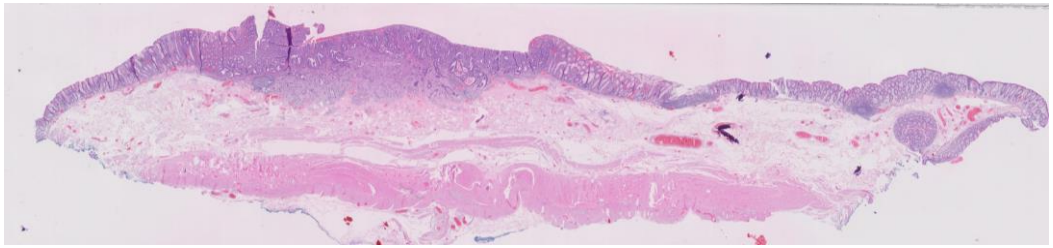
# Webinar

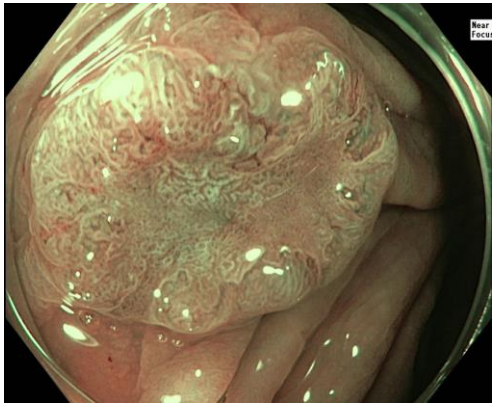
## Resection techniques in endoluminal surgery

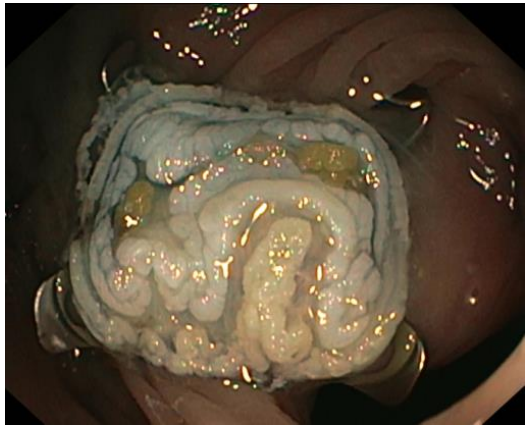
sponsored by

ovesco



# eFTR in T1 cancers: Expanding the horizons for early colonic cancer



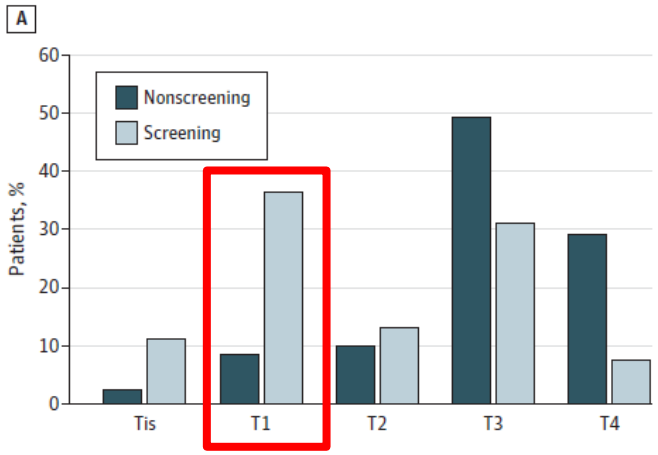


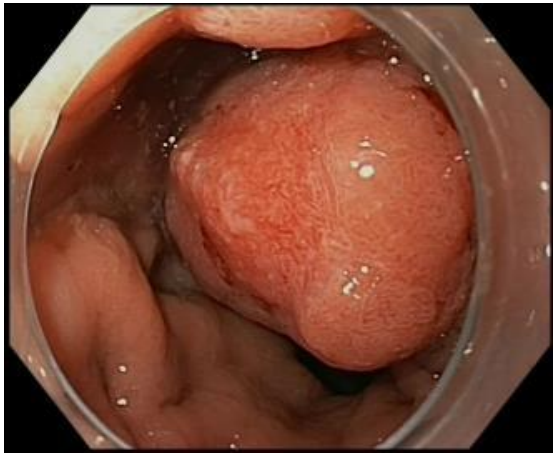
*Barbara Bastiaansen*
*Gastroenterologist*
*Amsterdam UMC*

# Early colorectal cancer

- Incidence is rising due to screening programmes
- 40 % of all screen detected cancers are T1
- Potential endoscopic cure!

