Endoscopic Colorectal Polyps

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- Removal of colorectal polyps

reduce incidence, mortality (CRC)

Classification of polyps:

- Location
- Size (mm)
- Macroscopic: pedunculated, elevated

  (sessile - flat - depressed)
- Morphology: mucosal / vascular pattern.

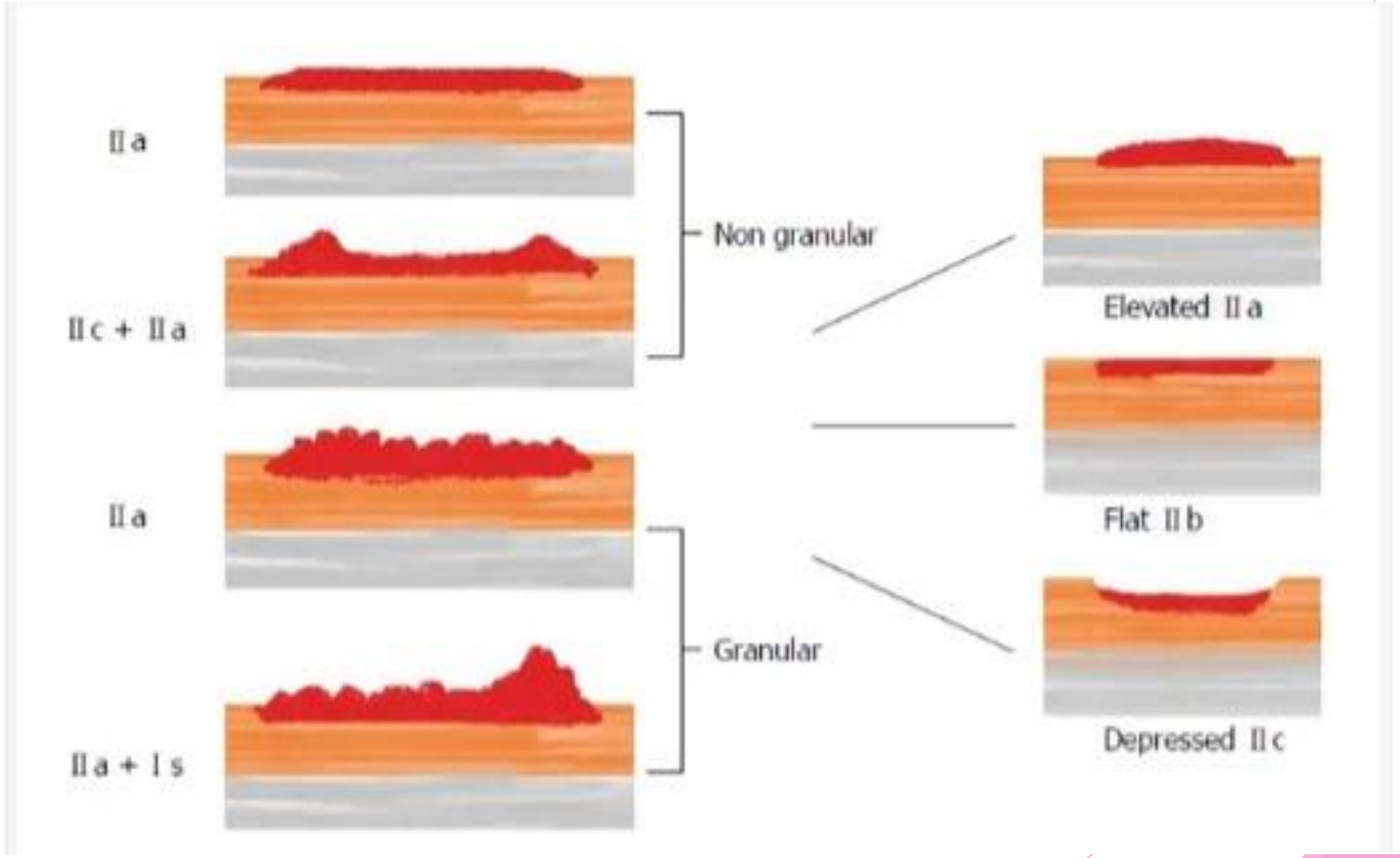
→ **Choice resection technique**

Classification non polypoid lesions ≥ (10 mm)

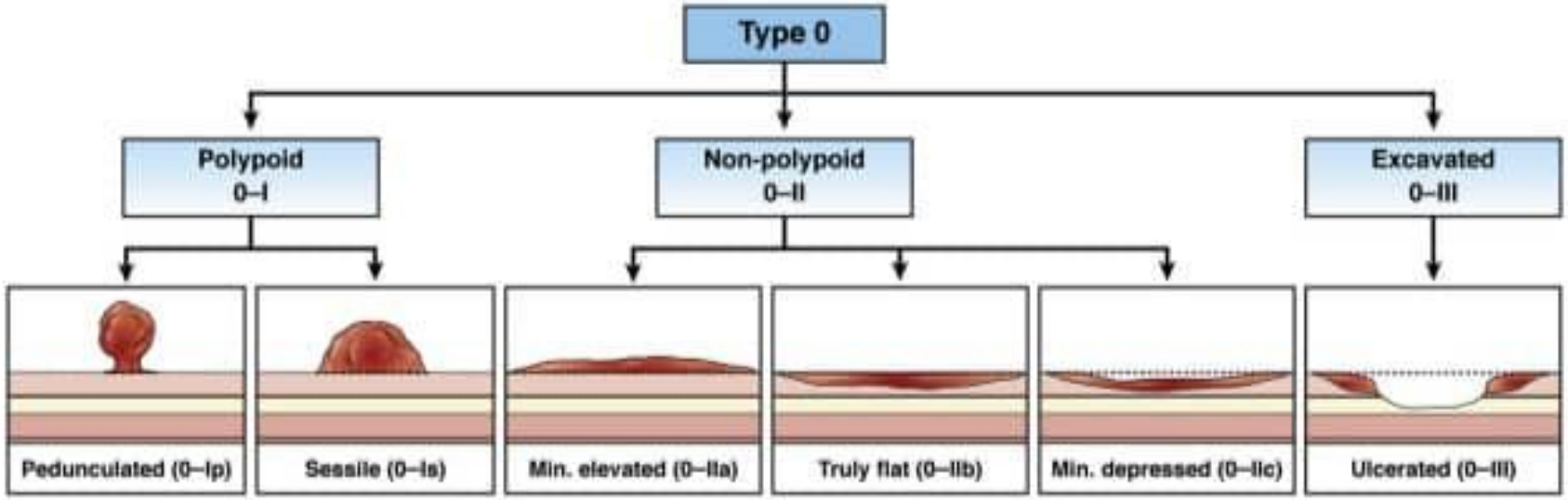
- Granular homogeneous.
- Granular nodular mixed 10.5%.
- Non granular elevated.
- Non granular pseudo depressed 31.6%.

→ Submucosal invasive cancer

Subtypes of non polypoid tumors (Paris classification)



Paris classifications:



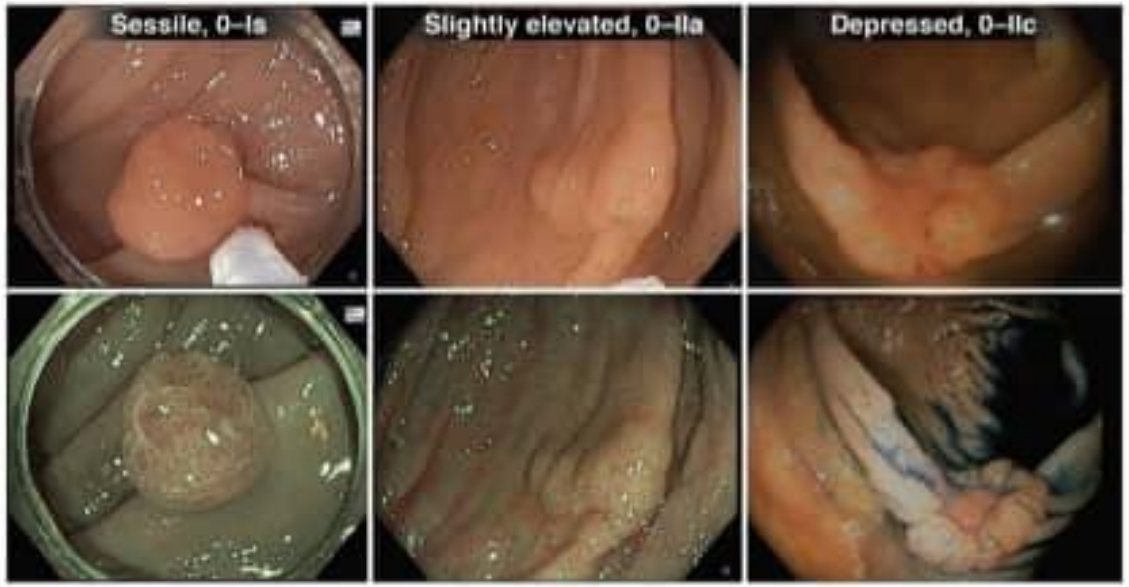
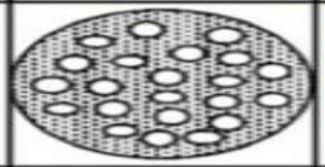
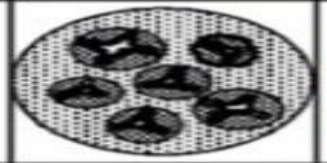
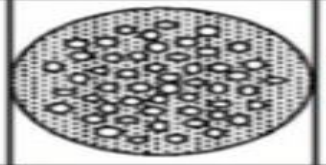
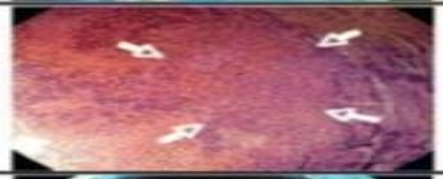
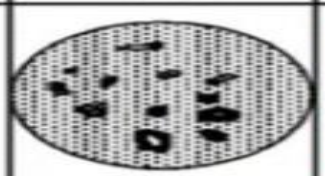
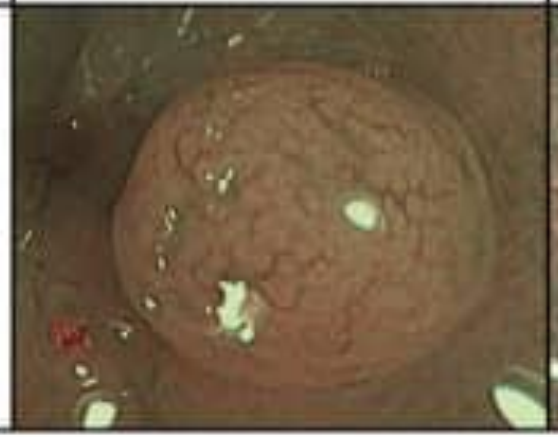
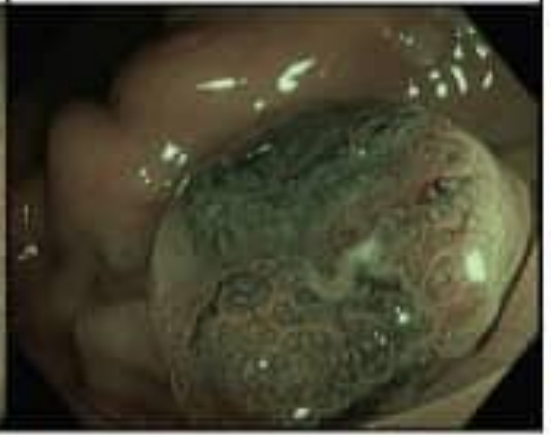


Figure 1. Paris Endoscopic Classification of superficial neoplastic lesions in the colon and rectum.

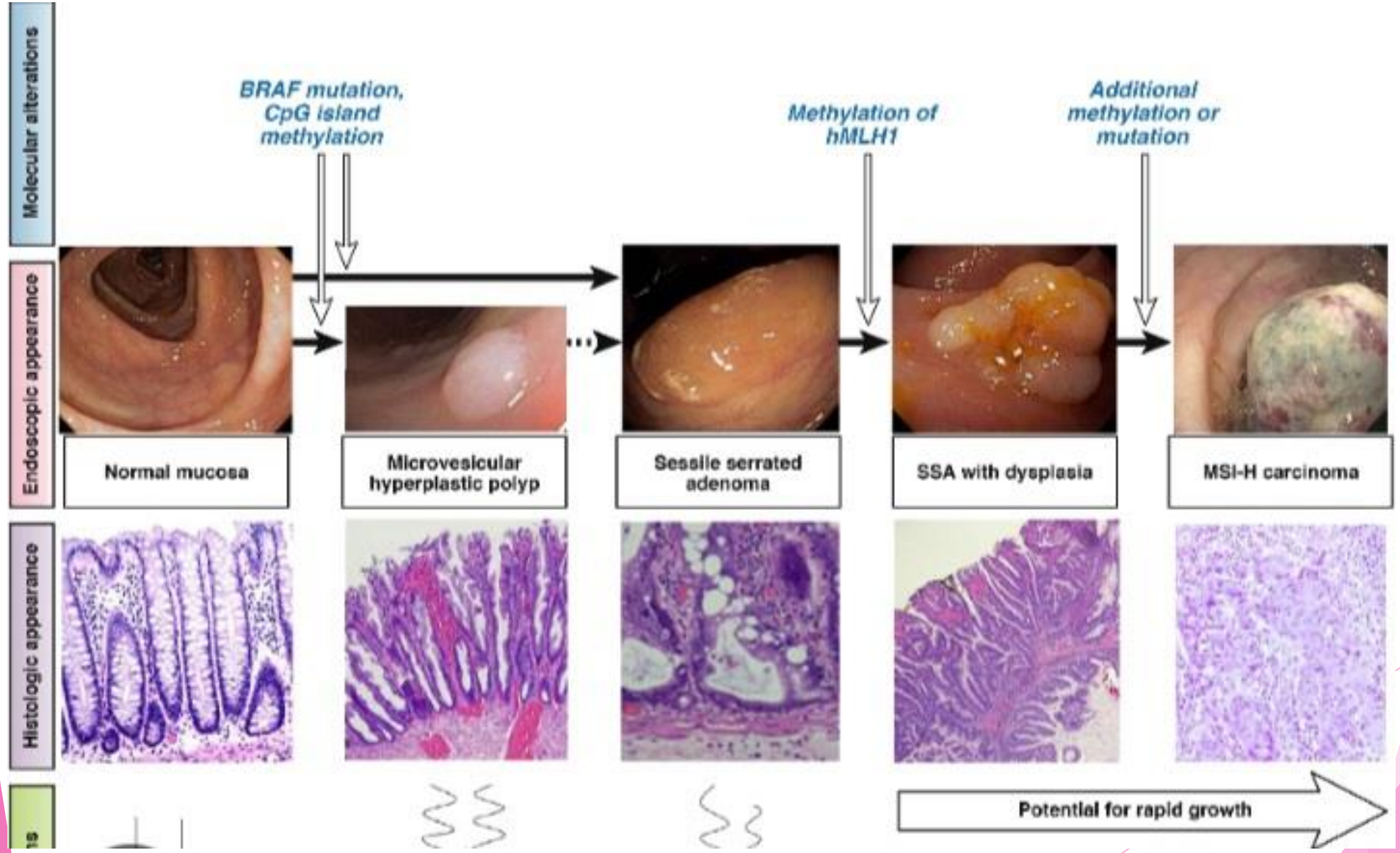
Electronic based image enhanced endoscopy techniques:

Type	Schematic	Endoscopic	Description	Suggested Pathology
I			Round pits.	Non-neoplastic.
II			Stellar or pap-illary pits.	Non-neoplastic.
IIIs			Small tubular or round pits that are smaller than the normal pit	Neoplastic.
IIL			Tubular or roundish pits that are larger than the nor-mal pits.	Neoplastic.
IV			Branch-like or gyrus-like pits.	Neoplastic.
V			Irregularly ar-ranged pits with type IIIs, IIIL, IV type pit patterns.	Neoplastic (invasive).
VN			Non-structural pits.	Neoplastic (massive submucosal invasive).

Nice classifications:

	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 may be present 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 structures** surrounded by brown vessels	Amorphous or absent surface pattern
Most likely pathology	Hyperplastic and sessile serrated lesions***	Adenoma****	Deep submucosal invasive cancer
			

Work group serrated polys classifications WASP:



SMIC (NBI) + 91% → 96%

- Ulceration.
- Excavation.
- Deep demarcated depression.
- Paris 0-IIc , 0-IIA + IIC , III.
- Mucosal variability.
- Fold convergence.
- Kudo pit pattern Vn.
- JNET3.
- Nodle.
- Size ≥40mm
- Distal colon, rectum.

