

FTRD – Wie sind die aktuellen Daten!

**Webinar „Aktuelles aus der FTRD-Community“
26. Juni 2024**

**PD Dr. Andreas Wannhoff
Klinikum Ludwigsburg**

- **Colonic FTRD**
 - Allgemeines
 - Hybrid-EMR-FTRD
 - Läsionen am Appendixabgang
 - T1 Kolonkarzinome
 - Komplikationen

- **Gastroduodenal FTRD**
 - Subepitheliale Tumoren im Magen
 - Duodenale Adenome
 - Duodenale NET

- **Fazit**

Endoscopy

ORIGINAL ARTICLE

Colonoscopic full-thickness resection using an over-the-scope device: a prospective multicentre study in various indications

Arthur Schmidt,^{1,2} Torsten Beyna,³ Brigitte Schumacher,⁴ Alexander Meining,⁵ Hans-Juergen Richter-Schrag,² Helmut Messmann,⁶ Horst Neuhaus,³ David Albers,⁴ Michael Birk,⁵ Robert Thimme,² Andreas Probst,⁶ Martin Faehndrich,⁷ Thomas Frieling,⁸ Martin Goetz,⁹ Bettina Riecken,¹ Karel Caca¹

Endoscopy

ORIGINAL ARTICLE

Colonoscopy full thickness resection using an over

Table 2 Procedural data (entire cohort)

Median procedure time, min (range)	
Total	50 (3–190)
Advancing the FTRD to target lesion	10 (1–50)
Resection	5 (1–90)
Target lesion reached with FTRD, n (%)	181/181 (100)
Technical success, n (%)	162/181 (89.5)
R0 resection, n (%)	139/181 (76.9)

FTRD, full-thickness resection device.

Martin Goetz,⁹ Bettina Riecken,¹ Karel Caca¹

Table 3 Subgroup analysis concerning technical success and R0 resection

Subgroup	Technical success, n (%)	R0 resection, n (%)
Indication		
Difficult adenomas with final benign histology	117/127 (92.1)	98/127 (77.7)
Adenocarcinomas*	24/29 (82.6)	21/29 (72.4)
Subepithelial tumours	21/22 (95.5)	20/22 (87.0)
Lesion size		
≤9 mm	24/24 (100)	21/24 (87.5)
10–20 mm	104/114 (91.2)	93/114 (81.6)
>20 mm	34/43 (79.0)	25/43 (58.1)
Localisation of lesion		
Colon		
Distal colon†	32/38 (84.2)	28/38 (73.7)
Proximal colon‡	101/113 (89.4)	88/113 (77.8)
Rectum		
Lower rectum	9/9 (100)	7/9 (77.8)
Upper rectum	19/21 (90.5)	15/21 (71.4)
Prior treatment		
No prior treatment	92/99 (92.9)	79/99 (79.8)
Previous endoscopic therapy	69/82 (84.14)	60/82 (73.2)

*Including known carcinomas and incidental carcinomas initially classified as non-lifting adenomas.

†Including caecum, ascending and transverse colon.

‡Including descending colon, sigmoid and rectosigmoid transition.

Deutsches FTRD-Register

- 1.178 Fälle aus 65 Zentren

Table 2. Indication for EFTR

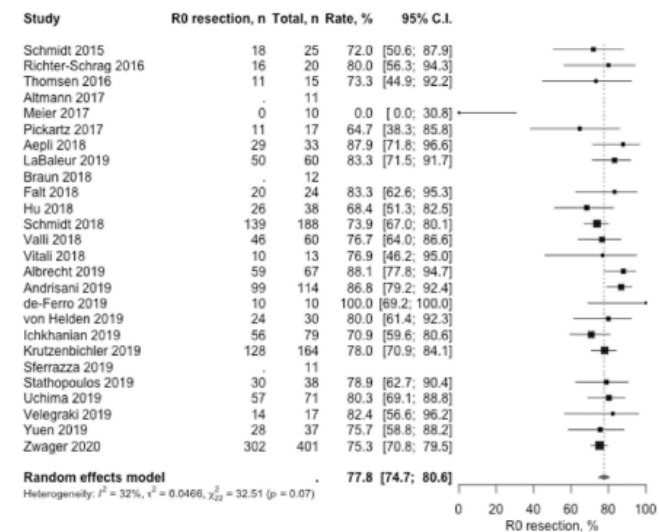
Indication for EFTR (n = 1,178)	
"Difficult adenomas," n (%)	790 (67.1)
Nonlifting adenoma	691 (58.7)
Recurrent/pretreated ^a	477 (40.5)
Treatment naive	214 (18.2)
Involving the appendiceal orifice	89 (7.6)
Involving a diverticulum	10 (0.8)
T1 carcinoma, n (%)	217 (18.4)
After incomplete endoscopic resection	148 (12.6)
Treatment naive	69 (5.8)
Subepithelial tumor, n (%)	80 (6.8)
Diagnostic EFTR, n (%)	16 (1.3)
Other ^b , n (%)	75 (6.4)

