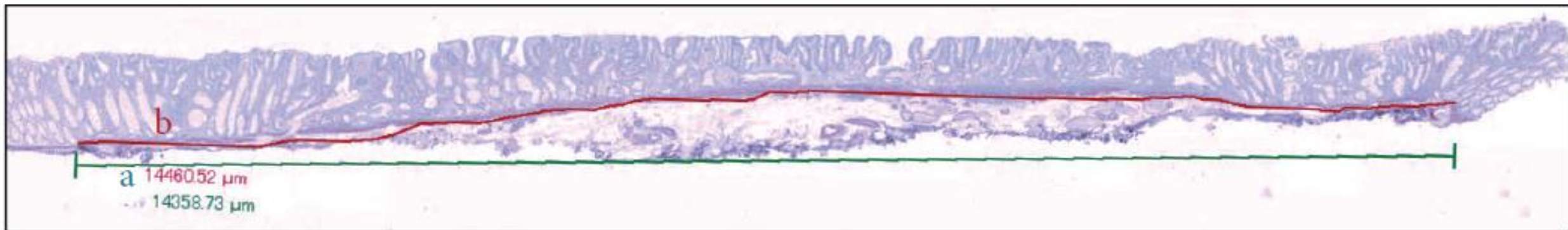
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Laterally Spreading Tumors

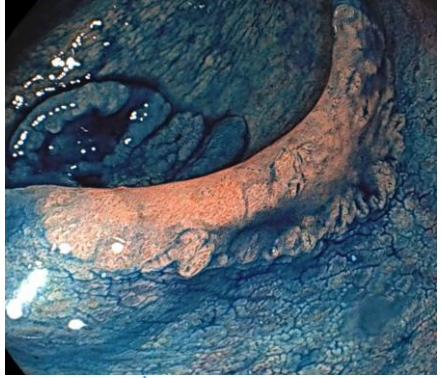
LST-G



LST-NG

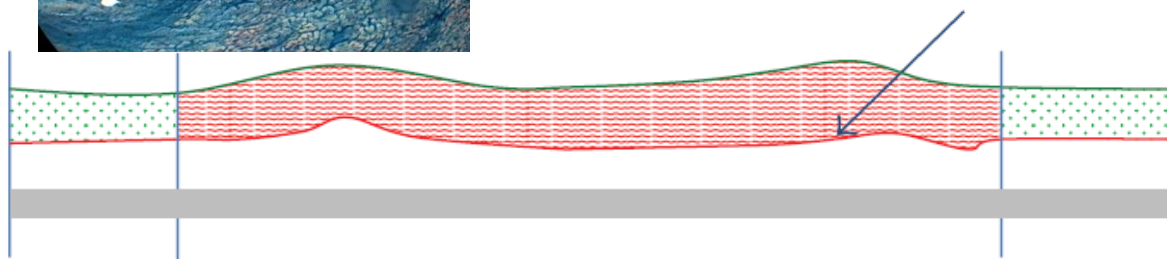


Laterally Spreading Tumors

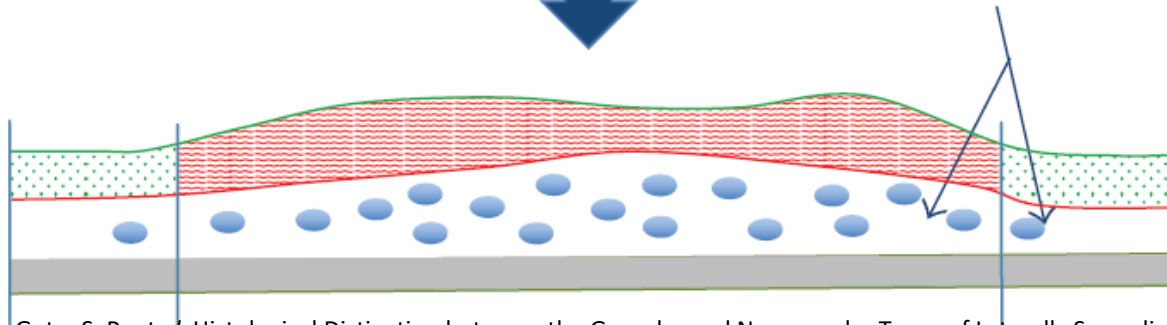


LST-NG

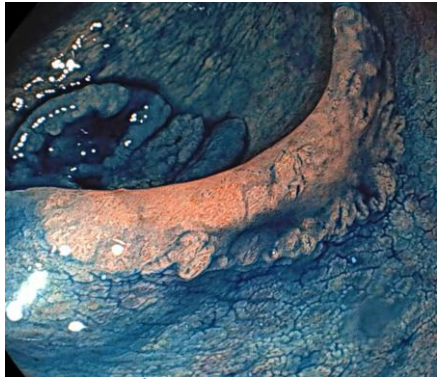
Almost flat muscularis mucosae



Some of the solution is dispersed beneath the normal mucosa

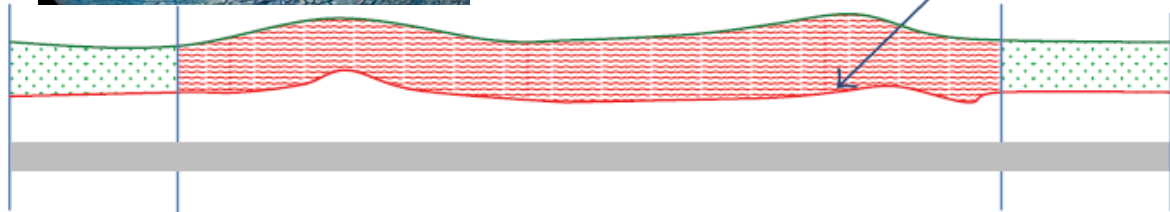


Laterally Spreading Tumors

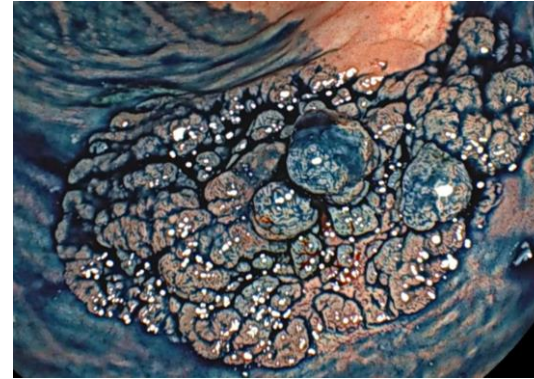
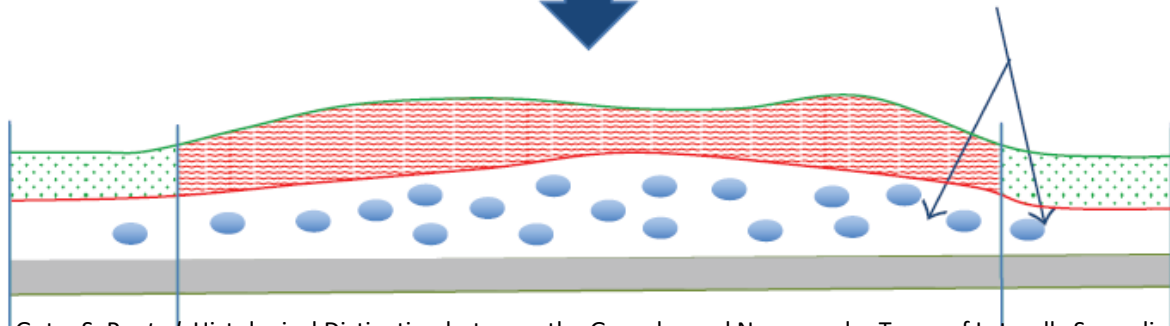


LST-NG

Almost flat muscularis mucosae

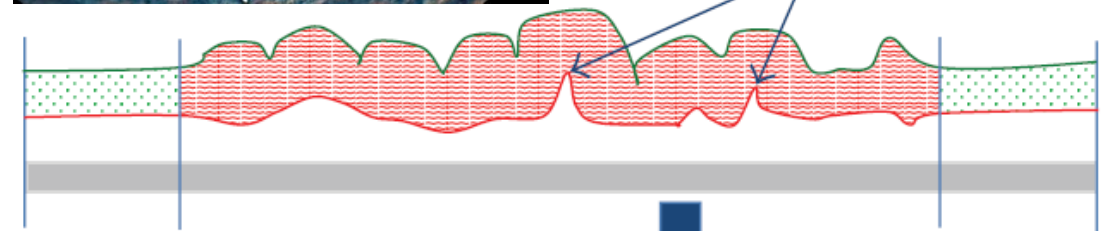


Some of the solution is dispersed beneath the normal mucosa

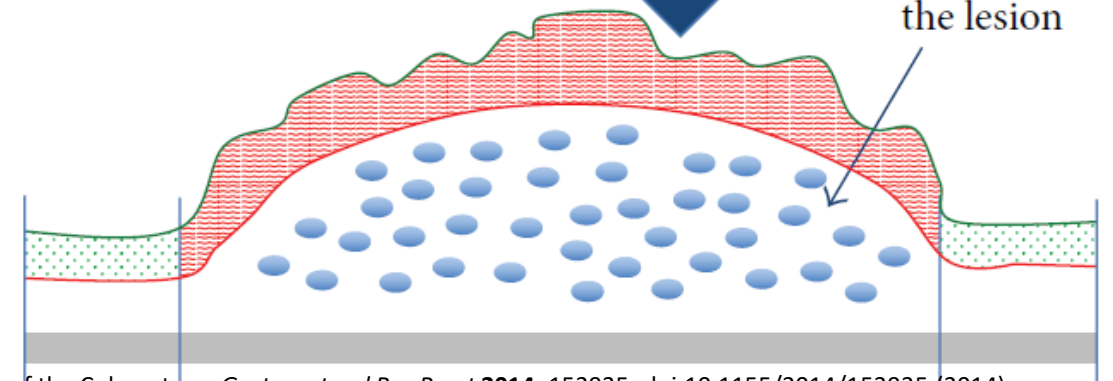


LST-G

Wavy muscularis mucosae



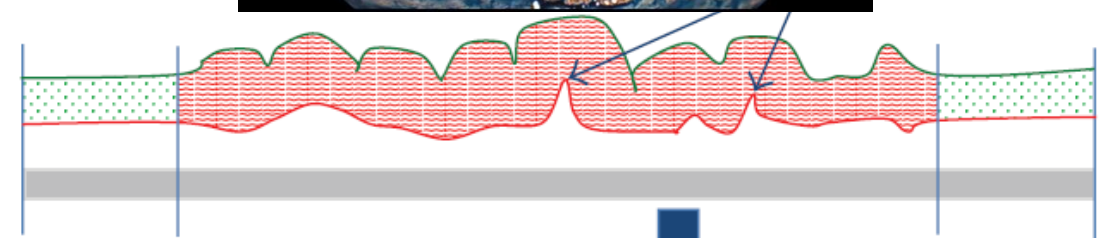
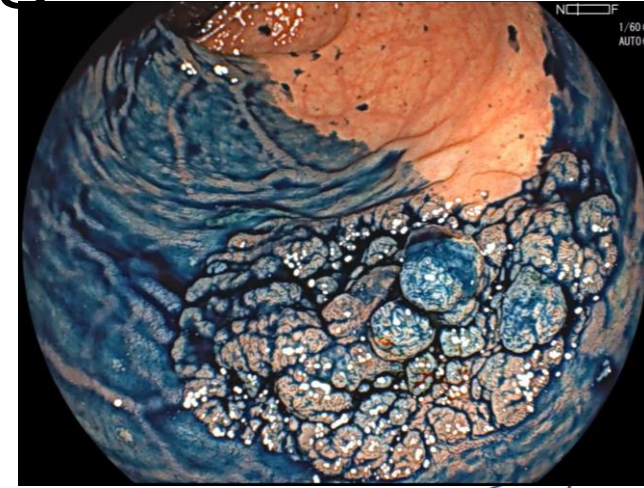
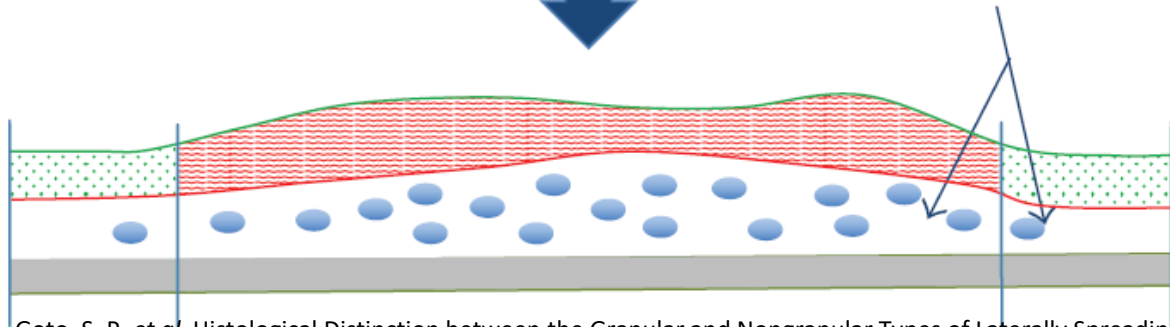
The solution is retained beneath the lesion



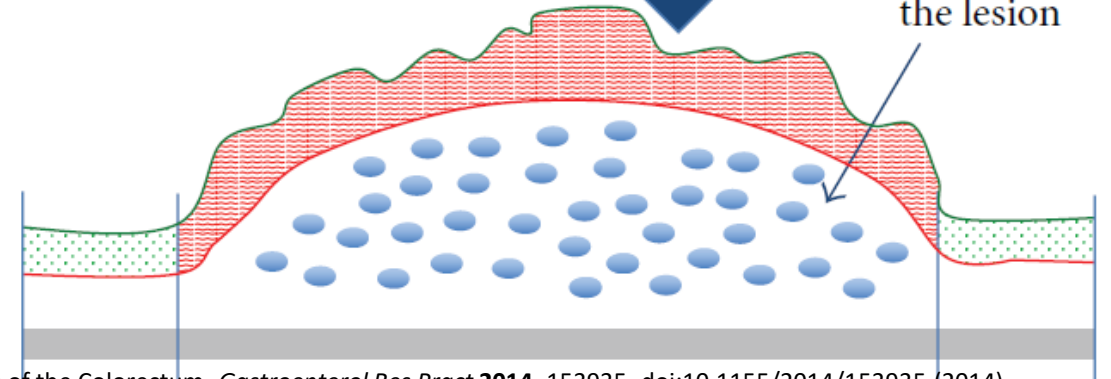
Laterally Spreading Tumors



Some of the solution is dispersed beneath the normal mucosa

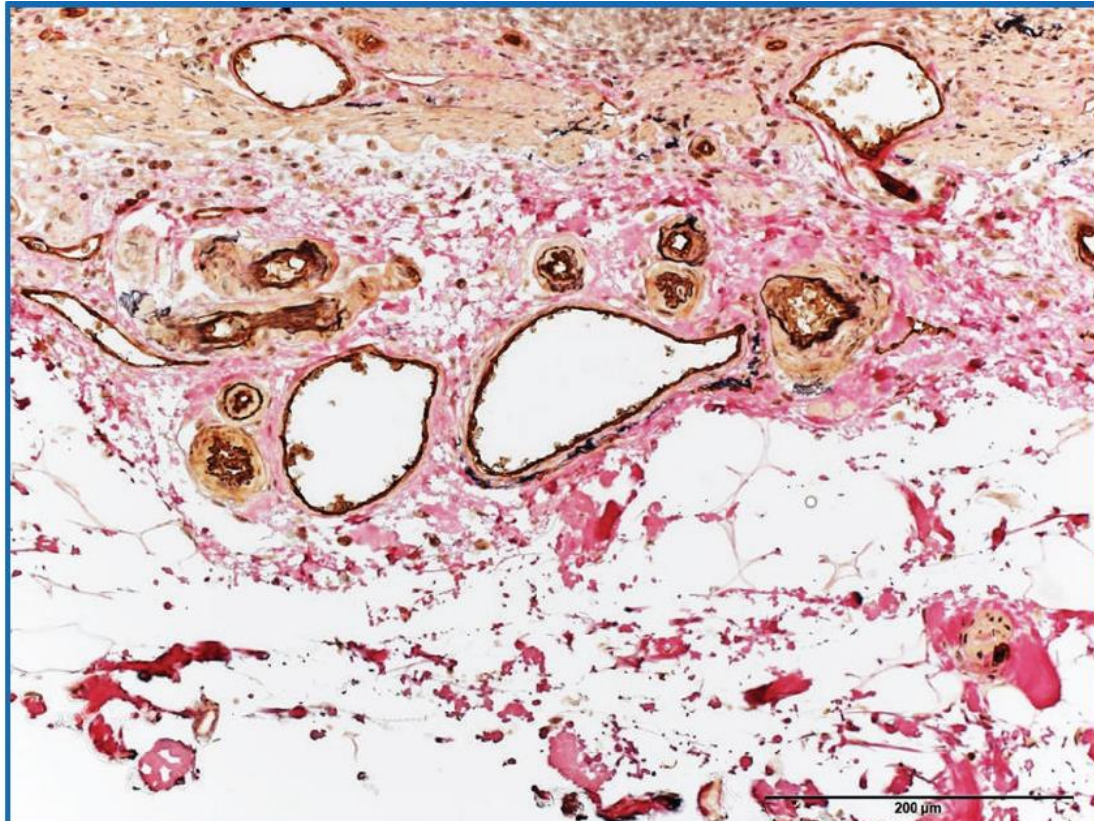


The solution is retained beneath the lesion

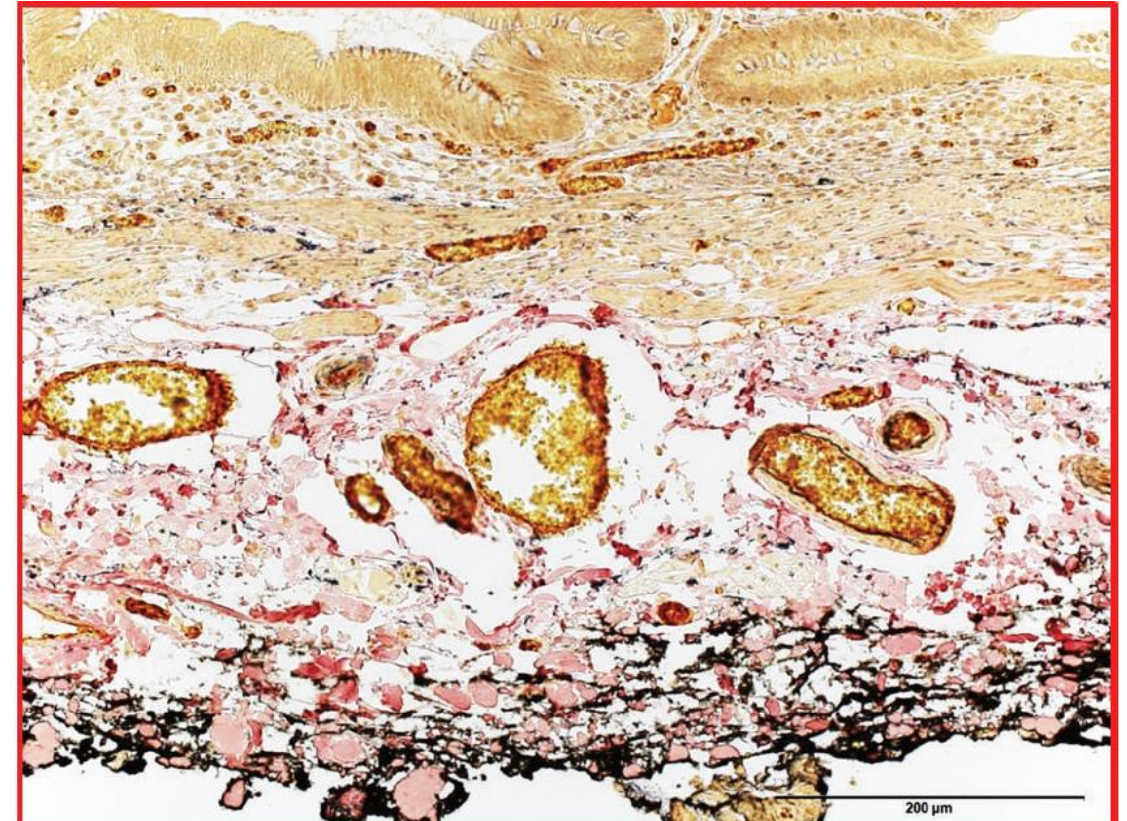


Paris-Japan: Laterally Spreading Tumors

LST-NG

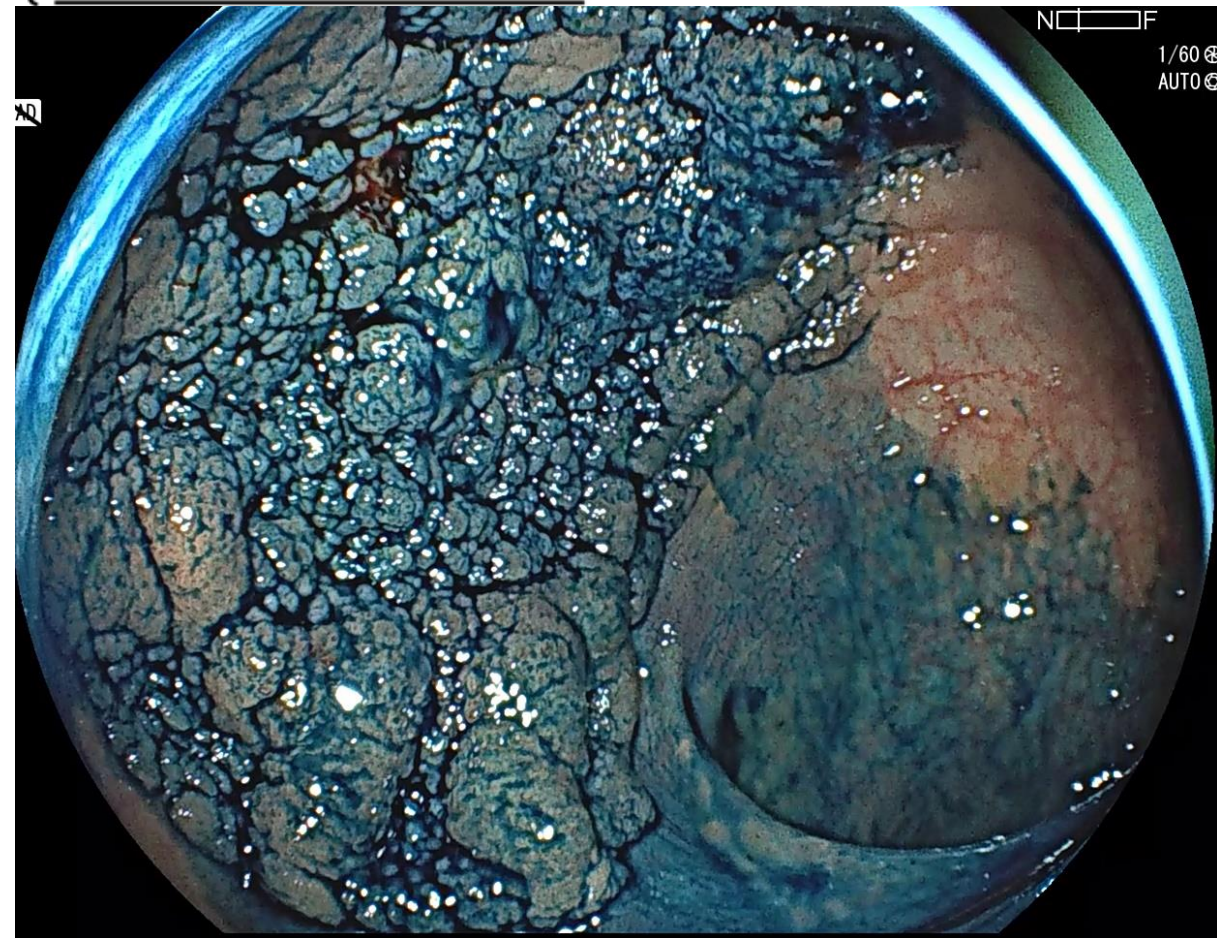
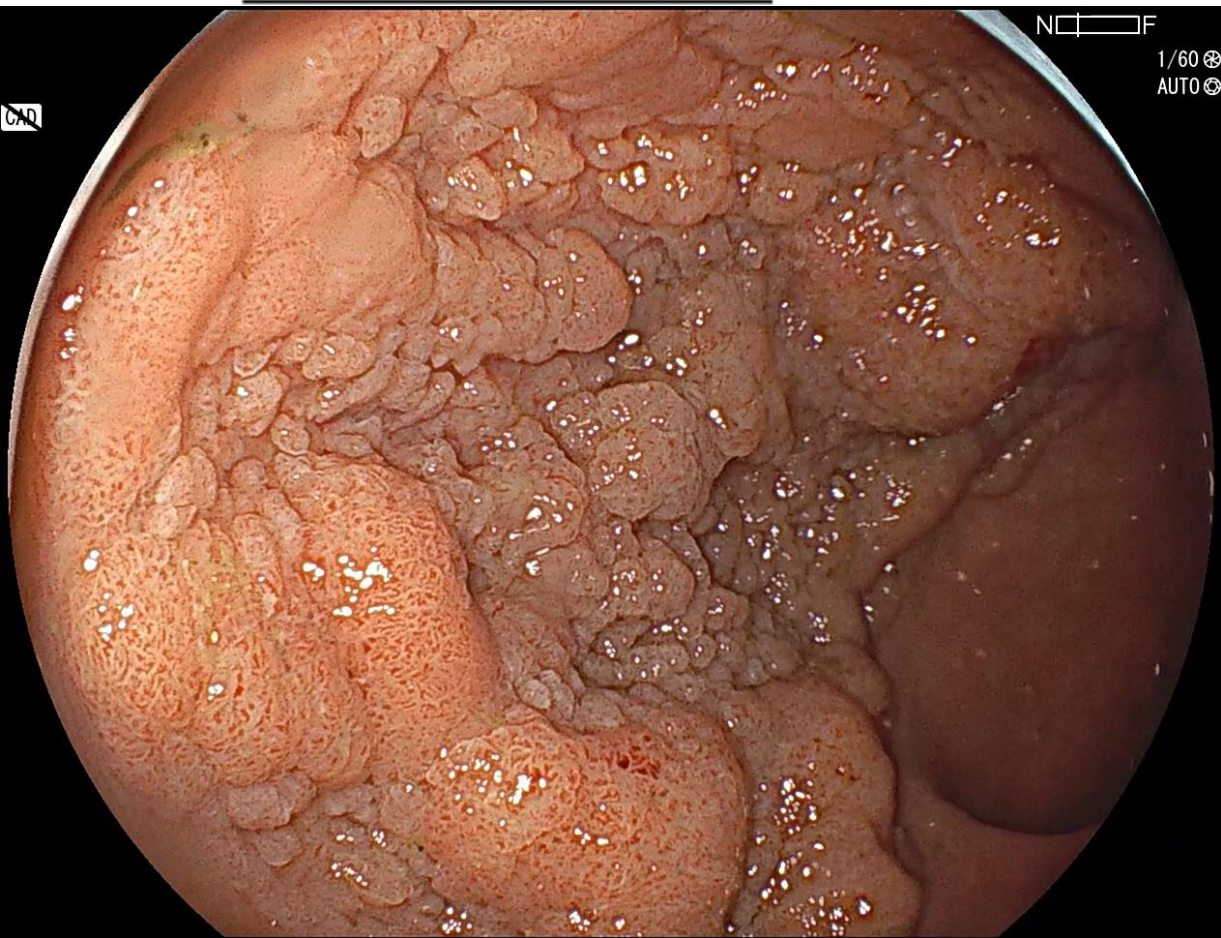
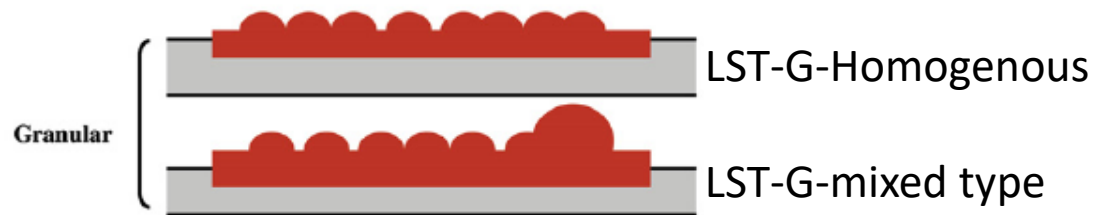


