Assessment of Colonic Polyps From the Perspective of a Gastroenterologist

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Arizona Society of Pathologists, Tucson, AZ

Disclosure

Nothing to disclose

Practice-based presentation

Outline

Colonic polyps and their place in CRC screening

Familiarity with Gastroenterologists' lexicon

How polyps are removed

Pathologists' role in polyp assessment

Malignancy in a polyp – what next?

Colonic polyps and screening for CRC

Colon carcinoma is one of the most prevalent and also preventable cancers

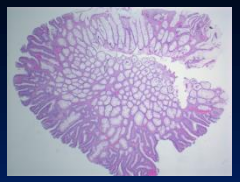
CRC does not occur de-novo, but it is preceded by an adenomatous or serrated polyp

Colonoscopy is a unique screening tool: identification, prevention, treatment, and early detection of CRC

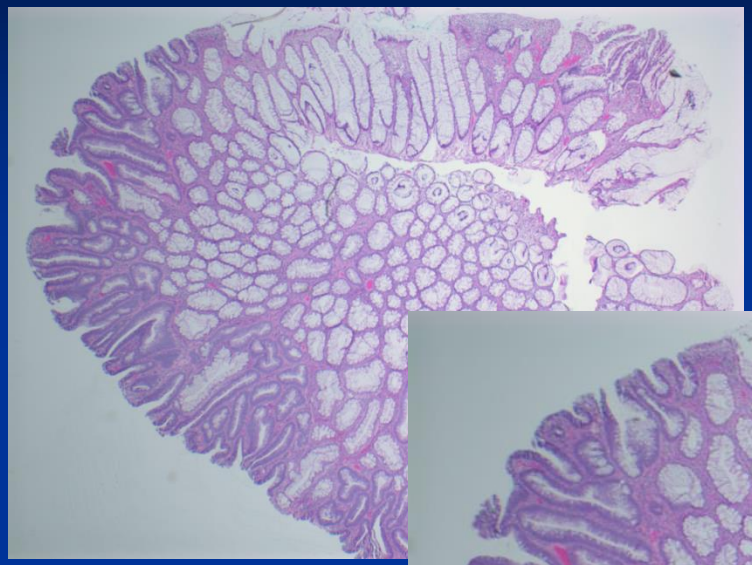
About 65% of at-risk population is currently compliant

Beginning to see decline in CRC incidence and deaths

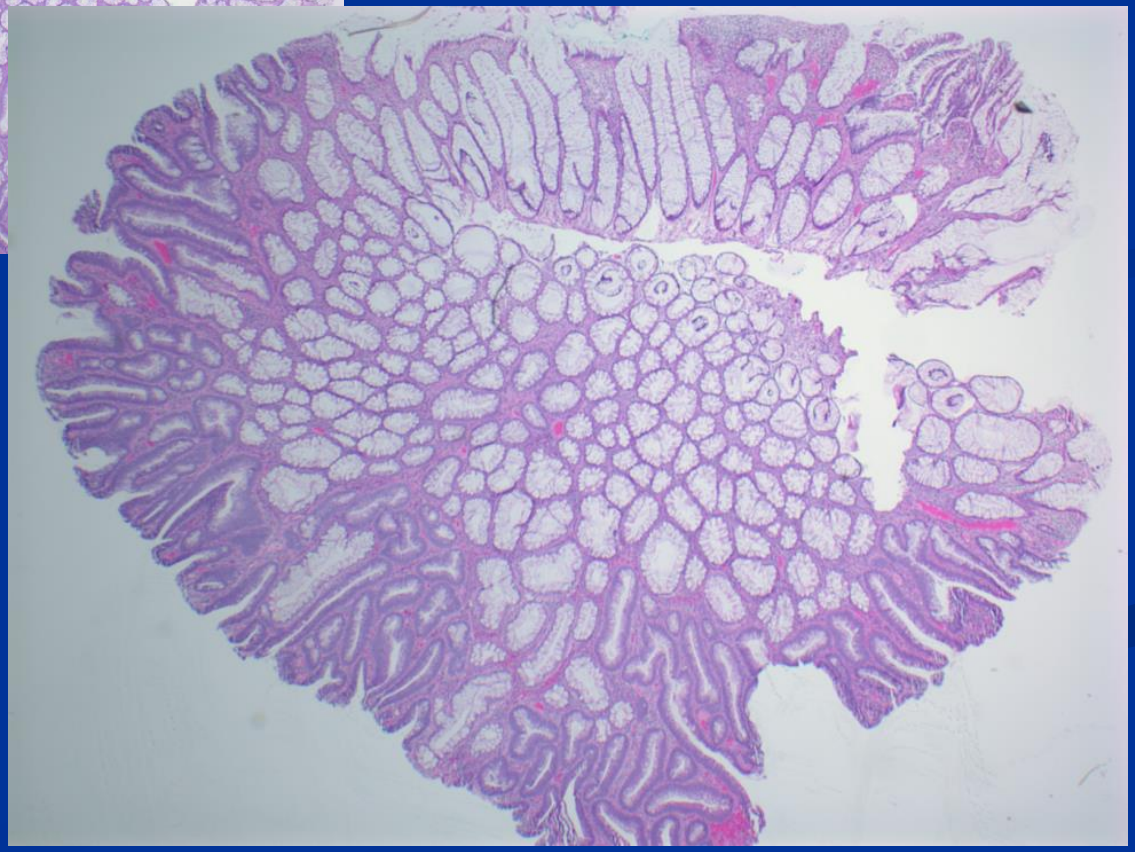
"Dwell" time = 7-10 years



Pathologist



Gastroenterologist



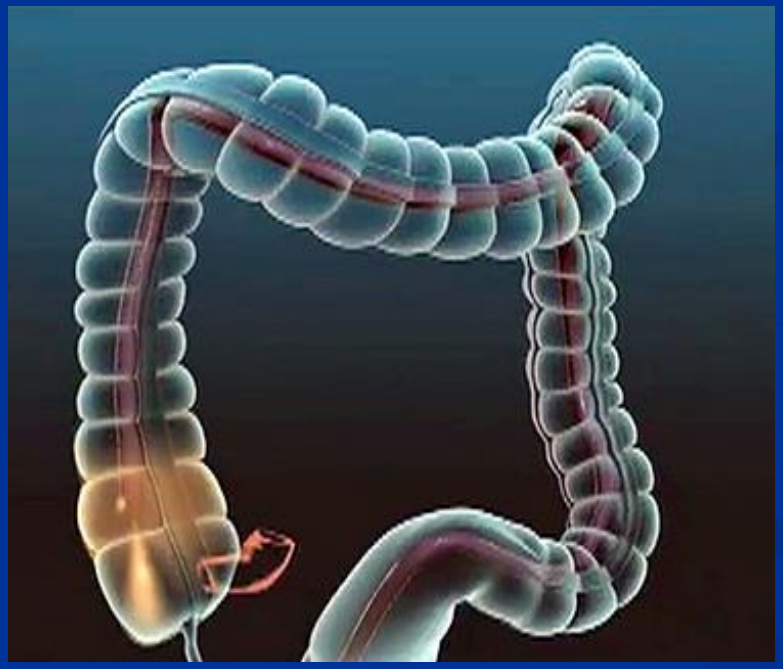
Patient

Dig Dis Sci (2015) 60:596–608
DOI 10.1007/s10620-014-3466-y

REVIEW

The History of Colorectal Cancer Screening: A Personal Perspective

Sidney J. Winawer



Colonic polyps and screening for CRC

Size, type and number of polyps impacts surveillance

Table 1. 2012 Recommendations for Surveillance and Screening Intervals in Individuals With Baseline Average Risk

Baseline colonoscopy: most advanced finding(s)	Recommended surveillance interval (*y*)	Quality of evidence supporting the recommendation	New evidence stronger than 2006
No polyps	10	Moderate	Yes
Small (<10 mm) hyperplastic polyps in rectum or sigmoid	10	Moderate	No
1–2 small (<10 mm) tubular adenomas	5–10	Moderate	Yes
3–10 tubular adenomas	3	Moderate	Yes
>10 adenomas	<3	Moderate	No
One or more tubular adenomas ≥10 mm	3	High	Yes
One or more villous adenomas	3	Moderate	Yes
Adenoma with HGD	3	Moderate	No
Serrated lesions			
Sessile serrated polyp(s) <10 mm with no dysplasia	5	Low	NA
Sessile serrated polyp(s) ≥10 mm	3	Low	NA
OR			
Sessile serrated polyp with dysplasia			
OR			
Traditional serrated adenoma			
Serrated polyposis syndrome[a]	1	Moderate	NA

NOTE. The recommendations assume that the baseline colonoscopy was complete and adequate and that all visible polyps were completely removed.

NA, not applicable.

[a]Based on the World Health Organization definition of serrated polyposis syndrome, with one of the following criteria: (1) at least 5 serrated polyps proximal to sigmoid, with 2 or more ≥10 mm; (2) any serrated polyps proximal to sigmoid with family history of serrated polyposis syndrome; and (3) >20 serrated polyps of any size throughout the colon.

Gastroenterologists' lexicon

Size: Diminutive, small, advanced and large polyps

Shape: The Paris classification of polyps

Depth & Resectability: Saline lift

Excision: Cold and hot forceps, cold and hot snare

Retrieval: Forceps, suction, Roth net

Interval CRC: CRC occurring between screenings

Proficiency: Adenoma detection rate, cecal intubation

Diminutive polyp = 3-5 mm

Small polyp = 3-7 mm

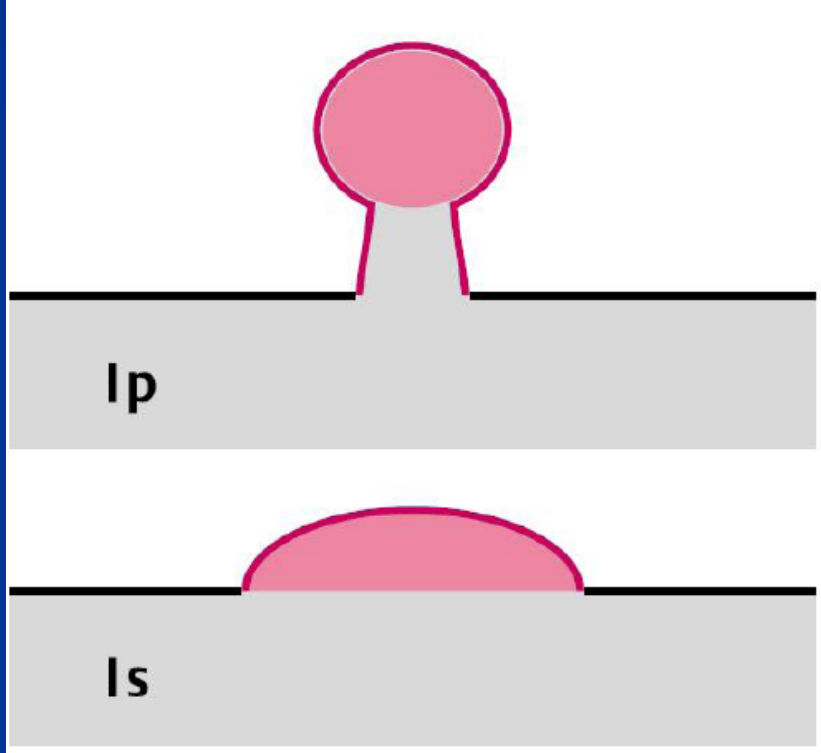
About 90% of all colonic polyps are diminutive or small

Advanced polyp = > 10 mm

Large polyp = > 20 mm

Formalin fixation does not significantly alter the size

Shape of polyp: Paris classification



Type I
(protruded)

Type Ip
(pedunculated)

Type Isp
(subpedunculated)

Type Is
(sessile)

Type II
(superficial / flat)

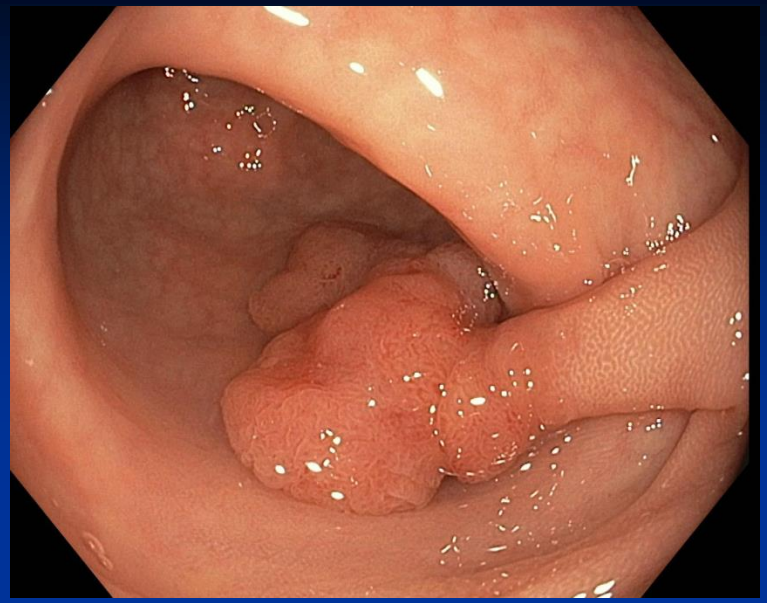
Type IIa
(superficial elevated)