EFTR, endoscopic full-thickness resection.
^aEndoscopic incomplete resection.
^bNot further specified by user.

- **Tech. Erfolg:** 88,2%
- **R0 Resektion:** 80,0%
- **AE:** 12,1%

Meta-Analyse

- 1.538 Prozeduren (26 Studien)
- **Techn. Erfolg:** 90,0 % (95 %-KI: 87,0–92,3)
- **R0-Resektion:** 77,8% (95 %-KI: 74,7–80,6)



- **AE:** 8,0 % (95 %-KI: 5,8–10,4)

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+ Nicht nur tertiäre Referenzzentren!	
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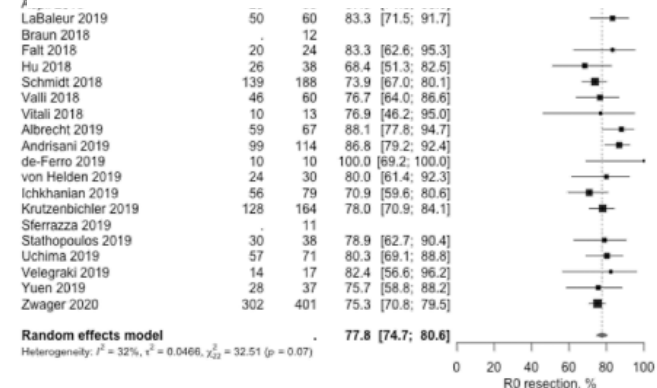
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**+ Internationale Daten
 + Volltextpublikationen und
 Kongressabstracts**



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Techn. Erfolg:

R0 Resektion:

AE-Rate:
(OP)

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- R0 Resektion: 80,0%
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90%

% (95 %-KI: 87,0–92,3)

80%

% (95 %-KI: 74,7–80,6)

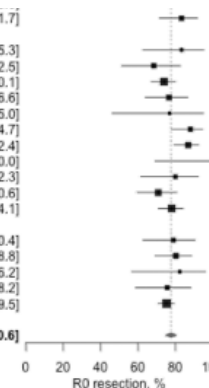
10%

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1-2 %)

