Advances and Innovations in Endoscopic Oncology and Multidisciplinary Gastrointestinal Cancer Care

Minimally Invasive Cancer Management: Make the Case Gastroenterologist or Surgeon (Interventional Endoscopist)

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Disclosures

I do not have any relevant financial relationships.

This presentation and/or comments will provide a balanced, non-promotional, and evidence-based approach to all diagnostic, therapeutic and/or research related content.

Therapeutic endoscopy…

What can an interventional endoscopist perform through the scope??

Colon Adenoma & Carcinoma definitions

Pathologic Stage Classification (pTNM, AJCC 8th Edition) (Note M)
Note: Reporting of pT, pN, and (when applicable) pM categories is based on information available to the pathologist at the time the report is issued. Only the applicable T, N, or M category is required for reporting; their definitions need not be included in the report. The categories (with modifiers when applicable) can be listed on 1 line or more than 1 line.

TNM Descriptors (required only if applicable) (select all that apply)
___ m (multiple primary tumors)
___ r (recurrent)
___ y (posttreatment)

Primary Tumor (pT)
___ pTX: Primary tumor cannot be assessed
___ pT0: No evidence of primary tumor
___ pTis: Carcinoma in situ, intramucosal carcinoma (involvement of lamina propria with no extension through muscularis mucosae)
___ pT1: Tumor invades the submucosa (through the muscularis mucosa but not into the muscularis propria)
___ pT2: Tumor invades the muscularis propria
___ pT3: Tumor invades through the muscularis propria into pericolorectal tissues
___ pT4: Tumor invades# the visceral peritoneum or invades or adheres## to adjacent organ or structure
___ pT4a: Tumor invades# through the visceral peritoneum (including gross perforation of the bowel through tumor and continuous invasion of tumor through areas of inflammation to the surface of the visceral peritoneum)

Tumor Extension
___ No evidence of primary tumor
___ No invasion (high-grade dysplasia)
___ Tumor invades lamina propria/muscularis mucosae (intramucosal carcinoma)
___ Tumor invades submucosa
___ Tumor invades muscularis propria
___ Tumor invades through the muscularis propria into pericolorectal tissue
___ Tumor invades the visceral peritoneum (including tumor continuous with serosal surface through area of inflammation)
___ Tumor directly invades adjacent structures (specify: _____)
___ Cannot be assessed

An Interventional Endoscopists Approach to Early Stages of Rectal Cancer (Malignant polyps)

- **EMR**
- **ESD**
- **Full thickness resection:**
  - **Device based**
  - **Freehand**
- **Ablation**
  - **Cryoablation vs thermal**

Endoscopic Resection Options

Endoscopic resection can entail:

- **Endoscopic mucosal resection or "EMR" or Mucosectomy**

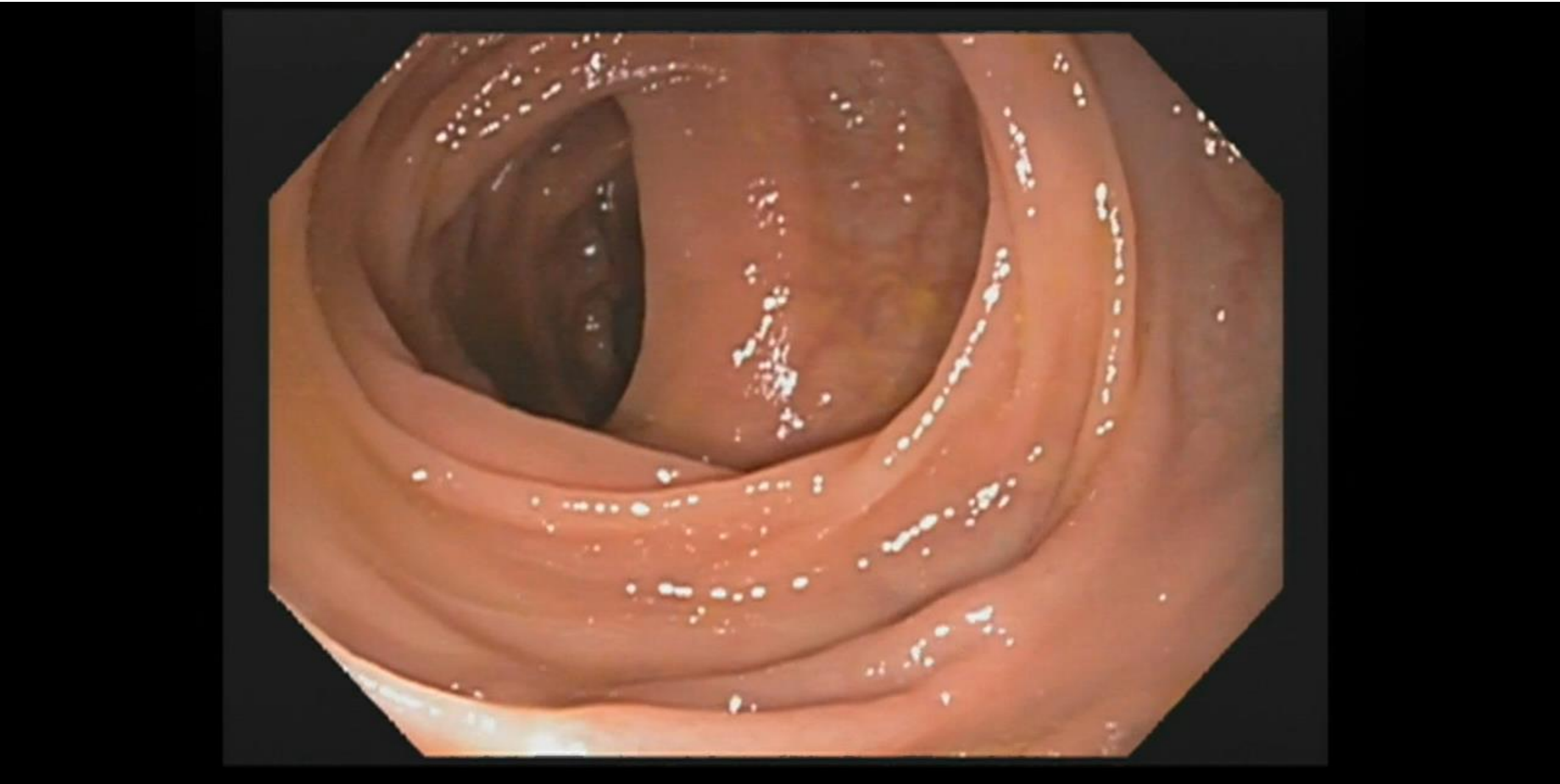
  - More complex advanced techniques (require additional training):
    - **ESD** – Endoscopic Submucosal Dissection
    - **EFTR** – Endoscopic Full Thickness Resection