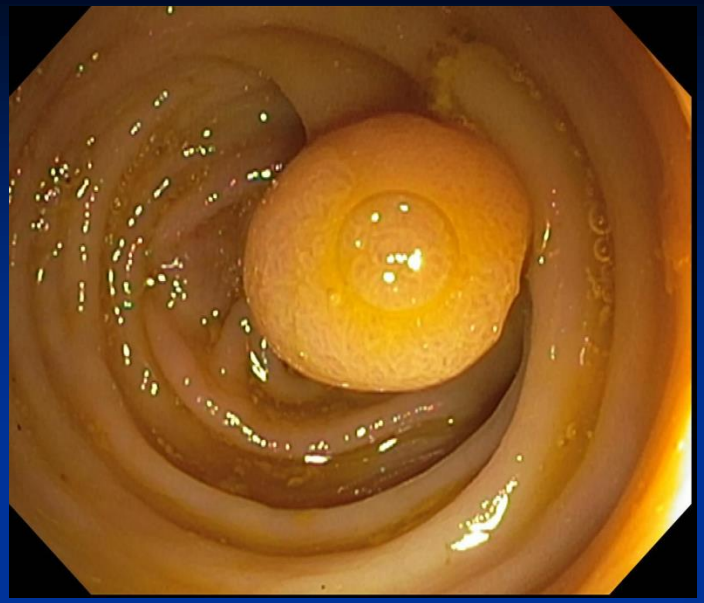
Type IIb
(superficial flat)

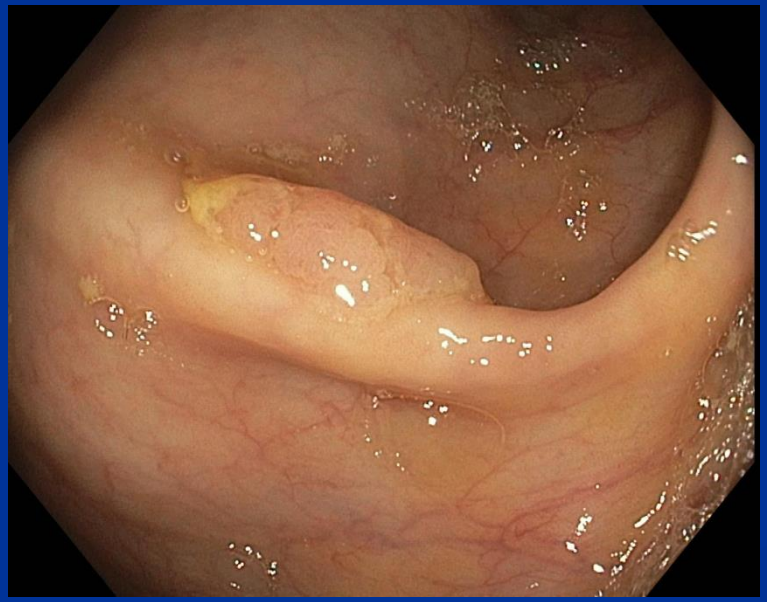
Type IIc
(superficial depressed)

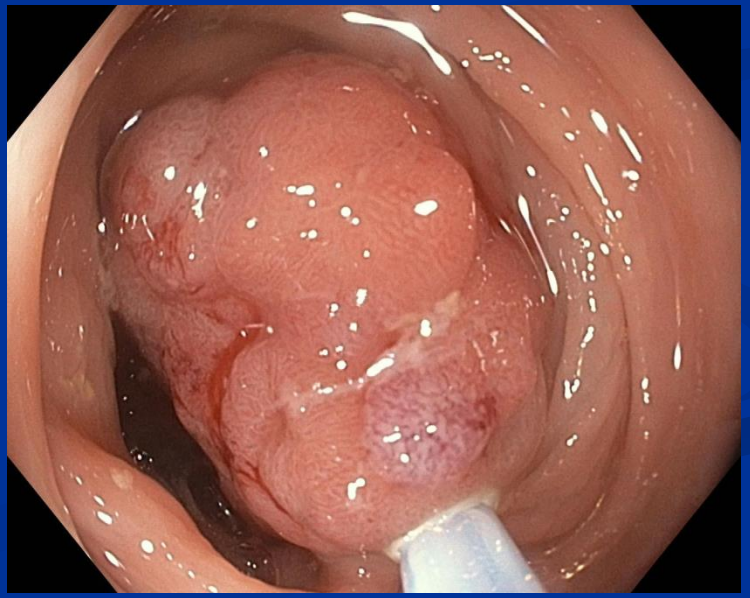
Type IIc+IIa
(superficial elevated
with depression)

Type IIa+IIc
(superficial depressed
with marginal elevation)



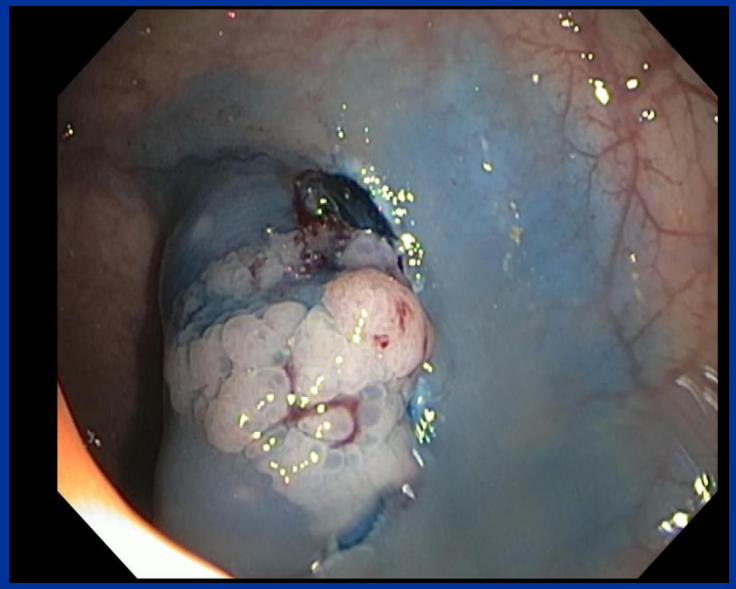
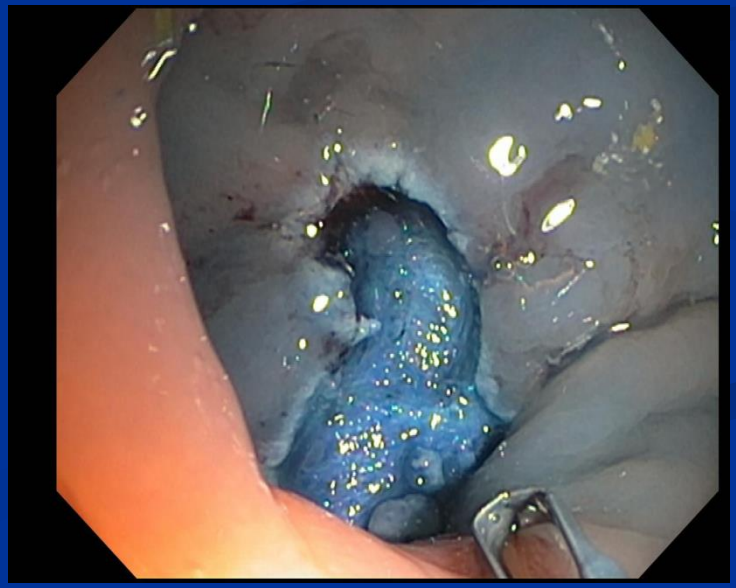






Methylene blue - Saline lift –
Good lift is a sign of *benignity* and *resectability*



"How are polyps removed"

Cold forceps (regular, jumbo)

~~Hot forceps~~

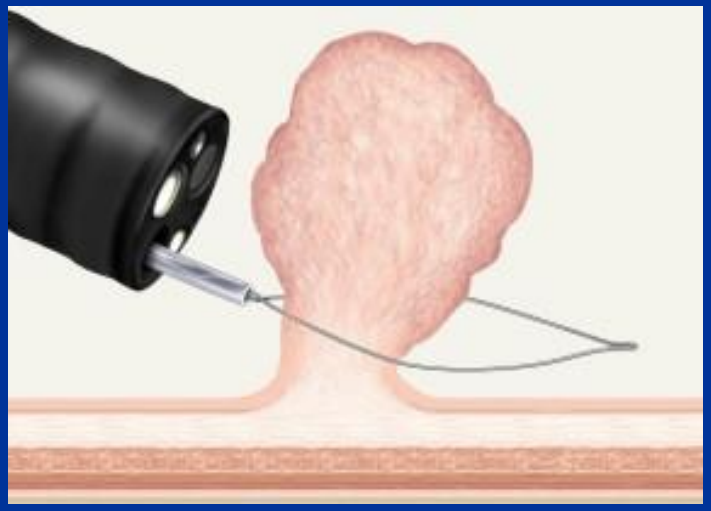
Cold snare

Hot snare

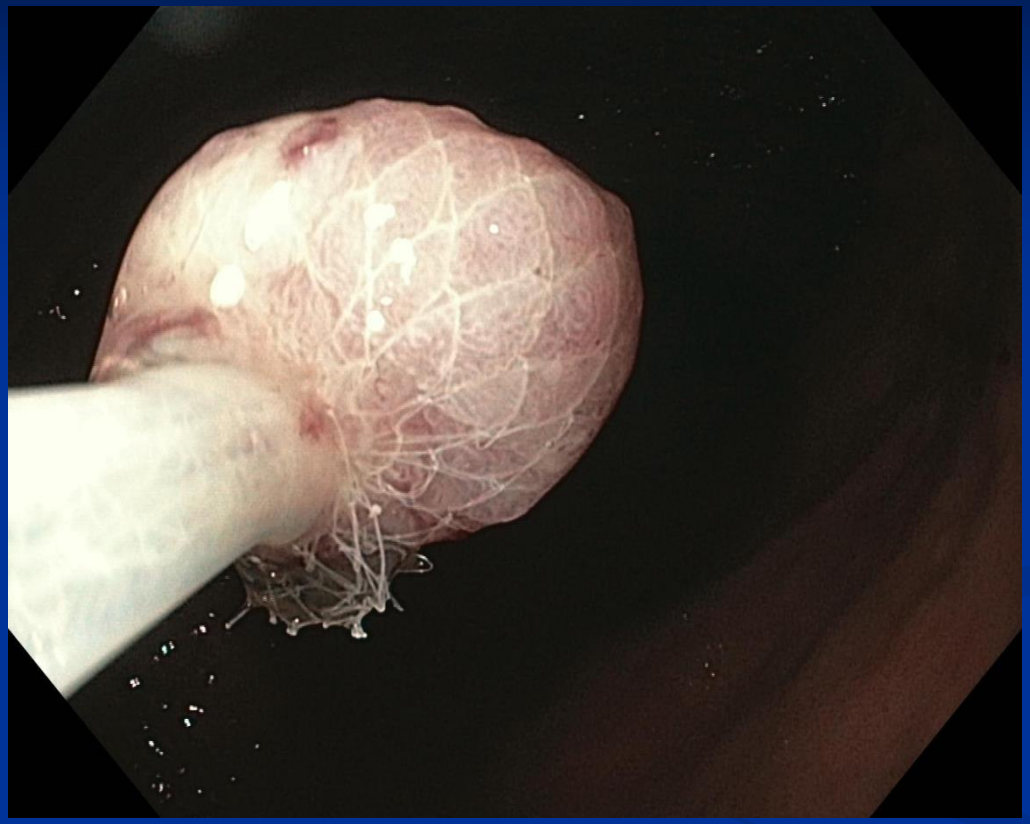
EMR (endoscopic mucosal resection)

Retrieved (forceps, suction, Roth net)