LST-G

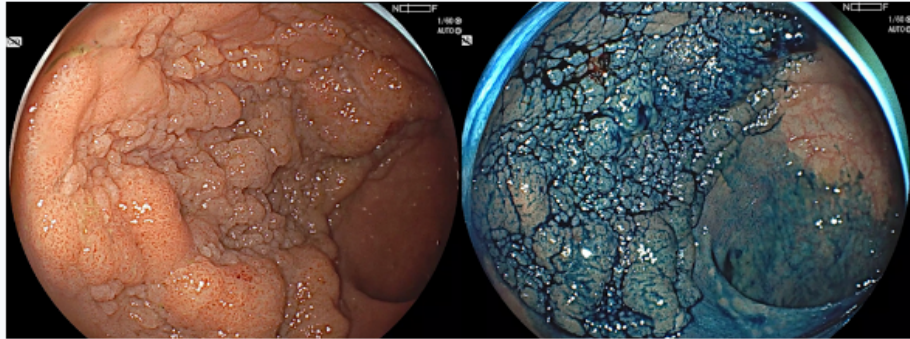


	LST-G (16)	LST-NG (16)	P value*
Microvessel density (arterioles + venules/mm ² , mean ± SD)	43 ± 22.4	61.4 ± 24.3	0.033
Arteriole's density (arteriole/mm ² , mean ± SD)	18.3 ± 8.1	32.7 ± 11.9	<0.01
Venule's density (venule/mm ² , mean ± SD)	24.7 ± 18	28.6 ± 17.7	0.537

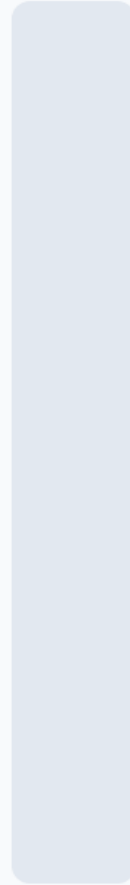
Practice Lesion 1



Practice Lesion 1

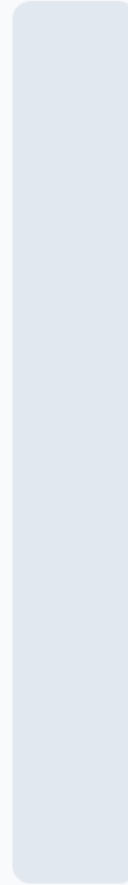


0%



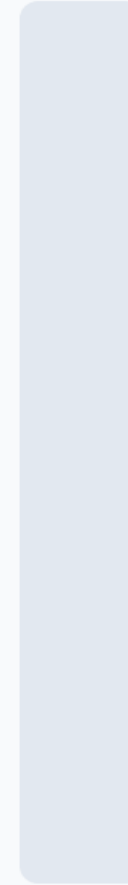
LST-G-Homogenous

0%



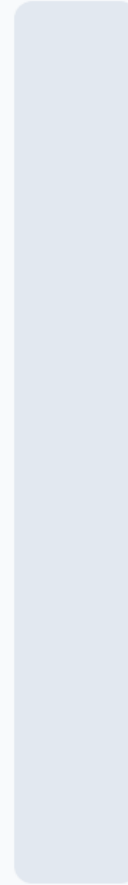
LST-G-mixed

0%



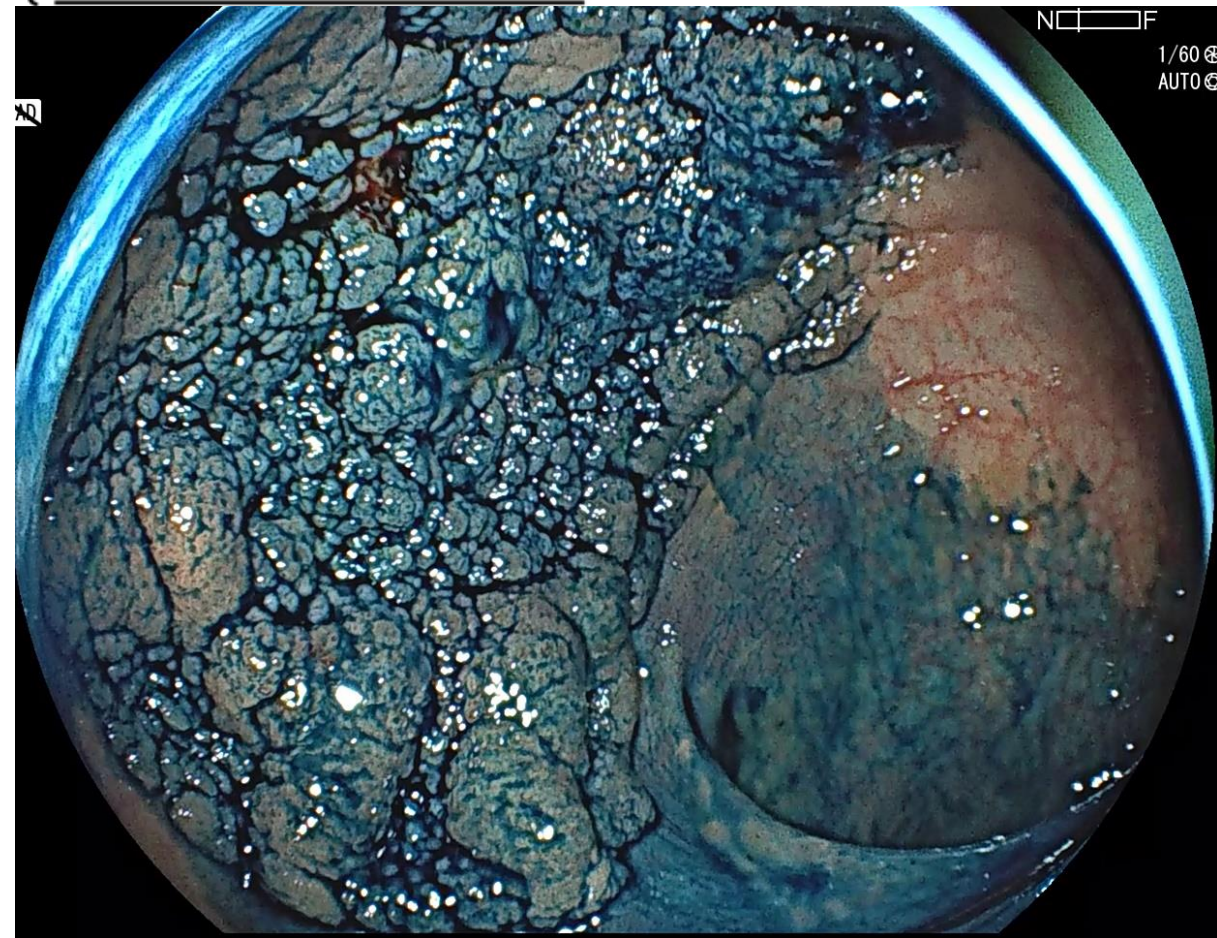
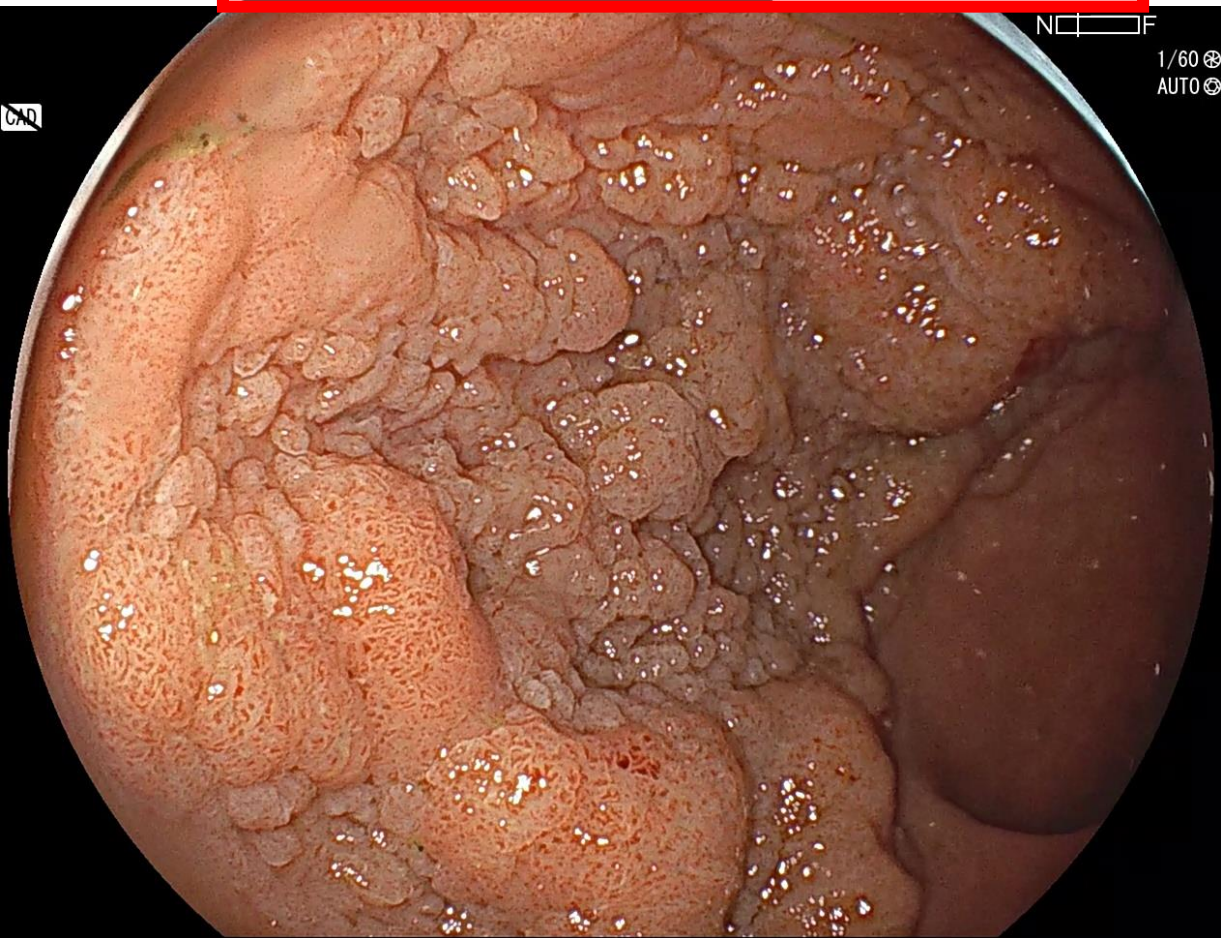
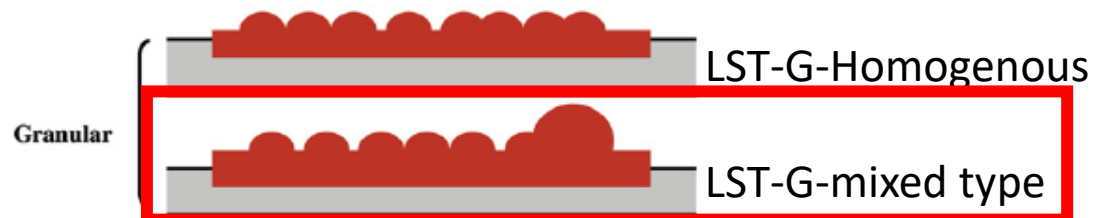
LST-NG Flat

0%

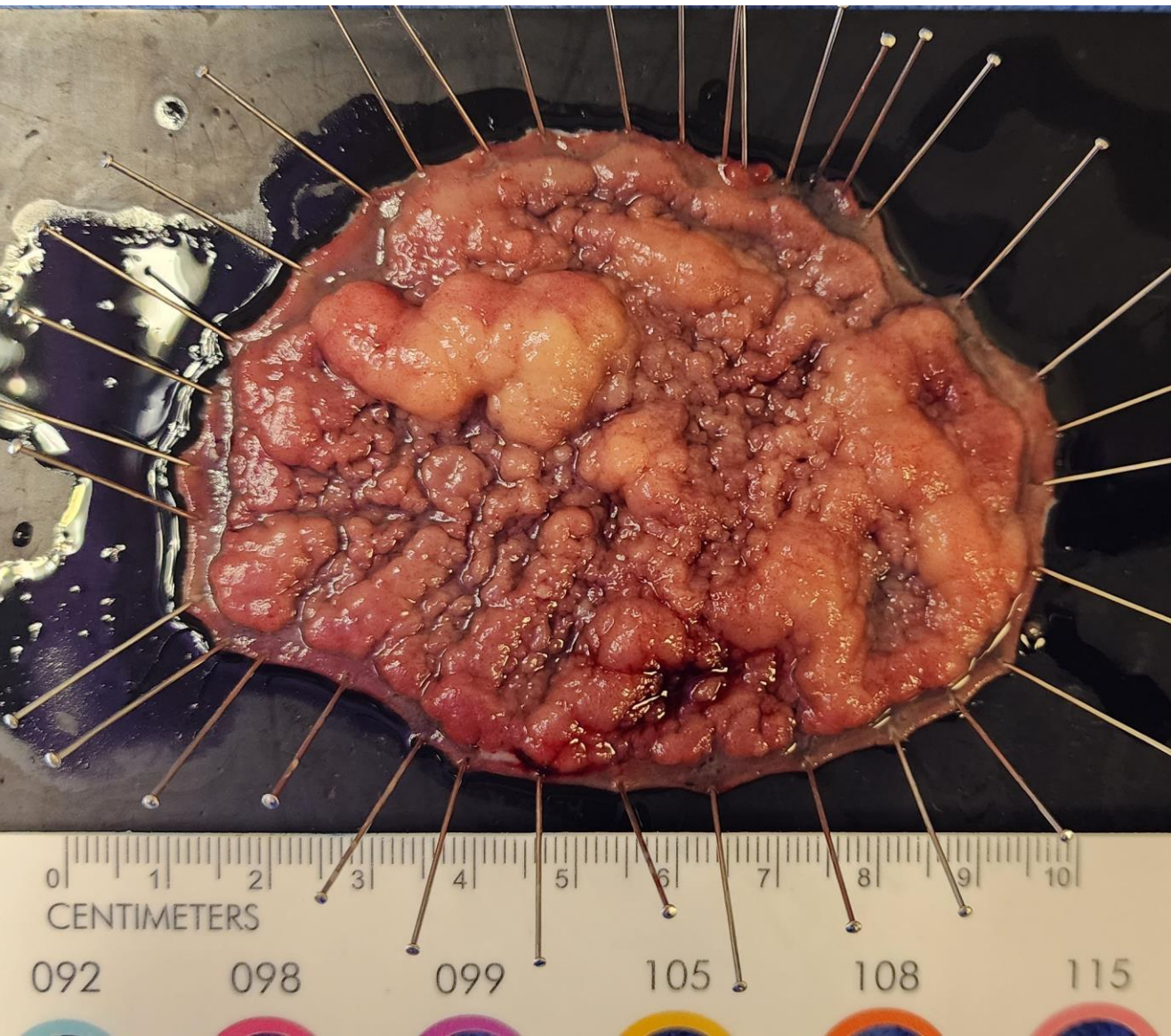


LST-NG Pseudodepression

Practice Lesion 1

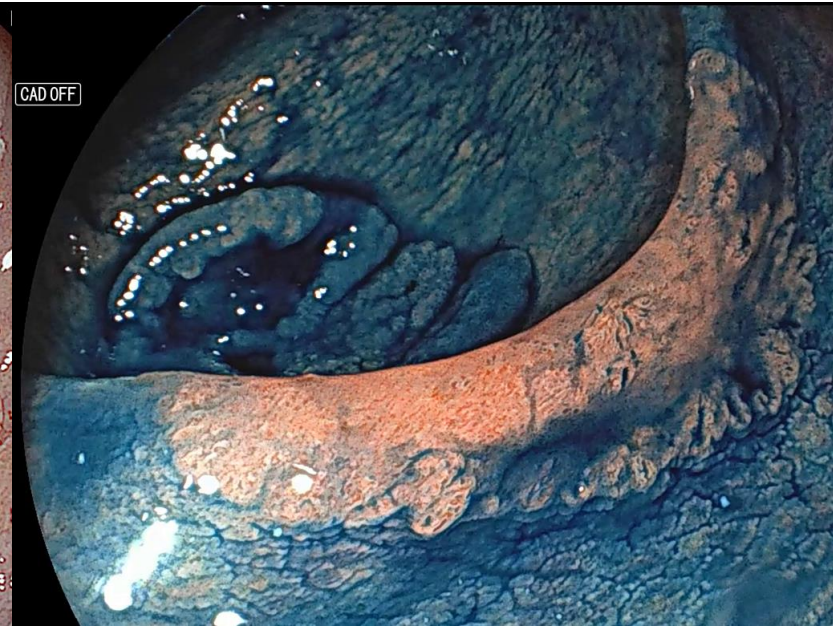
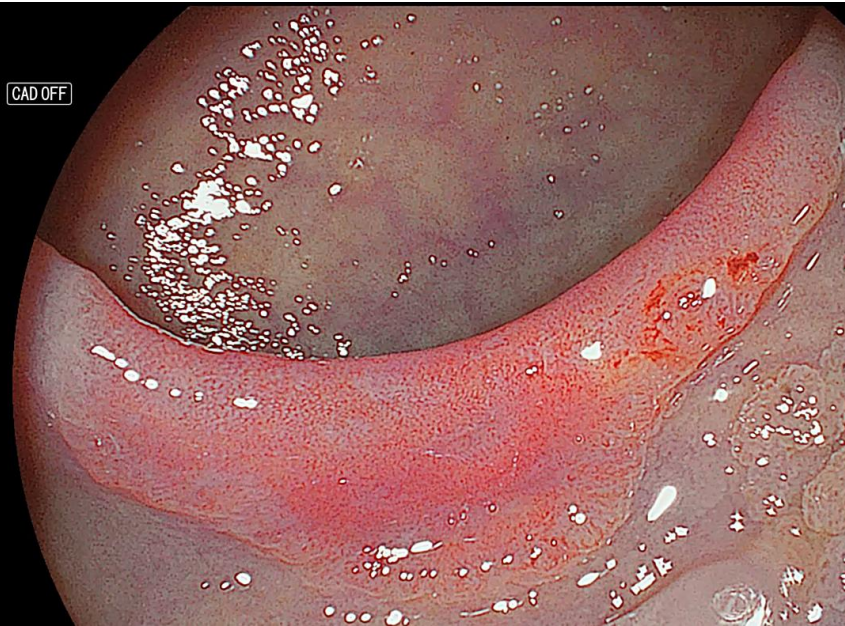
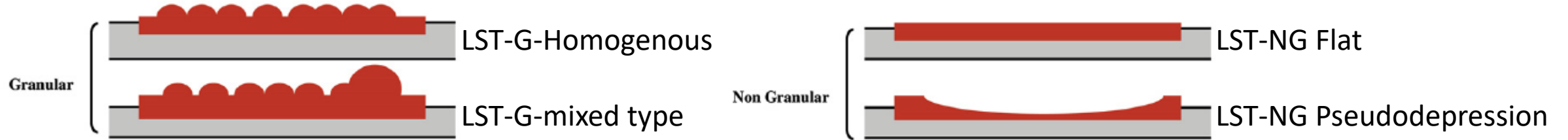