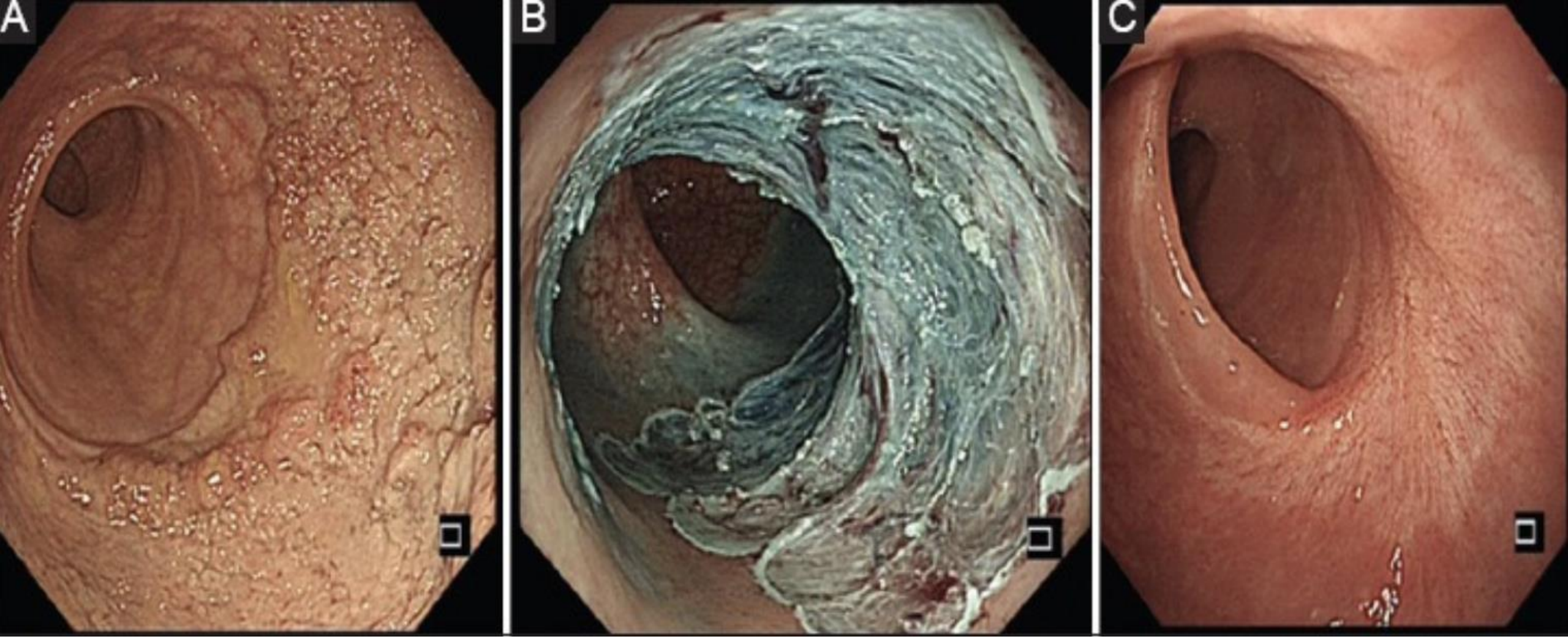
Polypectomy to EMR

Know What to use for each type of lesion

- Forceps – 1-3 mm
- Cold snare: 7mm and less (maybe more?)
- Polypectomy or lift and resect – 7mm-12mm
- Colon EMR 10-20mm
  - Mark the lesion appropriately
    - Tattoo away from the lesion & describe
    - Refrain from biopsy unless its concern for carcinoma or may be benign