Forceps



Snare



Interval CRC

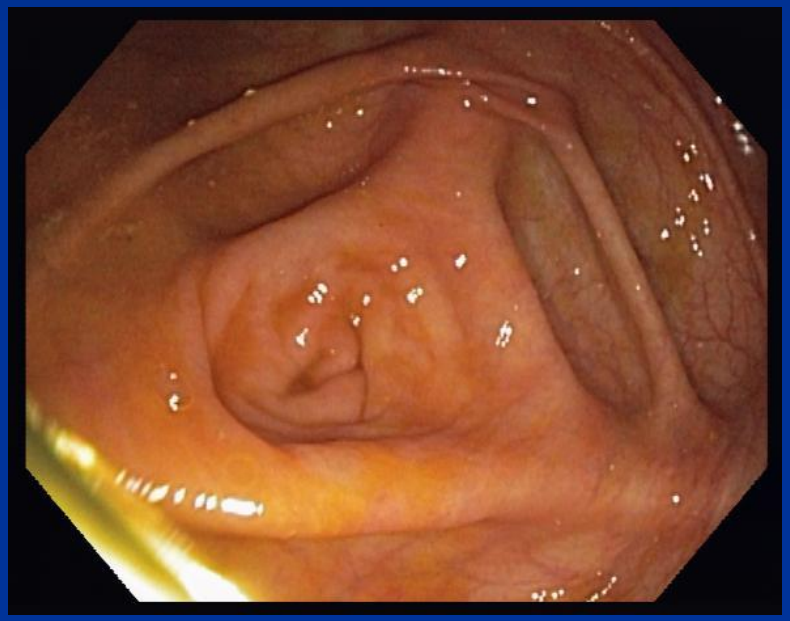
Poor prep (poor visibility)

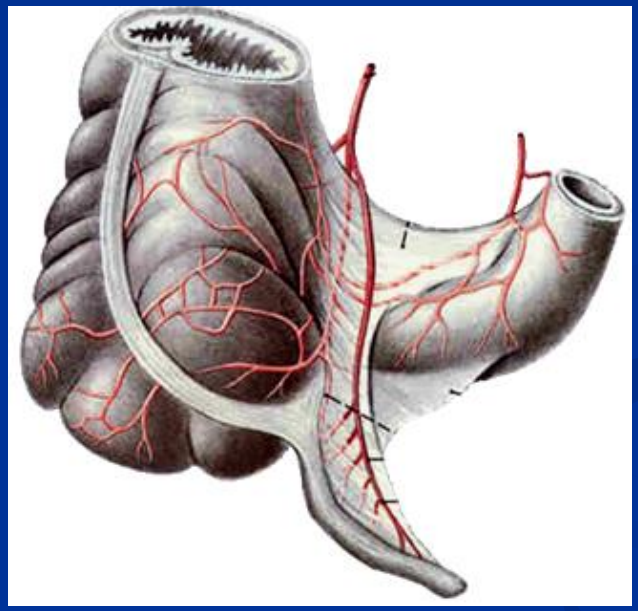
Suboptimal colonoscopy

Inadequately excised polyp

?? Fast growing CRC (unlikely)

Documentation of ‘Crow’s feet’ and appendiceal orifice





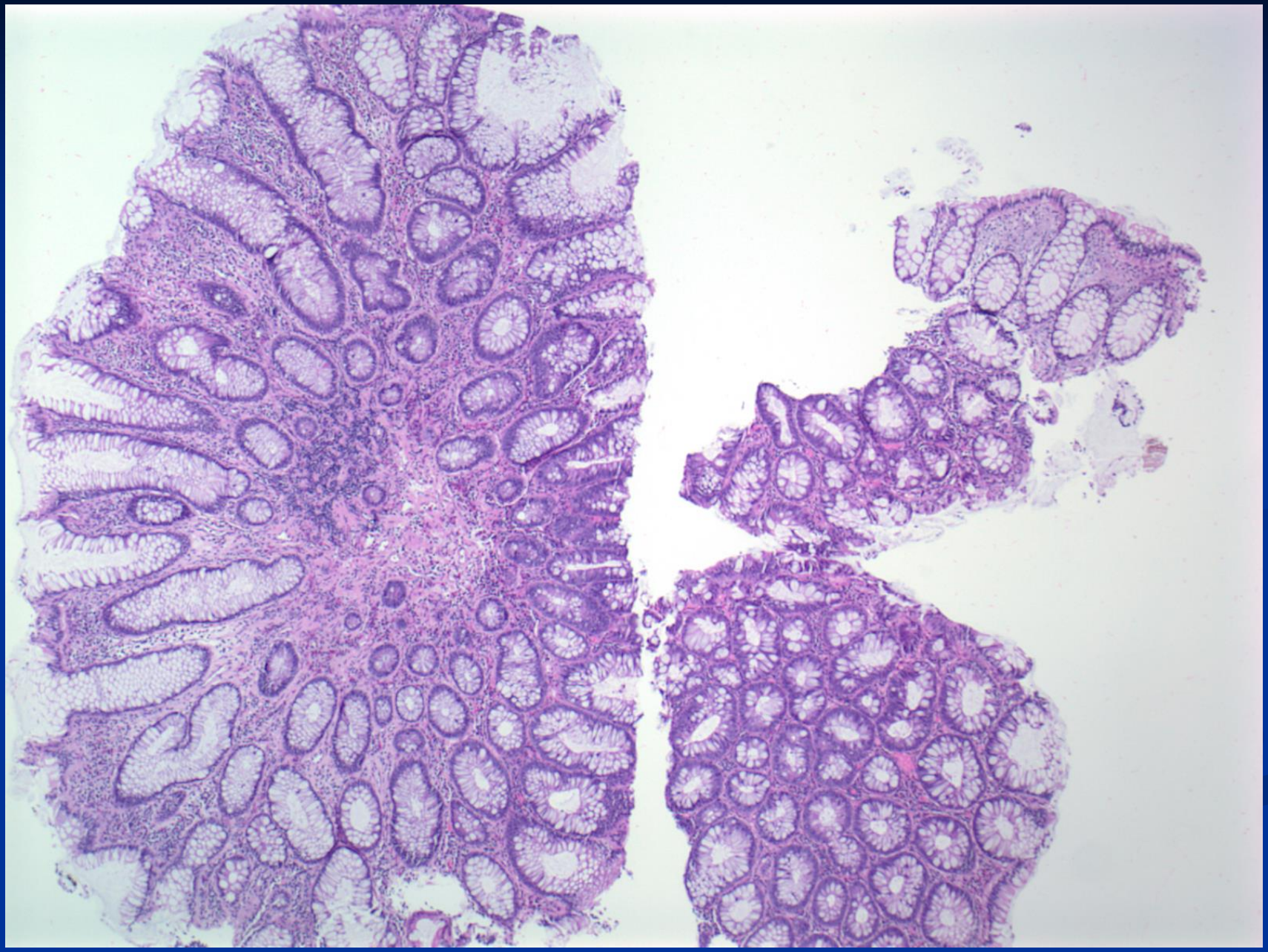
Pathologist's role in polyp assessment

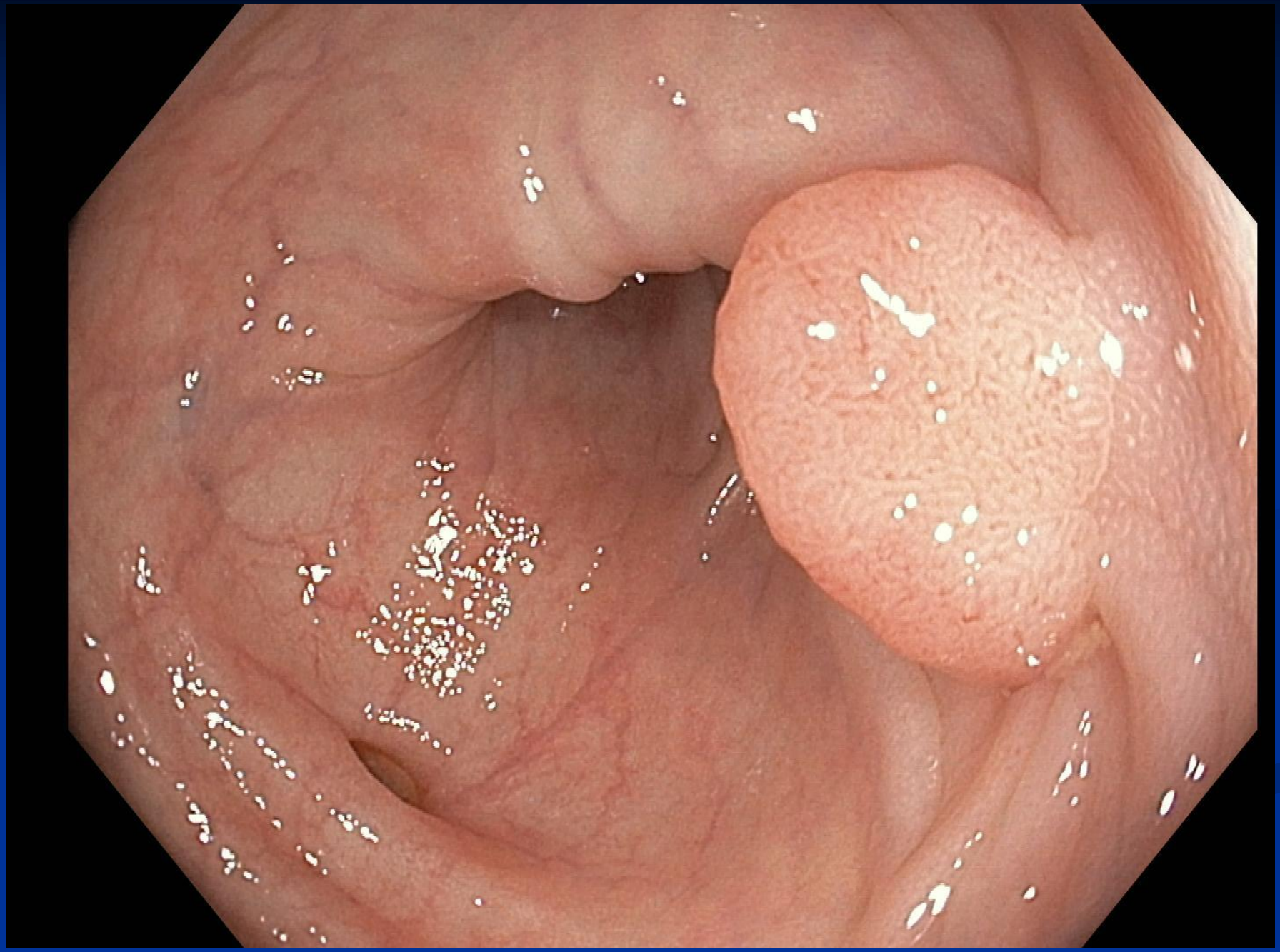
Recognize small and large polyps as distinct

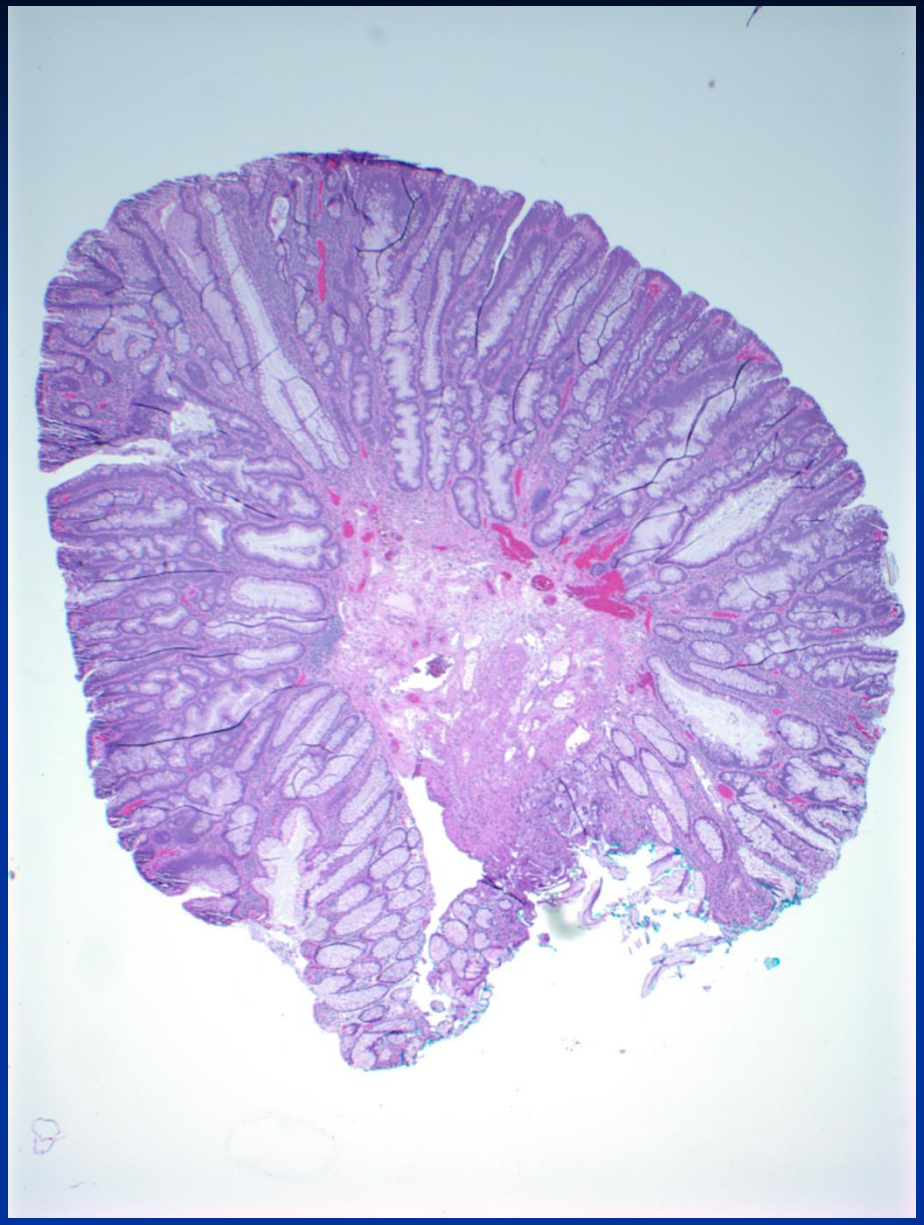
CRC risk & resection adequacy applies to large polyps