Pathology

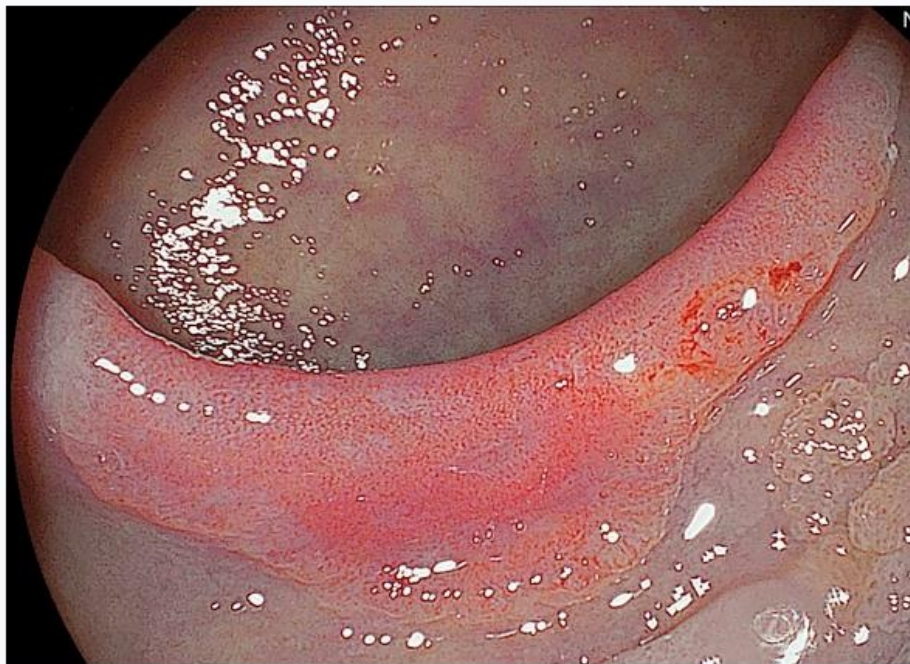


TVA + HGD

Practice Lesion 2



Practice Lesion 2



(A) LST-G-Homogenous

0%

(B) LST-G-mixed

0%

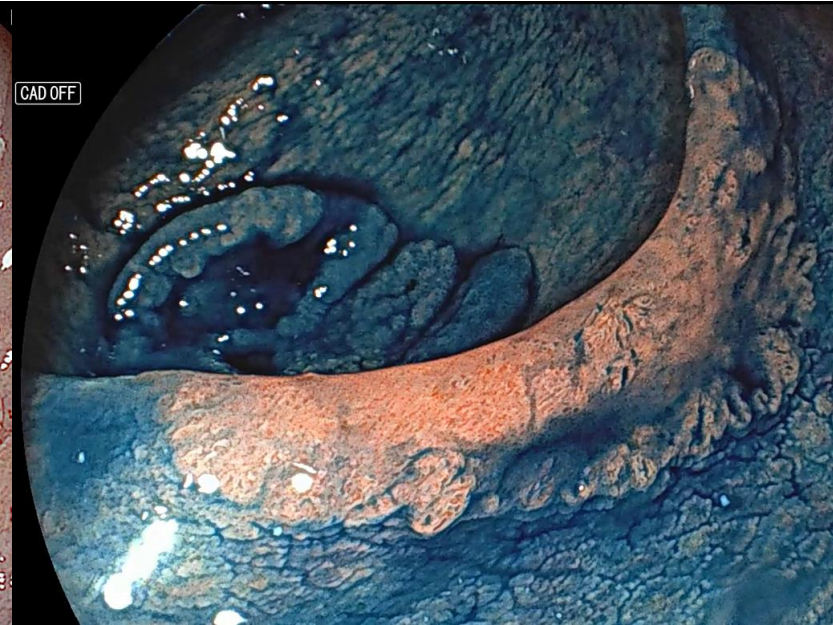
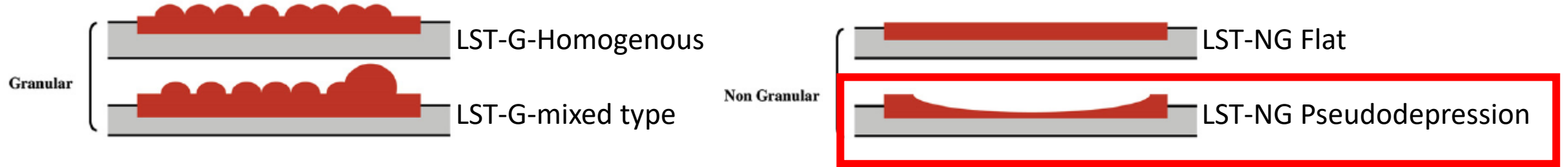
(C) LST-NG Flat

0%

(D) LST-NG Pseudodepression

0%

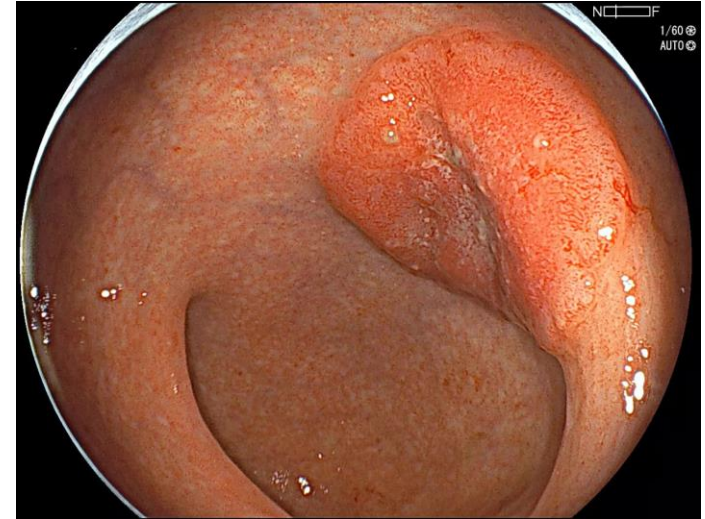
Practice Lesion 2



Endoscopic Examination of Polyps

- **Macroscopic assessment**

- Paris
- Lateral Spreading Tumor Classification
- **High-Risk Gross Morphologic Features**

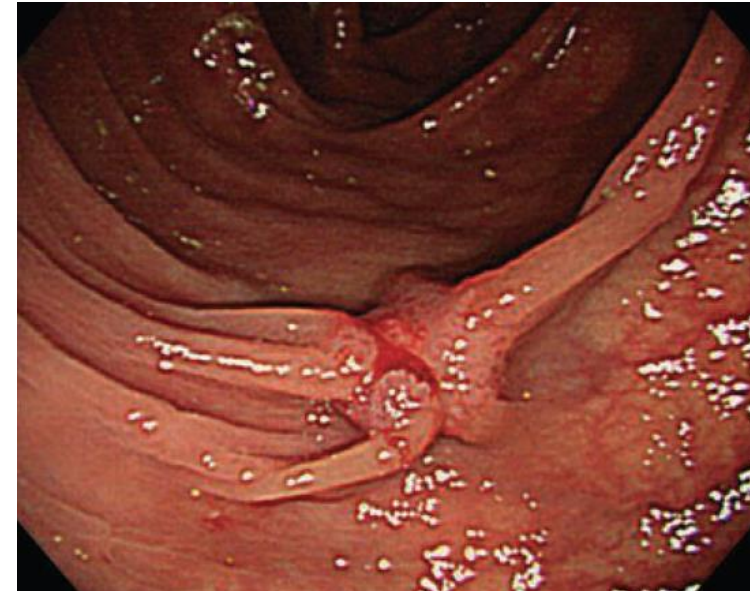


- Microscopic assessment

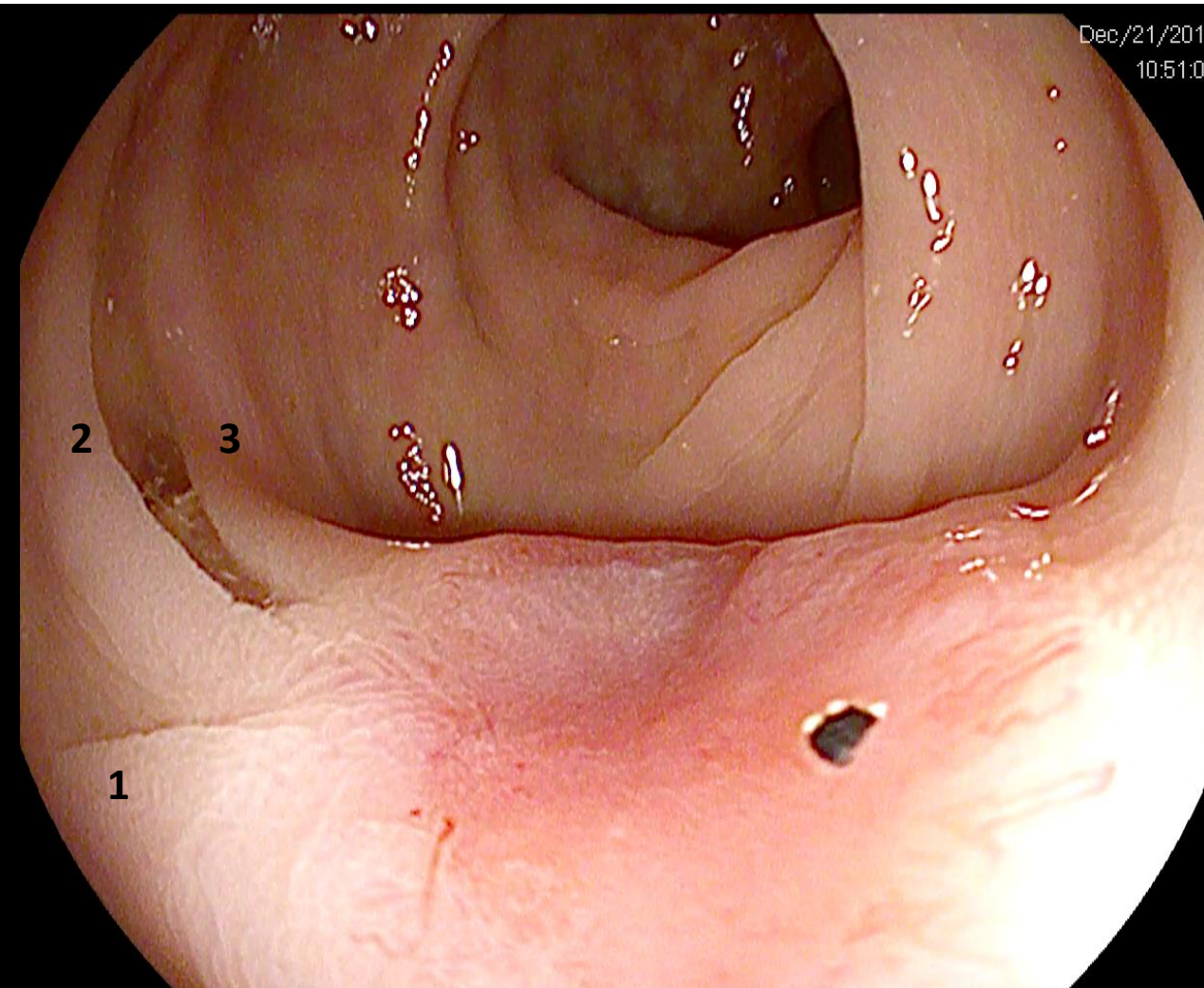
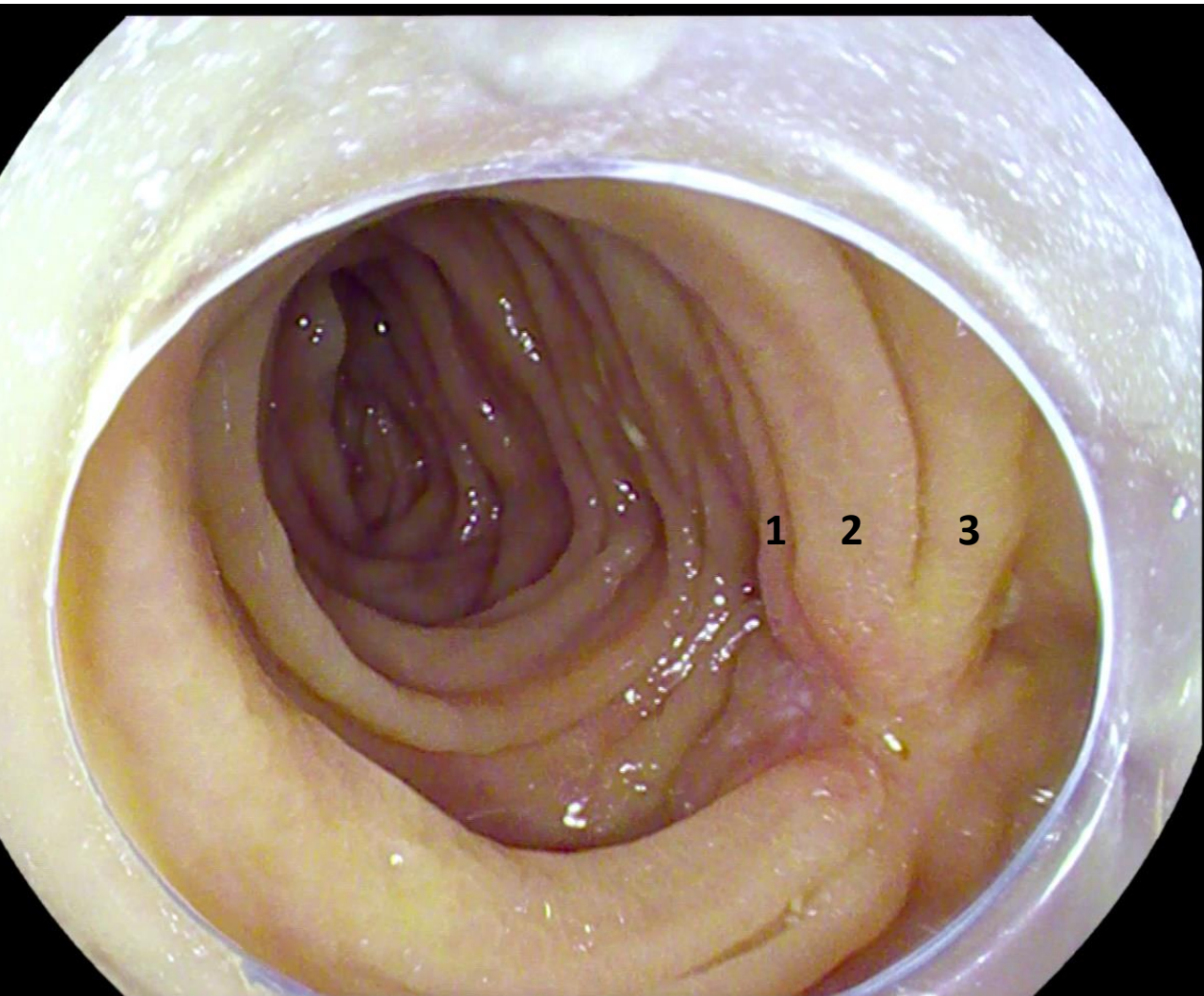
- NBI International Colorectal Endoscopic (NICE) Classification
- Japan NBI Expert Team (JNET) Classification

High-Risk Gross Morphology

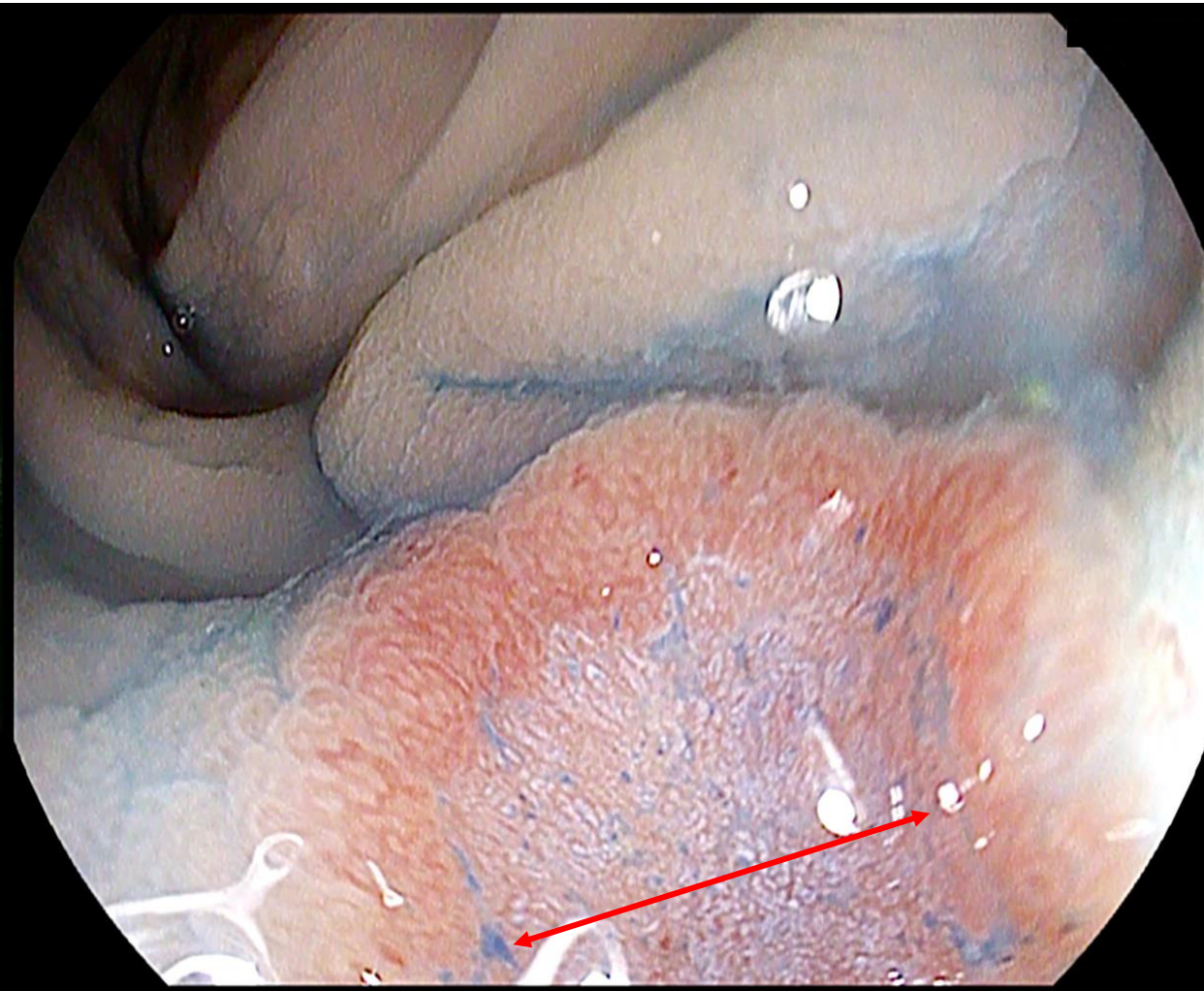
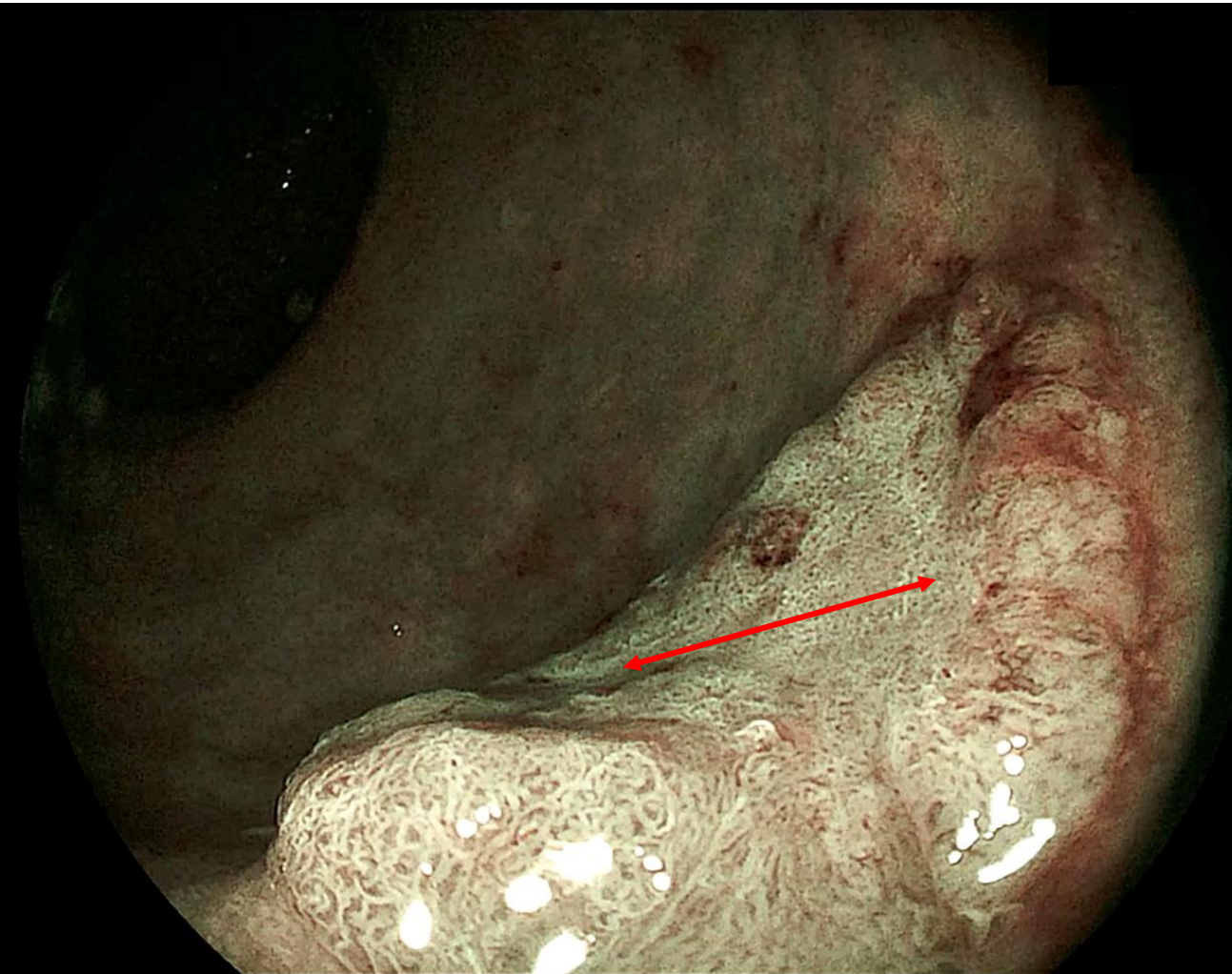
- Fold convergence
- Demarcated depressed area
- Stalk/base swelling
- Spontaneous bleeding
- White spots (Chicken skin mucosa)