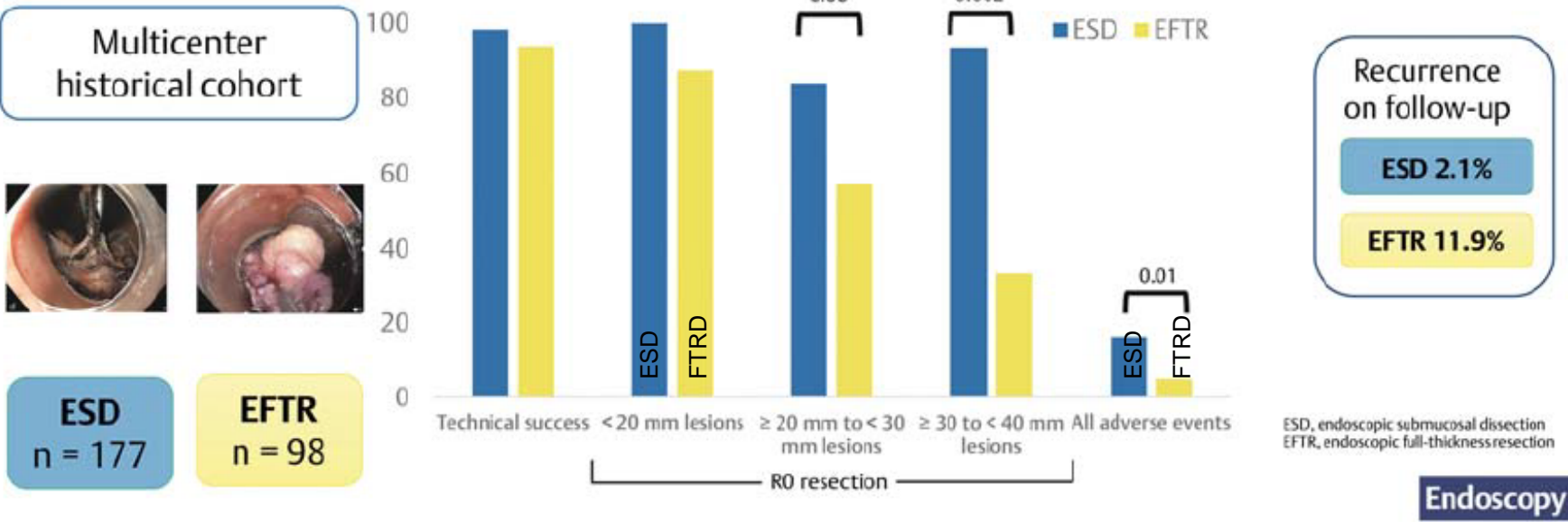
Albrecht 2019	59	67	88.1	[77.8; 94.7]
Andrisani 2019	99	114	86.8	[79.2; 92.4]
de-Ferro 2019	10	10	100.0	[69.2; 100.0]
von Helden 2019	24	30	80.0	[61.4; 92.3]
Ichkhanian 2019	56	79	70.9	[59.6; 80.6]
Krutzenbichler 2019	128	164	78.0	[70.9; 84.1]
Sferrazza 2019	.	11	.	.
Stathopoulos 2019	30	38	78.9	[62.7; 90.4]
Uchima 2019	57	71	80.3	[69.1; 88.8]
Velegraki 2019	14	17	82.4	[56.6; 96.2]
Yuen 2019	28	37	75.7	[58.8; 88.2]
Zwager 2020	302	401	75.3	[70.8; 79.5]
Random effects model	.	.	77.8	[74.7; 80.6]

Heterogeneity: $I^2 = 32\%$, $\tau^2 = 0.0466$, $\chi^2_{25} = 32.51$ ($p = 0.07$)



- AE: 8,0 % (95 %-KI: 5,8–10,4)

ESD or EFTR for residual/recurrent colorectal neoplasia



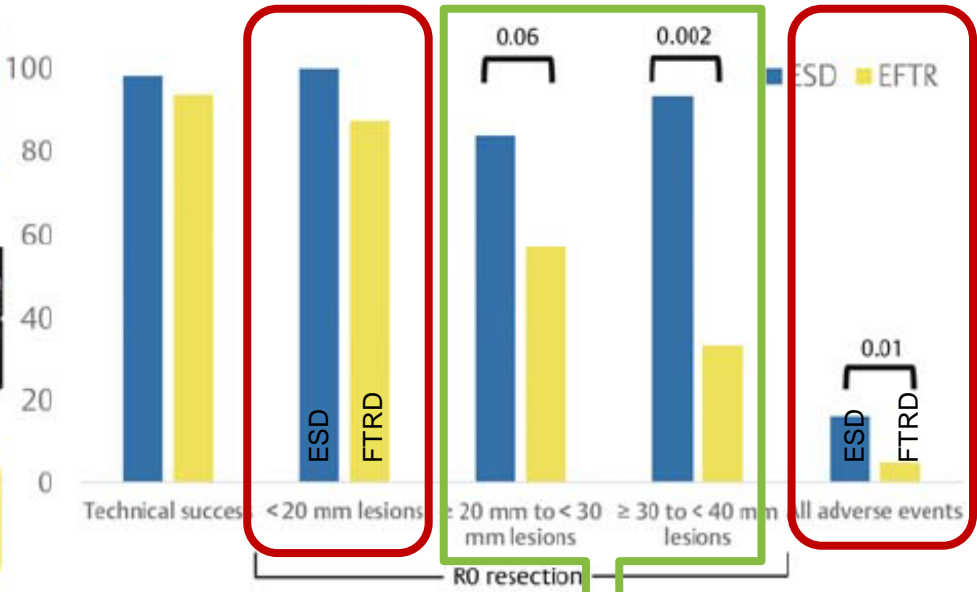
ESD or EFTR for residual/recurrent colorectal neoplasia