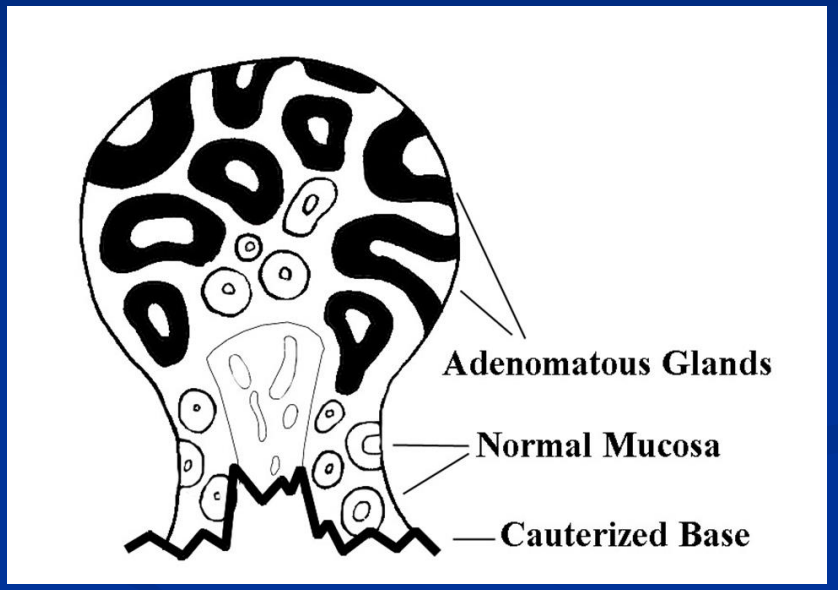
Understand how polyp retrieval causes fragmentation

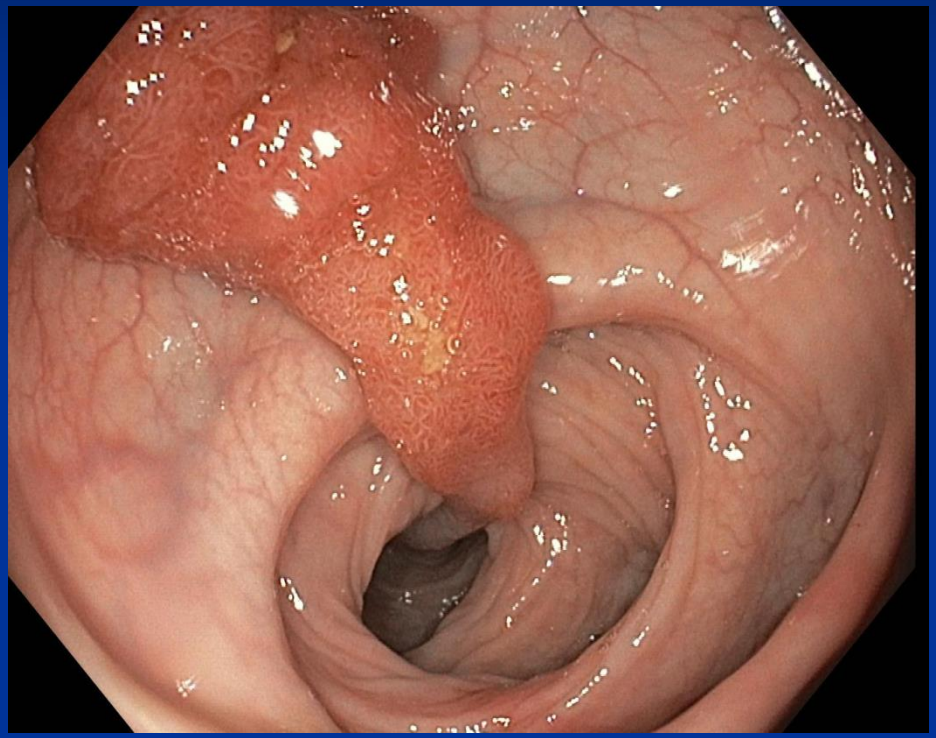
Understand how interpretation impacts surveillance

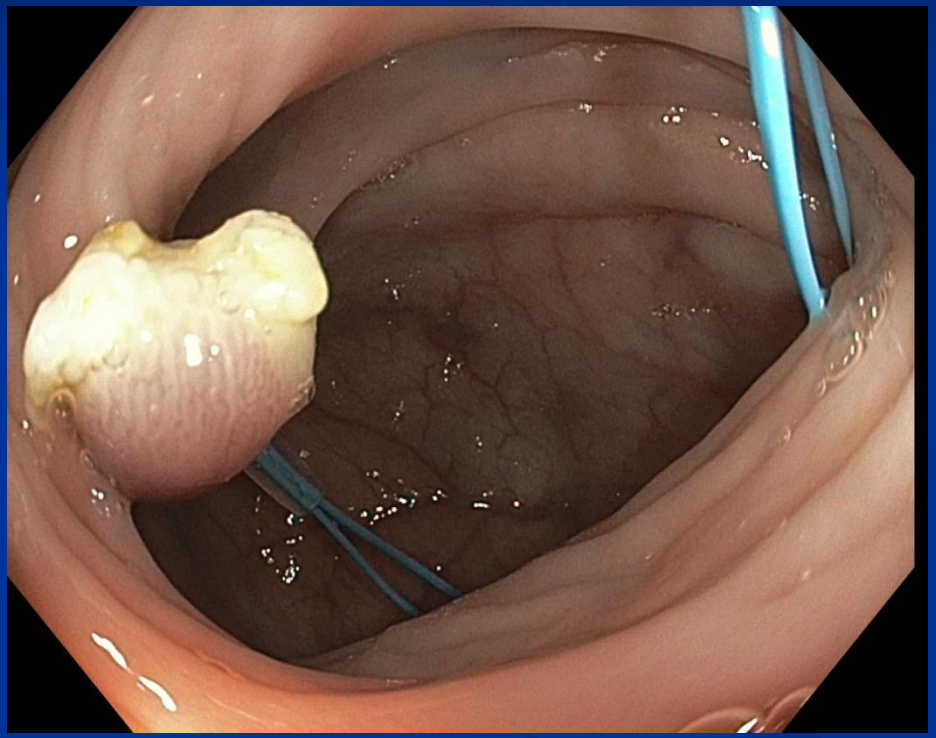


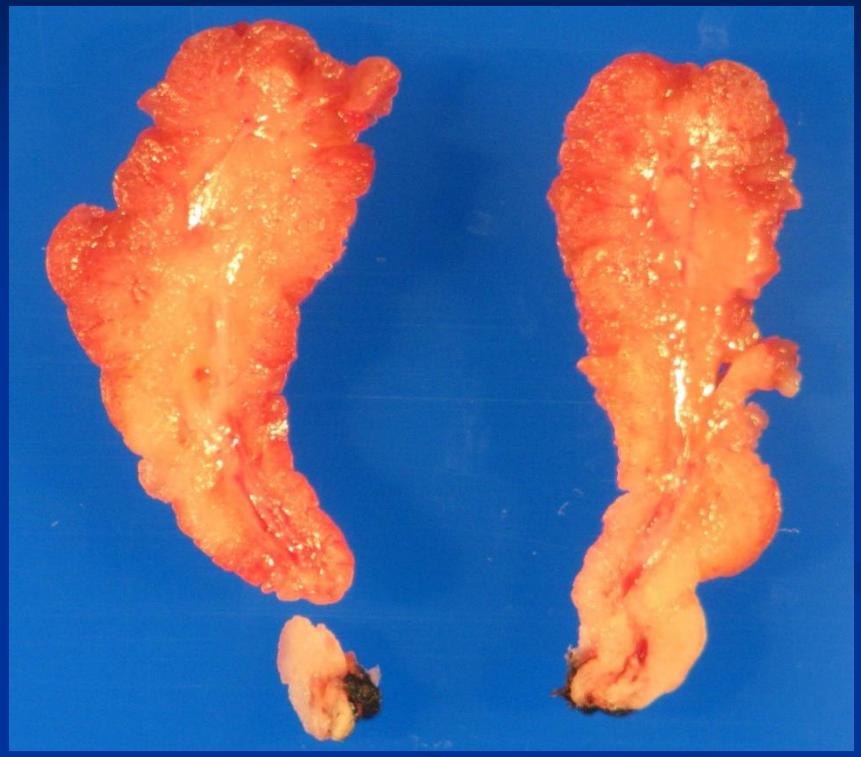





Adenomatous Glands
Normal Mucosa
Cauterized Base







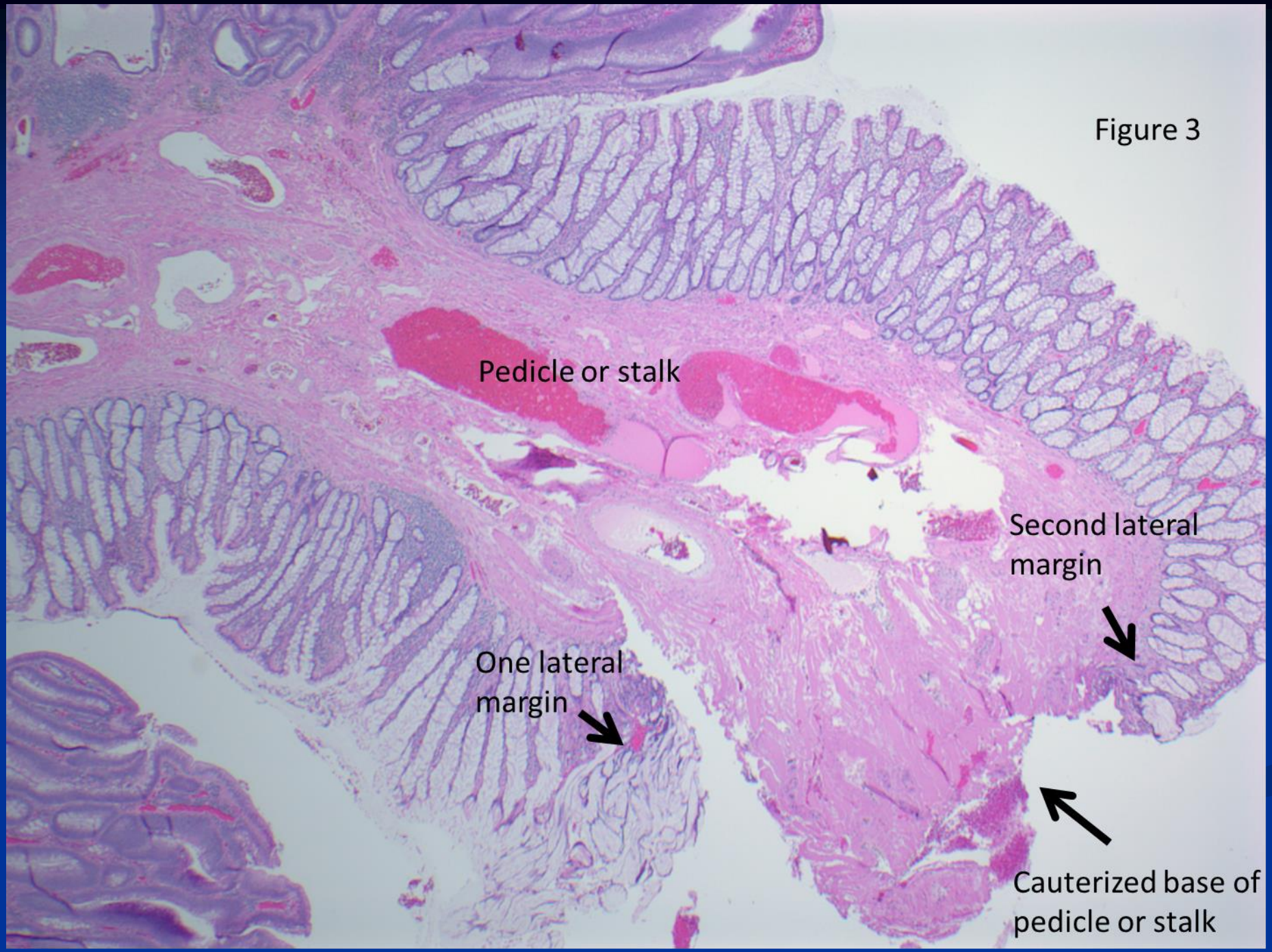


Figure 3
Pedicle or stalk
Second lateral margin
One lateral margin
Cauterized base of pedicle or stalk