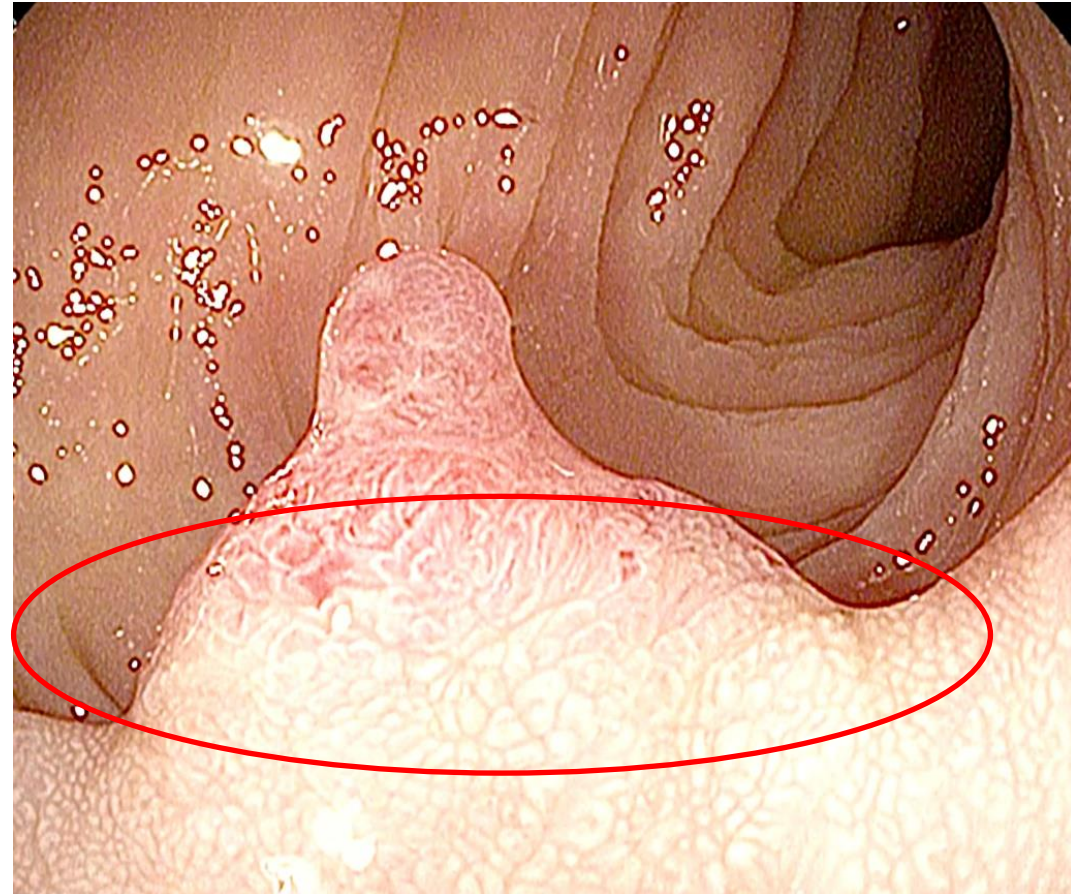
Fold Convergence



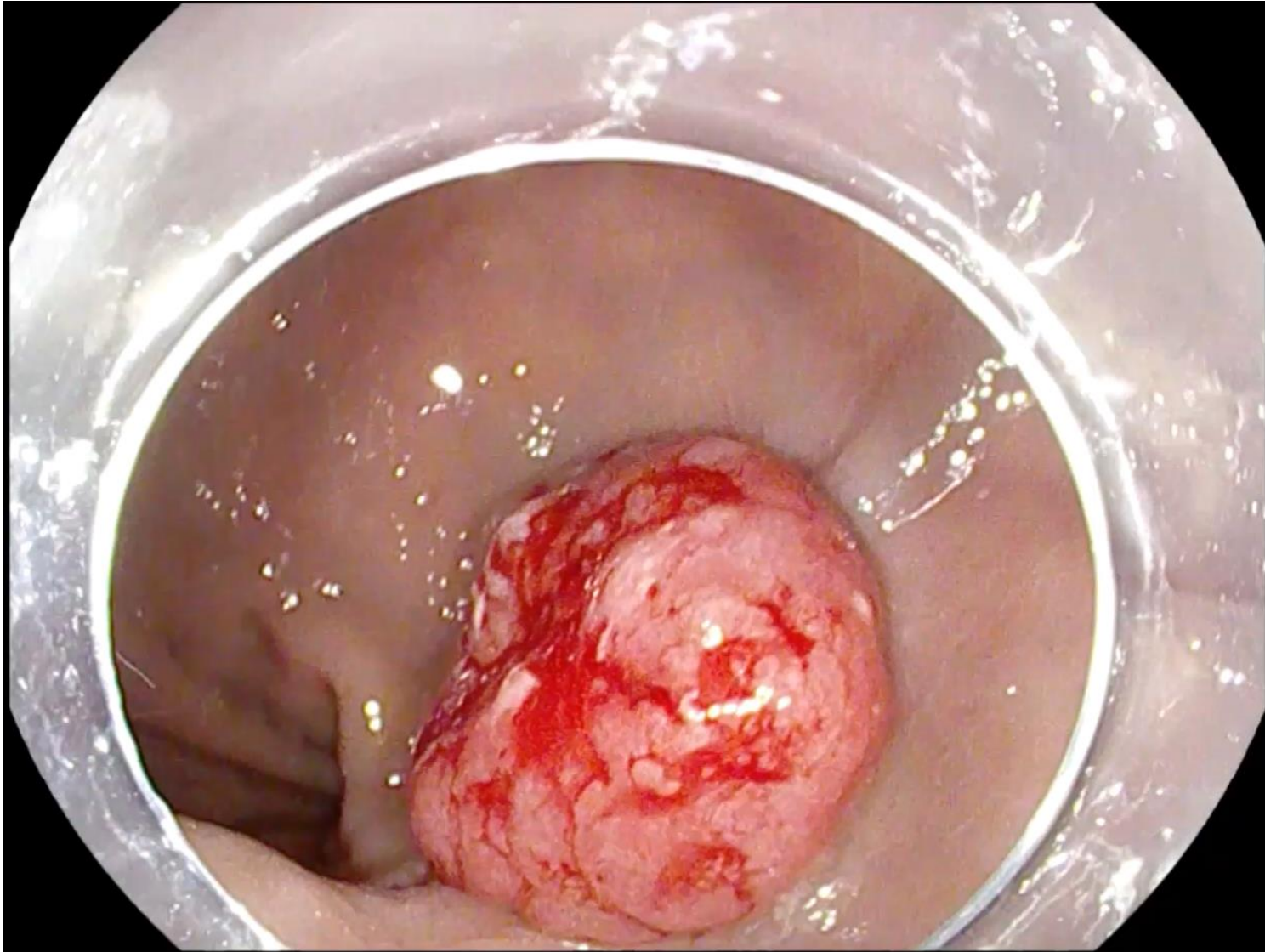
Demarcated Depressed Area



Stalk/Base Swelling



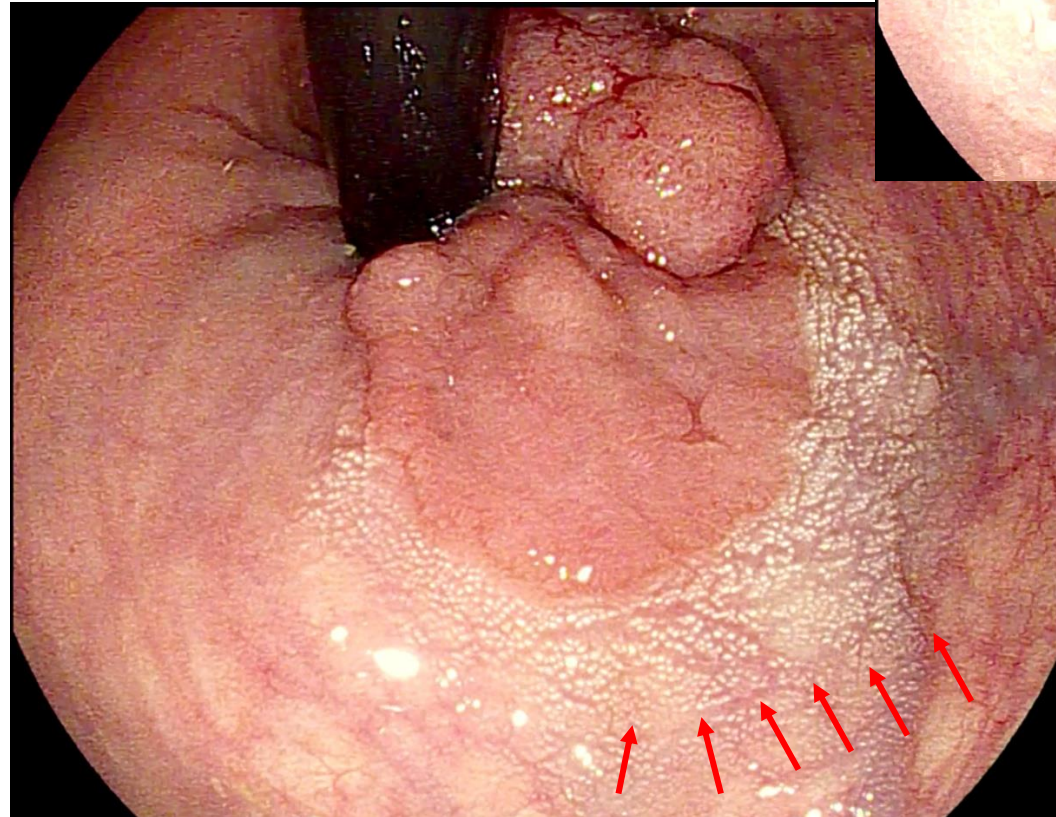
Spontaneous Bleeding



Chicken Skin Appearance



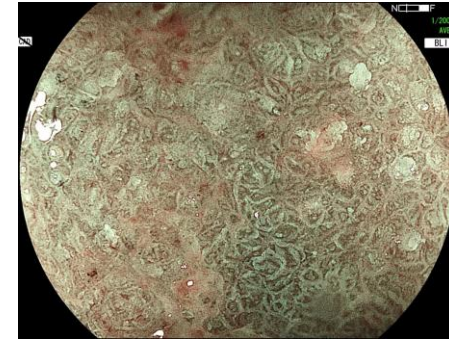
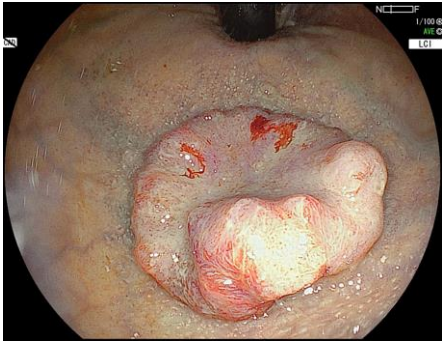
Chung, E. J. *et al.* Colonic Chicken Skin Mucosa is an Independent Endoscopic Predictor of Advanced Colorectal Adenoma. *Intest Res* **13**, 318-325, (2015).



Caution on Gross Morphology!



- In a systematic review that included >30,000 lesions
 - The use of gross morphological features *solely*, resulted in a lower accuracy than optical diagnosis with **IEE/magnifying chromoendoscopy** in predicting submucosally invasive carcinoma.

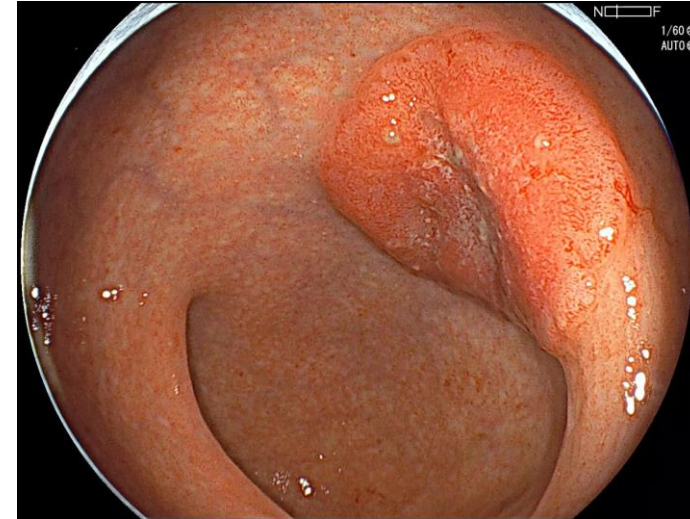


If you find a lesion with high-risk gross morphological feature(s) it warrants a VERY careful inspection with image enhanced endoscopy

Endoscopic Examination of Polyps

- **Macroscopic assessment**

- **Paris Classification**
- **Lateral Spreading Tumor Classification**
- **High-Risk Gross Morphologic Features**

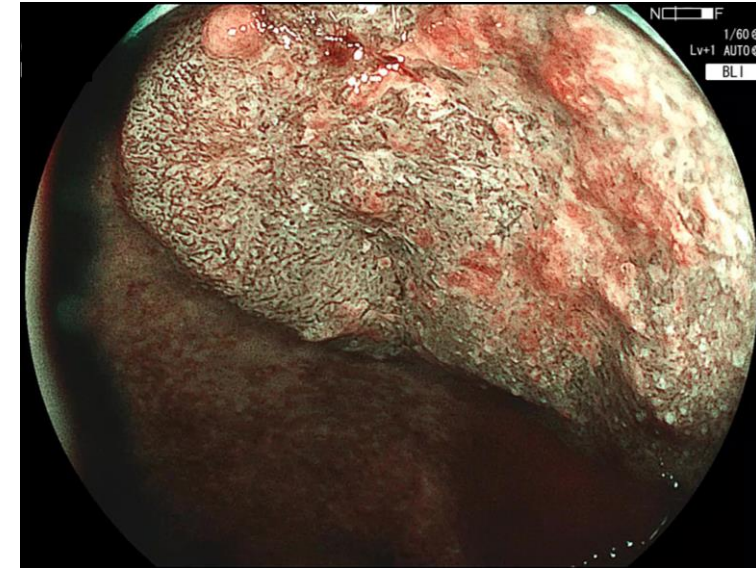


- Microscopic assessment

- NBI International Colorectal Endoscopic (NICE) Classification
- Japan NBI Expert Team (JNET) Classification

Endoscopic Examination of Polyps

- Macroscopic assessment
 - Paris Classification
 - Lateral Spreading Tumor Classification
 - High-Risk Gross Morphologic Features
- **Microscopic assessment**
 - **NBI International Colorectal Endoscopic (NICE) Classification**
 - **Japan NBI Expert Team (JNET) Classification**

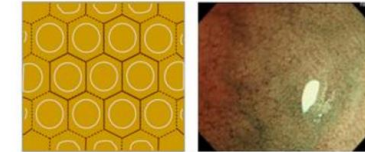


NBI Classifications

- Sano Classification
- Jikei Classification
- Hiroshima Classification
- Showa Classification

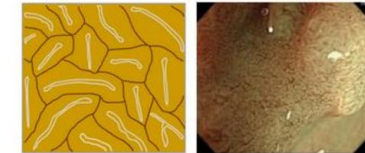
Capillary pattern	I	II	IIIA	IIIB
Schema				
Endoscopic findings				

Pattern 1 Normal colon mucosa and Hyperplastic polyp



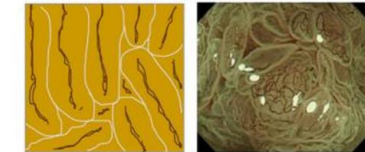
No dilated microcapillary vessels

Pattern 2



Slightly dilated microcapillary vessels

Pattern 3V (Villous pattern)



Regular, dilated microcapillary vessels with villous components

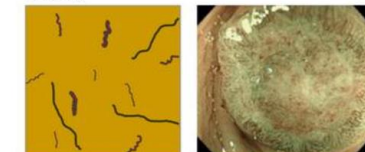
Pattern 3I (Irregular pattern)



Marked dilated microcapillary vessels

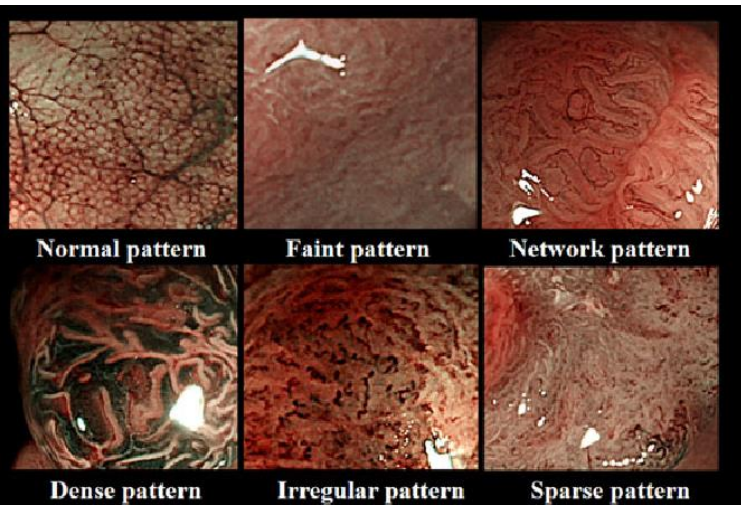
Remaining capillary networks showing irregularity

Pattern 4

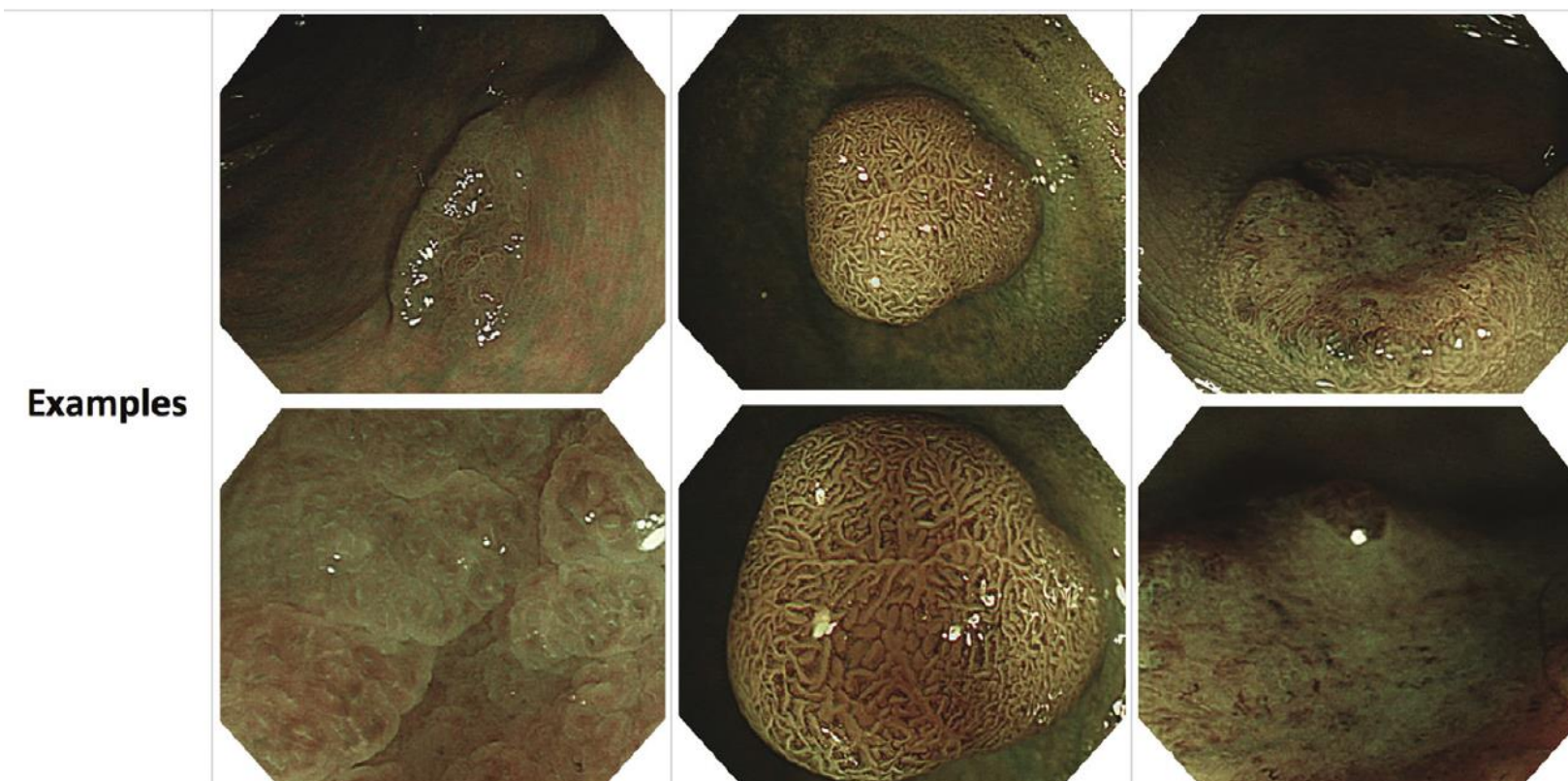


Loss of capillary networks

Type A		Microvessel intensity is vague or invisible. None or isolated lacy vessels may be present coursing across the lesion. Brown or black dots, star or round-shaped surrounded by white.	
Type B		Regular surface pattern is observed by the increased microvessel intensity around the pits and image enhance. Or regular meshed microvessel network pattern is observed.	
Type C	C1	Irregular surface pattern is observed by the increased microvessel intensity around the pits and image enhance. Thickness and distribution of vessels are heterogenous.	
	C2	More irregular surface pattern is observed by the increased microvessel intensity around the pits and image enhance. Thickness and distribution of vessels are heterogenous.	
	C3	Surface pattern is completely unclear. Thickness and distribution of vessels are heterogenous. Avascular are scattered microvessel fragments area observed.	



	Type 1	Type 2	Type 3
Colour	Same or lighter than the background	Darker relative to background	Darker relative to background; +/-patchy pale/white areas.



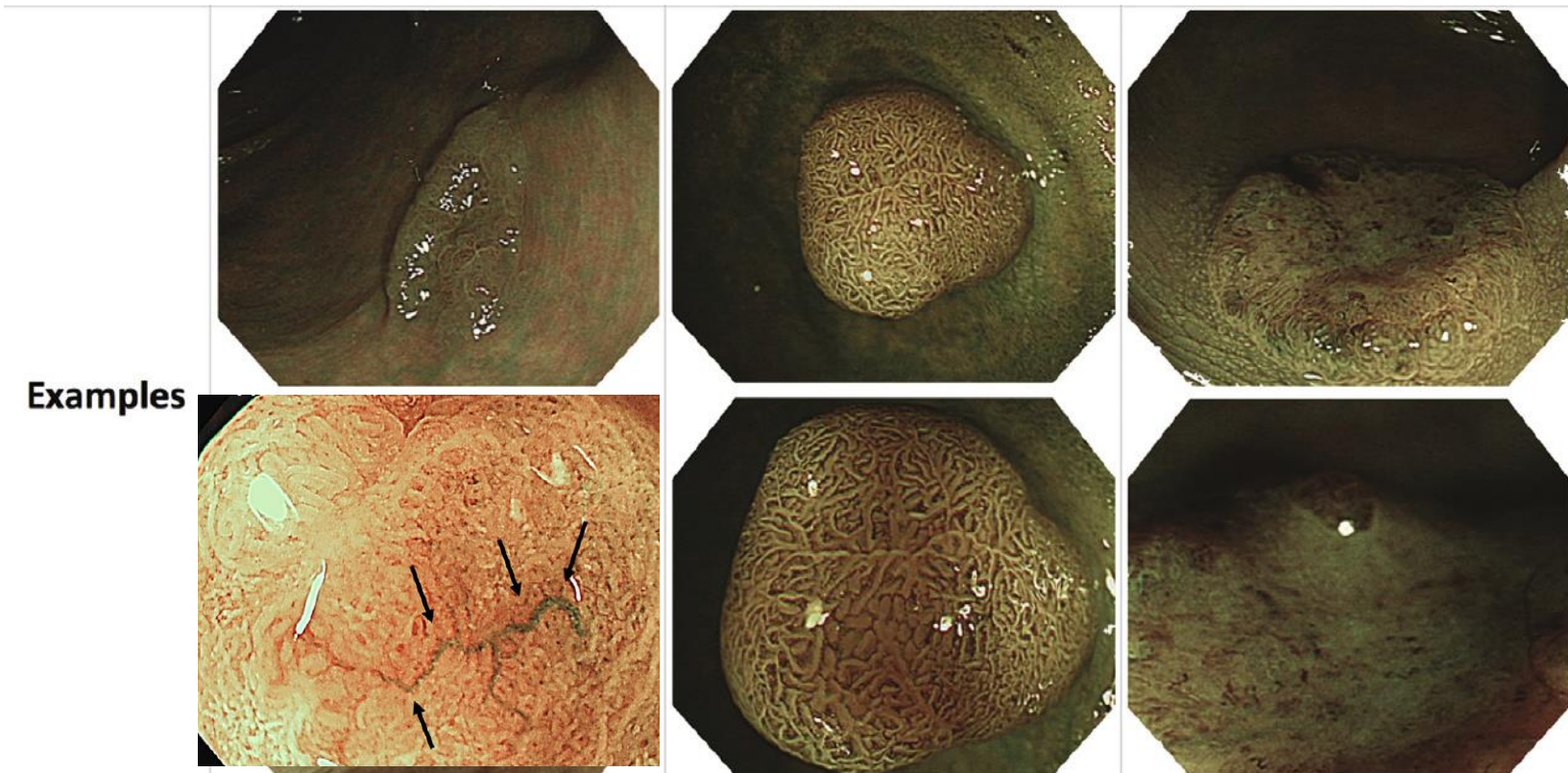
PPV 87% (95CI, 80–92%)
NPV 95% (95CI, 84–99%)
Accuracy 89% (95CI, 83–93%)

*for high confidence

	Type 1	Type 2	Type 3
Colour	Same or lighter than the background	Darker relative to background	Darker relative to background; +/-patchy pale/white areas.
Micro-vasculature	None or thick branching vessels	Regular caliber/distribution	Irregular caliber/distribution, avascular areas

PPV 87% (95CI, 80–92%)
 NPV 95% (95CI, 84–99%)
 Accuracy 89% (95CI, 83–93%)