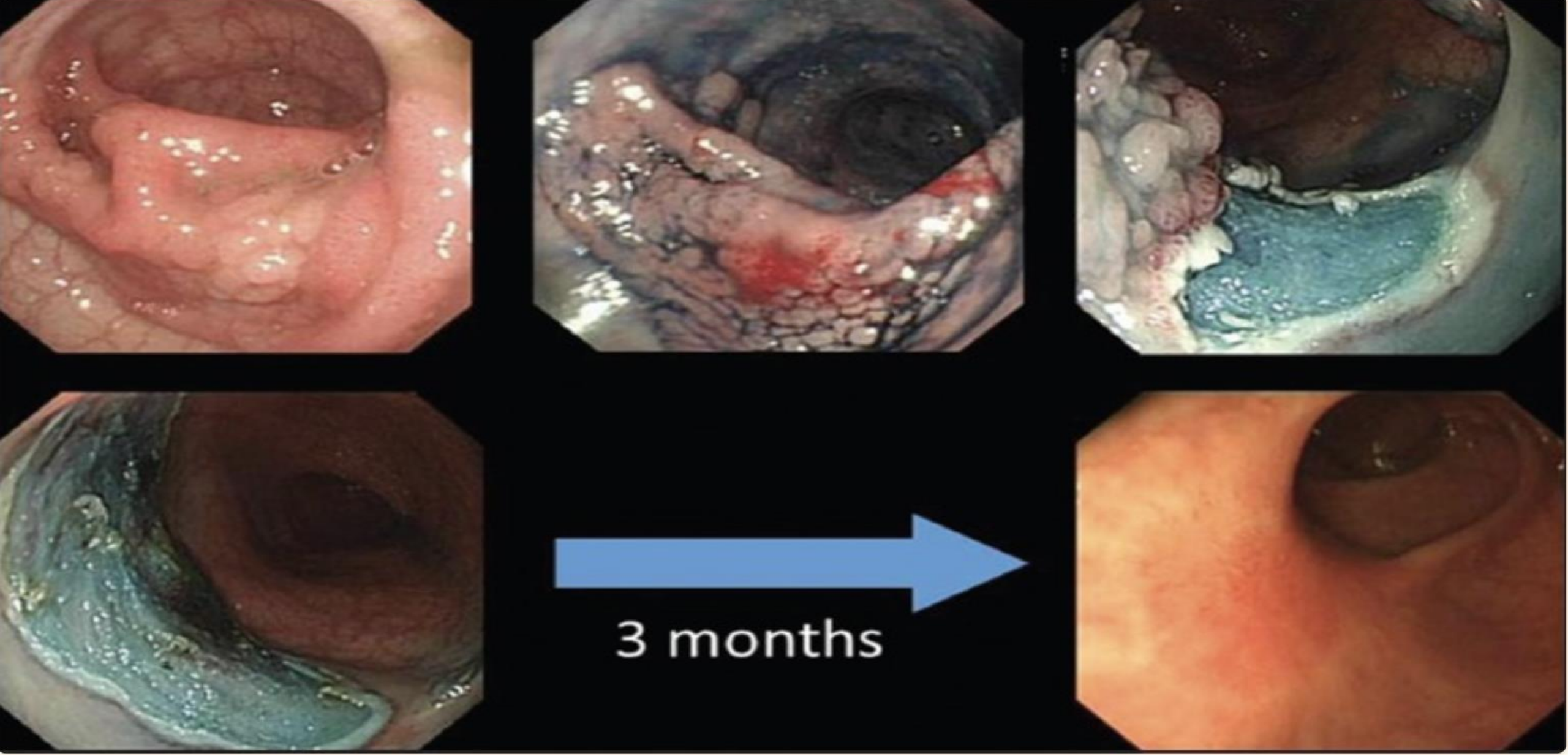
EMR – Endoscopic Mucosal Rseection





Piecemeal Hemi circumferential piecemeal EMR

Gaglia A, Sarkar S. Evaluation and long-term outcomes of the different modalities used in colonic endoscopic mucosal resection. Ann Gastroenterol. 2017;30(2):145-151. doi: 10.20524/aog.2016.0104. Epub 2016 Nov 4. PMID: 28243034; PMCID: PMC5320026.