Figure 1. Distribution of Staging



*Toes Zoutendijk et al Gut 2017*



Amsterdam UMC
Universitair Medische Centra

# Curative endoscopic Tx for T1 CRC depends on

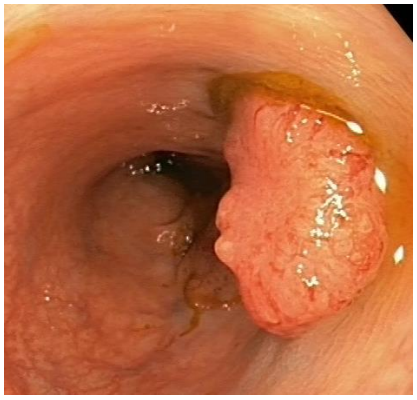
- **<u>Radicality → *en bloc* R0 resection</u>**
- Absence of high risk features:
  - ✓Deep submucosal invasion (i.e. ≥ 1000um, meaning Sm2-3 or Haggitt 4)
  - ✓Lymphovascular invasion
  - ✓
  - ✓

Endoscopic recognition is important!

# Endoscopic recognition of T1 CRC in practice..

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

Vleugels JLA, *et al*. *Gut* 2019



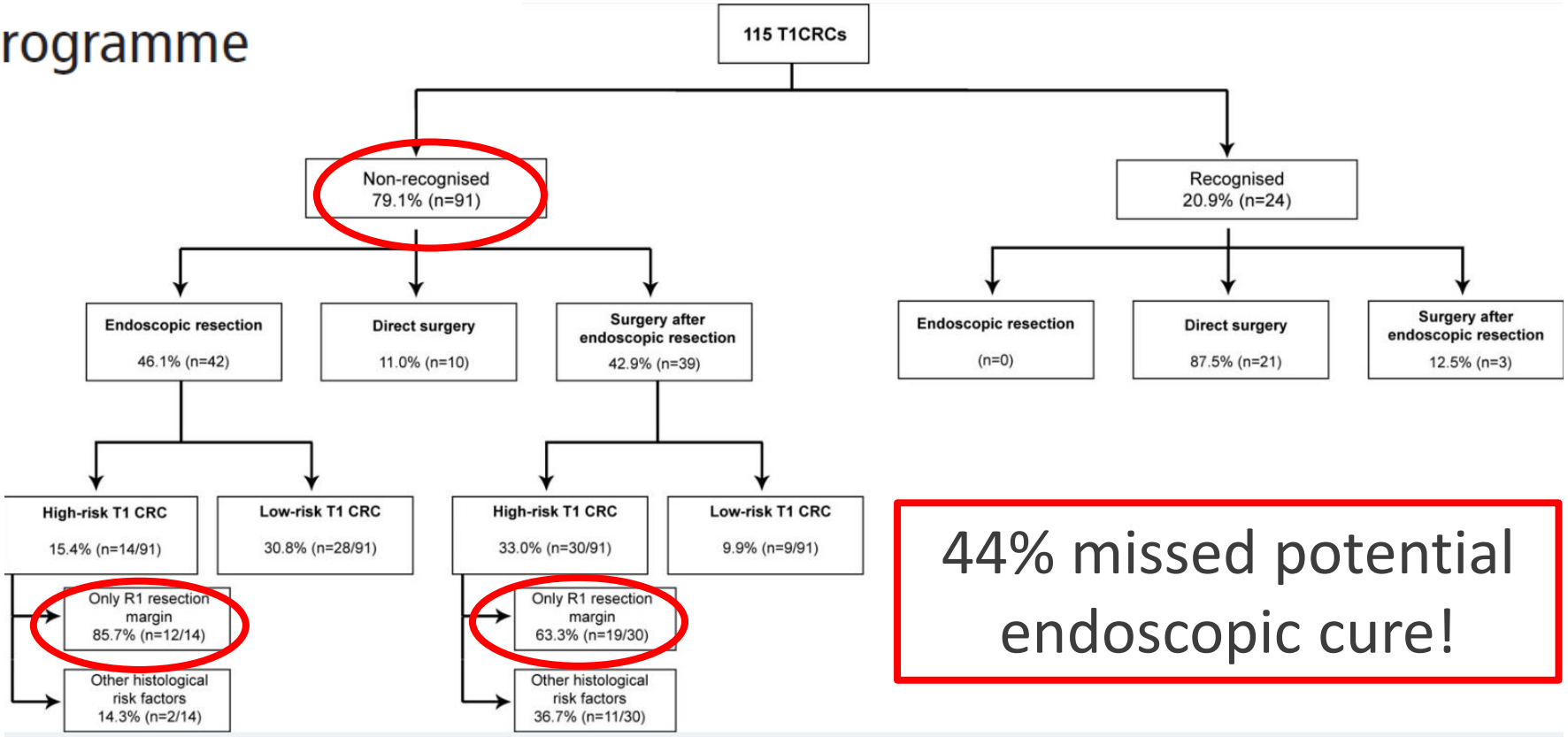
- 3622 screening colonoscopies, 274 CRC of which 91 T1 CRC

- 61% misdiagnosed as cancer
- Leading to overuse of surgery: 41 % vs 11% (in correct recognized cancers)

LETTER

# Optical diagnosis of T1 CRCs and treatment consequences in the Dutch CRC screening programme

*Gut* Month 2020 Vol 0 No 0




44% missed potential endoscopic cure!