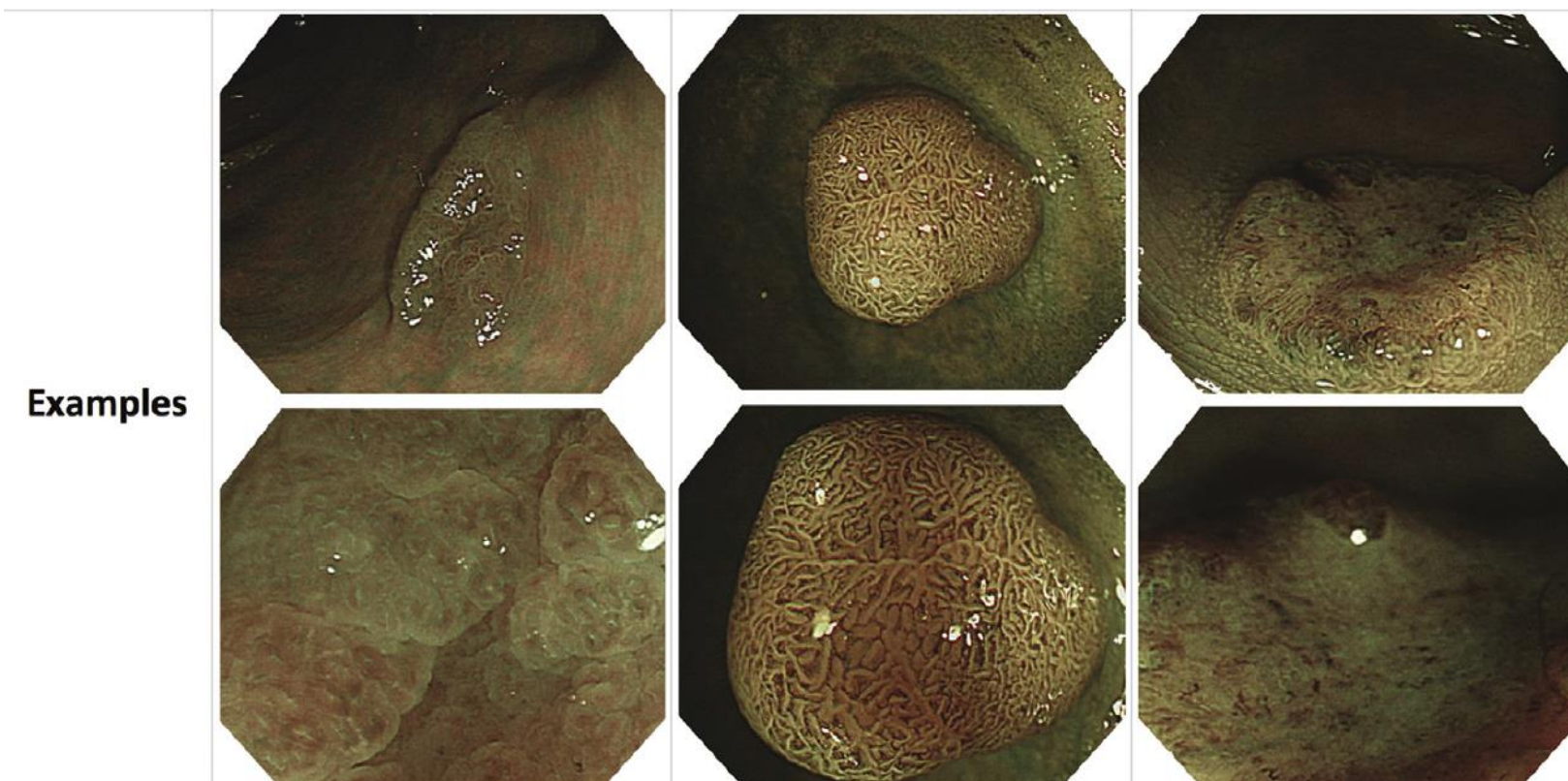
*for high confidence

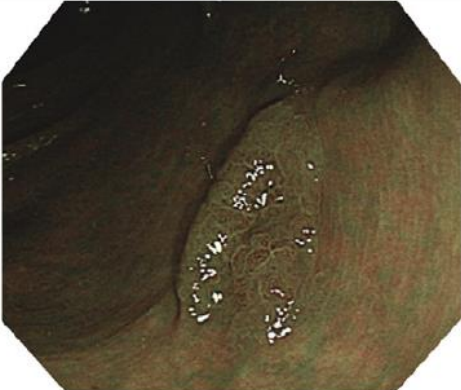
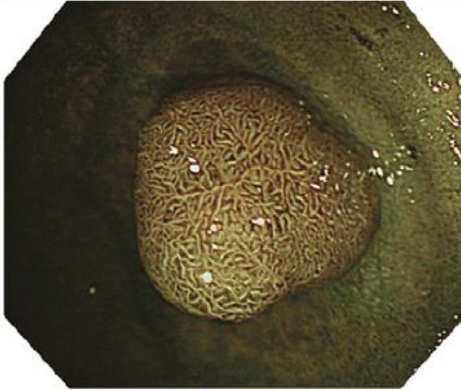
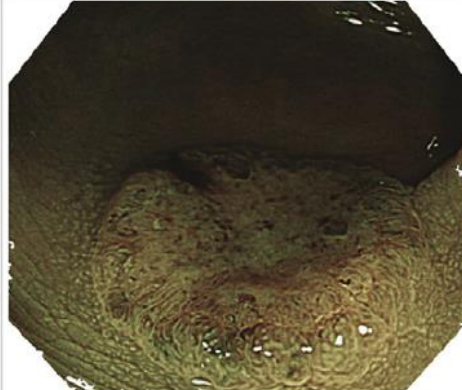
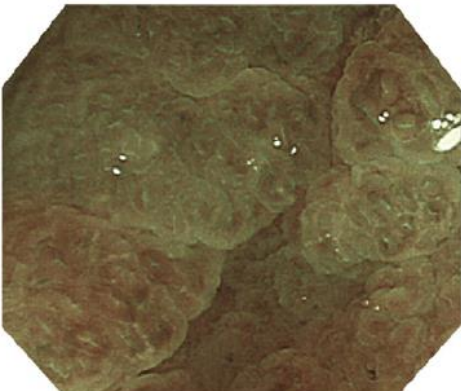
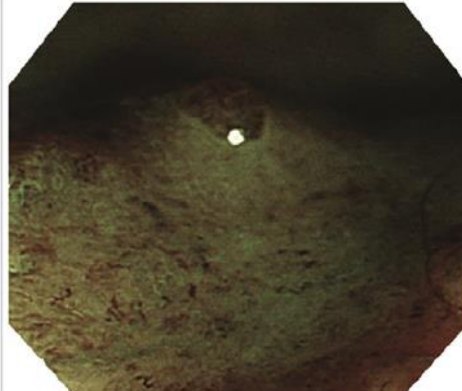


	Type 1	Type 2	Type 3
Colour	Same or lighter than the background	Darker relative to background	Darker relative to background; +/-patchy pale/white areas.
Micro-vasculature	None or thick branching vessels	Regular caliber/distribution	Irregular caliber/distribution, avascular areas
Micro-surface	Regular dark or white spots. Similar to normal mucosa	Regular width/distribution	Amorphous/absent

PPV 87% (95CI, 80–92%)
NPV 95% (95CI, 84–99%)
Accuracy 89% (95CI, 83–93%)

*for high confidence



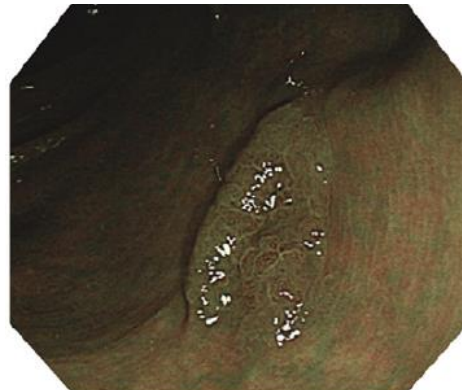
	Type 1	Type 2	Type 3
Colour	Same or lighter than the background	Darker relative to background	Darker relative to background; +/-patchy pale/white areas.
Micro-vasculature	None or thick branching vessels	Regular caliber/distribution	Irregular caliber/distribution, avascular areas
Micro-surface	Regular dark or white spots. Similar to normal mucosa	Regular width/distribution	Amorphous/absent
Predicted Pathology	Hyperplastic/Serrated Lesion	Adenoma	Deep Submucosally invasive cancer
Examples			
			

PPV 87% (95CI, 80–92%)
NPV 95% (95CI, 84–99%)
Accuracy 89% (95CI, 83–93%)

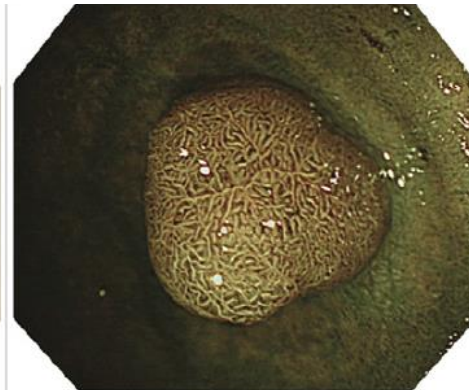
*for high confidence

Practice Lesion 3

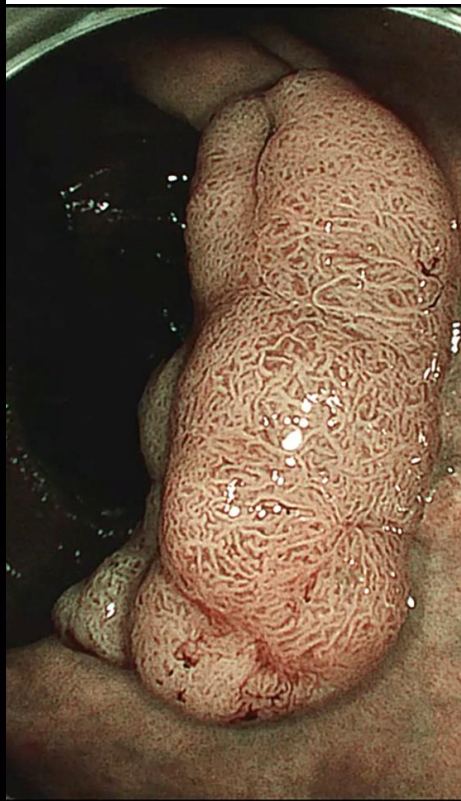
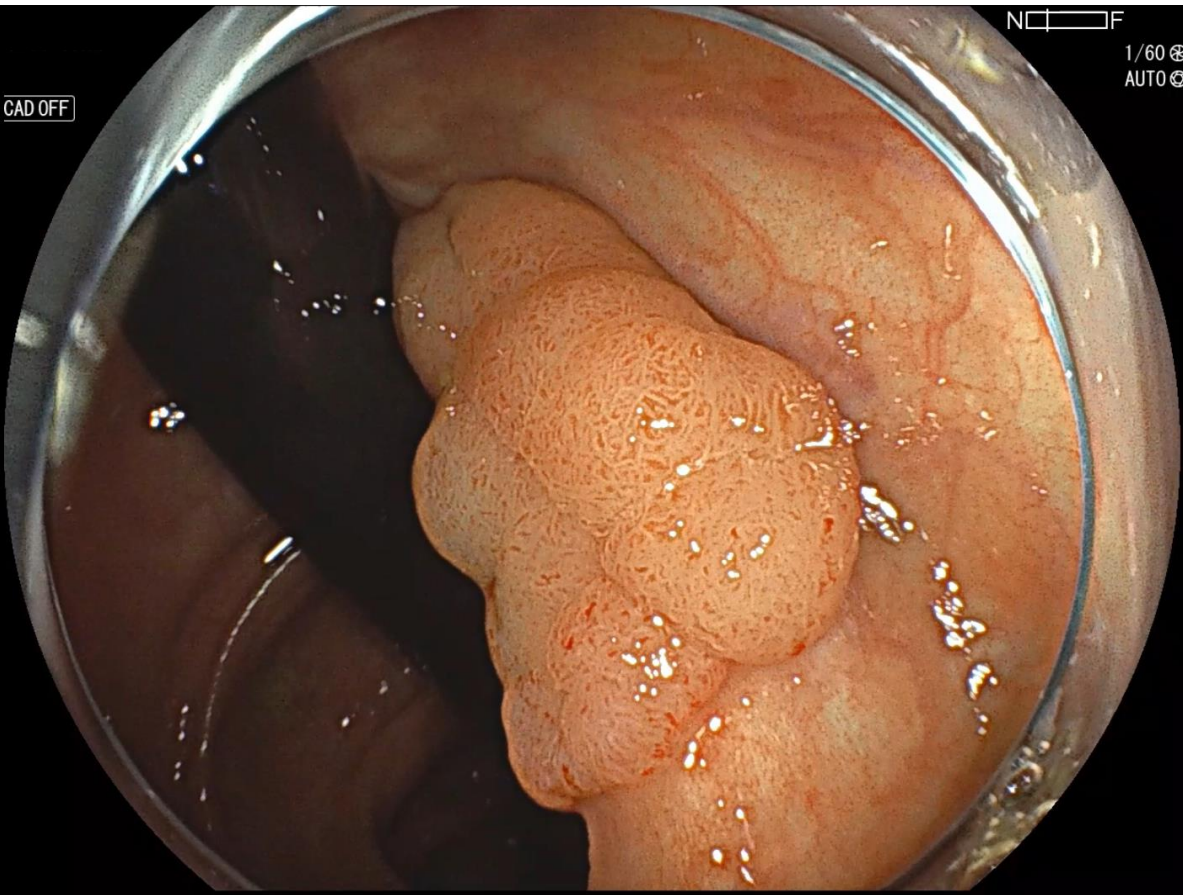
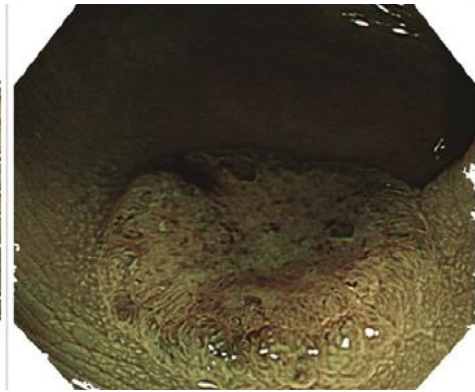
I



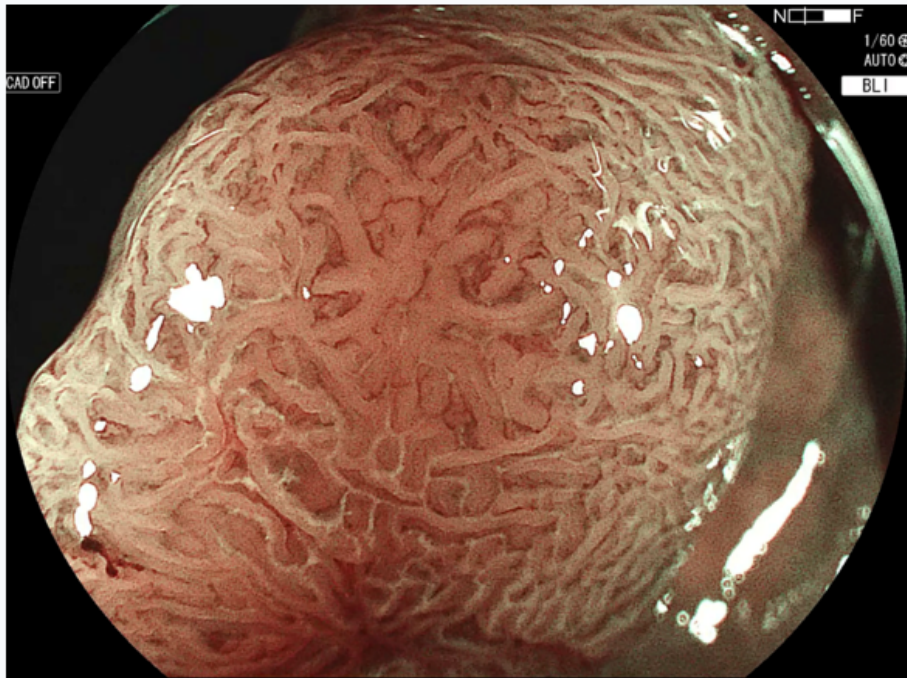
II



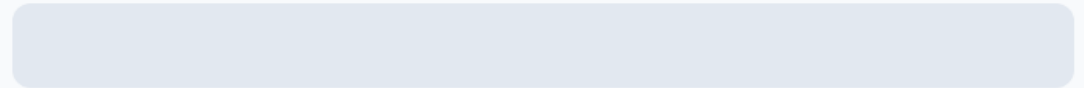
III



Practice Lesion 3

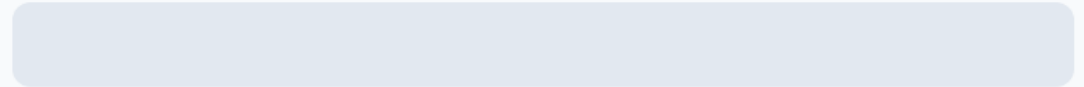


NICE I



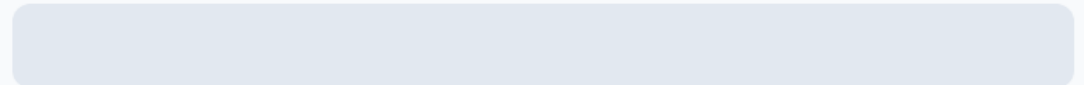
0%

NICE II



0%

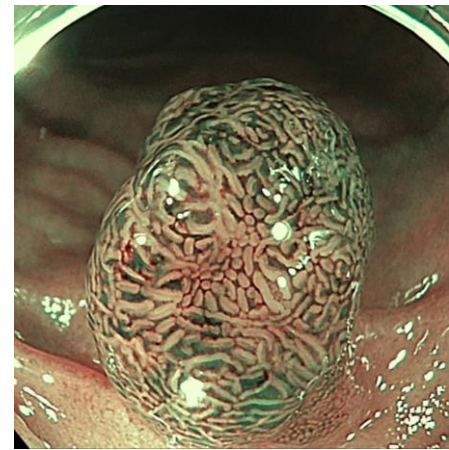
NICE III

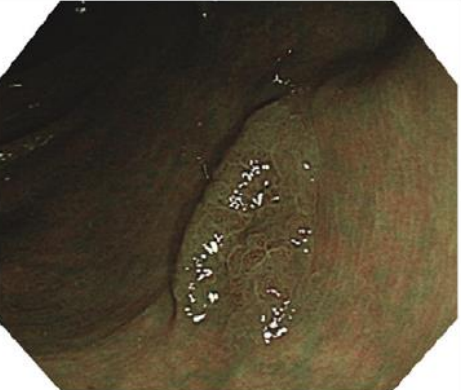
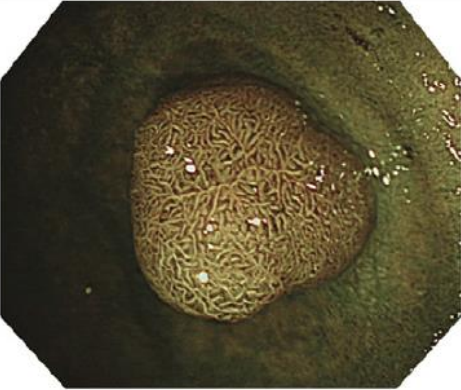
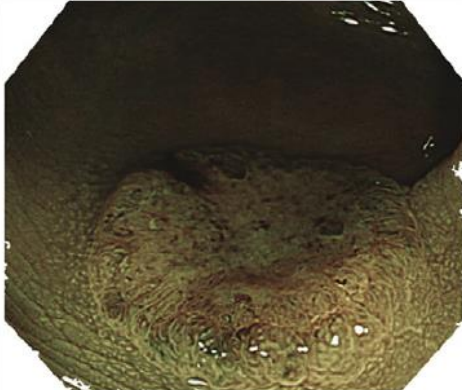
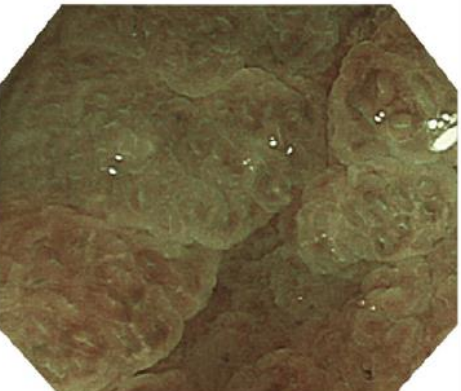
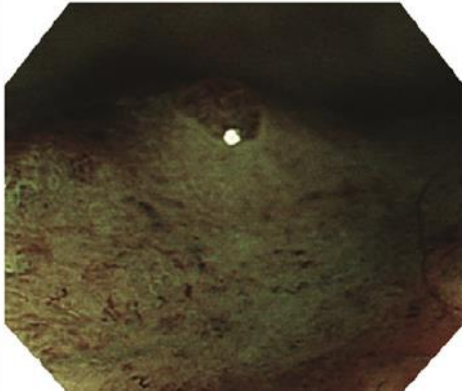


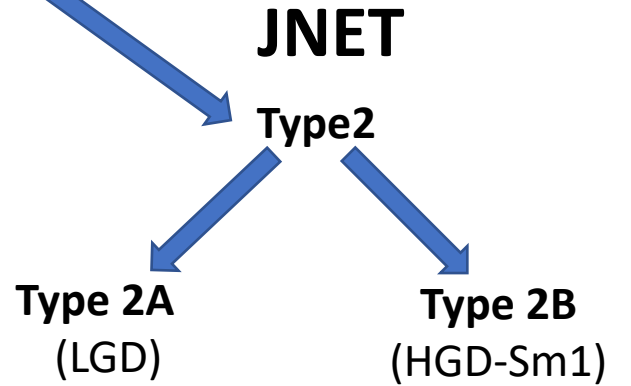
0%

Shortcomings of NICE

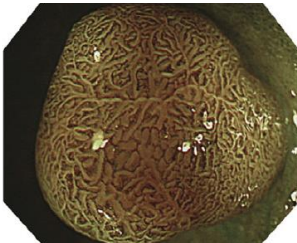
- Studies that included polyps >1cm & HGD/SM1 lesions
 - Accuracy 75-80% and level of high diagnostic confidence 50-75%
- Inability to distinguish between LGD and HGD/SM1
- Does not distinguish between hyperplastic and SSL



	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			
			

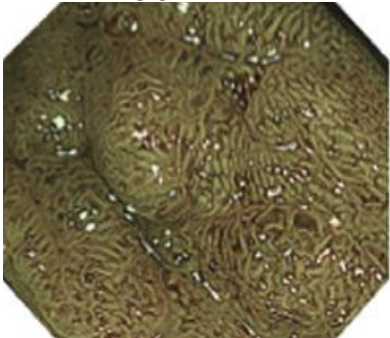


NICE type 2

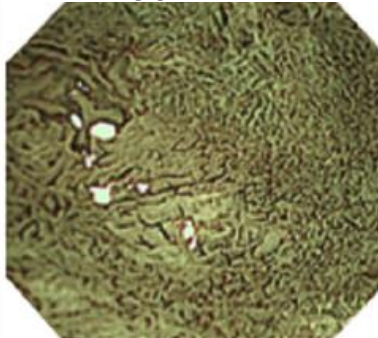


JNET

Type 2A



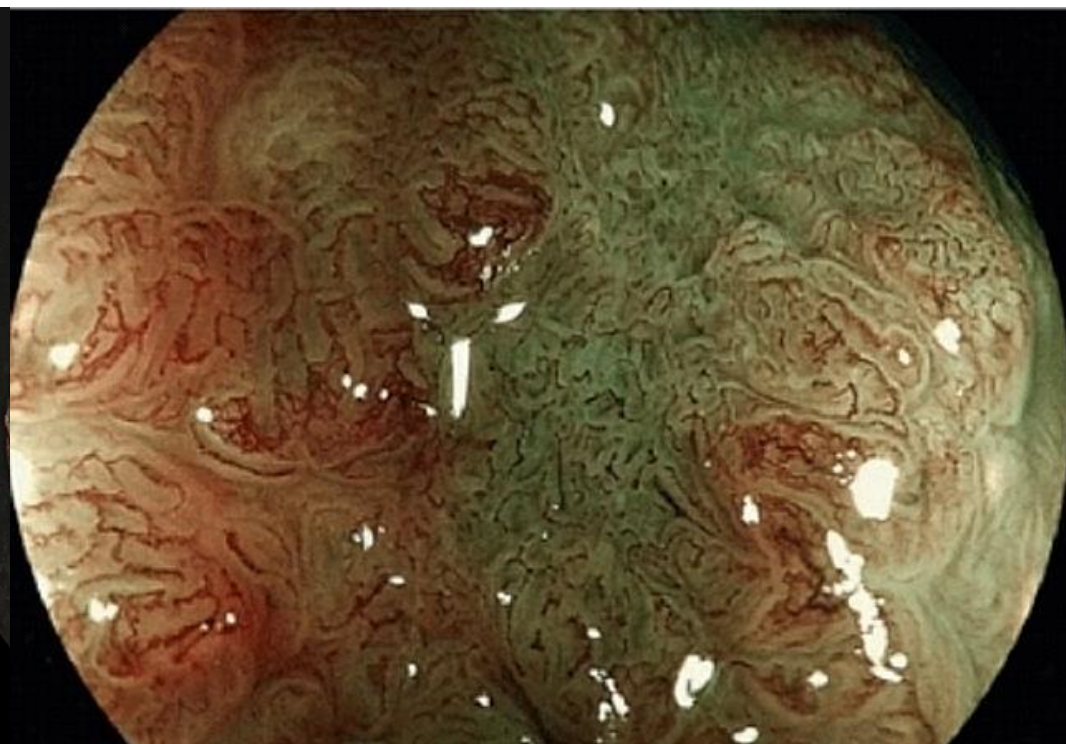
Type 2B



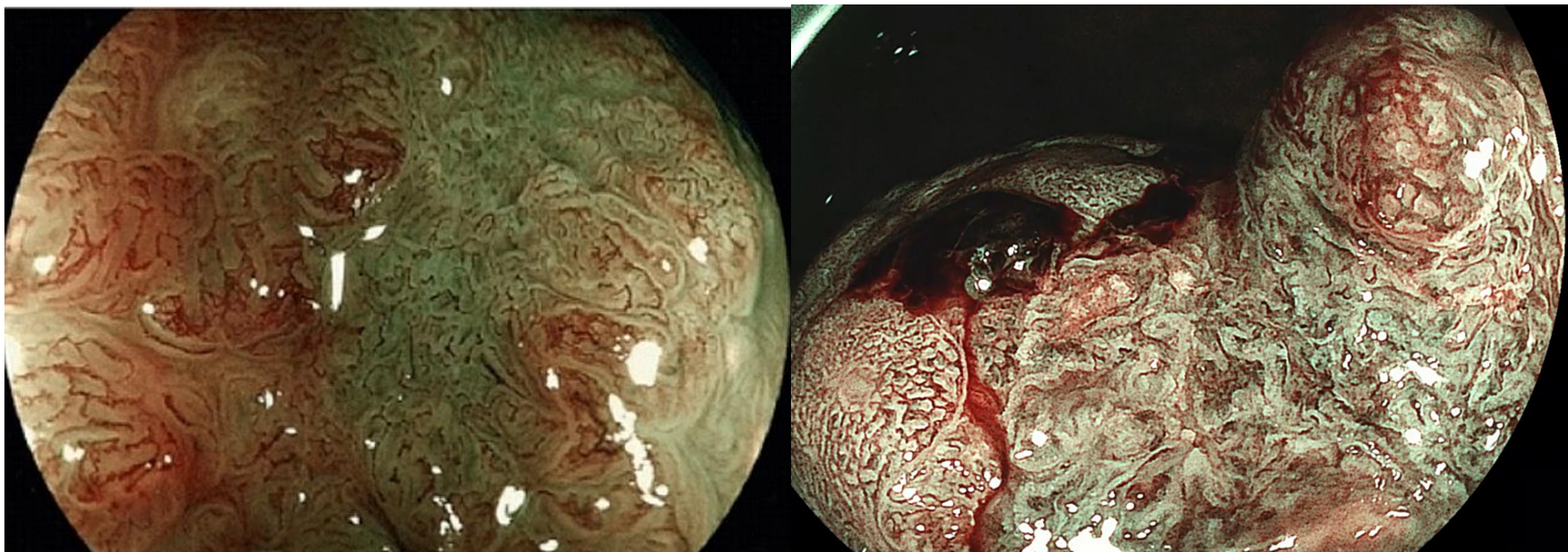
Micro-vasculature	Regular caliber/distribution	Variable caliber/distribution
Micro-surface	Regular width/distribution	Variable width/distribution or obscure
Predicted Pathology	Low-grade dysplasia	High-grade dysplasia to superficial submucosal cancer

Sumimoto, K. *et al.* Clinical impact and characteristics of the narrow-band imaging magnifying endoscopic classification of colorectal tumors proposed by the Japan NBI Expert Team. *Gastrointestinal endoscopy* **85**, 816-821, (2017).