Paris : 0IIa + C

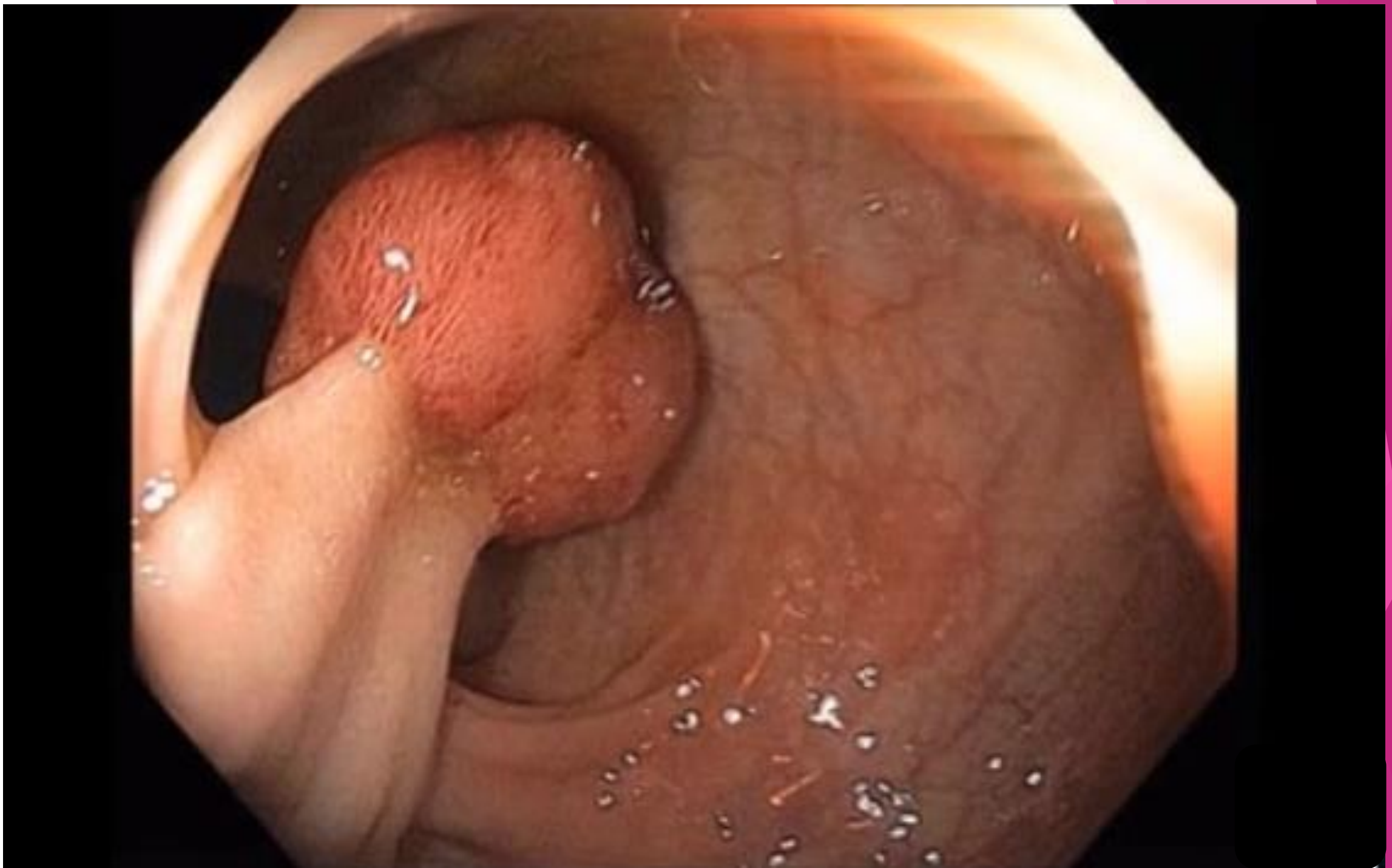
IIc

III

JNET: 2B, 3

Pedunculated polypectomy

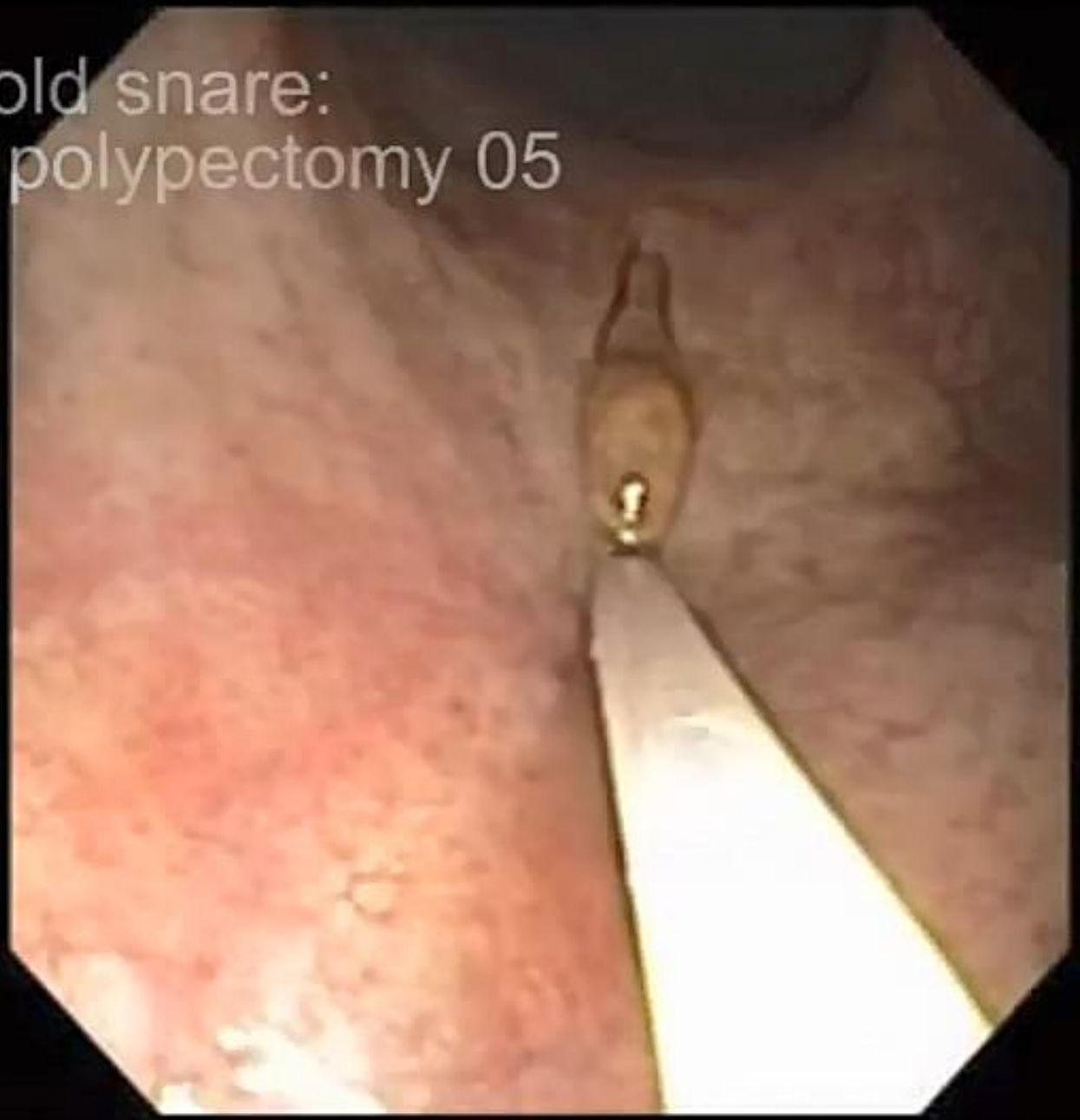
- Head size < 20mm + stalk < 5mm ⇨ hot snare.
- **Head size ≥ 20mm / stalk ≥ 5mm** $\frac{1}{10000}$ **± prophylactic mechanical hemostasis (weak recommendation).** ⇨ **hot snare injection**
- Penduculated polyps ≤ 10mm + stalk < 6mm ⇨ cold snare.
- Malignancy Pedunculated polyps suspected: ⇨ tattoo.
  ⇨ resection to base of stalk.



Resection diminutive polyps ≤ 5mm:

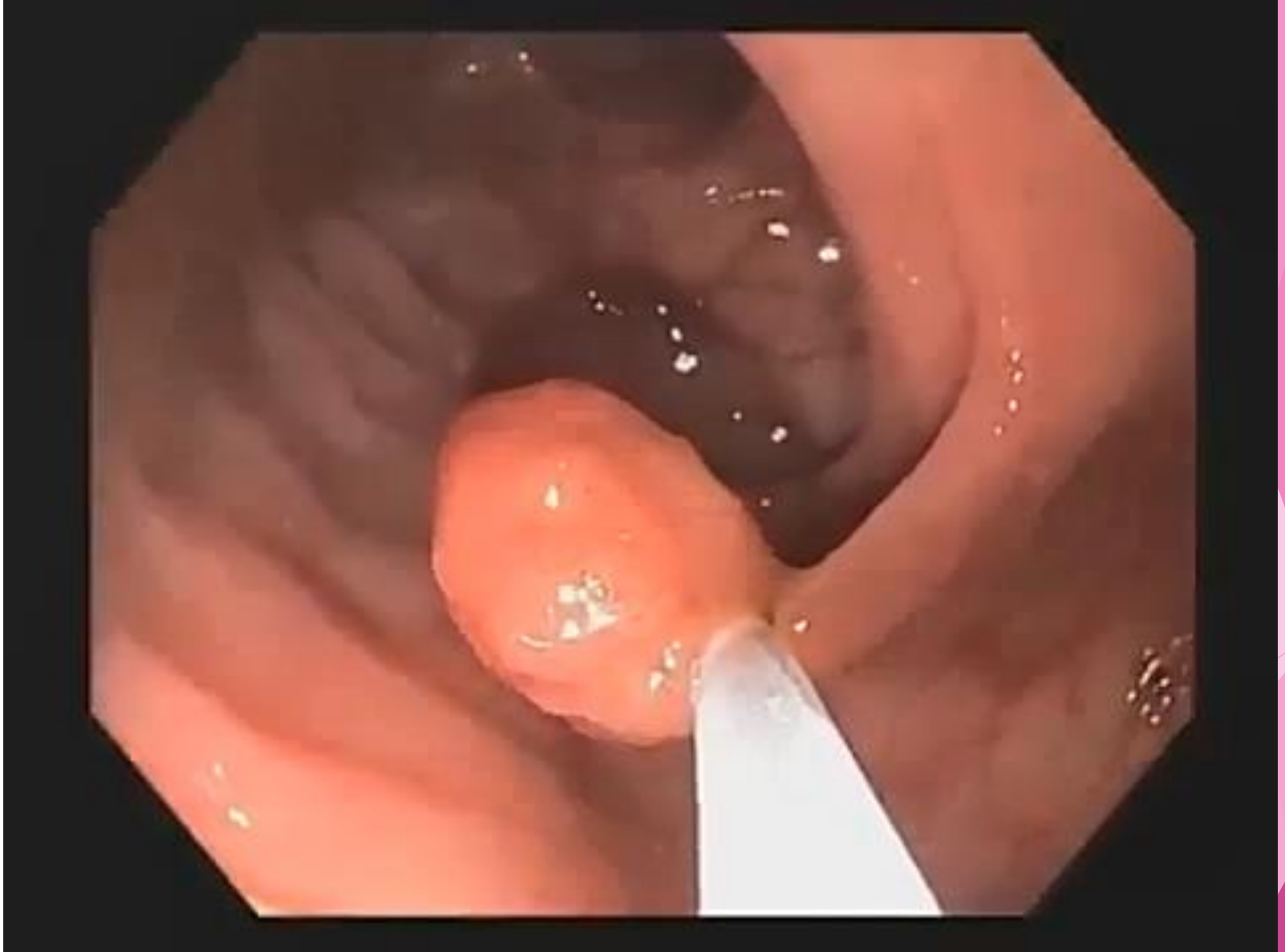
- Cold snare.
- Clear margin normal tissue (1-2 mm).
- Jumbo forceps ⇒ ≤ 3mm polyp 98.3%.
- Hot biopsy forceps ⇒ 3-5 mm.

Exacto™ cold snare: diminutive polypectomy 05



Resection small polyps (6-9mm)

- **Cold snare (0.30 mm)**
- **Clear margin normal tissue (1-2 mm).**



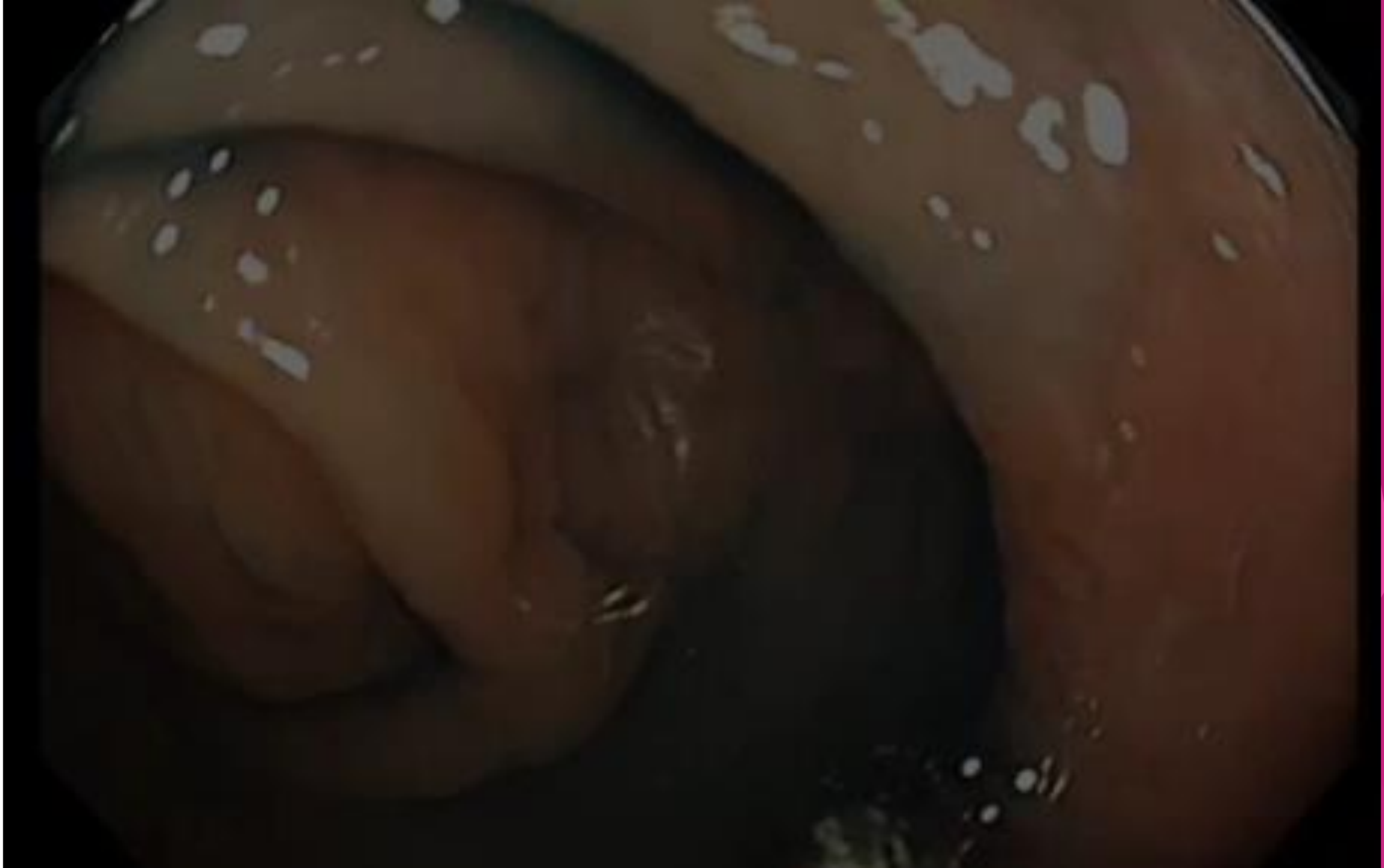
Comparison:

	Cold snare	Hot snare
Complete resection	95%	95%
Polyretrieual	95%	95%
No delayed bleeding	95%	95%
Polyp analysis	95%	95%
Time	7.13 sec	Longer than 30 sec
Post procedural bleeding		higher


Cold snare polypectomy
Lumen
Endoscope
Snare
Mucosa
Lumen
Snare parallel to mucosa and maintain downward pressure
Encircle cuff of normal mucosa*
Mucosa
Lumen
Mucosa
Hot snare polypectomy
Lumen
Mucosa
Lumen
Lift and tent
Mucosa
Lumen
Mucosa

Resection polyps (10-19mm):

- No invasive submucosal + no dysplasia ⇒ injection ⇒ piecemeal.
- Cold snare ⇒ right colon, co-morbidity (weak recommendation)
- No invasive submucosal + dysplasia ⇒ injection ⇒ hot snare.
- Incomplete resection rate 7.3%, thermal deep mural injury
- Delayed post-procedural bleeding ⇒ EMR ??
- Suspected submucosal invasion ⇒ Superficial → ESD
  ⇒ Deep → surgery



Resection large polyps ≥ 20mm + noninvasive dysplasia.

- Resection large polyps ≥20mm + noinvasire,no dysplsid,right colon,co_morbidity ⇨ cold snare piecemeal EMR+ prophylactic+clip

↓ ⇩

PPB 3,5%

EMR:

- (EMR) endoscopic mucosal resection.