Lonne W T Meulen, Gut 2020



Amsterdam UMC
Universitair Medische Centra


# Dilemma in T1 CRC..

Endoscopy

Vs

Surgery

- ✓ Locoregional recurrence
- ✓ Lymphatic spread
- ✓ Cancer related death

- ✓ Morbidity
- ✓ Mortality
- ✓ Functional loss

**~ 90% overtreated with surgery!**



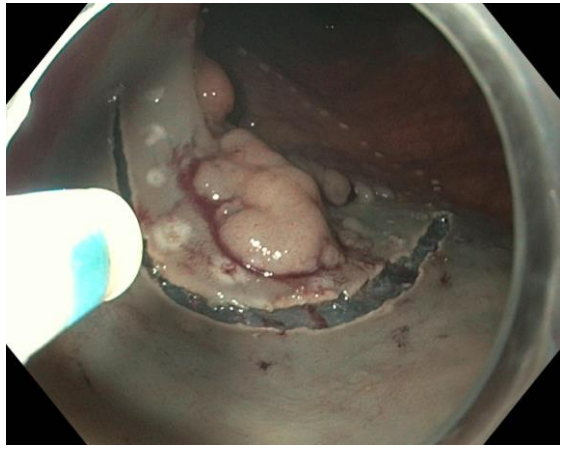
Amsterdam UMC
Universitair Medische Centra

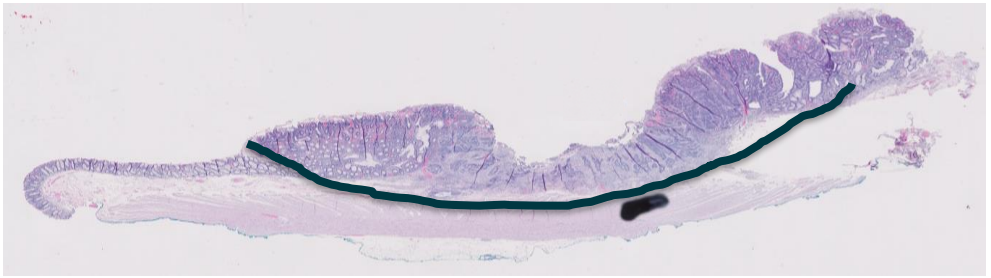
# Shared decision..

# Endoscopic Submucosal Dissection

- ✓ Good histology
- ✓ R0 rate ~ 80%
- ✓ Potential cure for low risk T1CRC
- ✓ Unlimited size

- x Time/resource consuming
- x Difficult
- x Higher complication rate
- x Lack of ESD experts outside Asia
- x **Inappropriate for deep Sm invasive cance**







Amsterdam UMC
Universitair Medische Centra

# Deep submucosal invasion is NOT an independent predictor for lymphatic spread

- Risk of LNM if only deep invasion is present is **1 – 2 %** [1-5]
- And the evidence is accumulating …