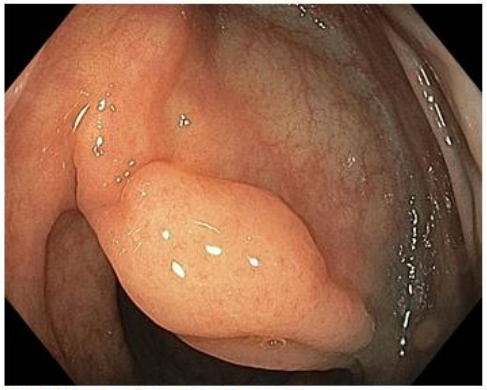
Final Diagnosis

A. (Proximal transverse colon polyp, EMR): 1.5 cm (after fixation) sessile serrated adenoma. No dysplasia. Completely excised with free cauterized base and edges showing normal colonic mucosa. See note.

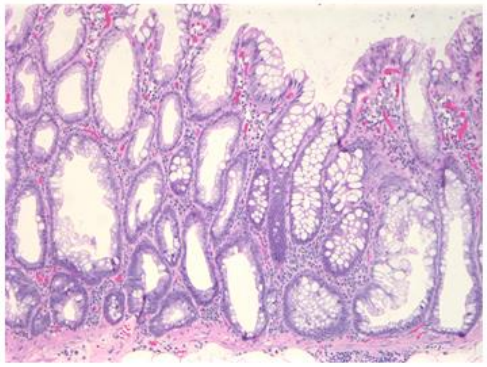
Attending Pathologist: Shriram Jakate, MD * *Electronically signed*
Pathology Resident: Hussein Alnajar, MBChB

Note

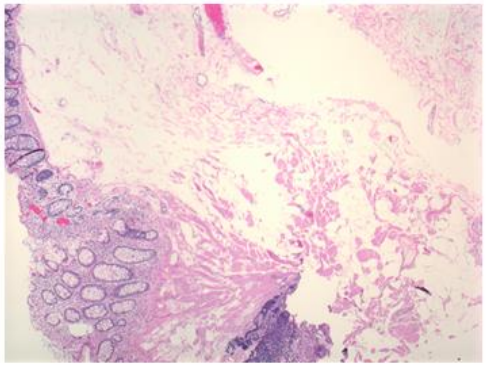
The endoscopic report and images are reviewed (2.5 to 3 cm polyp, Paris IIa, in the proximal transverse colon, excellent lift with mixture of saline and methylene blue, snared using ERBE coagulation and cutting current, retrieved with Rothnet). Morphologically, this is a typical sessile serrated adenoma with significant length of normal colonic mucosa at the edges (completely excised). There is no dysplasia.



2.5-3 cm Paris IIa polyp

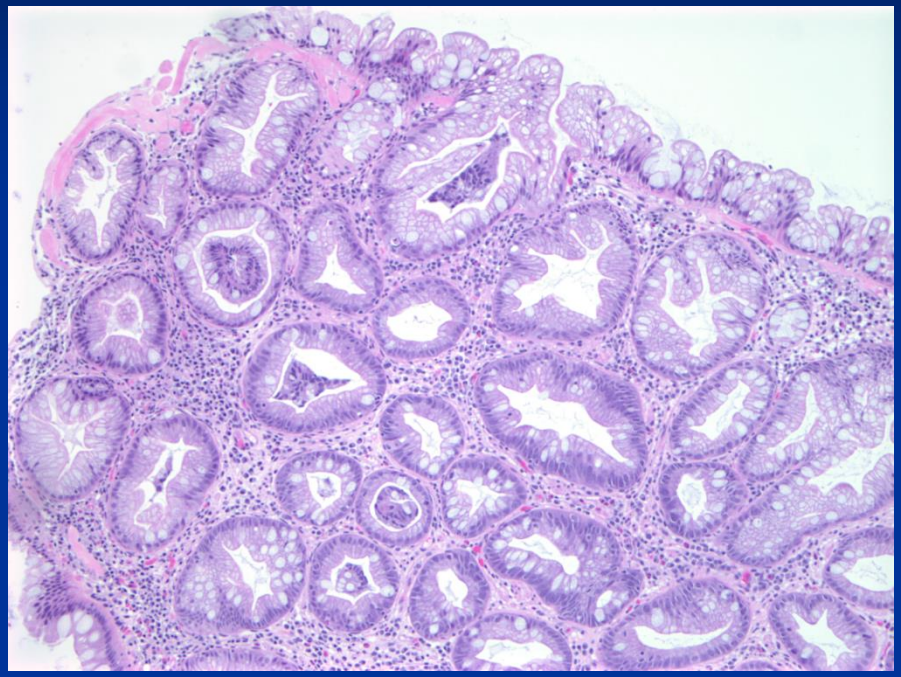


Sessile serrated adenoma

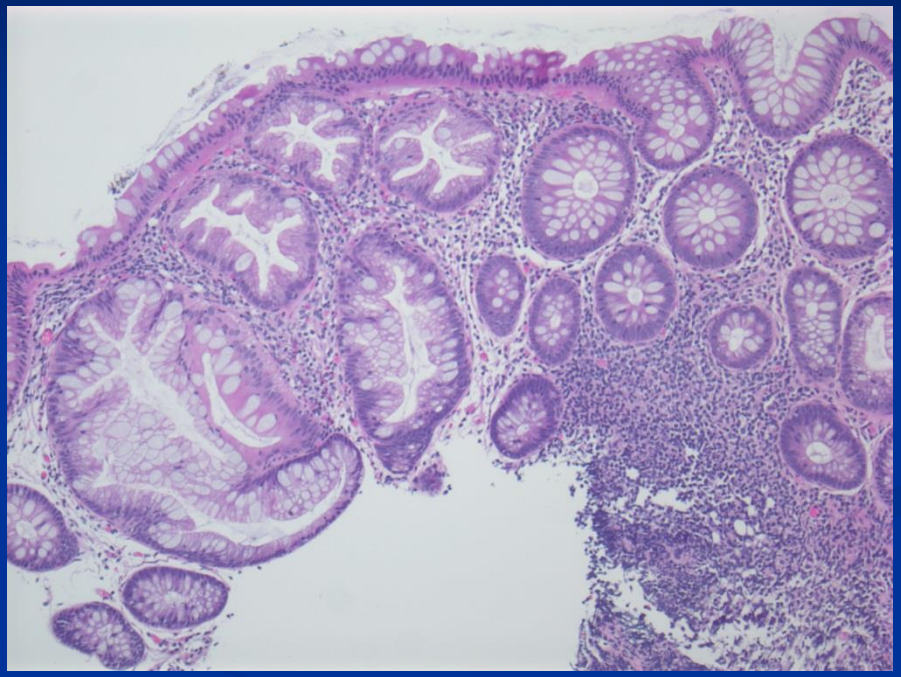


Cauterized base and normal mucosa at the edges

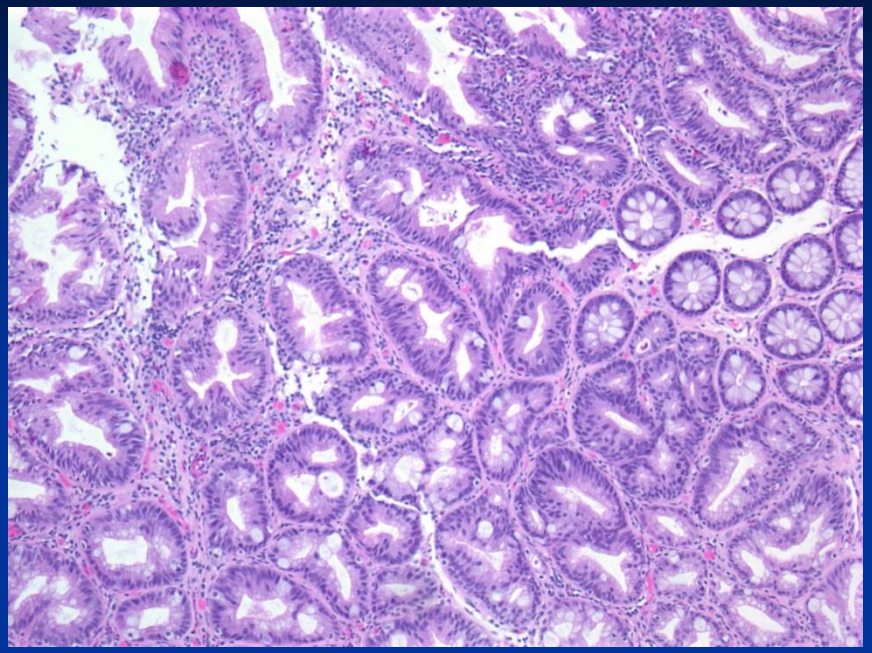
HP – 10 yrs



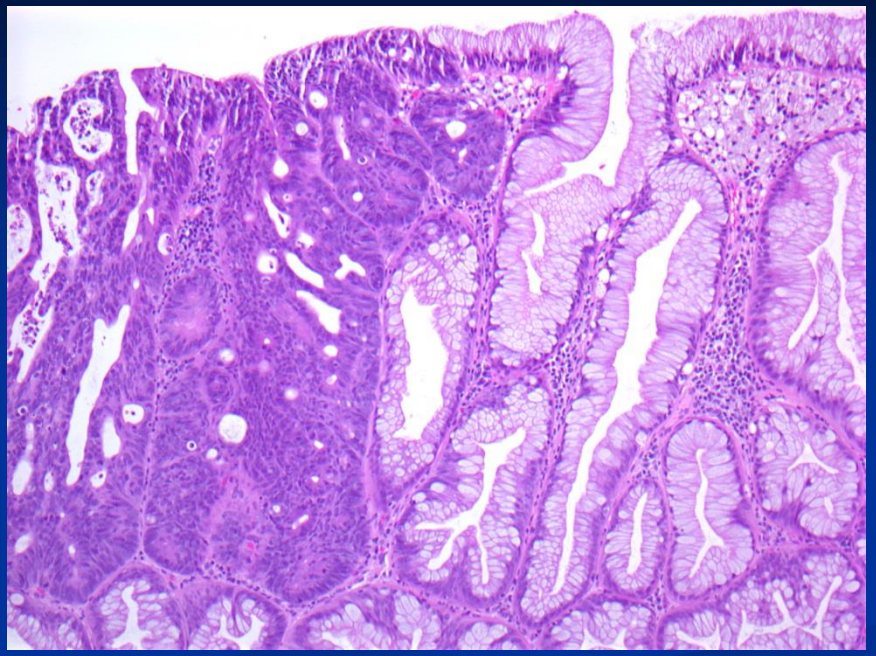
1.5 cm SSA – 3 yrs



SSA LGD – 3 yrs



SSA HGD – 3 yrs

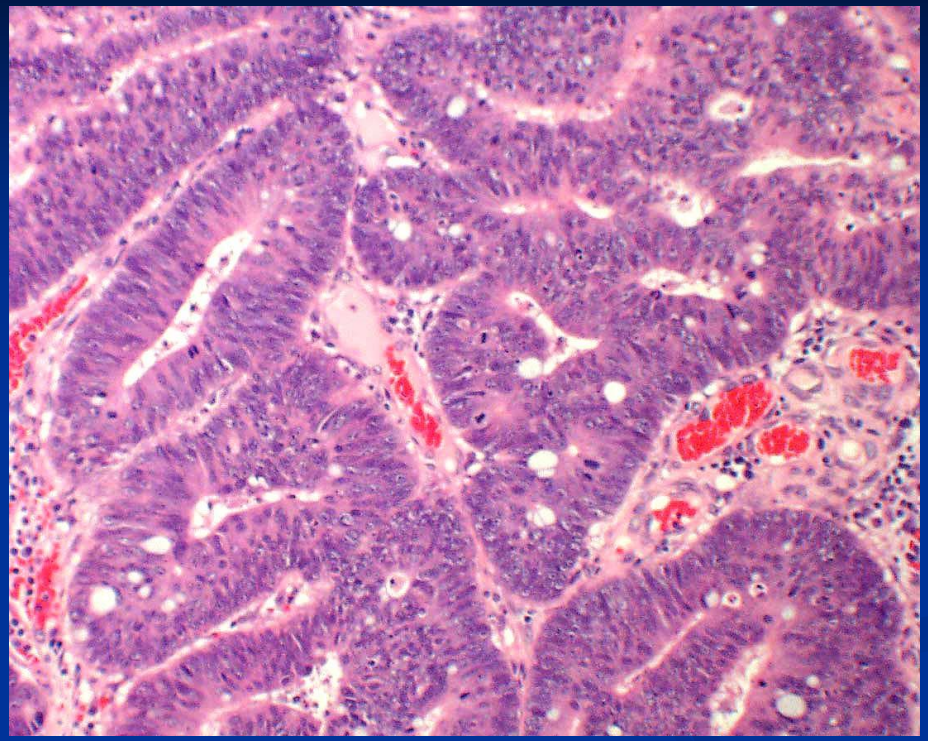


Serrated lesions			
Sessile serrated polyp(s) <10 mm with no dysplasia	5	Low	NA
Sessile serrated polyp(s) ≥10 mm	3	Low	NA
OR			
Sessile serrated polyp with dysplasia			
OR			
Traditional serrated adenoma			
Serrated polyposis syndrome[a]	1	Moderate	NA

NOTE. The recommendations assume that the baseline colonoscopy was complete and adequate and that all visible polyps were completely removed.