Gaglia A, Sarkar S. Evaluation and long-term outcomes of the different modalities used in colonic endoscopic mucosal resection. Ann Gastroenterol. 2017;30(2):145-151. doi: 10.20524/aog.2016.0104. Epub 2016 Nov 4. PMID: 28243034; PMCID: PMC5320026.

Recurrence Rates:
Not an issue with good technique

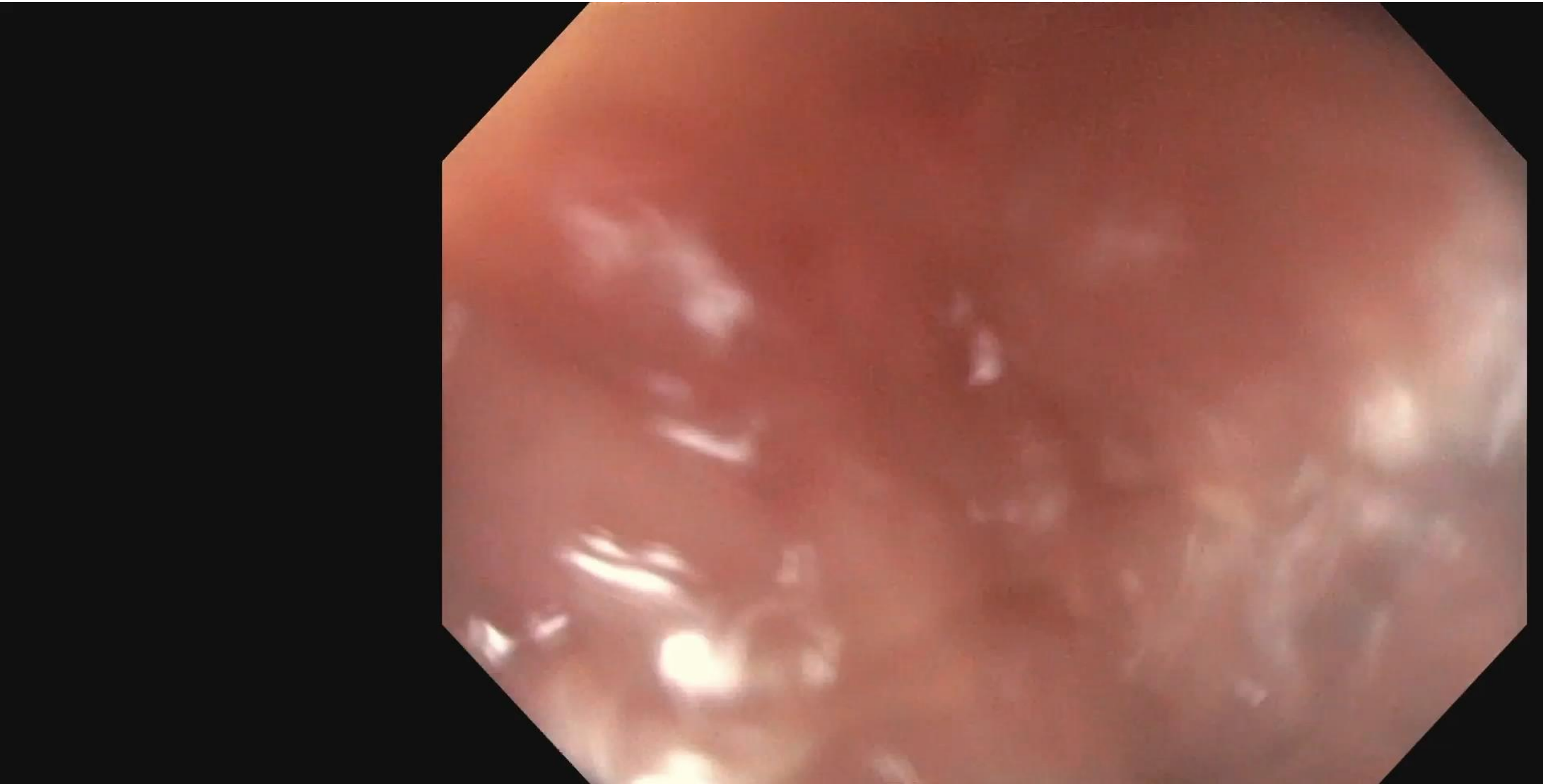
Studies report 25%-32% residual adenoma or recurrence of tumor at the resection site. [1, 2]