JNET 2A vs 2B vs 3

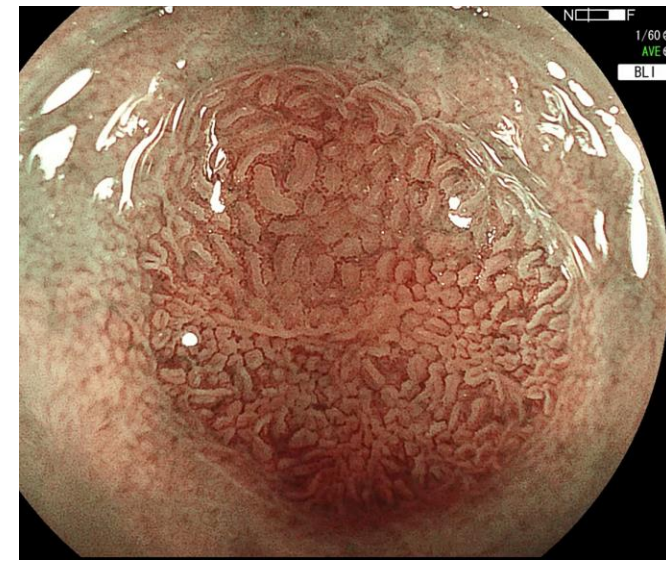


JNET 2A vs 2B vs 3



JNET

- Advantages
 - Improved overall high-confidence rate of ~92%
 - Ability to differentiate LGD vs HGD/Sm1 vs deeply invasive
 - Utilizes magnification (includes near focus)
- Drawbacks
 - Accuracy of JNET 2B in predicting HGD/SM1~80%



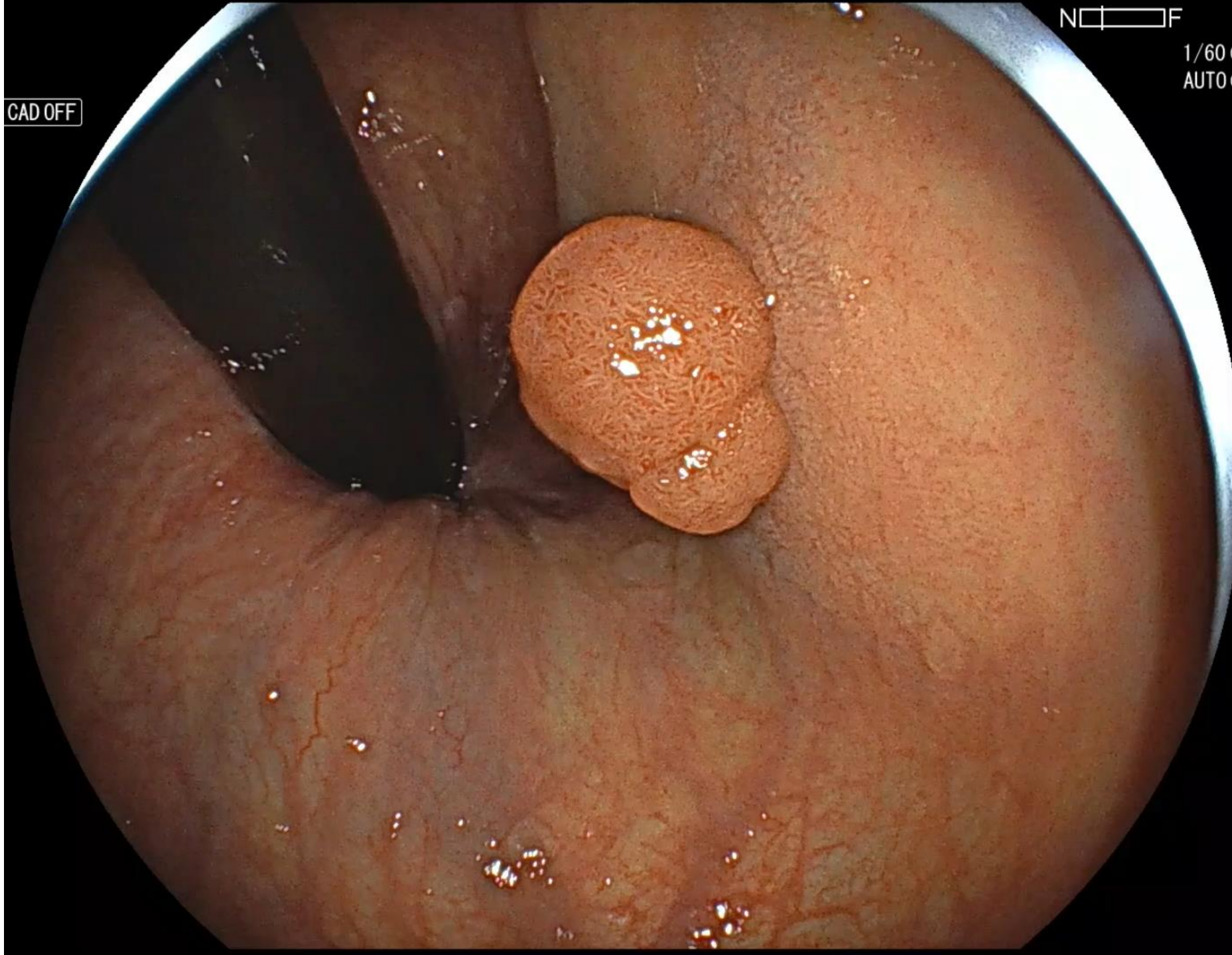
Our Experience with using JNET with ESD

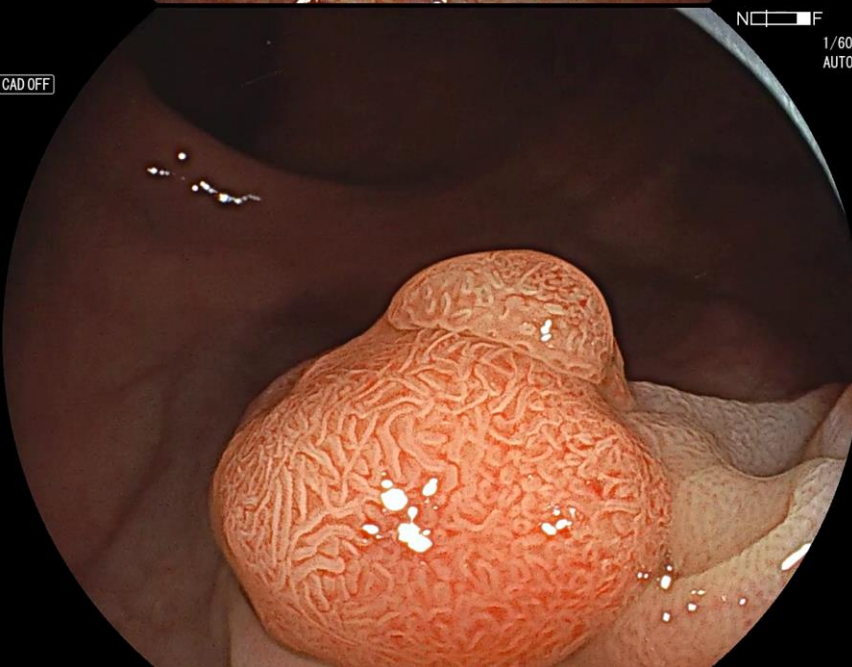
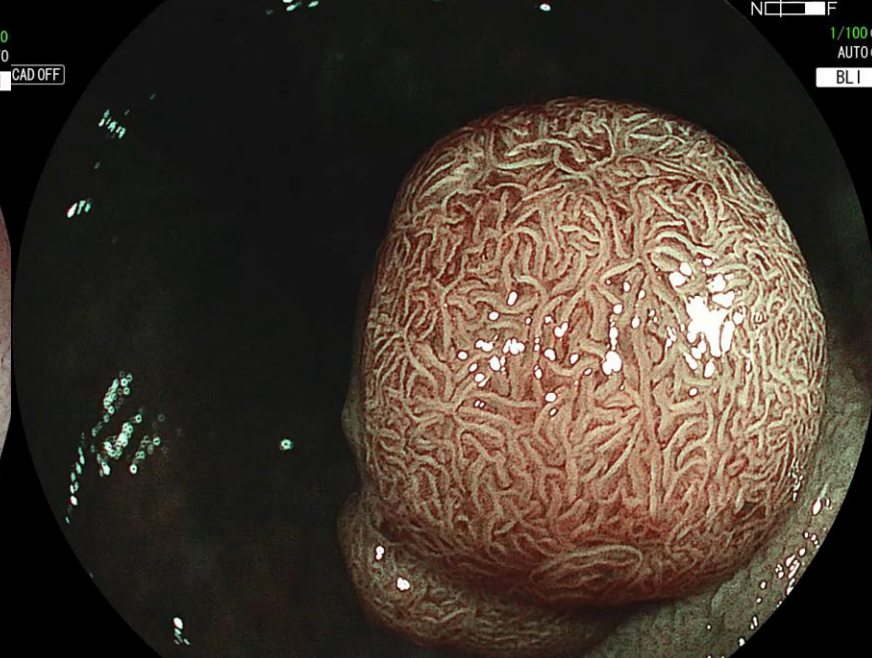
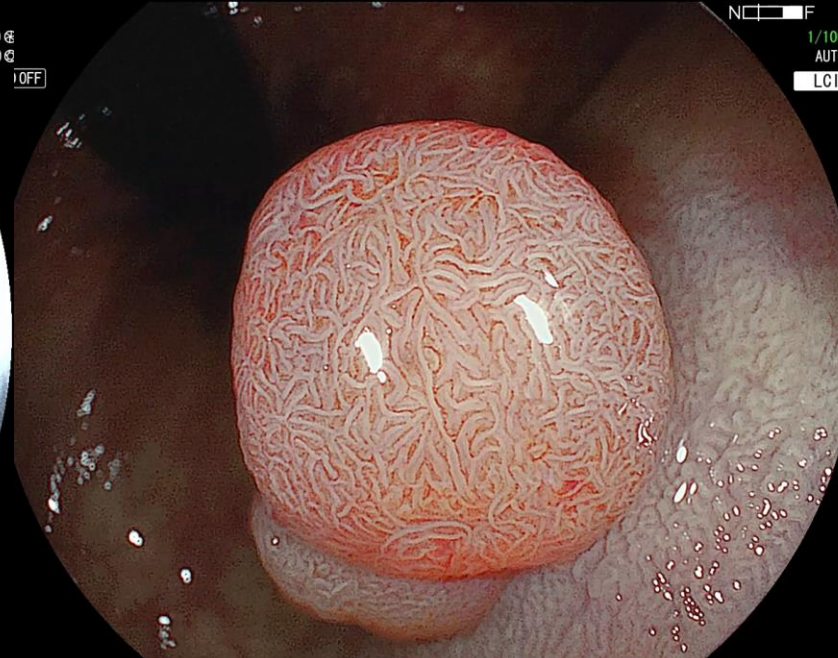
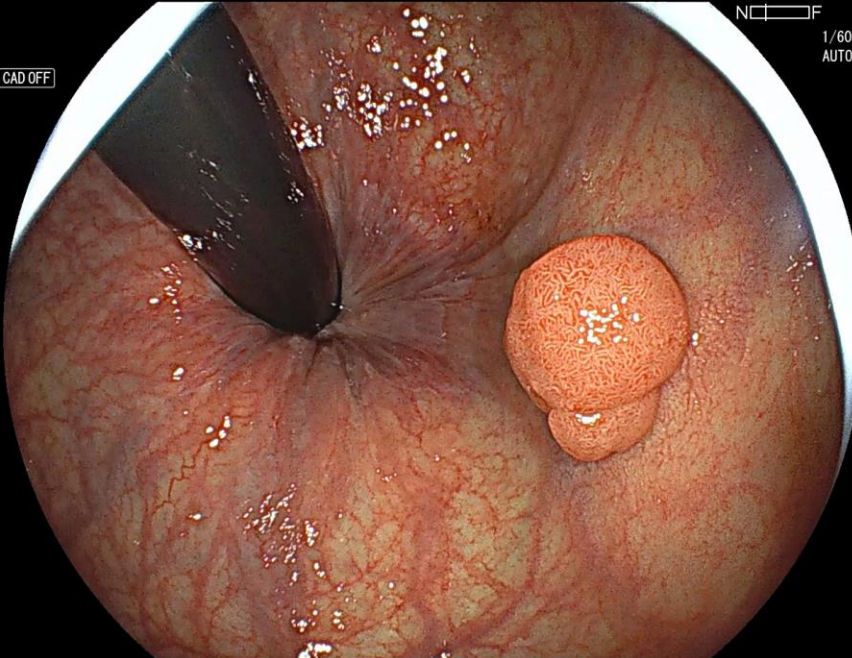
- Among lesions classified JNET 2B (n=111)
 - 80.2% accuracy for HGD or sm1.
 - 12.1% LGD
 - 58.2% HGD
 - 19.8% Sm1
 - 9.9% $\geq$ sm2
 - 97.3% sensitivity
 - 47.4% specificity

Back to the Cases

Case#1

- 51F, screening for Family history of CRC+





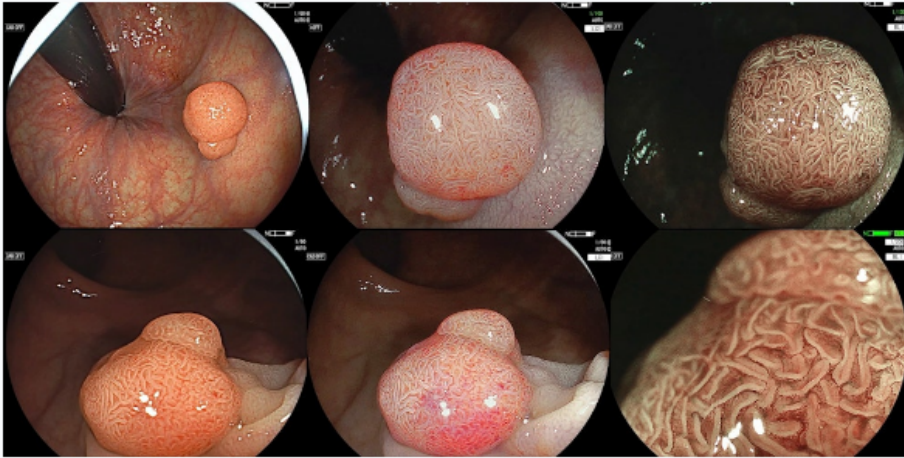
SSL
JNET 1

LGD
JNET 2A

HGD-Sm1
JNET 2B

Deeply Invasive
JNET3

What's your best prediction of pathology?



Adenoma — low-grade dysplasia

0%

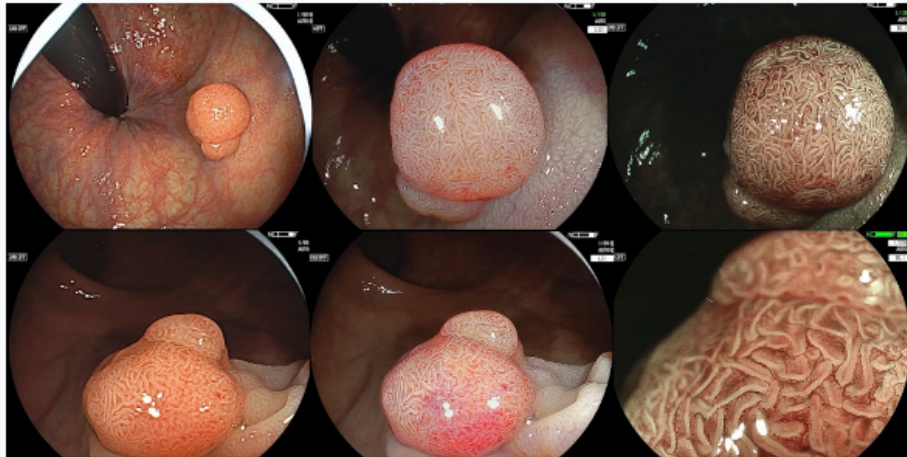
High-grade dysplasia / superficial submucosal carcinoma

0%

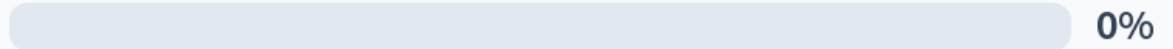
Deep submucosally invasive carcinoma

0%

How confident are you in your predicted pathology?



Very low (0–20%)



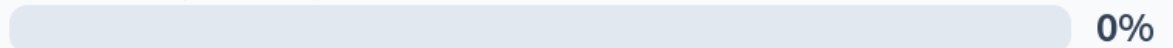
0%

Low (21–40%)



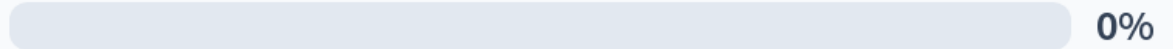
0%

Moderate (41–60%)



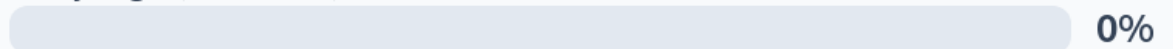
0%

High (61–80%)

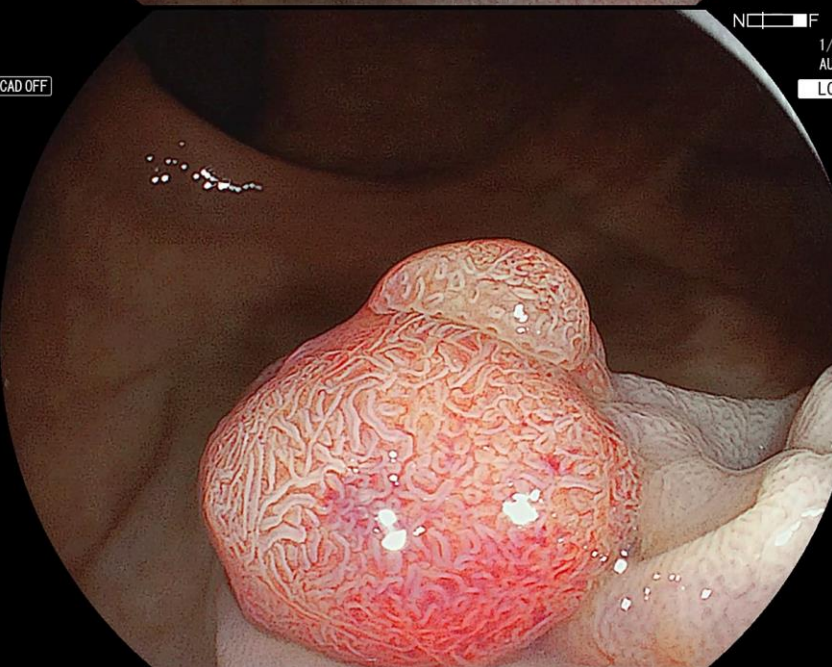
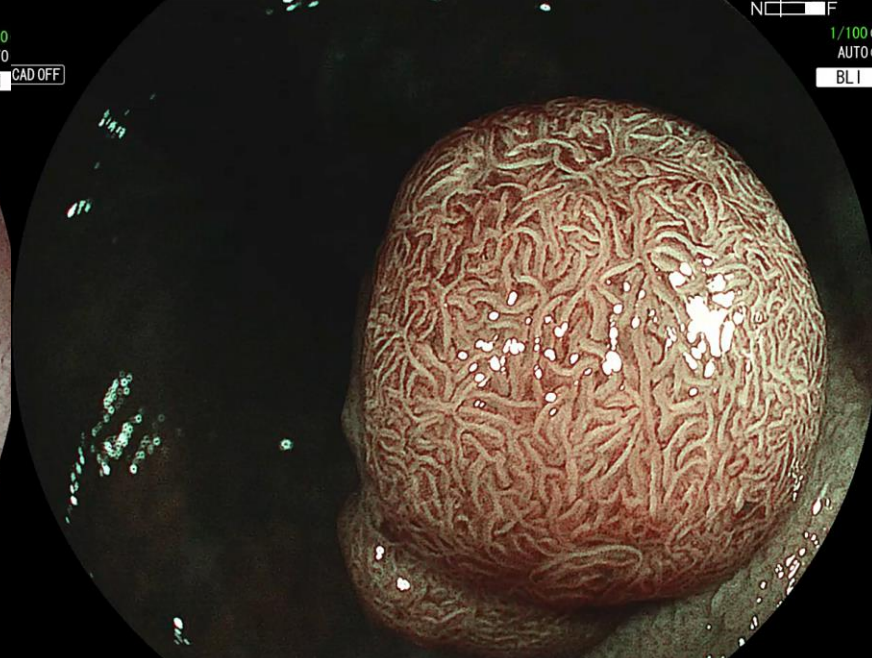
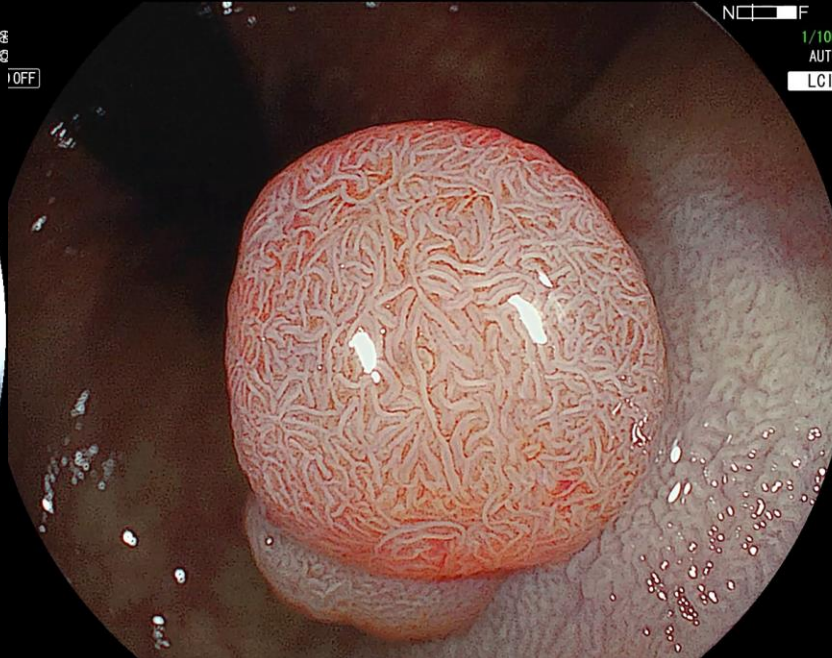
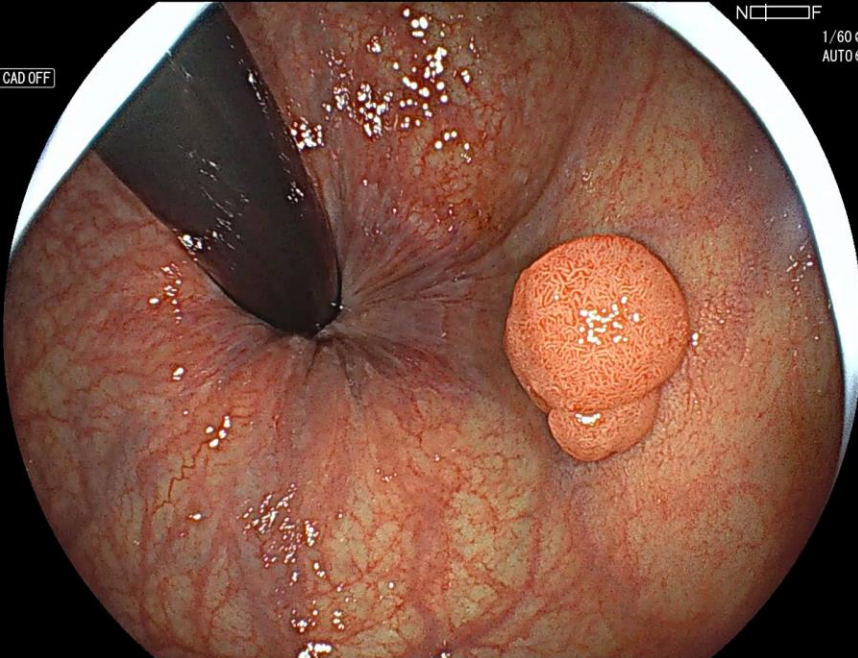