NA, not applicable.

[a]Based on the World Health Organization definition of serrated polyposis syndrome, with one of the following criteria: (1) at least 5 serrated polyps proximal to sigmoid, with 2 or more ≥10 mm; (2) any serrated polyps proximal to sigmoid with family history of serrated polyposis syndrome; and (3) >20 serrated polyps of any size throughout the colon.



>10 adenomas	<3	Moderate
One or more tubular adenomas ≥10 mm	3	High
One or more villous adenomas	3	Moderate
Adenoma with HGD	3	Moderate
Serrated lesions		
Sessile serrated polyp(s) <10 mm with no dysplasia	5	Low

Malignancy in a polyp – what next?

Endoscopic suspicion of malignancy in a polyp

Pathological evaluation of carcinoma in a polyp

When is surgery recommended?

Endoscopic suspicion of malignancy in a polyp

Advanced polyp or large size (> 20 mm)

Puckering (scarring) or depression

Poor saline lift

Resectability assessment and tattoo

Snare cautery polypectomy

Pathological evaluation of carcinoma in a polyp

True invasion or pseudoinvasion (invagination)?

Usual type (moderately differentiated adenocarcinoma)?

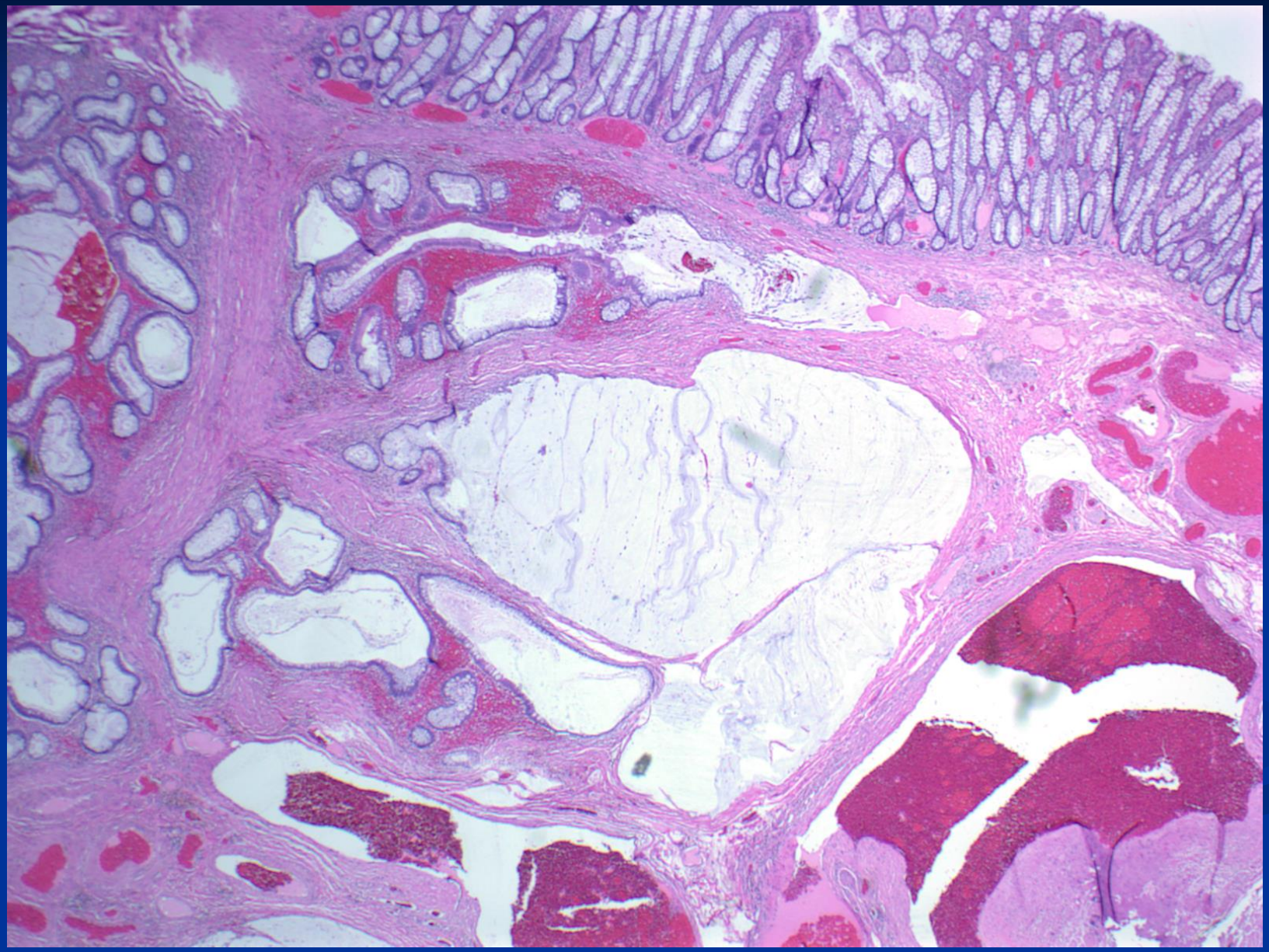
Lymphovascular invasion (unequivocal?)

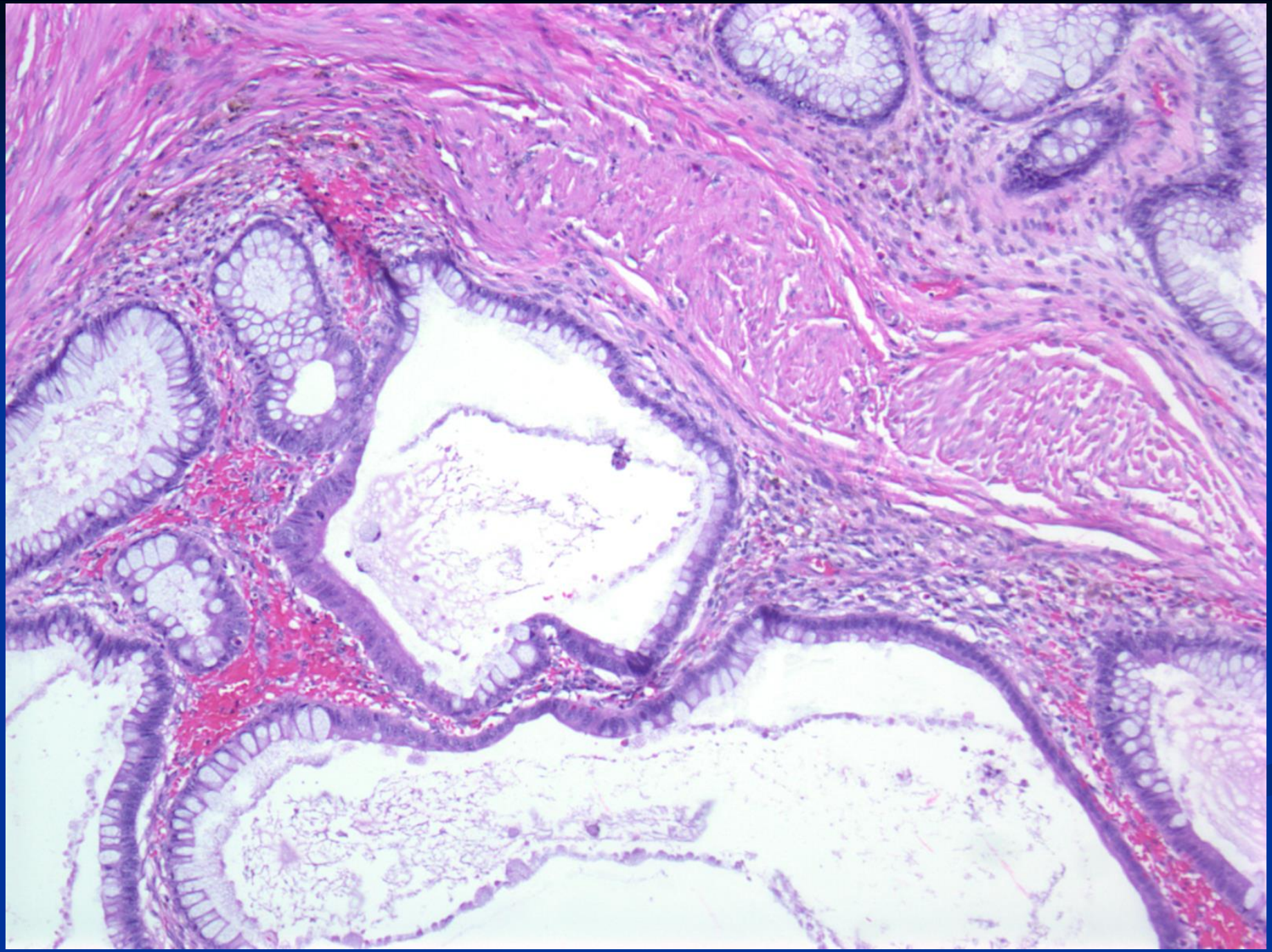
How deep into the submucosa (Haggitt level)?

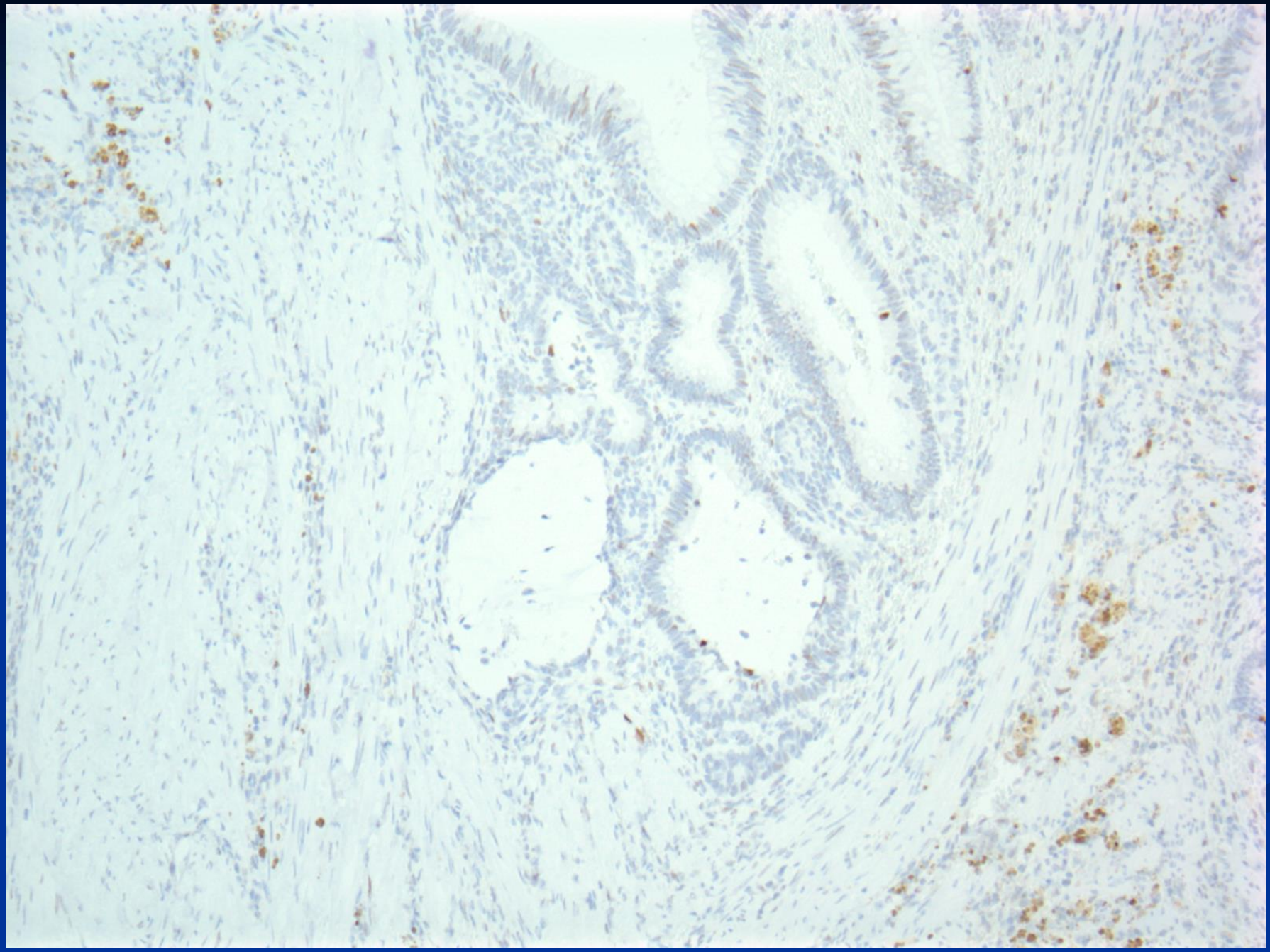
How far from the cauterized base?