- **Raju et al** observed a low residual colorectal tumor rate (4.4%) with EMR in 2016 study using **protocol driven HOT EMR**. [3]
  -Reinforces good technique drives outcomes

- **Binmoeller et al – introduced under water EMR**:[5]
  - Prospective study, lesions between 2 and 4 cm were removed *en bloc* with a 33-mm snare.
  - In those that needed piecemeal resection, the recurrence rate was 5% at 4-6-month follow up

- Surgical referral for recurrences non-amenable to endoscopic resection after initial successful EMR is needed in only 0.2-1% of cases[6]

ESD



EMR vs ESD – Japanese Guidelines

Lesions for which endoscopic *en bloc* resection is required
1. Lesions for which *en bloc* resection with EMR is difficult to apply • LST-NG • Lesions showing a V1-type pit pattern • Carcinomas with shallow T1 (submucosal) invasion • Large depressed-type tumors • Large protruded-type lesions suspected to be carcinoma
2. Mucosal tumors with submucosal fibrosis
3. Sporadic localized tumors in conditions of chronic inflammation such as ulcerative colitis
4. Local residual or recurrent early carcinomas after endoscopic resection

EMR, endoscopic mucosal resection; LST-NG, lateral spreading tumors of non-granular type

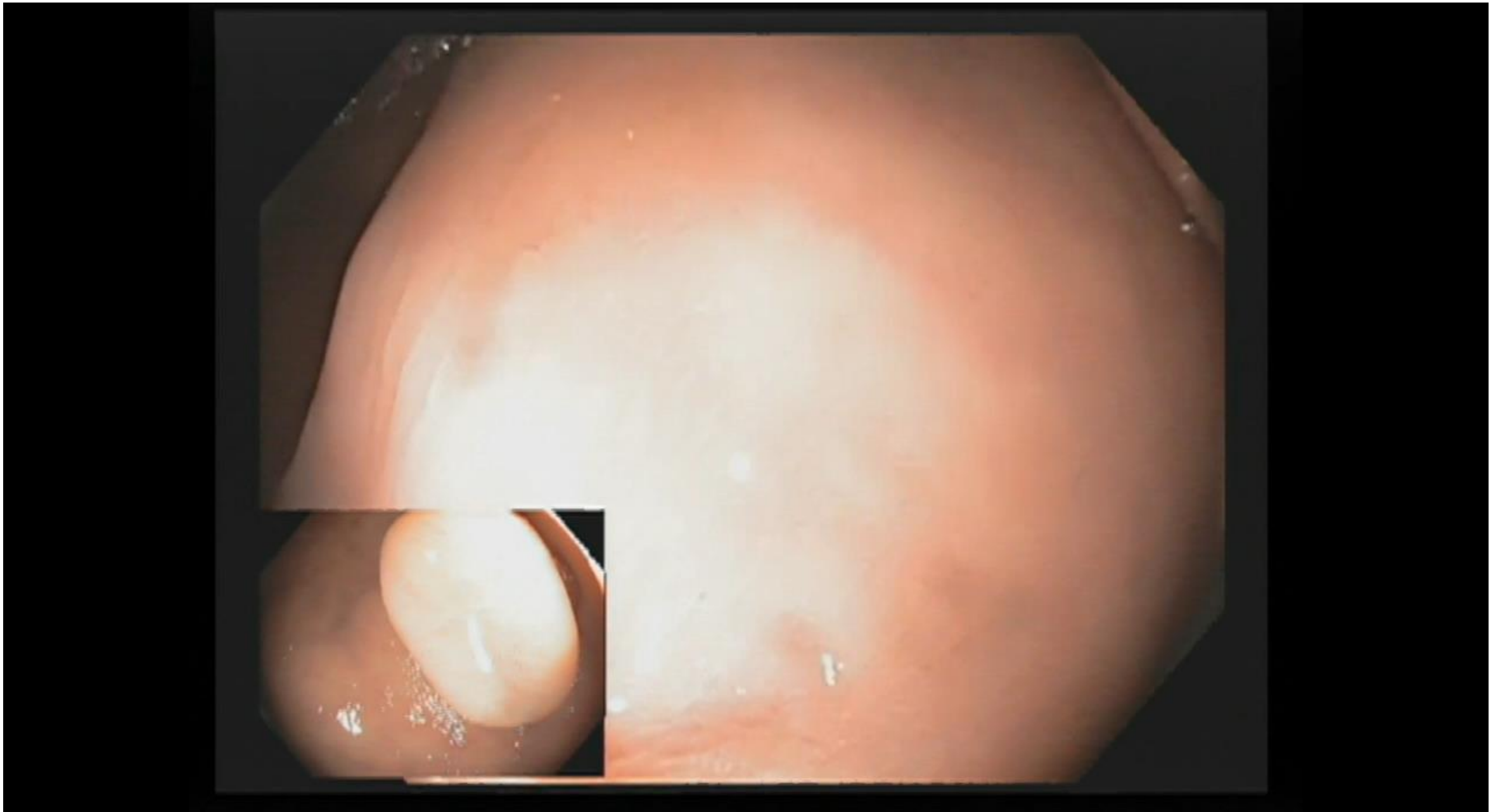
EMR vs ESD – Japanese Guidelines

Tumor size (mm)	<10	10-20	20-30	>30
0-IIa, IIc, IIa+IIc (LST-NG)	EMR	EMR	ESD candidate	ESD candidate
0-Is+IIa (LST-G)	EMR	EMR	EMR	Possible ESD candidate
0-Is (villous)	EMR	EMR	EMR	Possible ESD candidate
Intramucosal tumor with non-lifting sign	EMR	EMR/ESD	Possible ESD candidate	Possible ESD candidate
Rectal carcinoid tumor	ESMR-L	ESD/Surgery	Surgery	Surgery

ESD, endoscopic submucosal dissection; EMR, endoscopic mucosal resection; LST-NG, lateral spreading tumors of non-granular type; ESMR-L, endoscopic submucosal resection with a ligation device

Gaglia A, Sarkar S. Evaluation and long-term outcomes of the different modalities used in colonic endoscopic mucosal resection. Ann Gastroenterol. 2017;30(2):145-151. doi: 10.20524/aog.2016.0104. Epub 2016 Nov 4. PMID: 28243034; PMCID: PMC5320026.