- **Thermal ablation**

  (snare soft coagulation tip)

- **Hot avulsion**
- **Cold avulsion**
- **Cap**

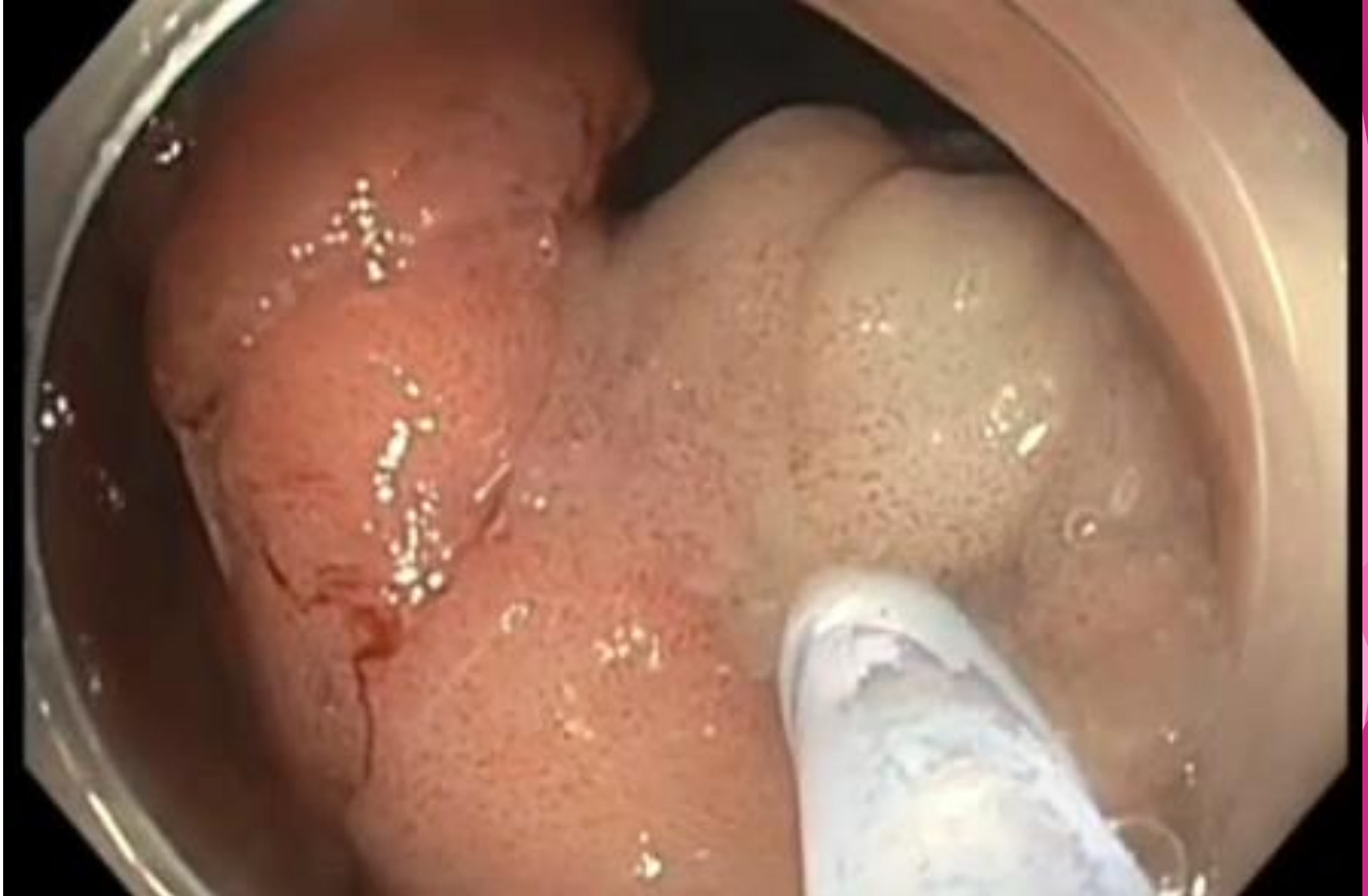
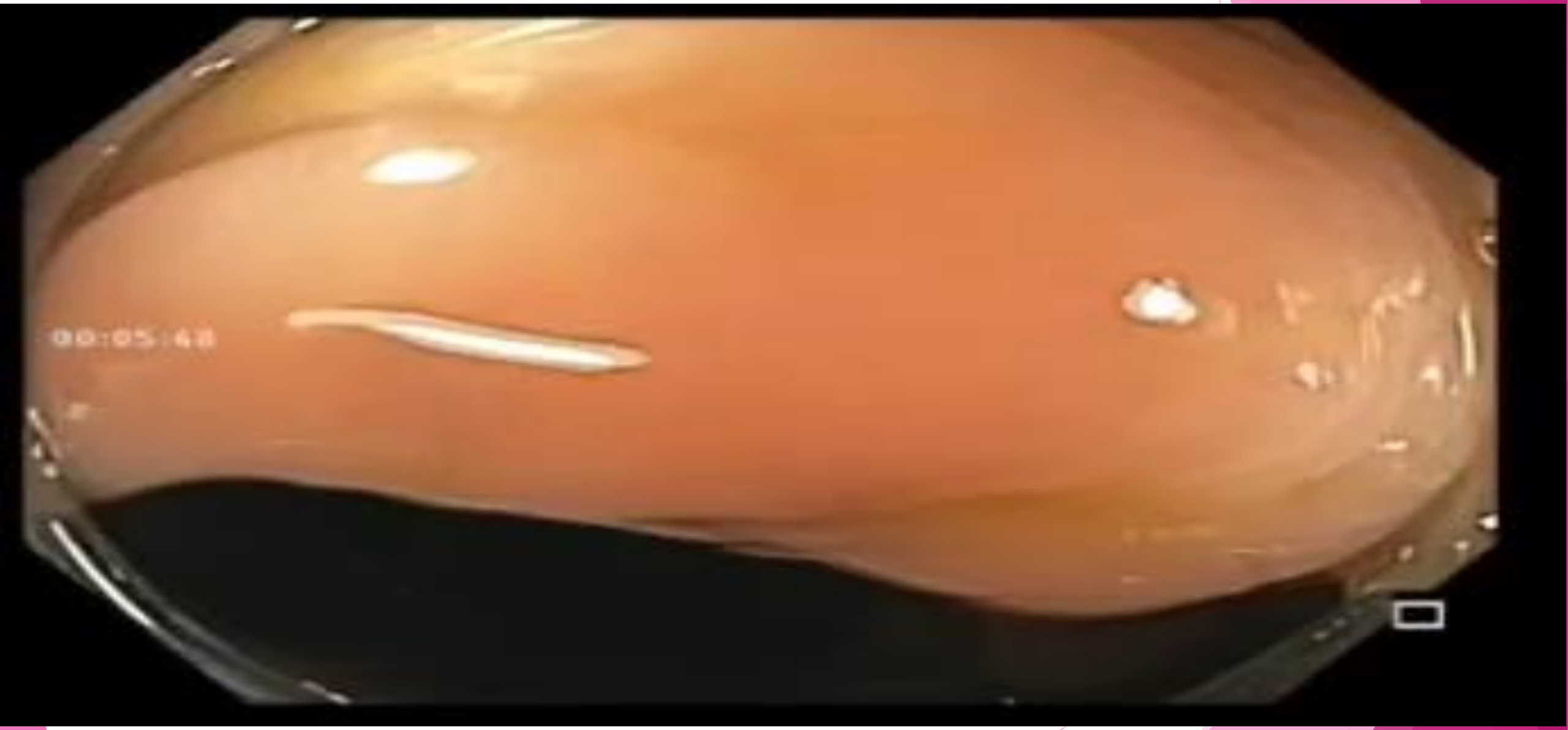


TABLE 5. Suggested Electrocautery Setting*

Method	Mode	Effect	Cut duration	Cut interval	Maximum watts
Inject-and-cut EMR	Endocut Q	2/3	1	4	—
Snare tip soft coagulation	Soft Coag	5	—	—	80
Hot forceps avulsion	Endocut I	1	4	1	—
Underwater EMR	Autocut, Drycut	5	—	—	80