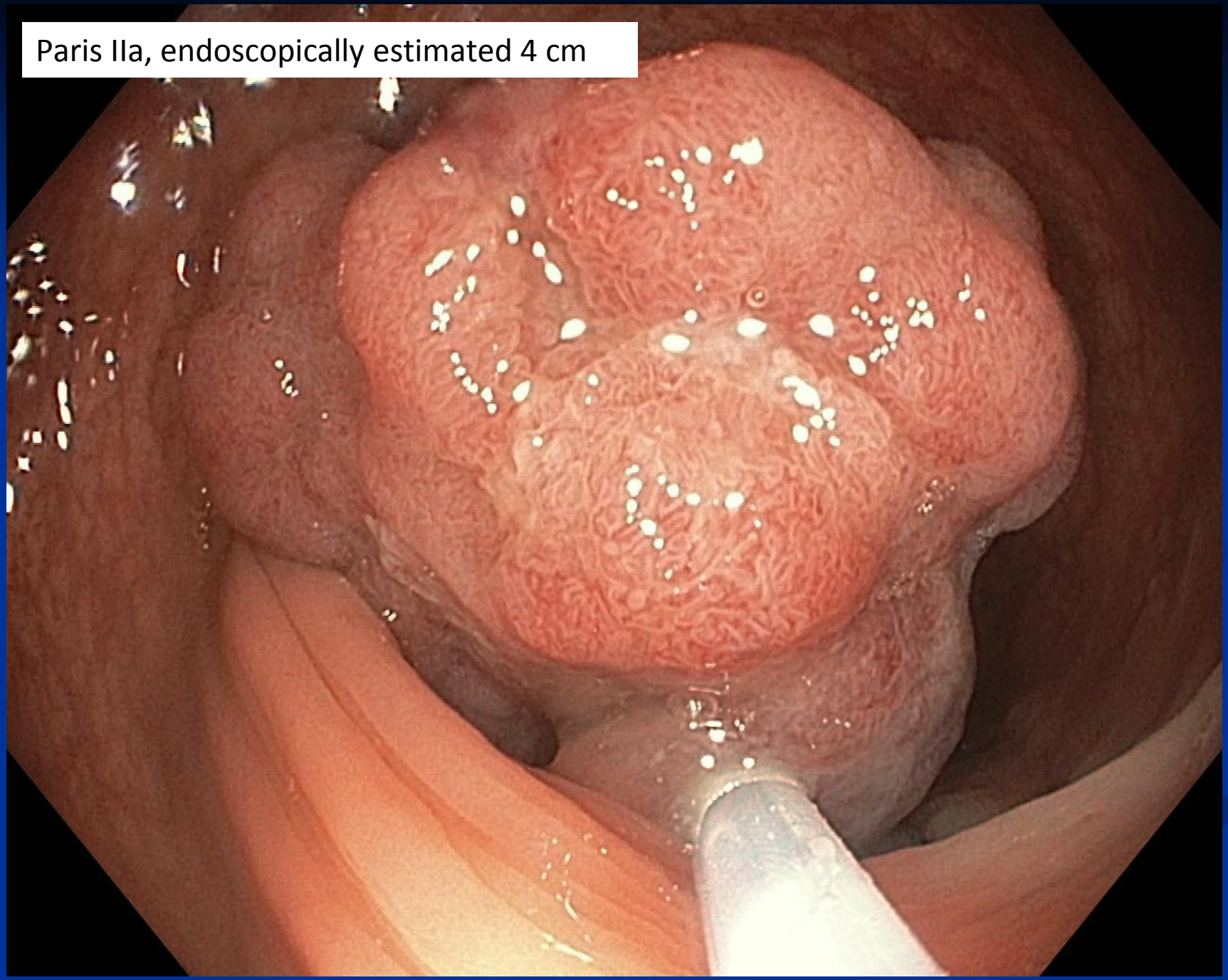
Free cauterized base and lateral margins?

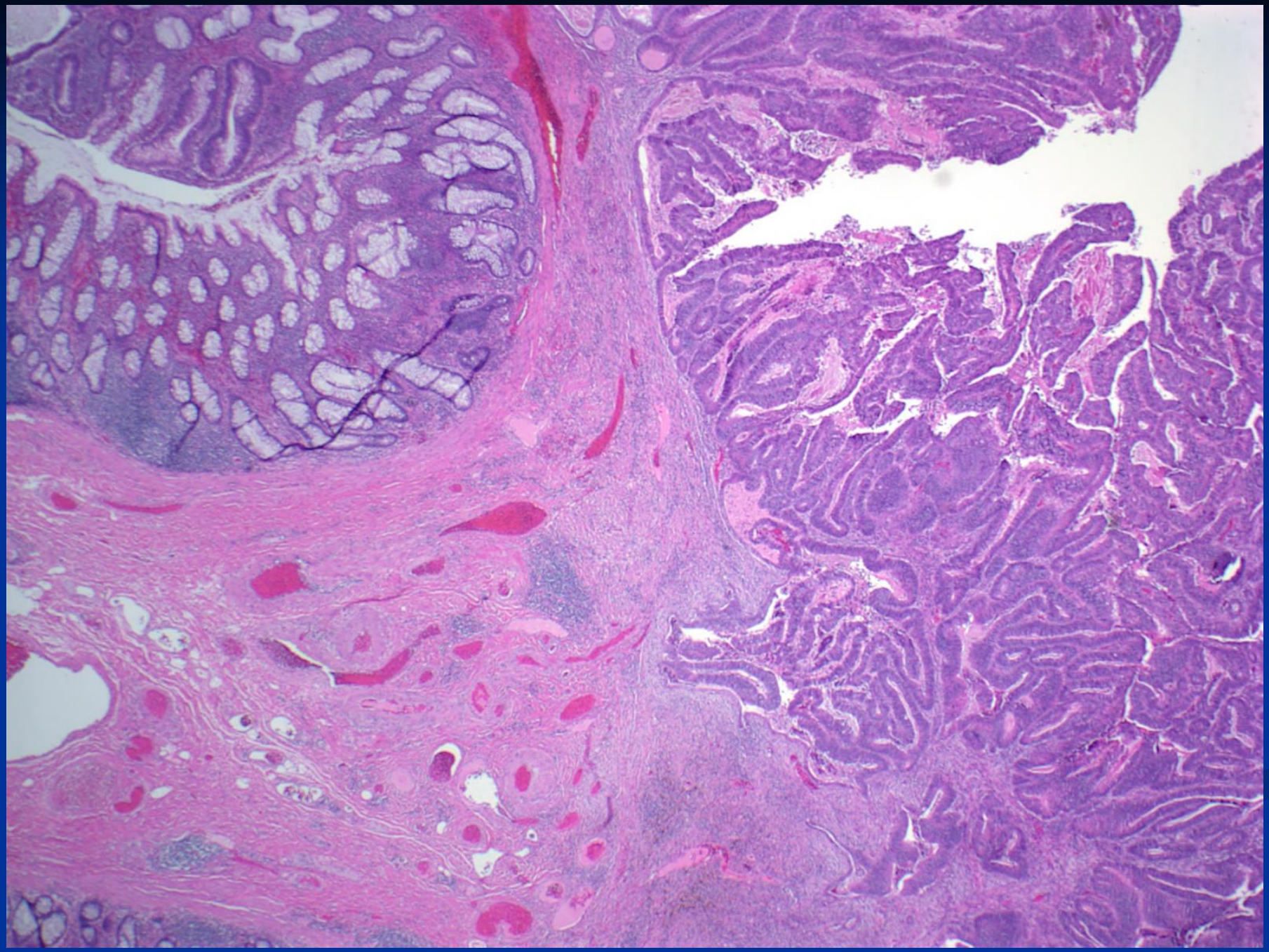
True invasion or pseudoinvasion (invagination)?

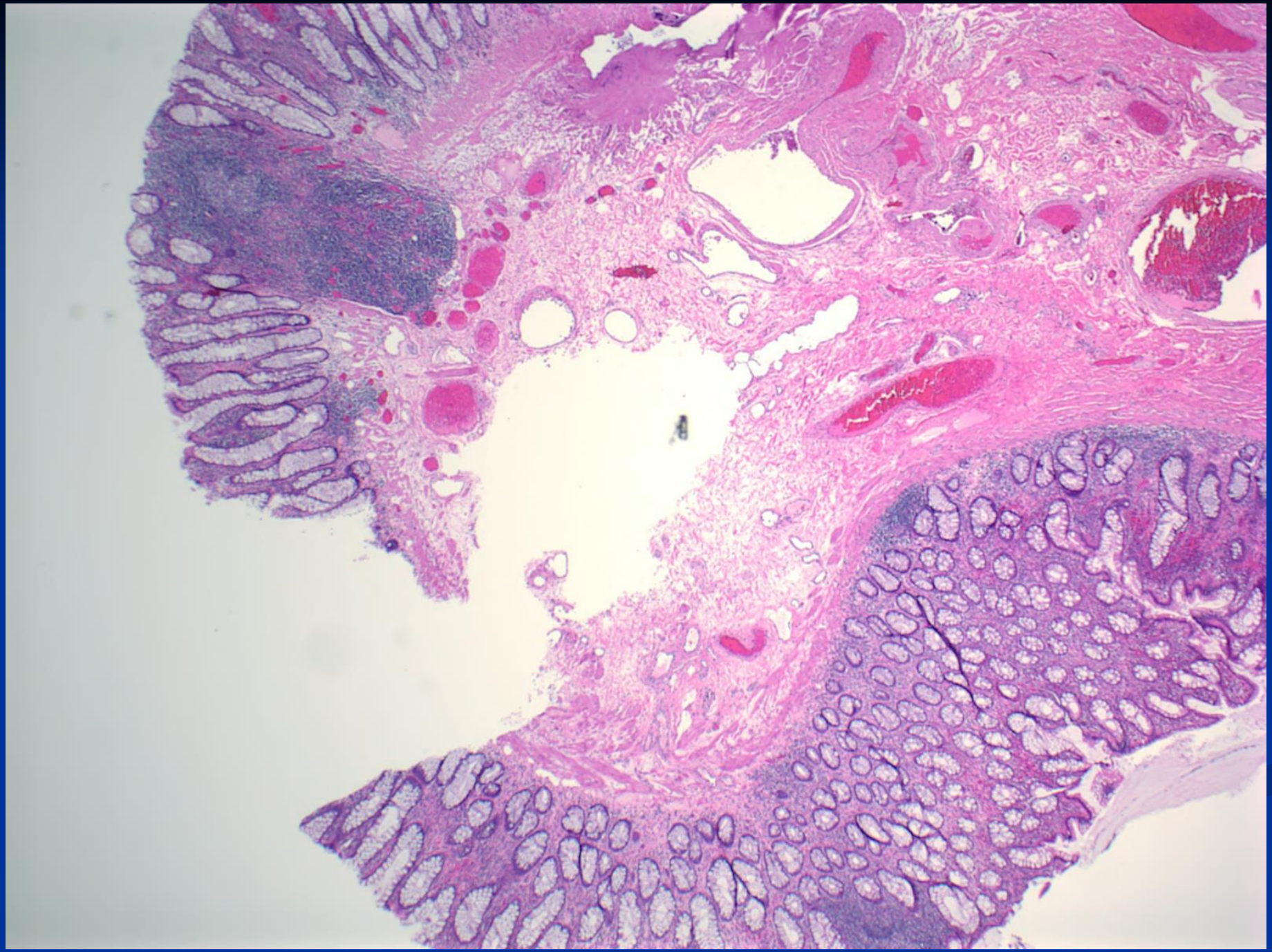







Paris IIa, endoscopically estimated 4 cm



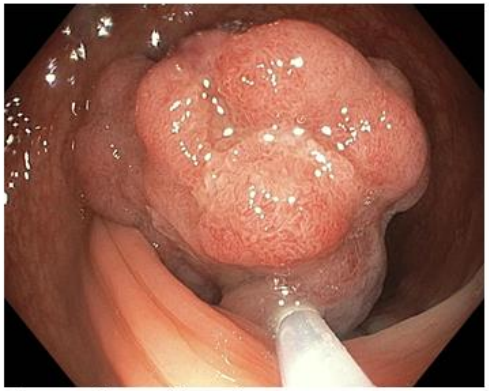


C. (Sigmoid colon polyp): The main 3.2 cm (after fixation) polyp fragment shows invasive moderately differentiated adenocarcinoma arising in tubulovillous adenoma. The tumor invades the superficial aspect of the submucosal stalk (Stage T1). No lymphovascular invasion. The cauterized base of the polyp is free and 0.5 cm away from the invading tumor. The lateral edges of the stalk show normal colonic mucosa and no adenoma. Additional separate small fragments show a tubulovillous adenoma with high grade dysplasia and no invasive carcinoma. See note.