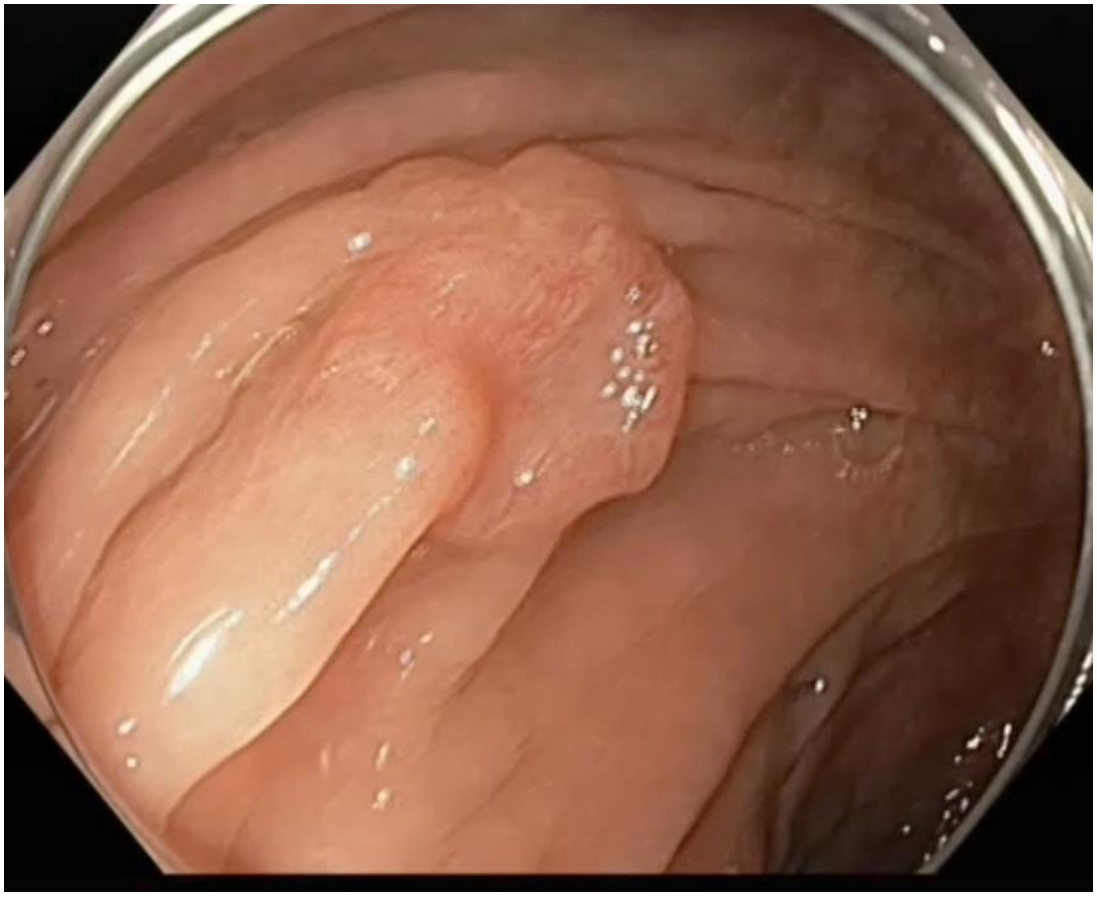
| Study, year | | N | Risk for LNM |
|---|---|---|---|
| Suh | 2012 | 118 | 2 (1,7 %) |
| Nakadoi | 2012 | 249 | 3 (1,2 %) |
| Kim | 2016 | 271 | 4 (1,5 %) |
| Shin | 2018 | 164 | OR 0,88 |
| Yasue | 2019 | 258 | 4 (1,6 %) |

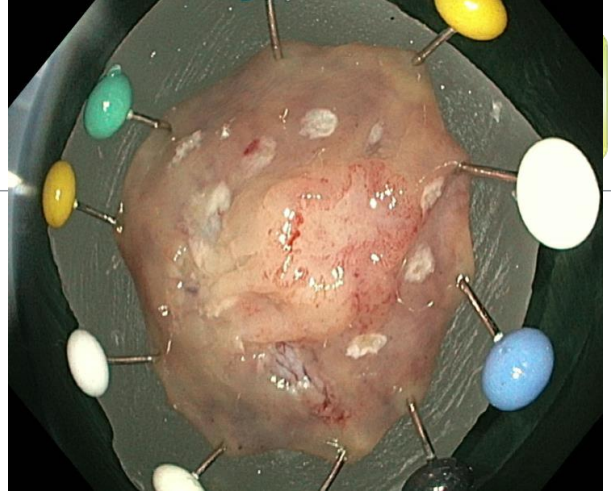
# Expanding the horizons..