*For users of for users of other units would consult representative to identify settings that would approximate the tissue effects provided by these settings.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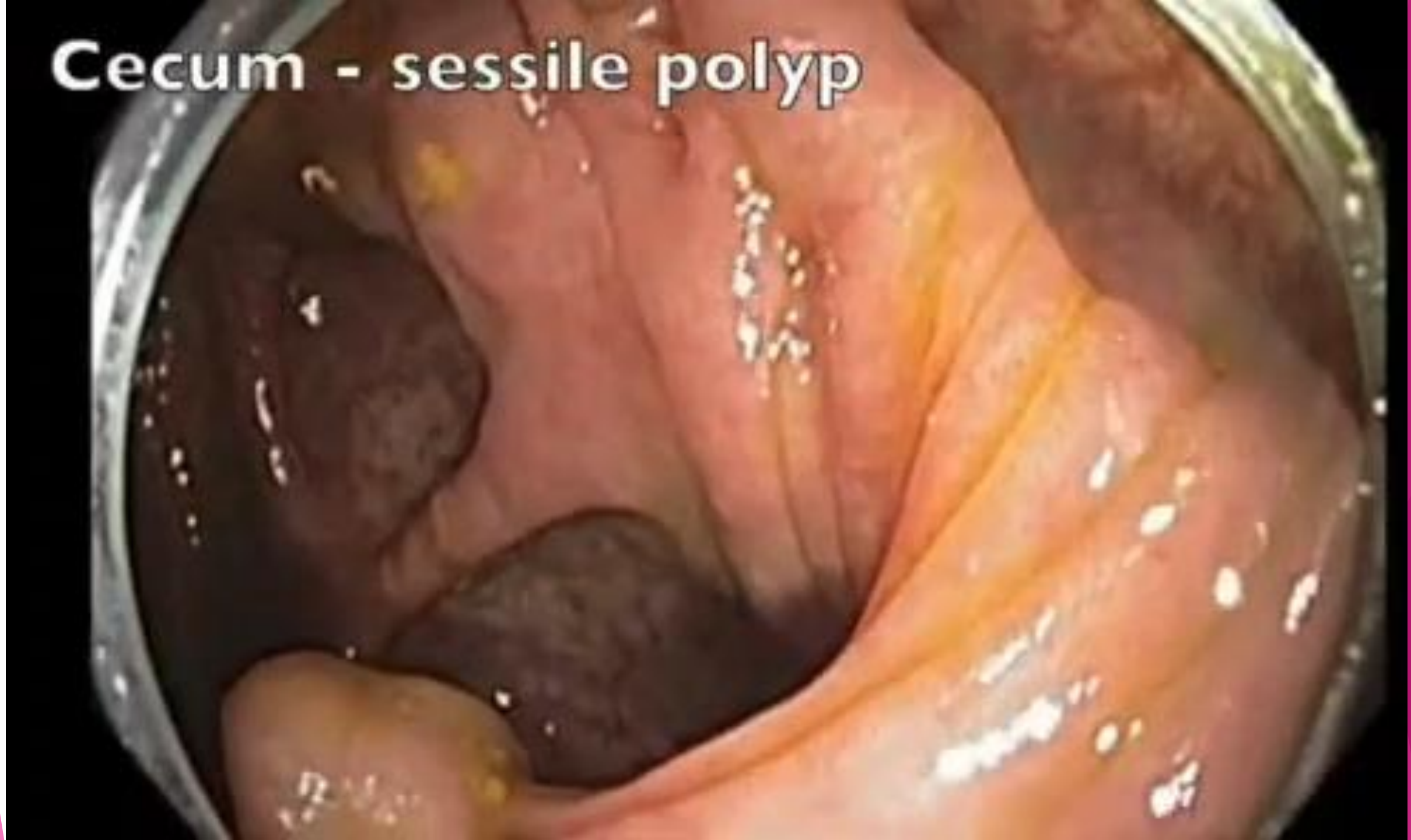
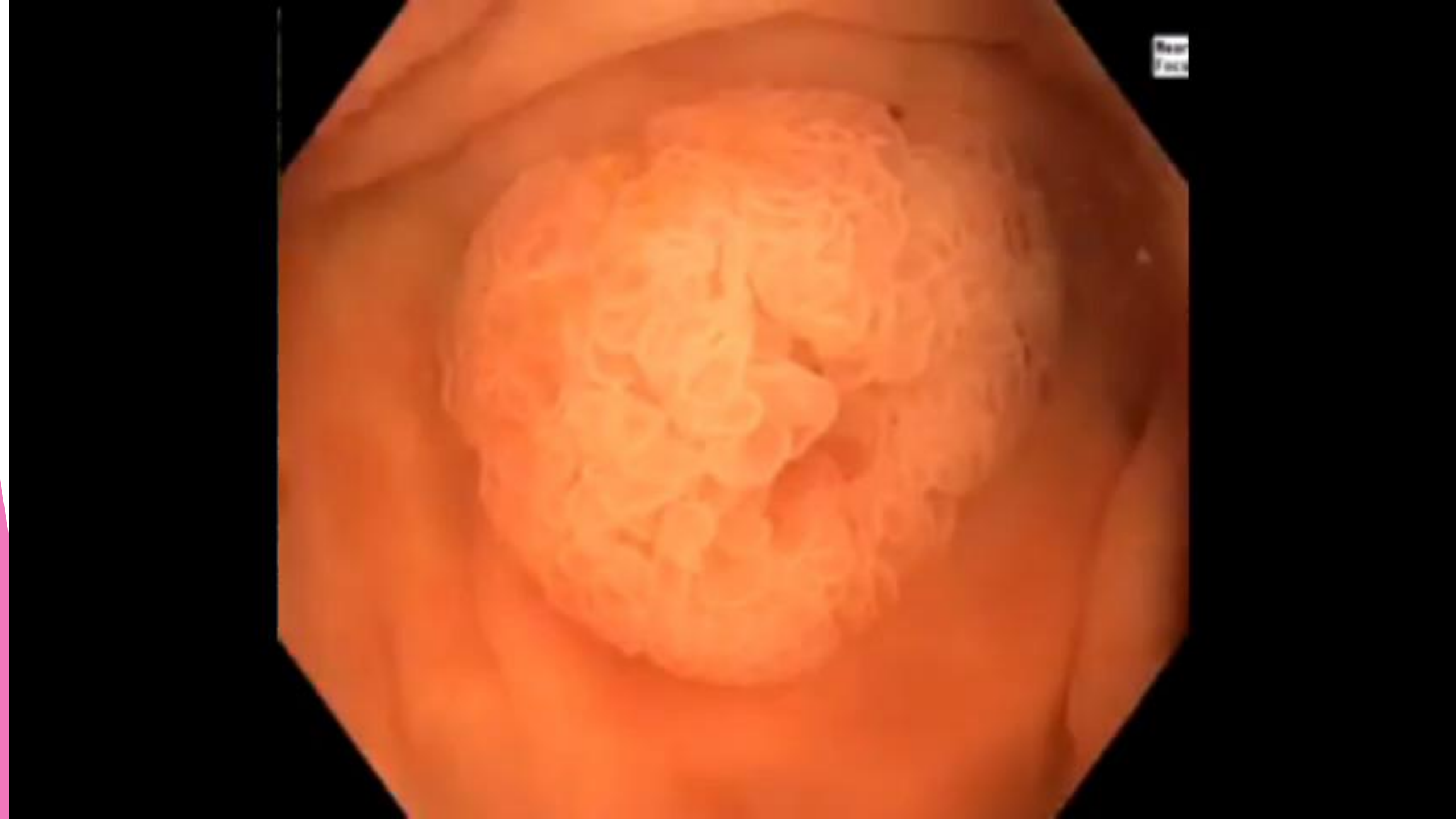

Cecum - sessile polyp

UEMR :

- Colonic lumen filled water
- Lesion strangled
- Resected with electrosurgical snare.
- (en bloc resection 33% , Ro resection 32% , lower recurrence 6% , short time 13m, safe delayed bleeding 2.6%, perforation 0%)

X



Complications EMR:

- Recurrence after EMR (1.5% – 3%)
- Delayed bleeding (6% - 12%)
- Perforation (1% - 2%)

Successful EMR:

- Lack visible remnant neoplastic tissue
- Histologic assessment of the specimen.
- Absence recurrence ……first survivalance ……..6 months.

PPB after CEMR: 6-7%

- Size ≥ 2cm
- Hybertension
- Anticoagulation
- Antiplatelets
- age > 65 years
- renaldisease
- Proximal colon

Intermediate procedure bleeding

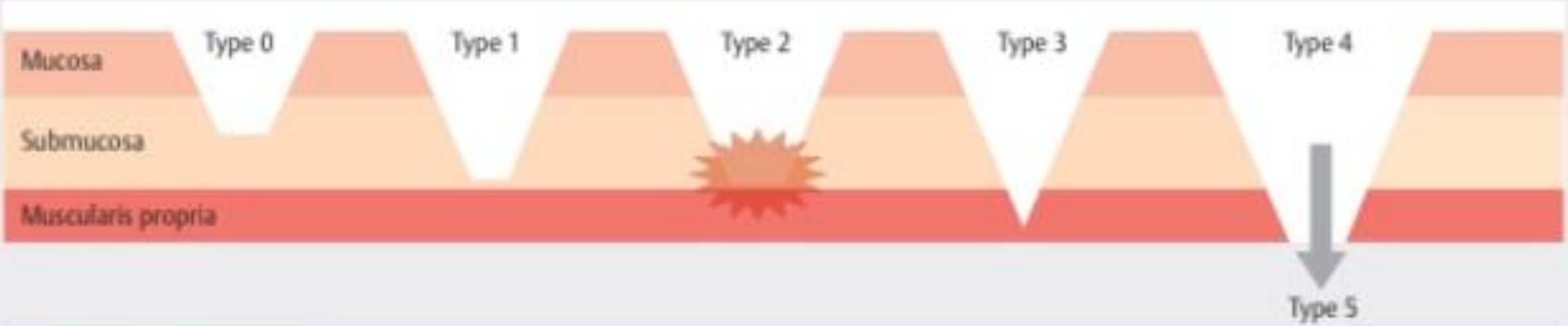
- Endoscopic coagulation (STSC/ Coagulation forceps) mechanical therapy ± diluted adrenaline injection