0%

Very high (81–100%)



0%



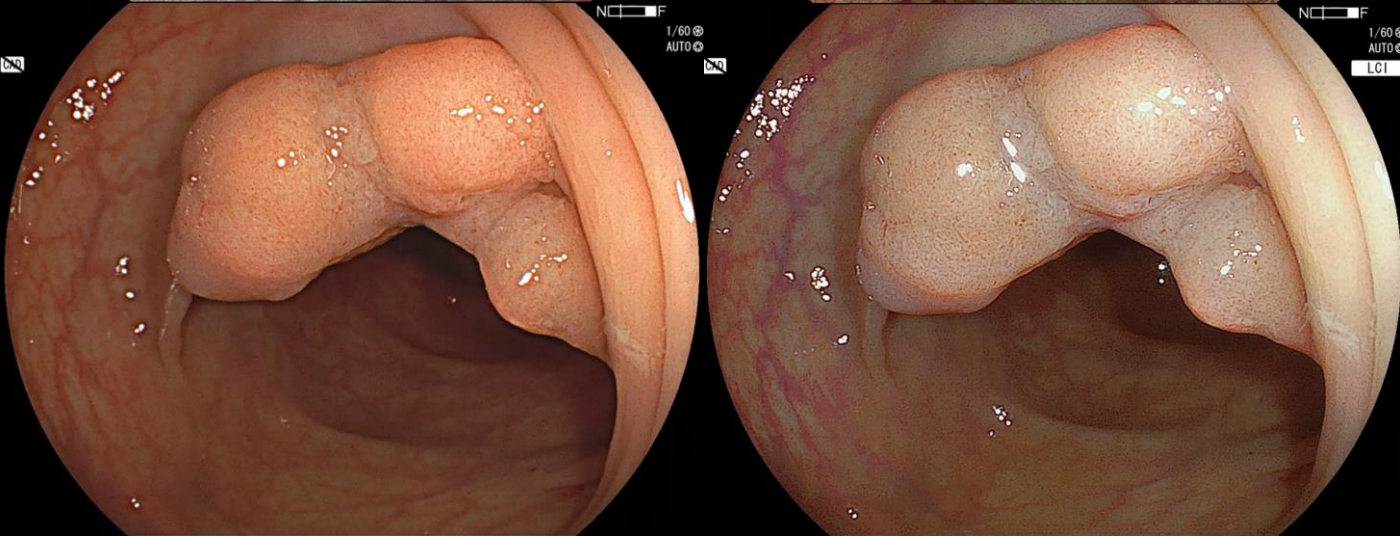
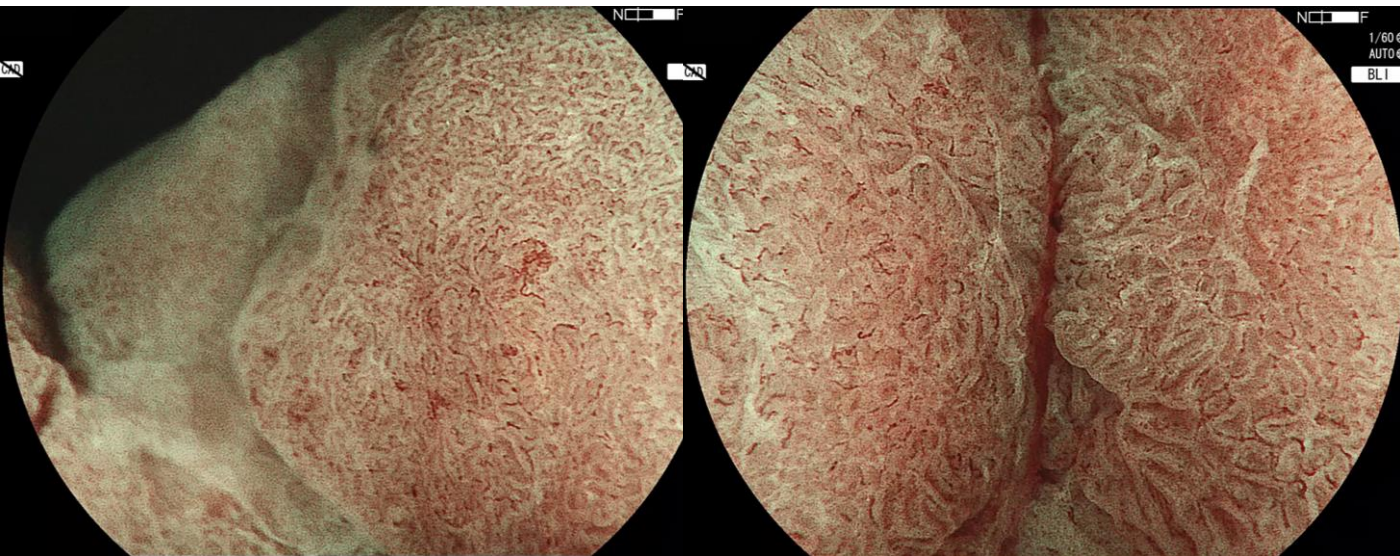
SSL
JNET 1

LGD
JNET 2A

HGD-Sm1
JNET 2B

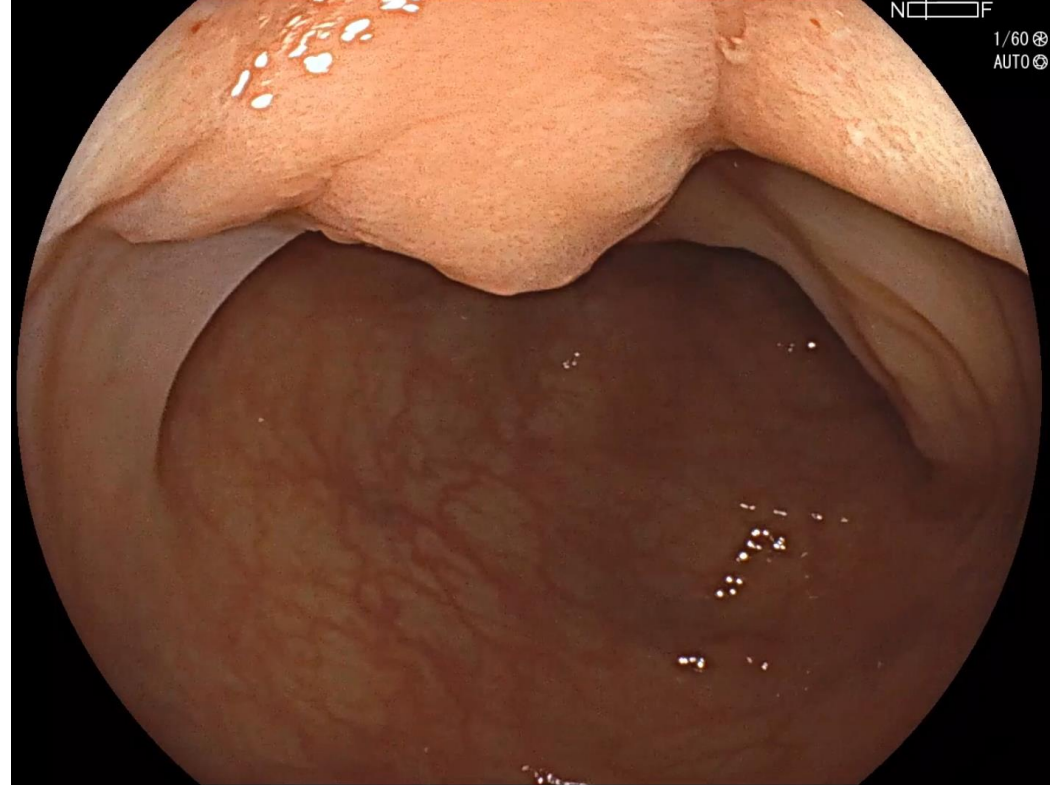
Deeply Invasive
JNET3

Case#2



SSL
JNET 1

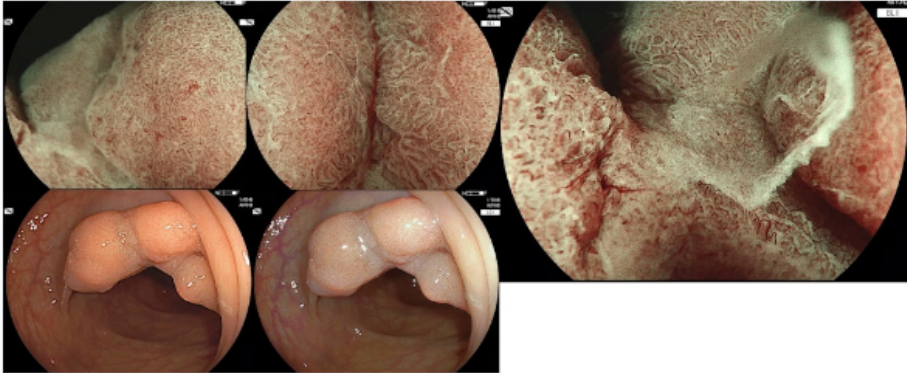
LGD
JNET 2A



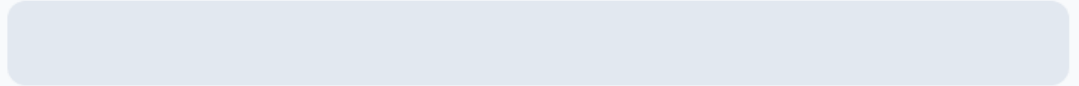
HGD-Sm1
JNET 2B

Deeply Invasive
JNET3

What's your best prediction of pathology?

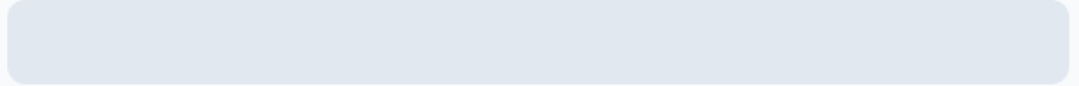


Adenoma — low-grade dysplasia



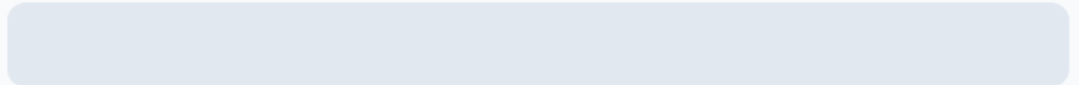
0%

High-grade dysplasia / superficial submucosal carcinoma



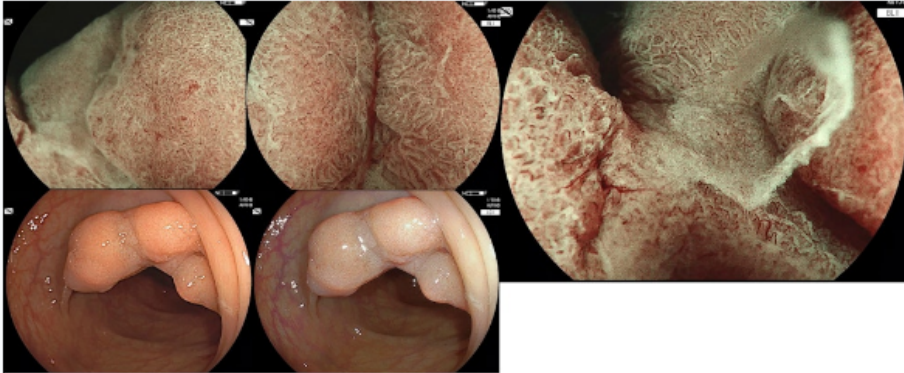
0%

Deep submucosally invasive carcinoma

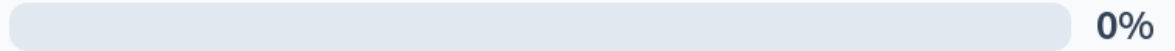


0%

How confident are you in your predicted pathology?



Very low (0–20%)



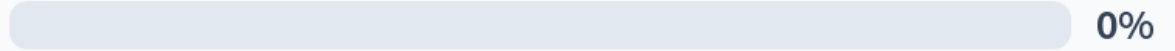
Low (21–40%)



Moderate (41–60%)



High (61–80%)



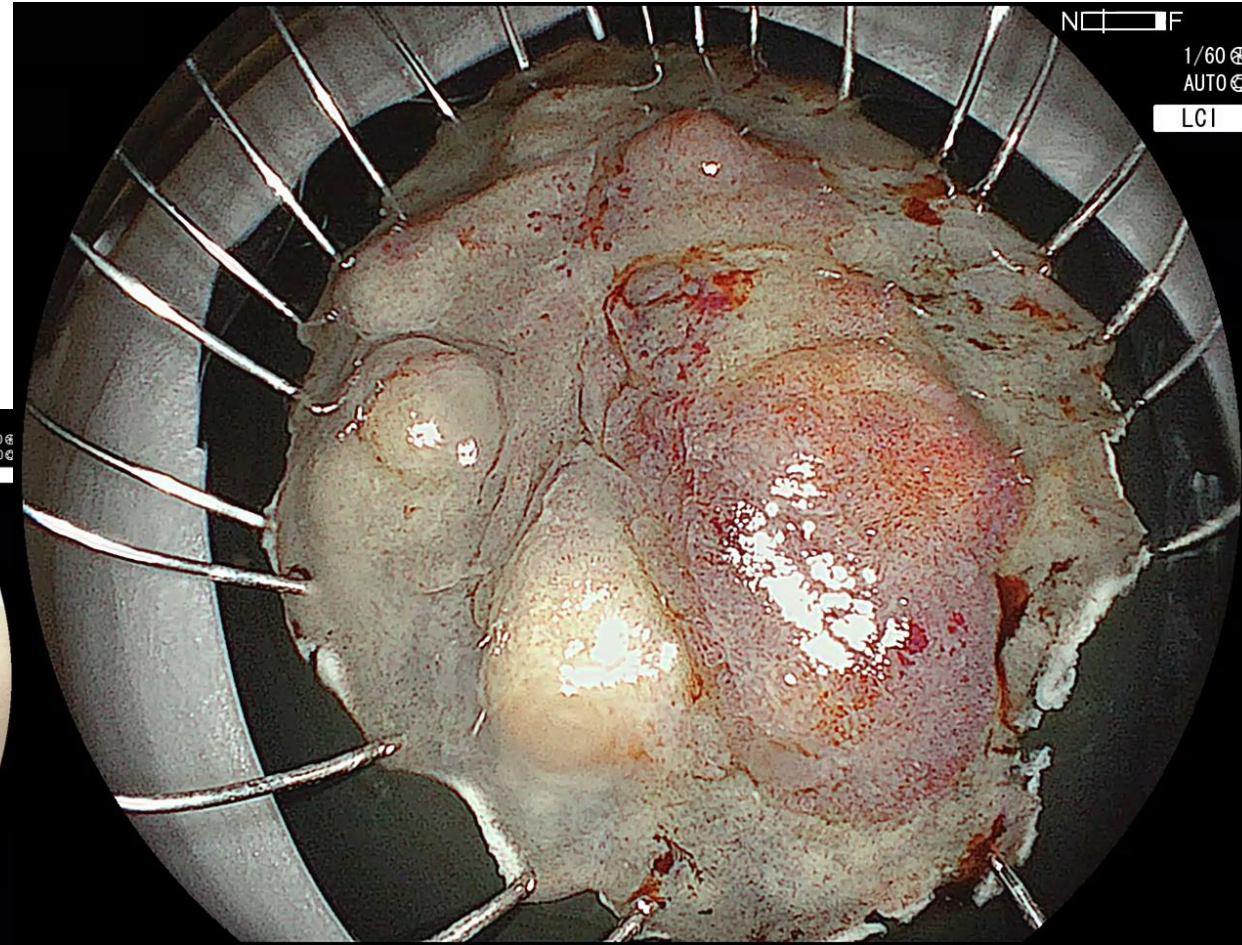
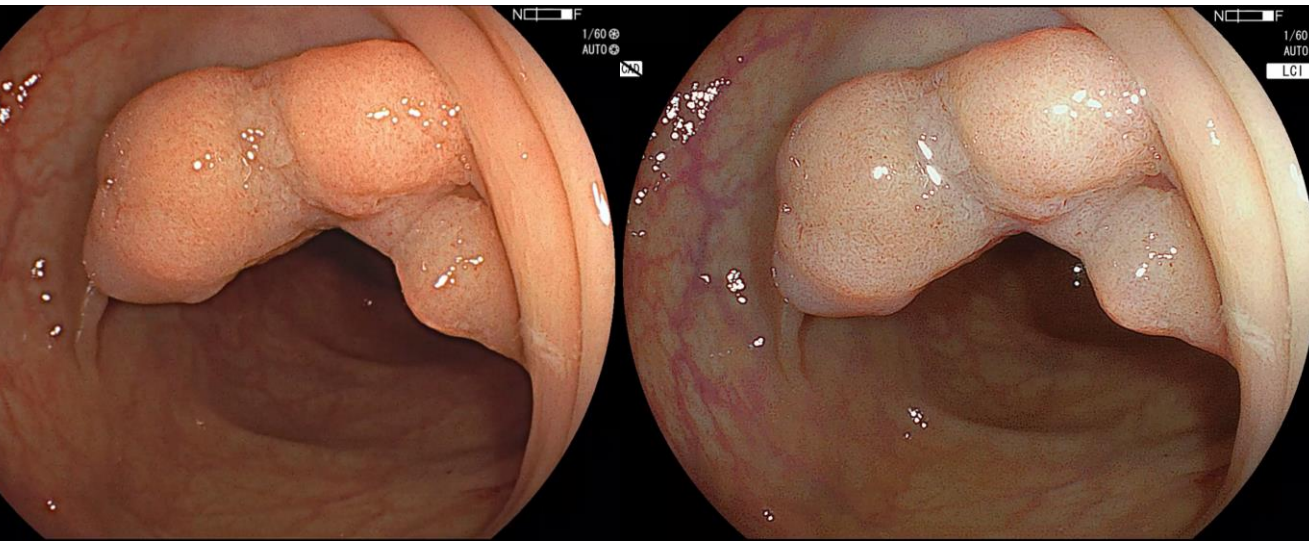
Very high (81–100%)