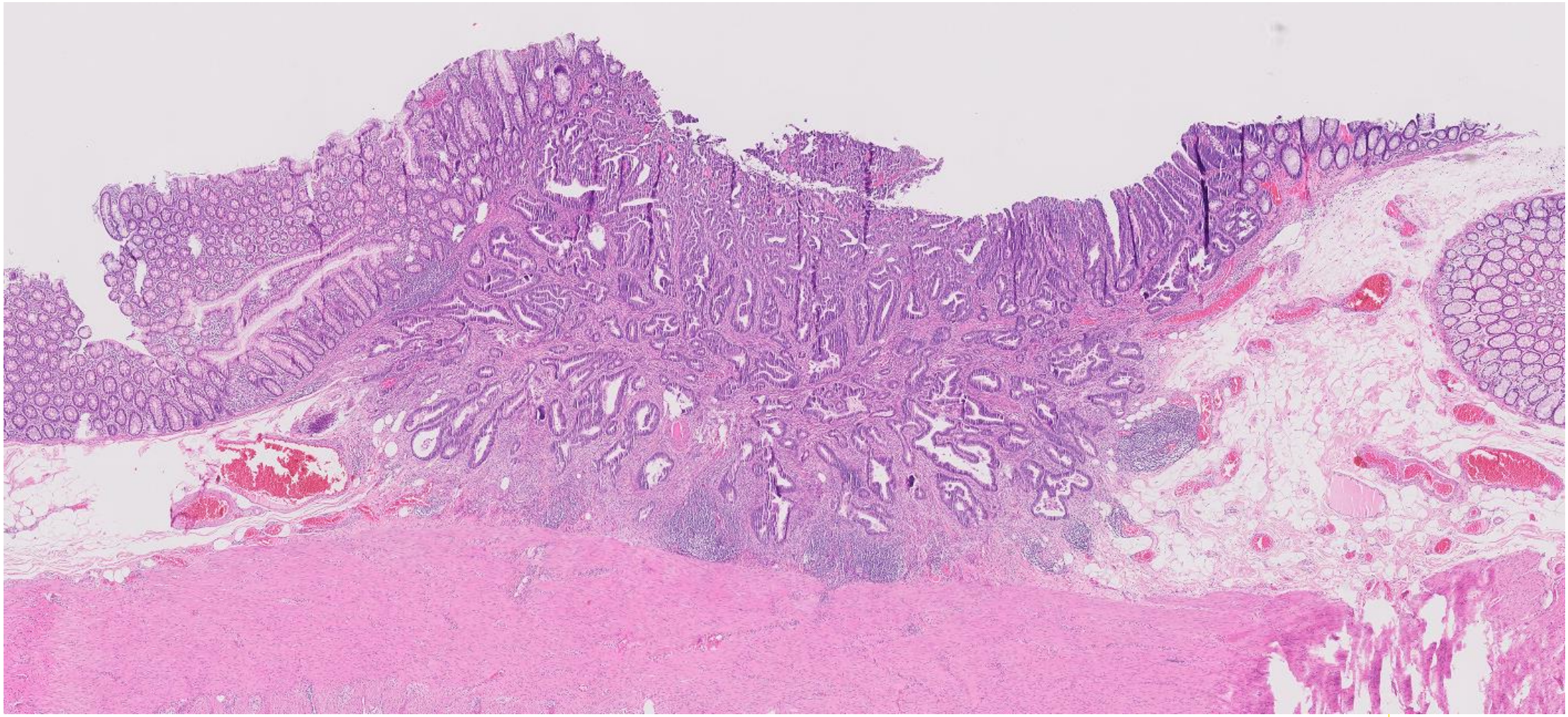

Amsterdam UMC
Universitair Medische Centra

# Endoscopic Full Thickness Resection (eFTR)



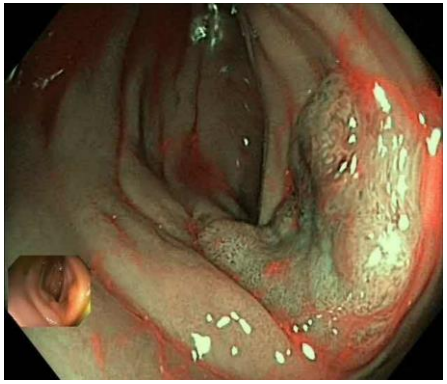


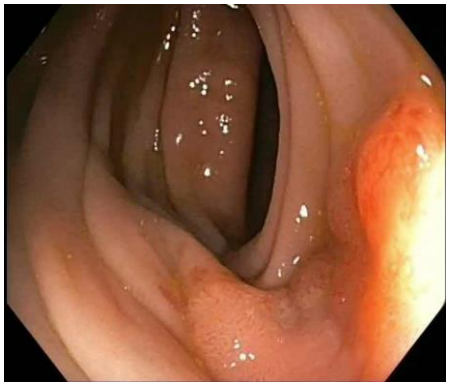
# Histopathology



# Case- 55 yo male patient

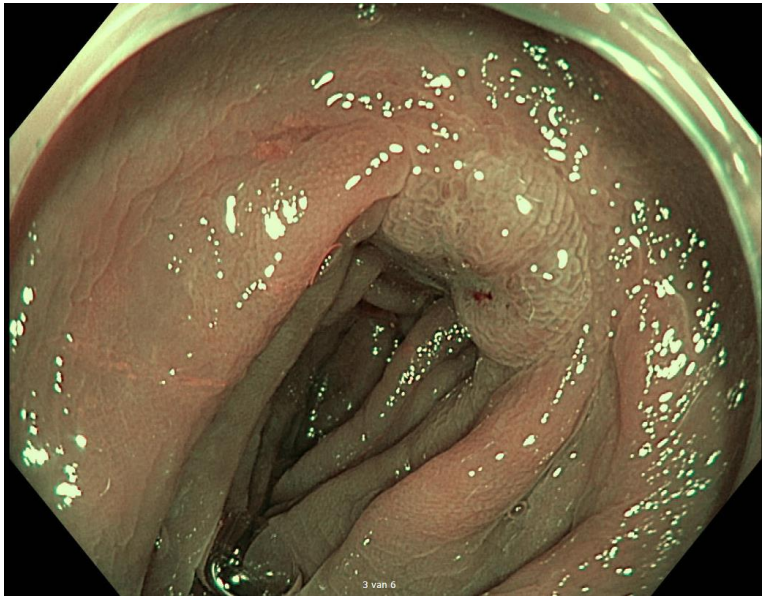
- 2005: T3N0 sigmoid carcinoma →
  (open) sigmoid resection with anastomosis at 15 cm
- 2015: p-EMR adenoma HGD descending colon,
  no follow up…
- 2018: Surveillance colonoscopy
  - ➢Polyp 15 mm descending colon, partial non lifting
  - ➢Piecemeal resection attempt in referring center
  - ➢Distal marking tattoo
  - ➢ Histology: “at least”HGD, strong suspicion submucosal cancer