Multicenter historical cohort



ESD
n = 177

EFTR
n = 98



Recurrence on follow-up

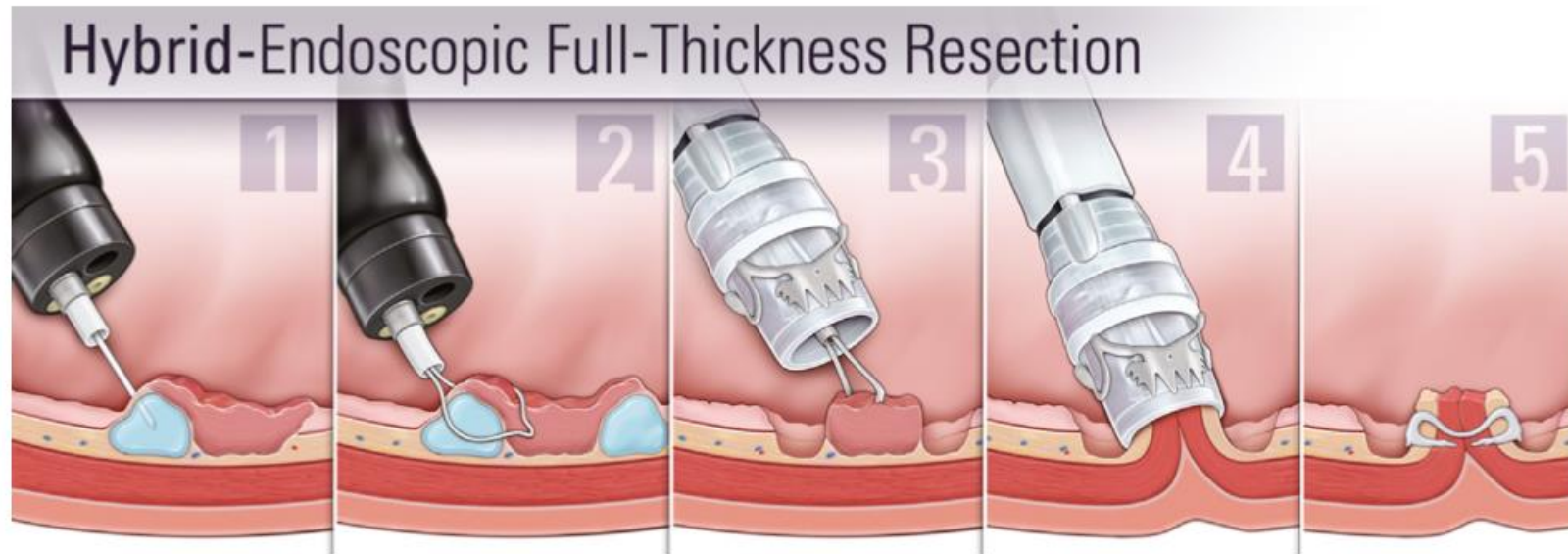
- ESD 2.1%
- EFTR 11.9%

ESD, endoscopic submucosal dissection
EFTR, endoscopic full-thickness resection

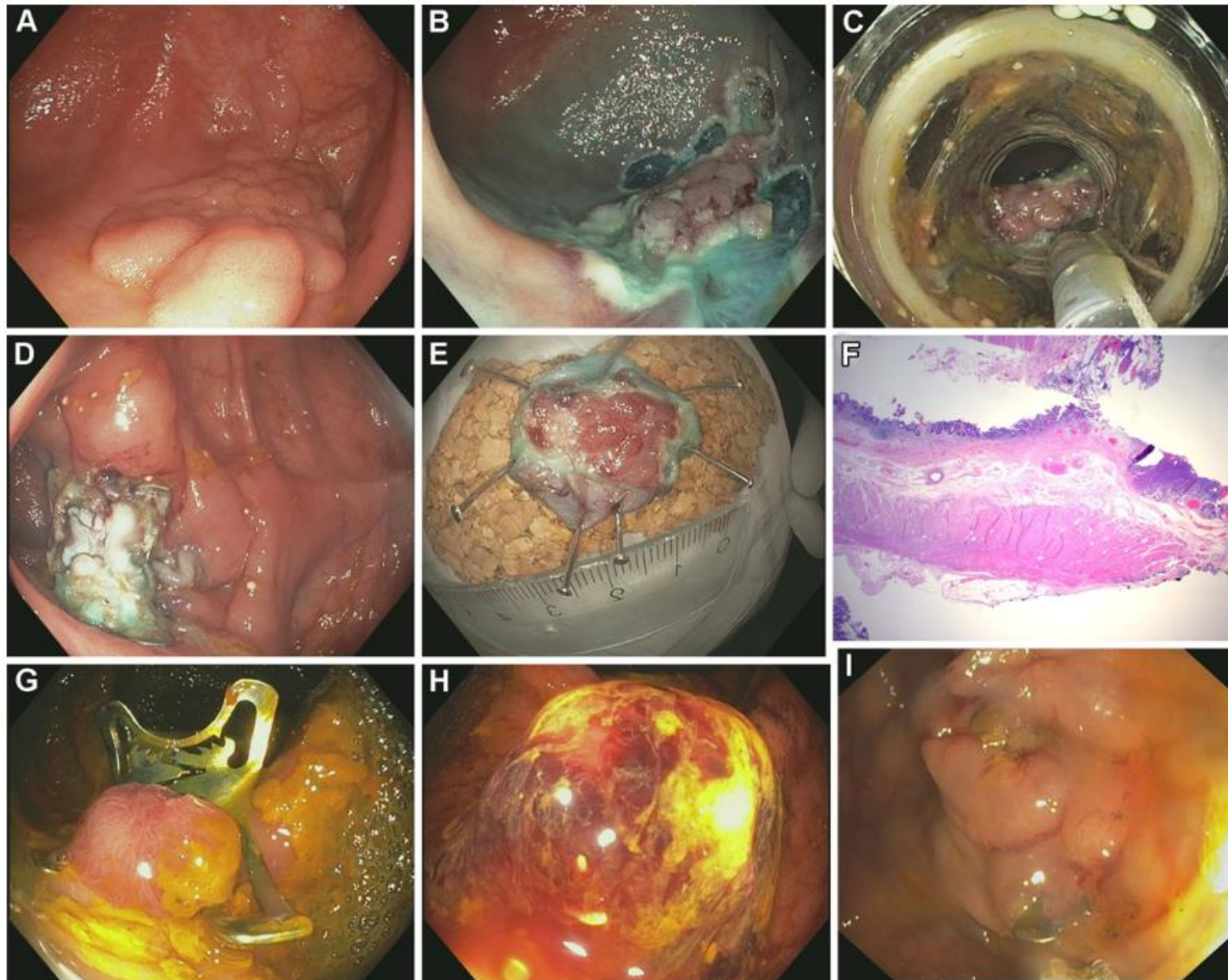
Endoscopy

Hybrid-FTRD

- **Wesentliche Limitation ist die Läsionsgröße**
 - Abhängig von der Art der Läsion, Vernarbung, ...
 - Grenze meist 20-25 mm
- **Zumindest für größere, flächige Adenome: Kombination aus EMR plus FTRD**
 - FTRD des non-lifting Areal [oder des primär als suspekt identifizierten Anteils]
 - Nicht bei großen, malignomsuspekten oder subepithelialen Läsionen