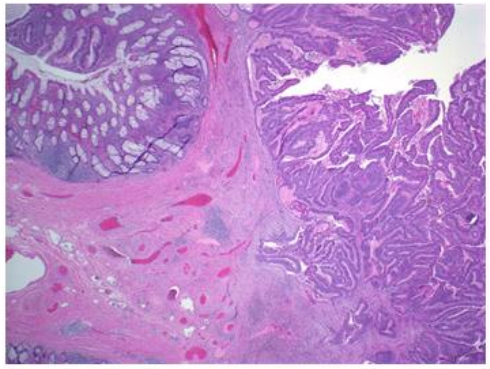
Attending Pathologist: Shriram Jakate, MD * *Electronically signed*
Pathology Resident: Xin Li , MD

Note

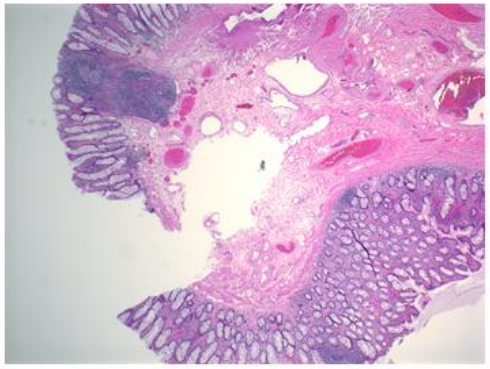
The endoscopic report and images are reviewed (4 cm sigmoid polyp, Paris classification Ip + IIa, mass removed with hot snare polypectomy, 7 mm of residual adenomatous appearing tissue at the base of the stalk removed). The entire polyp material is histologically examined.



4 cm sigmoid polyp



Invasive moderately differentiated adenocarcinoma arising in tubulovillous adenoma



Free base of the polyp

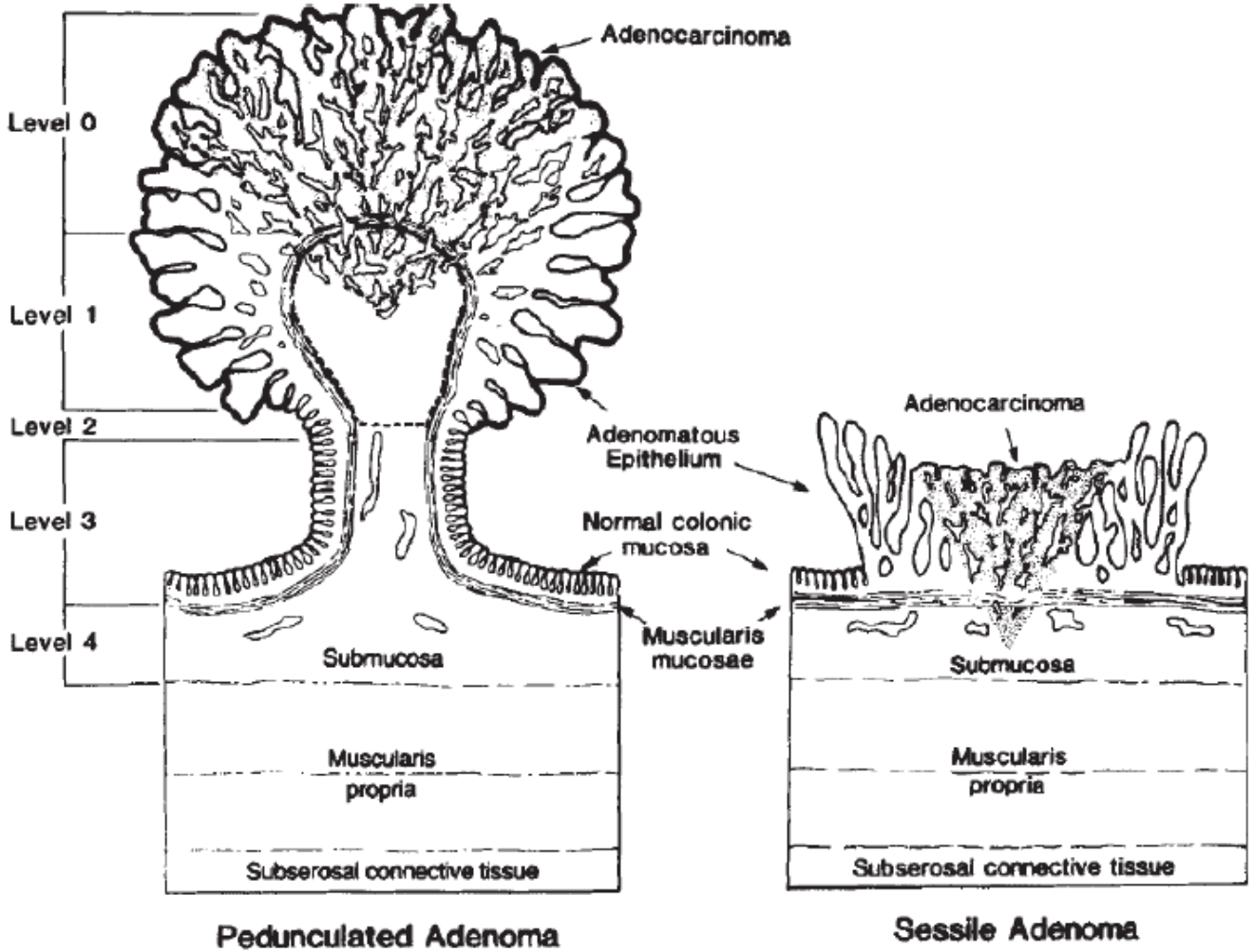


Figure 1. Classification of polyps with invasive carcinoma. (From R. C. Haggitt, Glotzbach RE, Soffer EE, Wruble LD.

Haggitt, Gastro 1985

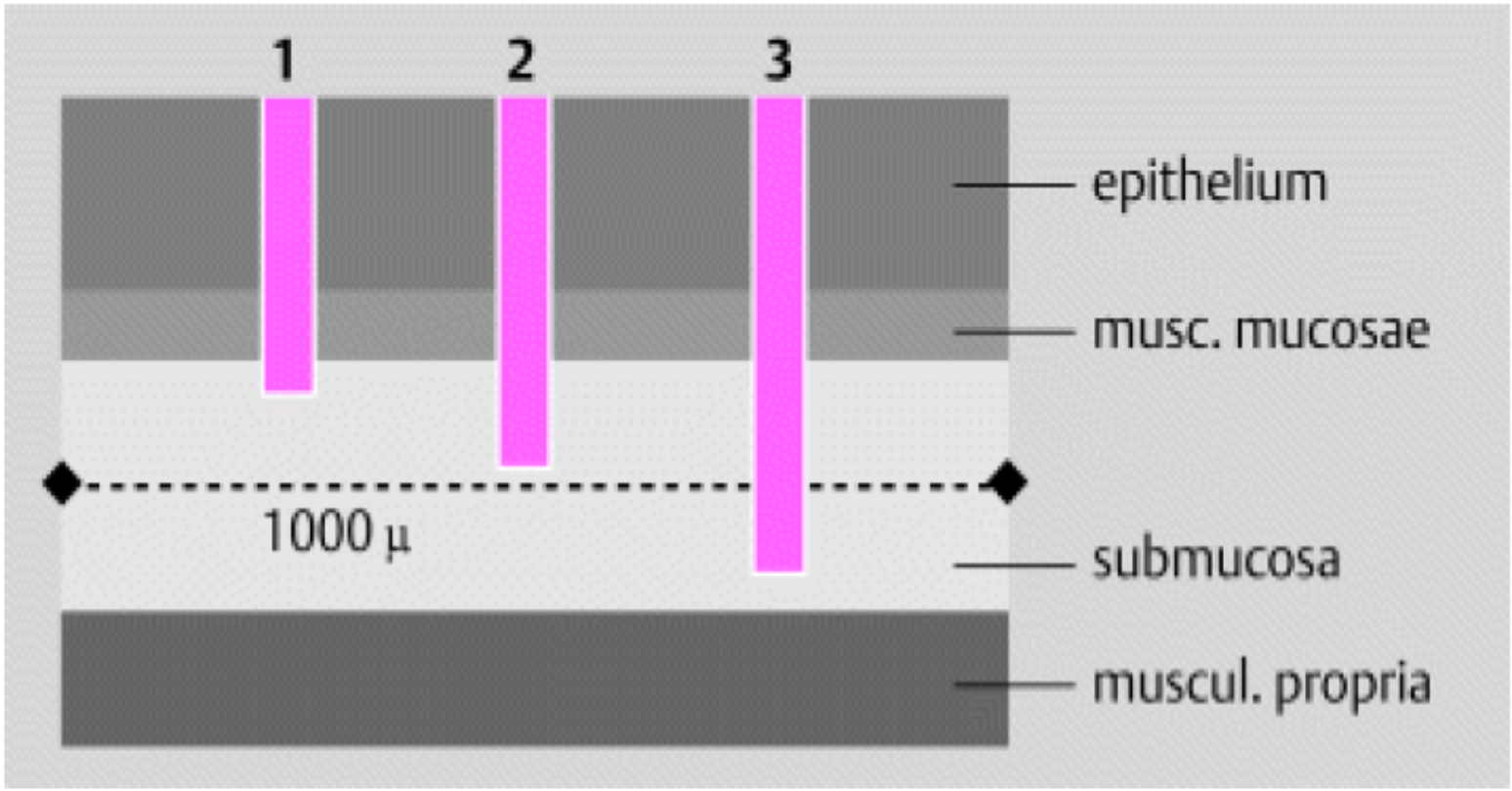
- 129 malignant polyps
- 49% polypectomy alone, 51% some type of colectomy

Table 4. *Level of Invasion Compared With Other Prognostic and Follow-up Information*

Level of invasion	No. of cases	Lymphatic invasion	Poorly differentiated	Positive nodes[a]	Dead of disease	Mean follow-up (mo)
0	65	0	0	0/18	0	90
1	18	0	0	0/6	0	75
2	8	1	1	0/3	0	76
3	10	1	0	0/4	1	72
4	28	0	1	4/13	4	67
Total	129	2	2	4/44[b]	5	81

[a] Number of patients with positive nodes/number with nodes available. [b] One of these 4 patients died of disease; the other 3 patients are alive without disease at 48, 63, and 75 mo.

Haggitt, Gastro 1985



Sm1	Sm2	Sm3
1%	6%	14%

% lymphnode meta
differentiated, no ly

Consider surgery in the following situations:

Deep submucosal invasion (level 3 or 4)

Unequivocal lymphovascular invasion

Deep resection margin < 1mm

Poor differentiation or unusual type (NE)

Summary

Colon polyps and their relationship to CRC screening

Gastroenterologists' lexicon related to polyp screening

How polyps are removed and retrieved

Pathological assessment of polyp and its impact on screening

How to deal with malignancy in a resected polyp