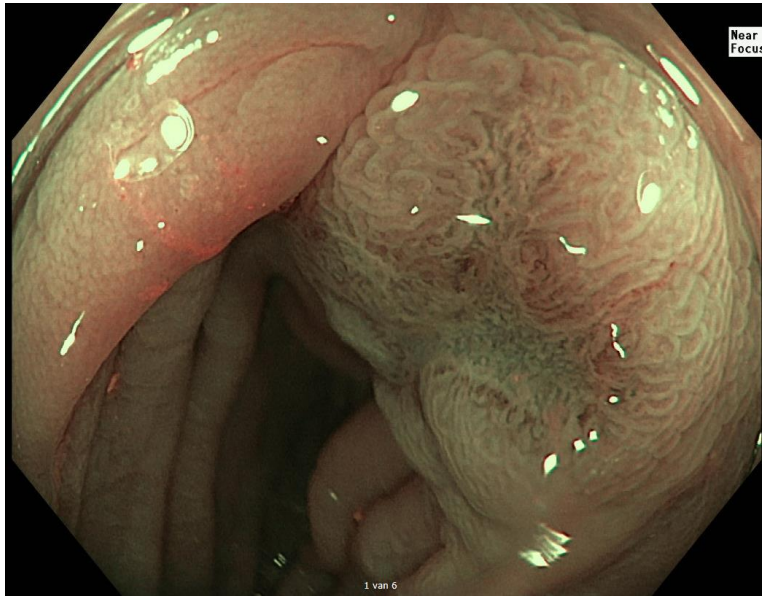




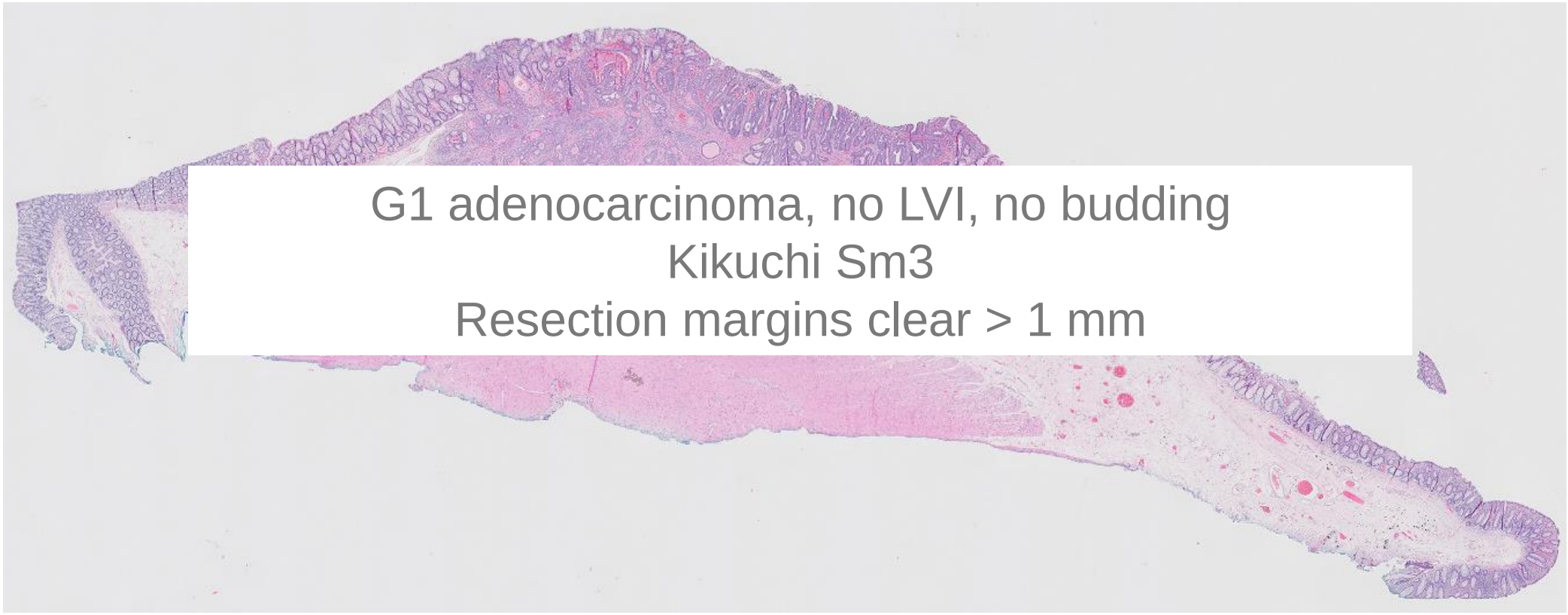
Amsterdam UMC
Universitair Medische Centra