POST Procedure bleeding

- Forceps coagulation / mechanical therapy +- diluted adrenaline injection

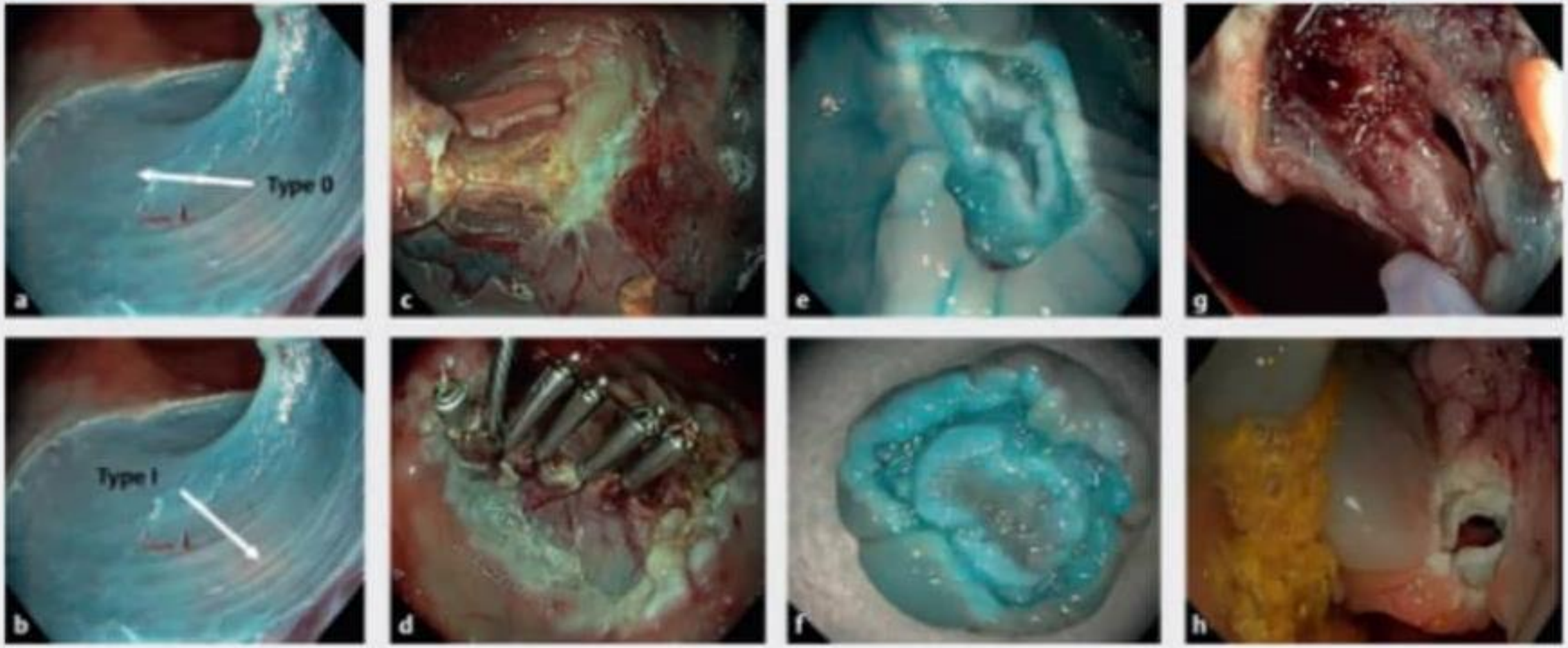
SYDNEY DMI Classification

- Perforation 0.9 -2.7 % after EMR
- Perforation after 4 hours → surgery
- Polyp >25 mm
- Transverse colon



Cold snare polypectomy	
Type 0	Normal defect. Blue mat appearance of obliquely oriented intersecting submucosal connective tissue fibres
Type 1	Muscularis propria visible, but no mechanical injury
Type 2	Focal loss of the submucosal plane raising concern for muscularis propria injury or rendering the muscularis propria defect uninterpretable
Type 3	Muscularis propria injured, specimen target or defect target identified
Type 4	Actual defect within a white cautery ring, no observed contamination
Type 5	Defect within a white cautery ring, observed contamination

Sydney classification of deep mural injury (DMI)



Antibiotics

- Distal rectum
- Ano rectal junction

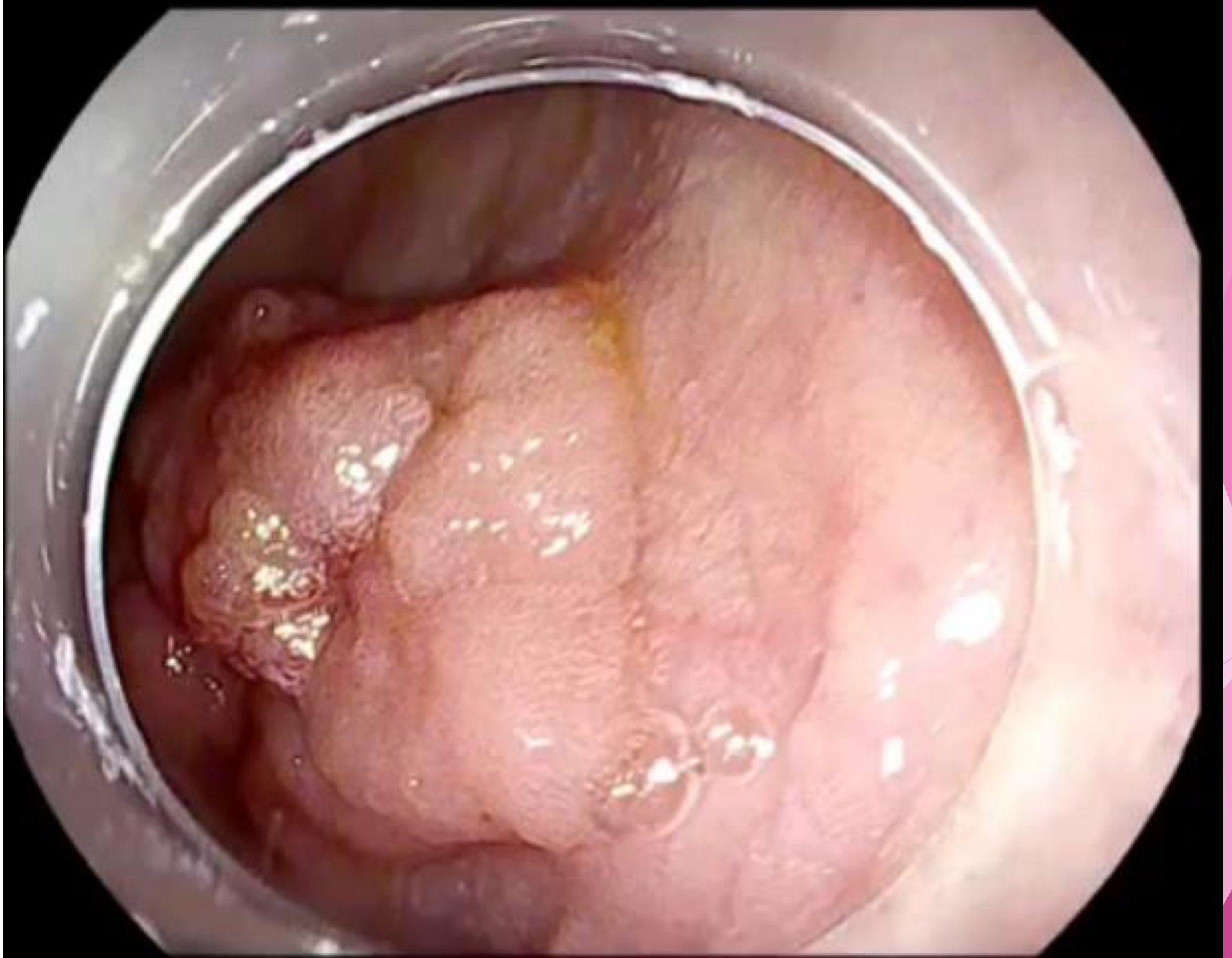
ESD:

Longtime , high complication

Week recommendation

Depth <1000μm

Minimal or moderate superficial sub mucosal invasion



Management non lifting polyp

- Deep SMIC
- Benine leasion
- Fibrosis
- Biopsies
- Resection attempts after EMR ,ESD
- Sub leasional tattoo dipresion Super ficial invasive carcinoma
- Recurrent /Residual leasion after resection
- Appendical
- Diverticula