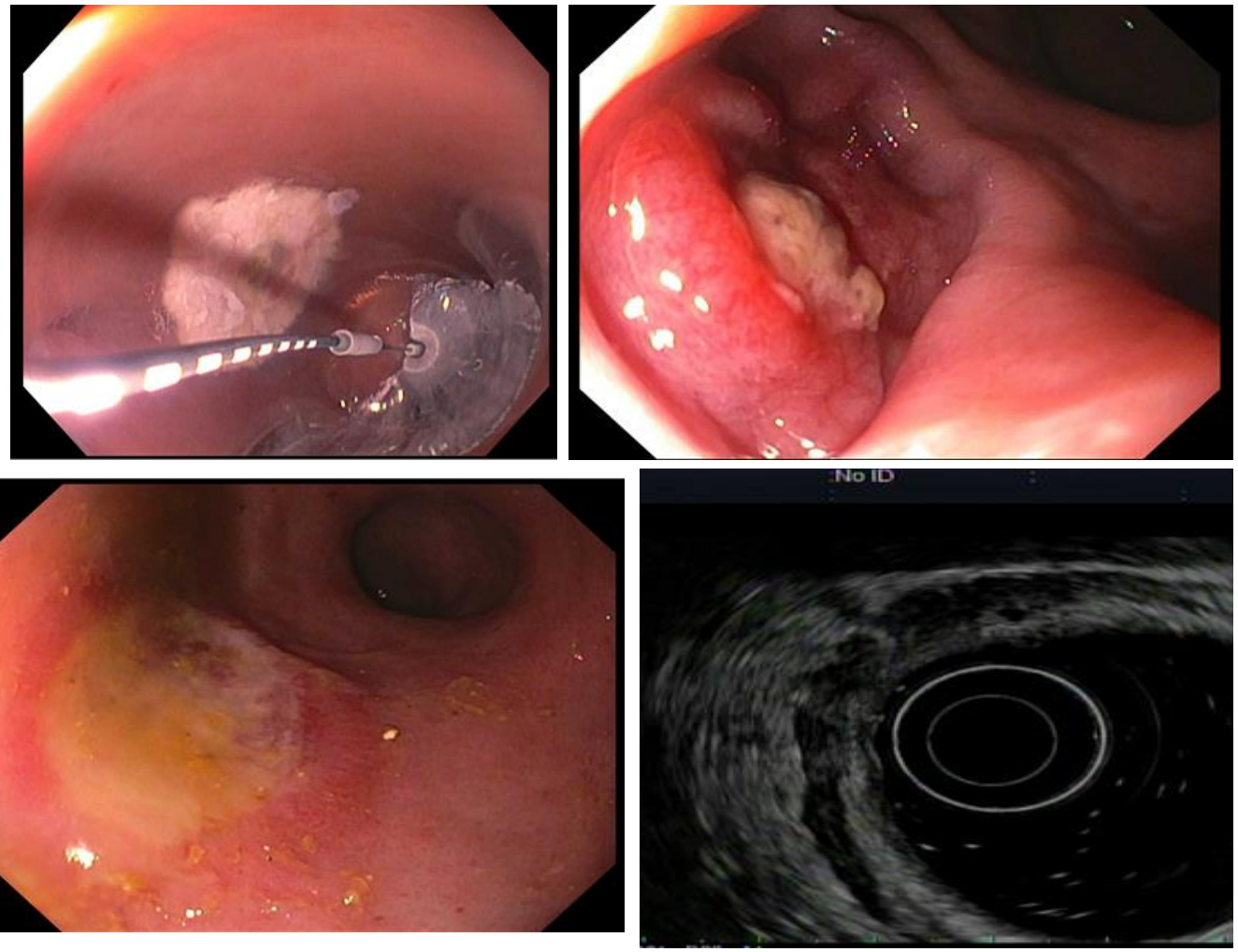
Full Thickness Resection



Ablation for rectal cancer in non-surgical candidates

Example

- Declined surgery
- Elected cryotherapy
- Treated with 4 sessions, 3 weeks apart
- EUS suggestive of transmural injury
- ----------



- Need for additional studies on:
- Cryoablation alone
- cryoablation ablation plus systemic therapy

Can we preserve an Organ & Quality of Life?

Local T1

Review > Dis Colon Rectum. 2002 Feb;45(2):200-6. doi: 10.1007/s10350-004-6147-7.

Risk of lymph node metastasis in T1 carcinoma of the colon and rectum

Riccardo Nascimbeni [1], Lawrence J Burgart, Santhat Nivatvongs, Dirk R Larson

Affiliations + expand

PMID: 11852333 DOI: 10.1007/s10350-004-6147-7

Abstract

Purpose: Several recent reports of high local recurrence and lymph node metastasis in T1 carcinoma of the rectum prompted us to study the risk factors for lymph node metastasis in these lesions.

Methods: We reviewed the clinical records of 7,543 patients who underwent operative treatment for carcinoma of the colon and rectum from 1979 to 1995. Only patients with sessile T1 lesions who underwent colorectal resection were included in the study, yielding an analysis cohort of 353 patients. The following carcinoma-related variables were assessed: size, mucinous subtype, carcinomatous component, grade, site in colon and rectum, lymphovascular invasion, and depth of submucosal invasion. For the depth, the submucosa was divided into upper third (sm1), middle third (sm2), and lower third (sm3). Chi-squared tests and logistic regression were used to evaluate the variables as potential risk factors for lymph node metastasis.

Results: The incidence of T1 lesions was 8.6 percent. In the analysis cohort, the lymph node metastasis rate was 13 percent. Significant predictors of lymph node metastasis both univariately and multivariately were sm3 (P = 0.001), lymphovascular invasion (P = 0.005), and lesions in the lower third of the rectum (P = 0.007). Poorly differentiated carcinoma was significant univariately (P = 0.001) but not in the multivariate model. No other parameter was associated with a significant risk.

Conclusions: T1 colorectal carcinomas with lymphovascular invasion, sm3 depth of invasion, and location in the lower third of the rectum have a high risk of lymph node metastasis. These lesions should have an oncologic resection. In a case of the lesion in the lower third of the rectum, local excision plus adjuvant chemoradiation may be an alternative.