# Case- 55 yo male patient



# Case- 55 yo male patient






Amsterdam UMC
Universitair Medische Centra

# eFTR for T1 CRC

## Endoscopic full-thickness resection for early colorectal cancer

Armin Kuellmer, MD,[1,*] Julius Mueller,[1,*] Karel Caca, MD,[2] Patrick Aepli, MD,[3] David Albers, MD,[4] Brigitte Schumacher, MD,[4] Anne Glitsch, MD,[5] Claus Schäfer,[6] Ingo Wallstabe, MD,[7] Christopher Hofmann, MD,[8] Andreas Erhardt,[9] Benjamin Meier, MD,[2] Dominik Bettinger, MD,[1] Robert Thimme, MD,[1] Arthur Schmidt, MD[1], the FTRD study group

Freiburg, Germany


Retrospective multicenter trial (96 hospitals)

1234 screened patients → **n = 156**

- ❖group 1: re-resections after previous Rx/R1, n = 64
- ❖group 2: primary non lifting, n = 92

- Endpoints: i.a. technical succes, R0, succesfull risk stratification

*A. Kuellmer et al, GIE jan 2019*



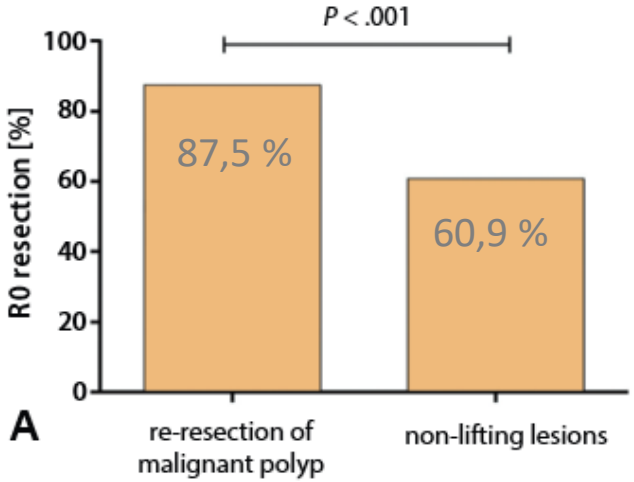
Amsterdam UMC
Universitair Medische Centra

# Endoscopic full-thickness resection for early colorectal cancer

Armin Kuellmer, MD,[1,*] Julius Mueller,[1,*] Karel Caca, MD,[2] Patrick Aepli, MD,[3] David Albers, MD,[4] Brigitte Schumacher, MD,[4] Anne Glitsch, MD,[5] Claus Schäfer,[6] Ingo Wallstabe, MD,[7] Christopher Hofmann, MD,[8] Andreas Erhardt,[9] Benjamin Meier, MD,[2] Dominik Bettinger, MD,[1] Robert Thimme, MD,[1] Arthur Schmidt, MD[1], the FTRD study group

Freiburg, Germany


- Overall R0 rate 71.8% ( 112 of 156)




- Exact histologic risk stratification in 99,3%!

*A. Kuellmer et al, GIE jan 2019*



Amsterdam UMC
Universitair Medische Centra

# Dutch prospective eFTR registry

- Prospective multicenter registry
- Started august 2015
- 23 participating hospitals
  - 39 certified endoscopists

- > 700 eFTR procedures
- ~350 T1 CRC related



Amsterdam UMC
Universitair Medische Centra

| Procedures, total (%) | N = 331 (100) |
|---|---|
| Male, n (%) | 212 (65.2) |
| Age (mean in years ± sd) | 68.9 ± 8.5 |
| Primary treatment | 133 (40.2) |
| Secondary treatment | 198 (59.8) |
| Median size, mm (IQR) | 15 (12 – 17) |
| Proximal (cecum – splenic flexure) | 101 (30.5) |
| Distal (descending colon – rectum) | 230 (69.5) |

| | Overall (n=331) | Primary treatment (n=133) | Secondary treatment (n=198) |
|---|---|---|---|
| Technical success, n (%) | 288 (87.0) | 119 (89.5) | 169 (85.4) |

| | Overall (n=321) | Primary treatment (n=129) | Secondary treatment (n=192) |
|---|---|---|---|
| R0 resection, n (%) | 271 (84.4) | 103 (79.8) | 168 (87.5) |
| Full-thickness resection, n (%) | 261 (81.3) | 108 (83.7) | 153 (79.7) |