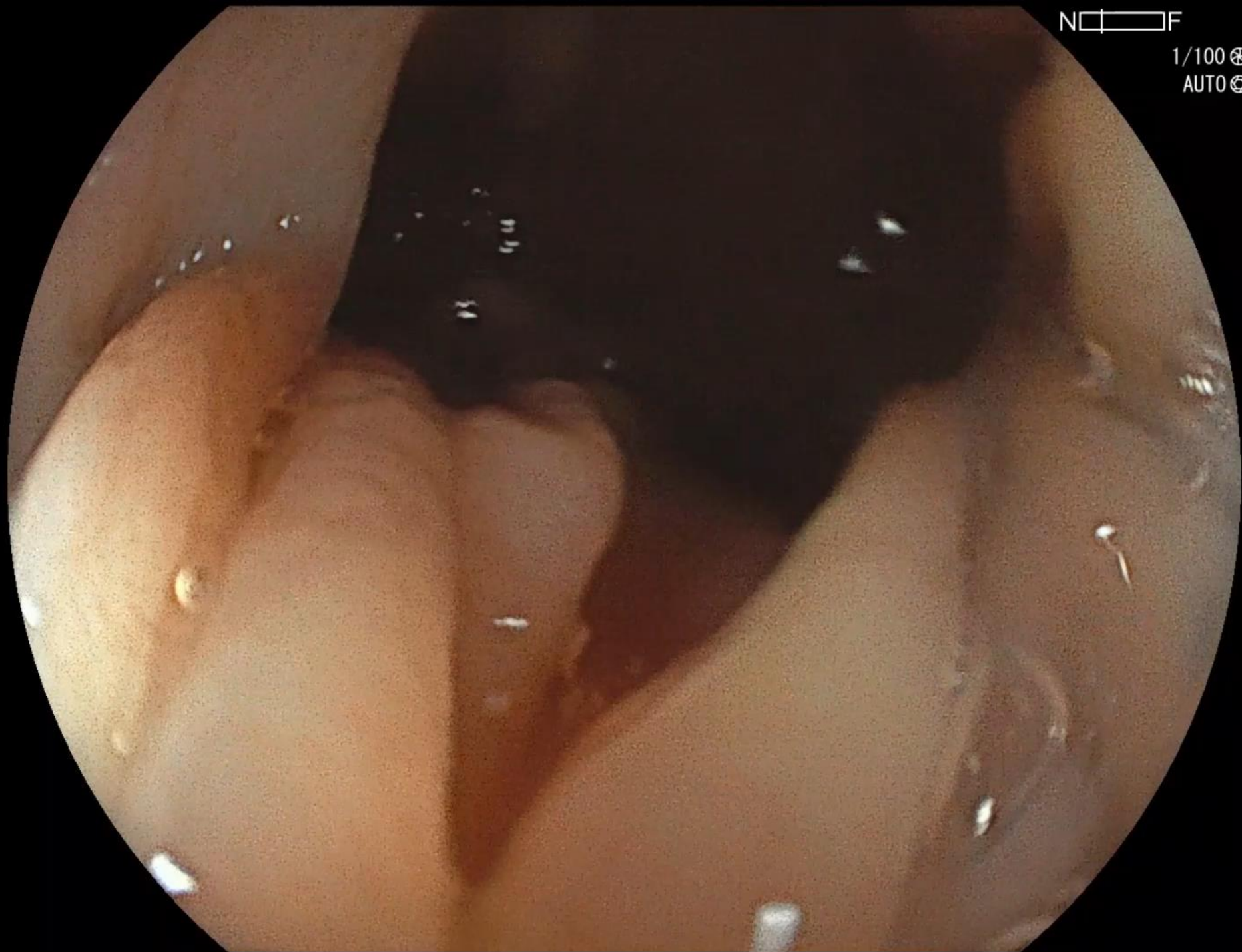


Case 2

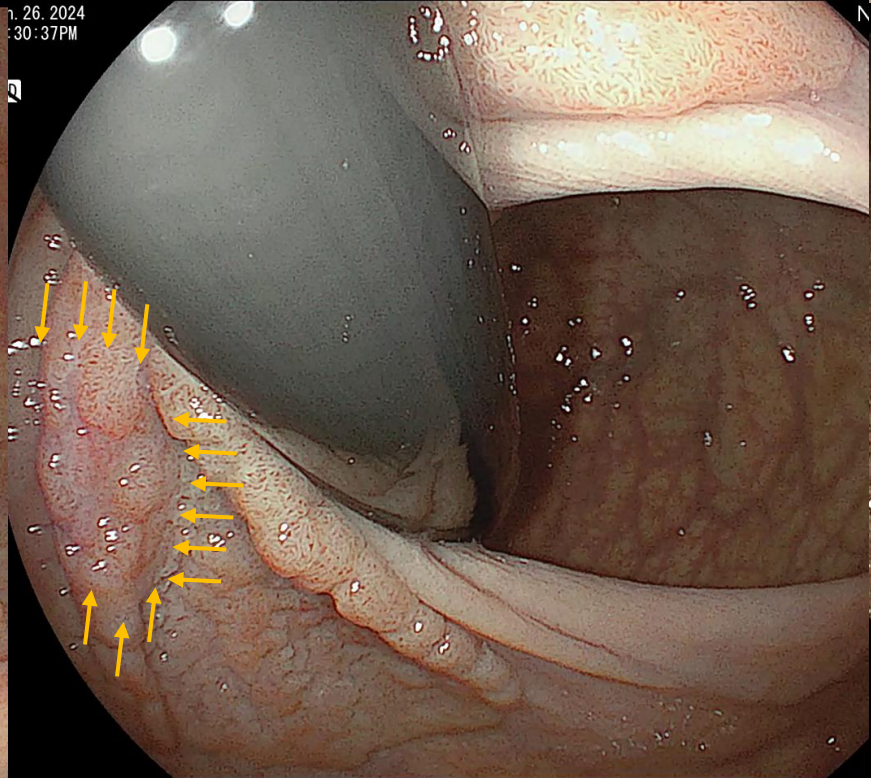
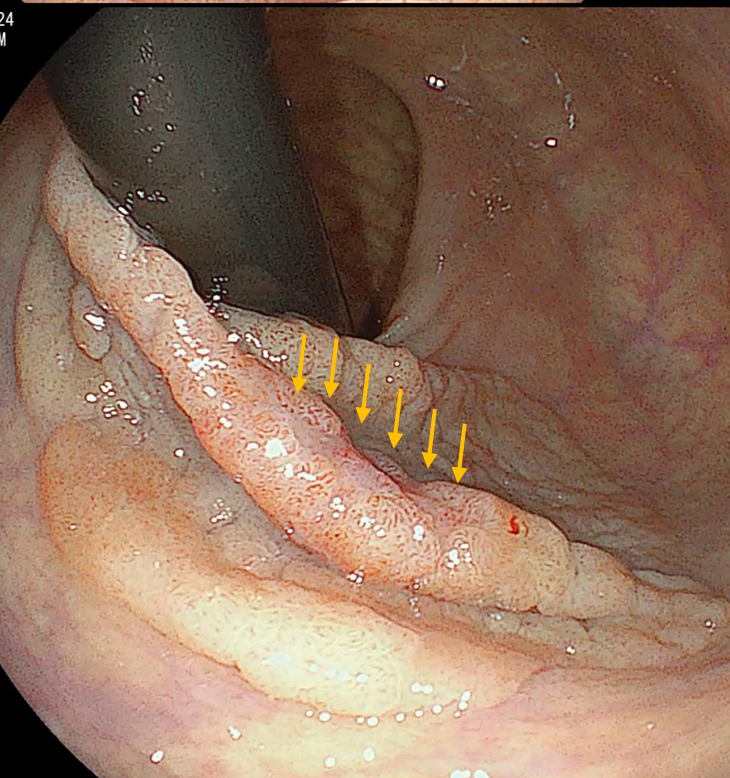
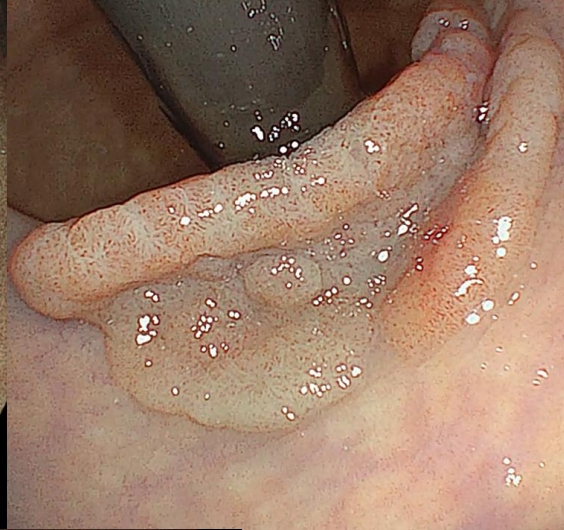
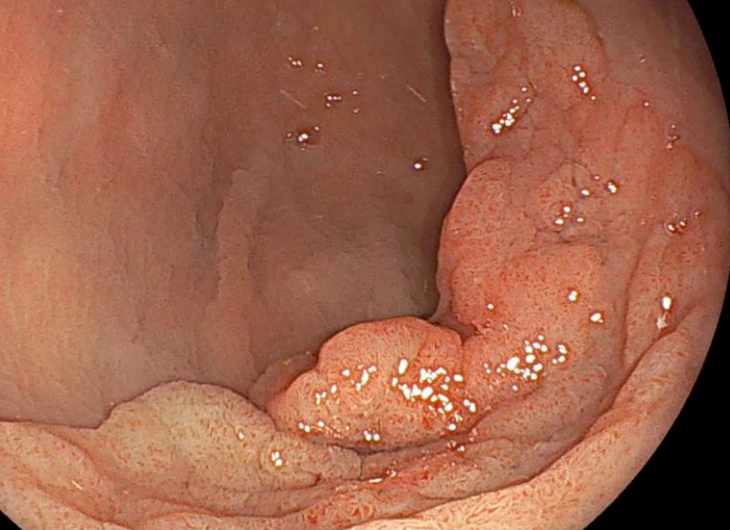
Final Pathology

- Tubular adenoma with **high-grade dysplasia**
- All margins clear





NO F
1/100 ⊗
AUTO ⊗



LST-G-homogenous

NICE I

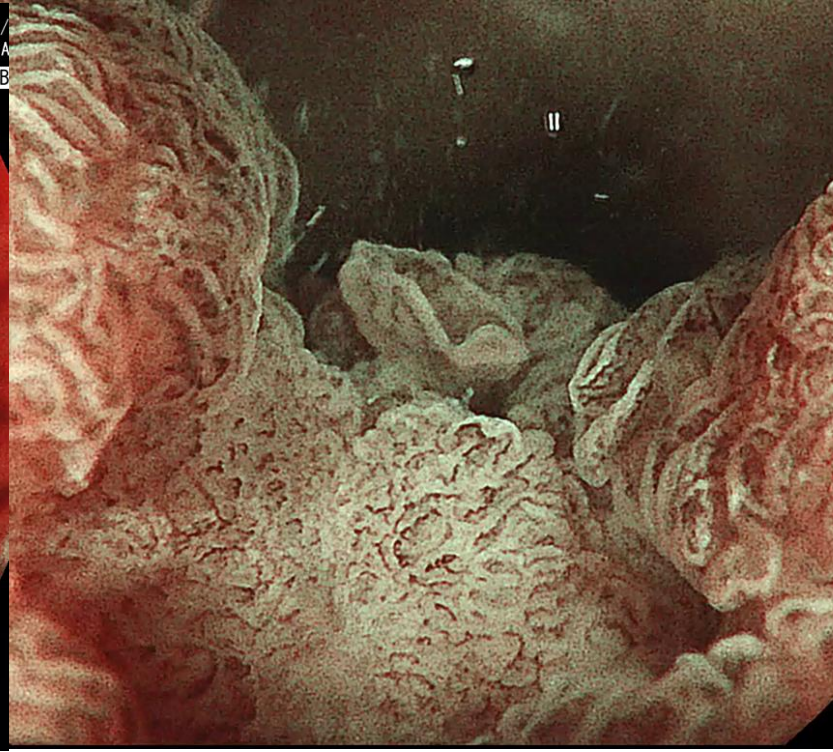
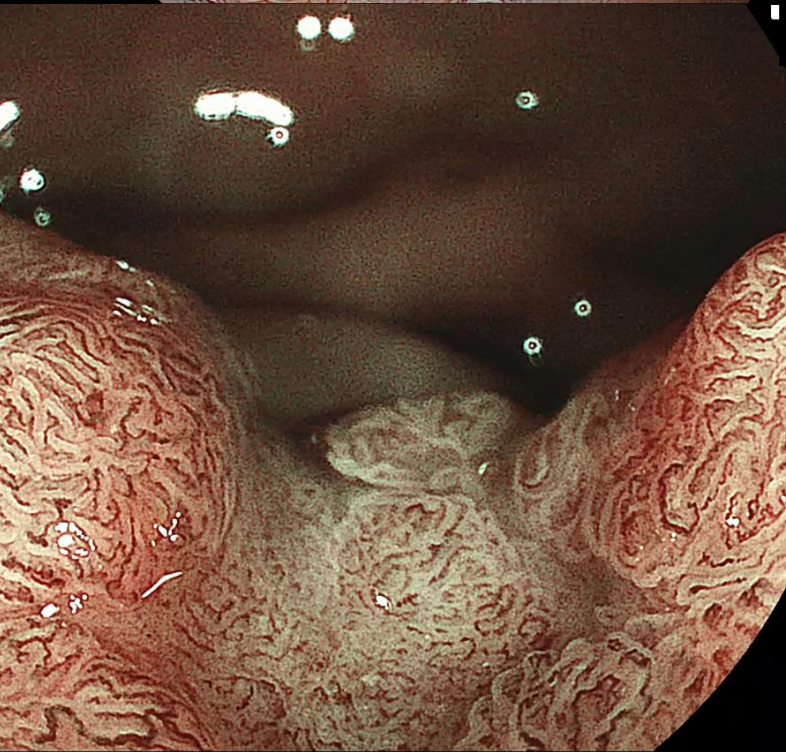
LST-G-mixed

NICE II

LST-NG-F

NICE III

LST-NG-PD



LST-G-homogenous

JNET2A

LST-G-mixed

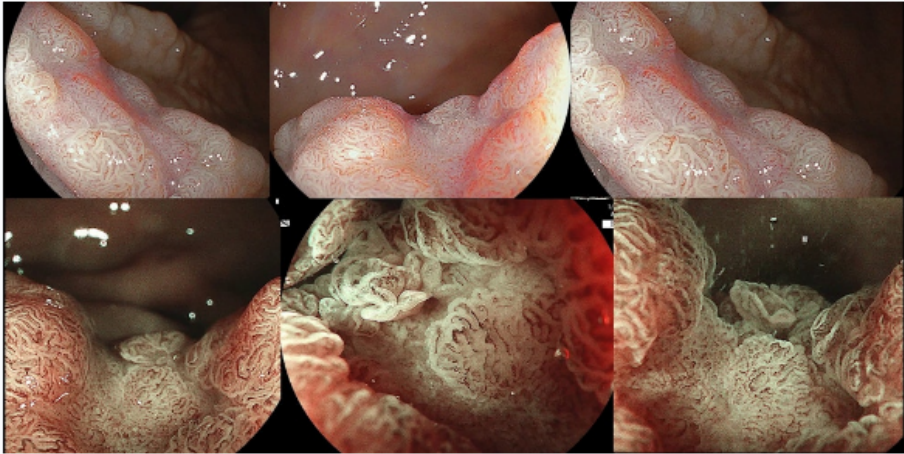
LST-NG-F

JNET2B

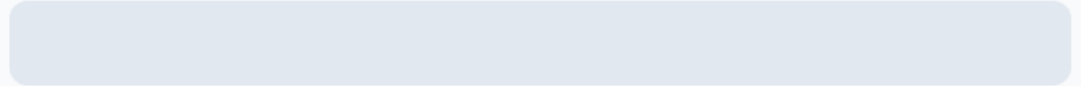
LST-NG-PD

JNET3

What's your best prediction of pathology?

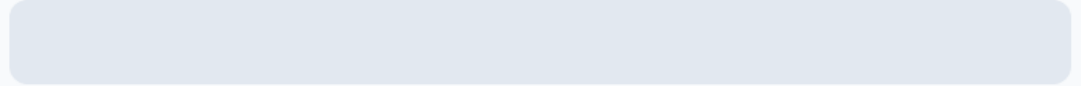


Adenoma — low-grade dysplasia



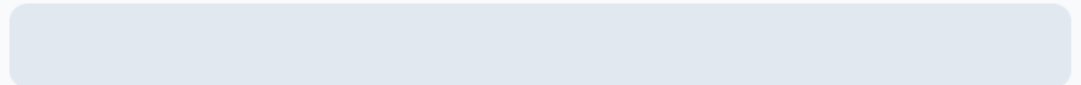
0%

High-grade dysplasia / superficial submucosal carcinoma



0%

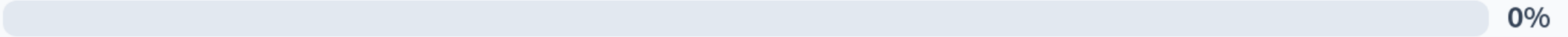
Deep submucosally invasive carcinoma



0%

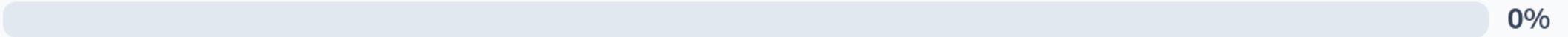
How confident are you in your predicted pathology?

Very low (0–20%)



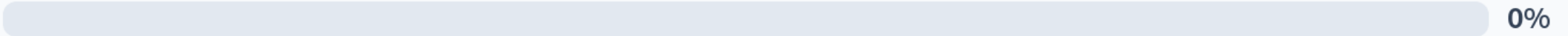
0%

Low (21–40%)



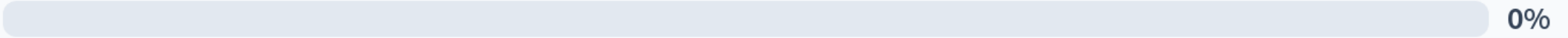
0%

Moderate (41–60%)



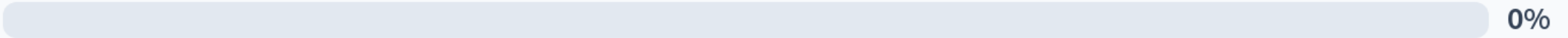
0%

High (61–80%)



0%

Very high (81–100%)

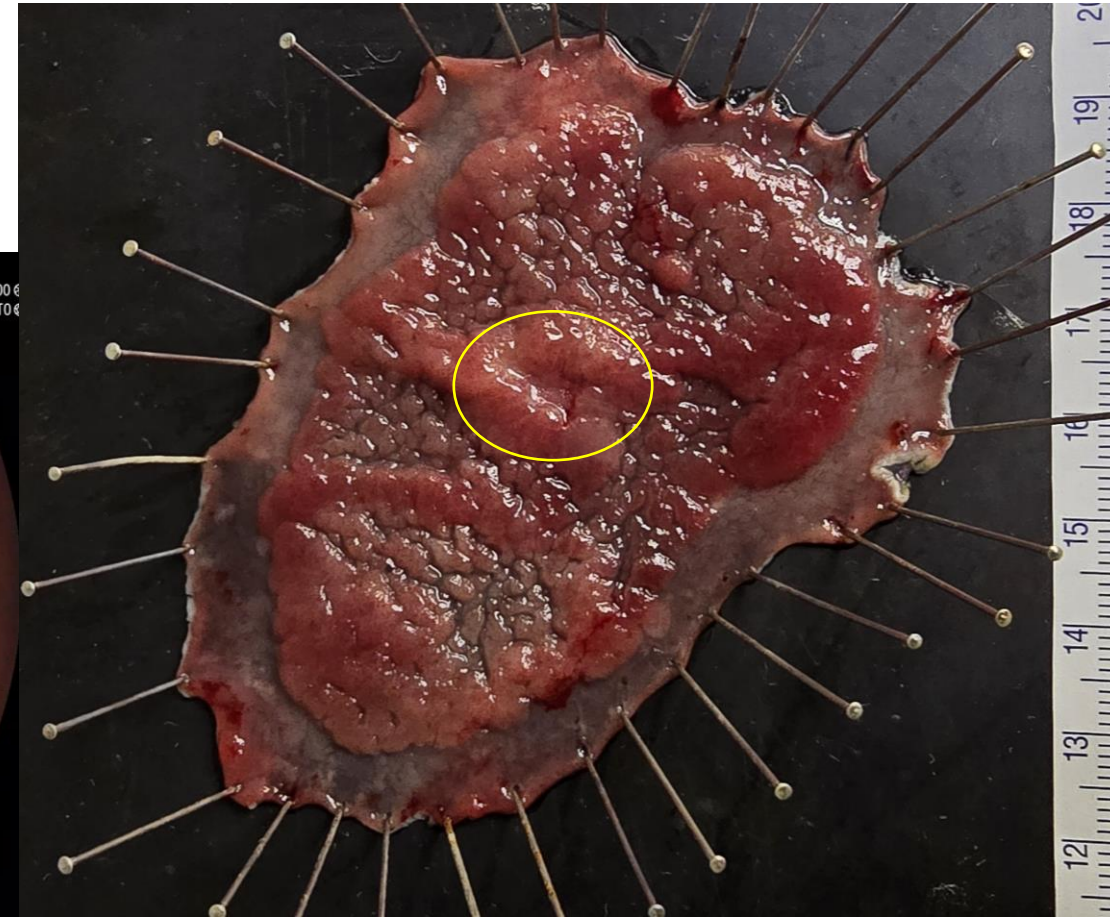
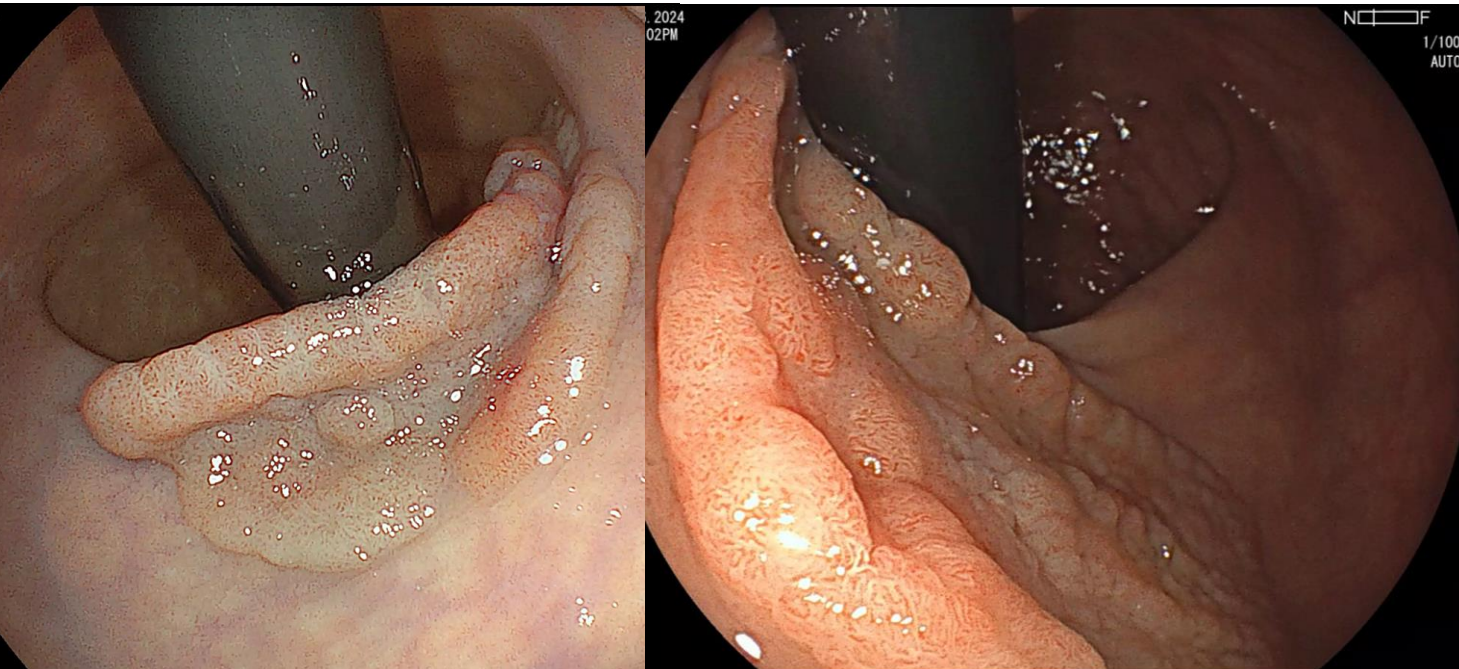


0%

Case #3

Final Pathology

- **Minimally invasive adenocarcinoma** (moderately differentiated)
- Arising from tubulovillous adenoma with HGD
- Submucosal invasion: 0.2 mm (pT1)
- No lymphovascular or perineural invasion
- All margins clear (deep margin >0.3 mm)

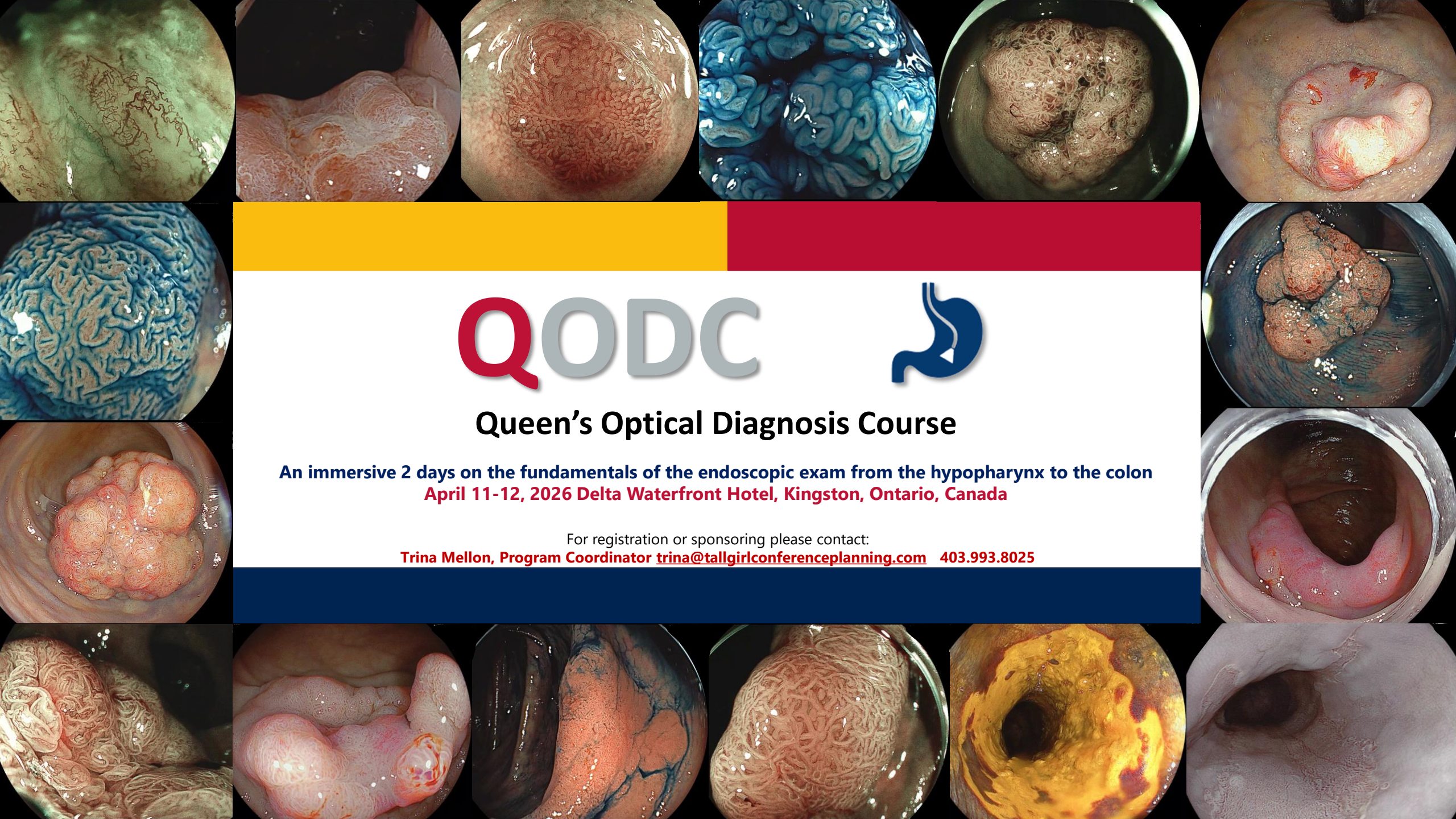


How can endoscopic diagnosis help me?

- Improved **detection** of lesions
- Improve **characterization** to better tailor therapeutic strategy
 - EMR/ESD/surgery
 - Avoid unnecessary/non-targeted biopsies

Endoscopic Examination of Polyps

- Macroscopic
 - Paris
 - LST subtype (if applicable)
 - High-risk morphologic features
- Microscopic (microsurface and microvasculature)
 - NICE
 - JNET



QODC



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Questions?



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www.youtube.com/c/rbendoscopy