The Pathology determines T1 approach

- **Low Risk Features:**
  - SM1, well differentiated, No LVI, No tumor budding
  - ➢ Consider Local Endoscopic or transanal Full thickness resection curative if 1mm or mor negative margin
  - Need more prospective 5 year data
- **Intermediate Features:**
  - SM2 but not tumor budding, no LVI, Well to moderately differentiated
  - Unclear – there are some studies suggesting this may carry lower risk
- **High Risk:**
  - LVI, Poorly differentiated, Tumor budding, SM3, mucinous or signet ring cell type
  - ➢ Recommend Oncologic standard surgical approach
  - Need Data on role of chemo-xrt

Local T2,T3 Disease:
Can we take organ sparing approach?

ANNALS OF SURGERY
A Monthly Review of Surgical Science Since 1885

Journal Article

Ann Surg. 2001 Sep; 234(3): 352–359.
doi: 10.1097/00000658-200109000-00009

PMCID: PMC1422026
PMID: 11524588

Local Excision of T2 and T3 Rectal Cancers After Downstaging Chemoradiation

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Methods

Local excision was performed after preoperative chemoradiation on patients with a complete clinical response or on patients who were either ineligible for or refused to undergo abdominoperineal resection. Local excision was approached transanally by removing full-thickness rectal wall and the underlying mesorectum.

Results

From 1994 to 2000, 95 patients with rectal cancers underwent preoperative chemoradiation and surgical resection for curative intent. Of these, 26 patients (28%), 19 men and 7 women, with a mean age of 63 years (range 44–90), underwent local excision. Pretreatment endoscopic ultrasound classifications included 5 T2N0, 13 T3N0, 7 T3N1, and 1 not done. Pathologic partial and complete responses were achieved in 9 of 26 (35%) and 17 of 26 (65%) patients, respectively. Two of nine partial responders underwent immediate abdominoperineal resection. The mean follow-up was 24 months (median 19, range 6–77). The only recurrence was in a patient who refused to undergo abdominoperineal resection after a partial response. There was one postoperative death from a stroke. This treatment was associated with a low rate of complications.

Conclusion

Local excision appears to be an effective alternative treatment to radical surgical resection for a highly select subset of patients with T2 and T3 adenocarcinomas of the distal rectum who show a complete pathologic response to preoperative chemoradiation.

ORIGINAL CONTRIBUTION

Is Local Excision After Complete Pathological Response to Neoadjuvant Chemoradiation for Rectal Cancer an Acceptable Treatment Option?

Kundel, Yulia M.D.[1,2]; Brenner, Ronen M.D.[1]; Purim, Ofer M.D.[1,2]; Peled, Nir M.D.[1,2]; Idelevich, Efraim M.D.[3]; Fenig, Eyal M.D.[1,2]; Sulkes, Aaron M.D.[1,2]; Brenner, Baruch M.D.[1,2]

Author Information

Diseases of the Colon & Rectum 53(12):p 1624-1631, December 2010. | *DOI:* 10.1007/DCR.0b013e3181f5b64d

Abstract

PURPOSE:

The role of local excision in patients with good histological response to neoadjuvant chemoradiation for locally advanced rectal cancer is unclear, mainly because of possible regional nodal involvement. This study aims to evaluate the correlation between pathological T and N stages following neoadjuvant chemoradiation for locally advanced rectal cancer and the outcome of patients with mural pathological complete response undergoing local excision.

METHODS:

This investigation was conducted as a retrospective analysis. Between January 1997 and December 2007, 320 patients with T3 to 4Nx, TxN+ or distal (≤6 cm from the anus) T2N0 rectal cancer underwent neoadjuvant concurrent chemoradiation followed by surgery. Radiotherapy was standard and chemotherapy consisted of common fluoropyrimidine-based regimens.

RESULTS:

After chemoradiation, 93% patients had radical surgery, 6% had local excision, and 3% did not have surgery. In the 291 patients undergoing radical surgery, the pathological T stage correlated with the N stage (P = .036). We compared the outcome of patients with mural complete pathological response (n = 37) who underwent radical surgery (group I) and those (n = 14) who had local excision only (group II). With a median follow-up of 48 months, 4 patients in group I had a recurrence and none in group II had a recurrence; one patient died in group I and none died in group II. Disease-free survival, pelvic recurrence-free survival, and overall survival rates were similar in both groups.

CONCLUSION:

In this retrospective study, nodal metastases were rare in patients with mural complete pathological response following neoadjuvant chemoradiation (3%), and local excision did not compromise their outcome. Therefore, local excision may be an acceptable option in these patients.

The T2/t3 approach: Response to Chemo-XRT May Determine approach

- If you have a complete or near complete response to chemotherapy and radiation:
  - Watch & wait
  - Excise any residual area
- Limited or no response – Traditional Oncologic surgery
- ?”Partial” response
  - How is this defined?
  - Need Data

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Thank you

Questions?