| | Overall (n=321) | Primary treatment (n=129) | Secondary treatment (n=192) |
|---|---|---|---|
| T1 CRC, n (%) | 113 (35.1) | 98 (75.4) | 15 (7.8) |
| T2 CRC, n (%) | 23 (7.1) | 12 (9.2) | 11 (5.7) |
| Adenoma with LGD, n (%) | 15 (4.7) | 8 (6.2) | 7 (3.6) |
| Adenoma with HGD, n (%) | 10 (3.1) | 6 (4.6) | 4 (2.1) |
| Sessile serrated lesion, n (%) | 4 (1.2) | 2 (1.5) | 2 (1.0) |
| Normal scar tissue, n (%) | 151 (47.0) | 2 (1.6) | 149 (77.6) |
| Other, n (%) | 4 (1.2) | 1 (0.8) | 3 (1.6) |
| No pathology obtained, n (%) | 1 (0.3) | 0 (0) | 1 (0.5) |

| | Primary treatment (n=110) | Secondary treatment (n=26) |
|---|---|---|
| **Low-risk, n (%)** | **30 (27.3)** | **3 (11.5)** |
| R0 resection | 25 (83.3) | 0 (0) |
| R1/Rx resection | 5 (16.7) | 3 (100) |
| [illegible] | [illegible] | [illegible] |
| R1/Rx resection | 19 (24.4) | 7 (30.4) |
| Missing, n (%) | 2 (0.9) | 0 (0) |

**Succesful risk stratification in 134/136 (98.5%)**

High-risk features for LNM are: poor differentiation, lymphovascular invasion, deep submucosal invasion (Sm 2-3) or tumor budding if assessed



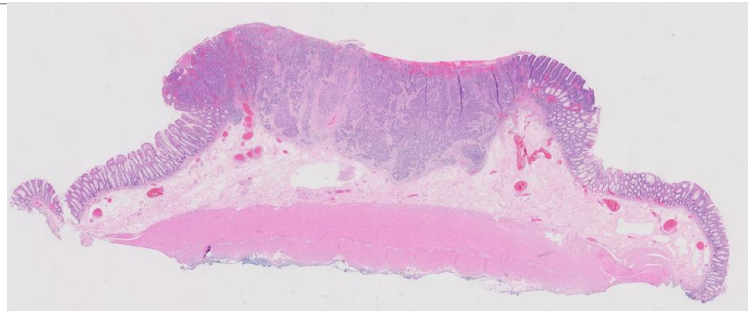
Amsterdam UMC
Universitair Medische Centra

| | Curative resection |
|---|---|
| **Overall, n (%)** | 196/321 (60.7) |
| Only adenocarcinomas at histology | 25/136 (18.4) |
| Excluding SM2-3 as risk factor | 67/136 (49.3) |
| **Primary treatment overall, n (%)** | 43/129 (33.2) |
| Only adenocarcinoma at histology | 25/110 (22.7) |
| Excluding SM2-3 as risk factor | 59/110 (53.6) |
| **Secondary treatment overall, n (%)** | 152/192 (79.2) |
| Only adenocarcinoma at histology | 0/26 (0) |
| Excluding SM2-3 as risk factor | 8/26 (30.8) |

A curative resection is defined as a histological R0 resection and in case of residual cancer without high-risk features for lymph node metastasis

| | Overall (n=321) |
|---|---|
| **Additional surgery, n (%)** | **67 (20.9)** |
| R1/Rx eFTR resection, n (%) | 22 (6.9) |
| One or more high-risk factors, n (%) | 29 (9.0) |
| Adverse events, n (%) | 6 (1.9) |
| Not performed (patient preference or comorbidity) | 1 (0.3) |
| Other reasons for surgery, n (%) | 9 (2.8) |
| Residual cancer | 4 (6.0) |

| | Overall (n=321) |
|---|---|
| Overall | 26 (8.1) |
| *Mild adverse events, n (%)* | 13 (4.0) |
| Perforations (2 immediate / 2 delayed) | 4 (1.2) |
| Bleeding | 5 (1.6) |
| Abdominal pain | 2 (0.6) |
| Bladder retention | 8 (2.5) |
| *Moderate adverse events, n (%)* | 4 (6.1) |
| Bleeding | 6 (1.9) |
| *Severe adverse events, n (%)* | 7 (2.2) |
| Perforations (2 immediate / 5 delayed) | 7 (2.2) |



# Conclusion/take home

- eFTR for T1 CRC is feasible and relative safe
  - ✓ Technical succes: 87%
  - ✓ R0 resection: 84% (80% for primary lesions)
- Delivers optimal histology and risk stratification in **>98%** cases
- eFTR could change traditional treatment paradigms end reduce the overuse of surgery:
  - ✓ R0 resection in deep invasive cancers
  - ✓ Completion treatment after previous Rx/R1 resection low risk T1 CRC

Long term oncological safety data needed !