⇨ EMR+Avulsion ...UEMR…AFTER……ESD

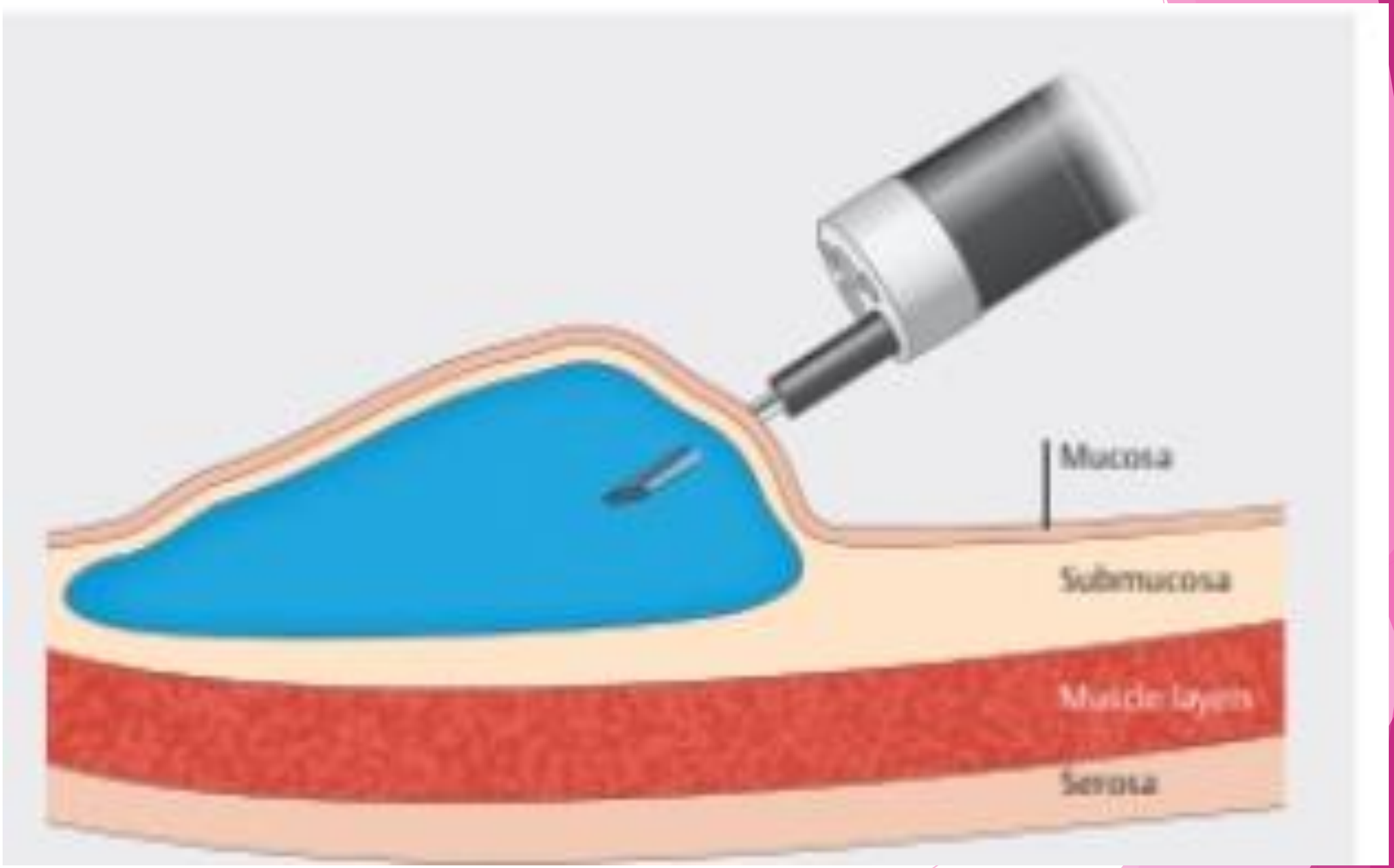
Superficial invasive carcinoma suspected

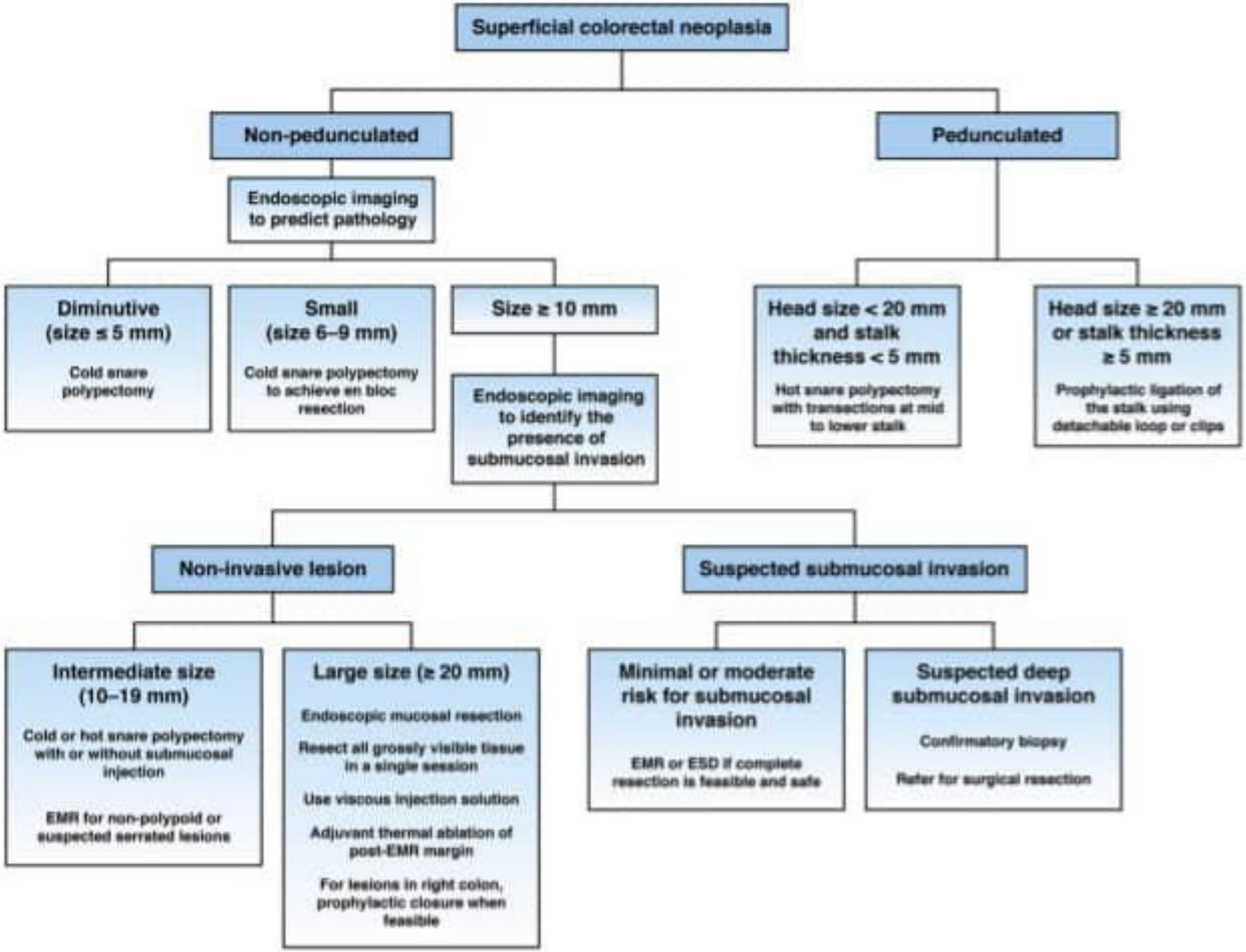
- ESD . SURGERY ..AFTER

- Well- differentiated adenocarcinoma
- < 1 mm depth of SMI
- No lympho vascular invasion
- NO Tumer budding
- JNET 2 B

Tattooing leasion

- Placed >3-5cm
- needle ⇨ submucosa ⇨ obligo angle
- 1 ml saline
- 0.5 -1 ml tattoo


Mucosa
Submucosa
Muscle layers
Serosa


Superficial colorectal neoplasia
Non-pedunculated
Pedunculated
Endoscopic imaging to predict pathology
Diminutive (size ≤ 5 mm)
Cold snare polypectomy
Small (size 6–9 mm)
Cold snare polypectomy to achieve en bloc resection
Size ≥ 10 mm
Endoscopic imaging to identify the presence of submucosal invasion
Head size < 20 mm and stalk thickness < 5 mm
Hot snare polypectomy with transections at mid to lower stalk
Head size ≥ 20 mm or stalk thickness ≥ 5 mm
Prophylactic ligation of the stalk using detachable loop or clips
Non-invasive lesion
Suspected submucosal invasion
Intermediate size (10–19 mm)
Cold or hot snare polypectomy with or without submucosal injection
EMR for non-polypoid or suspected serrated lesions
Large size (≥ 20 mm)
Endoscopic mucosal resection
Resect all grossly visible tissue in a single session
Use viscous injection solution
Adjuvant thermal ablation of post-EMR margin
For lesions in right colon, prophylactic closure when feasible
Minimal or moderate risk for submucosal invasion
EMR or ESD if complete resection is feasible and safe
Suspected deep submucosal invasion
Confirmatory biopsy
Refer for surgical resection

Predictive factors for recurrence

- Large >40mm
- High grade dysplasia
- Piecemeal resection
- Resected with snare

Baseline colonoscopy: most advance finding(s)	Recommended surveillance interval
No polyps	10
Small (<10mm) hyperplastic polyps in rectum or sigmoid	10
1-2 small (<10mm) tubular adenomas	5-10
3-10 tubular adenomas	3
>10 adenomas	<3
One or more tubular adenomas ≥10mm	3
One or more villous adenomas	3
Adenoma with HGD	3
Serrated lesions	
Sessile serrated polyps(s) <10mm with no dysplasia	5
Sessile serrated polyps(s) ≥10mm	3
Or	
Sessile serrated polyp with dysplasia	
Or	
Traditional serrated adenoma	
Serrated polyposis syndrome	1

Recommendations

- Resection all polyps
- No Coled biopsy forceps excision ⟶ in complete reseation
- Thermal ablation of the margin after piecemeal EMR of LNPCPs
- Prophylactic endoscopic clip closure of the mucosal defect after EMR
- En bloc resection techniques should be the techniques of choice when superficial invasive carcinoma is suspected.