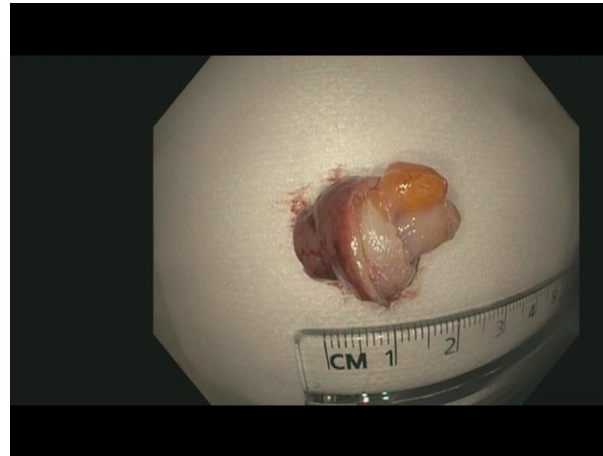
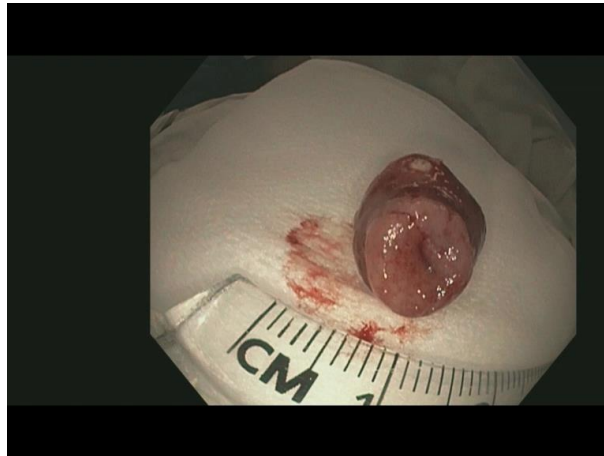
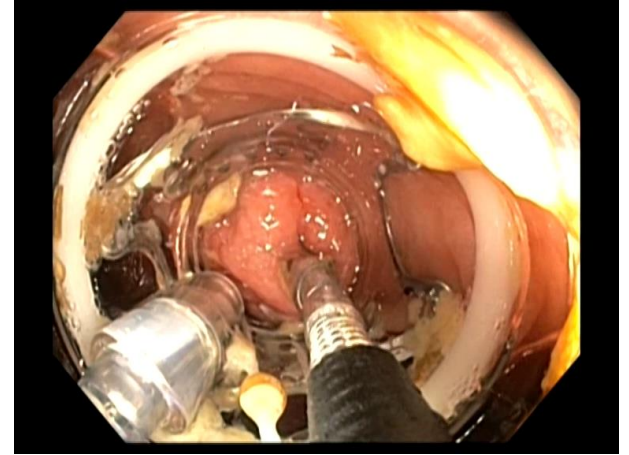
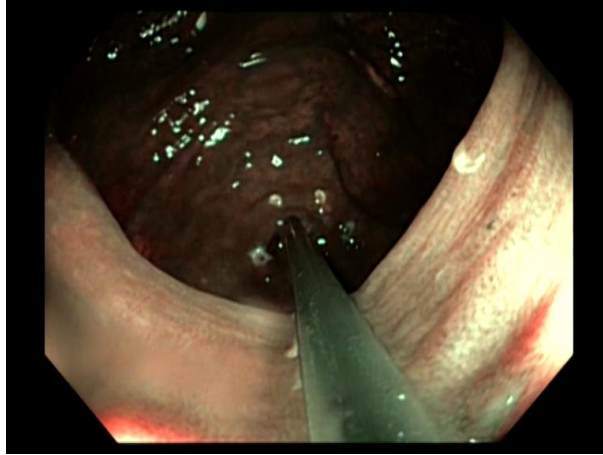


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	Patienten, n	Größe, mm	Techn. Erfolg	Markoskop. komplett	Zeit, min	AE	Rezidiv
Meier 2023	75	36,5	100%	97,3%	83.6	6,7%	11.4%
Mahadev 2021	31	39,2	80,7%	96,8%	68.5	3,2%	-
Bauermeister 2021	17	29	100%	94,1%	69	23.5%	11,8%
Tribonias 2024	14	33,9	100%	100%	53.8	35,6%	0

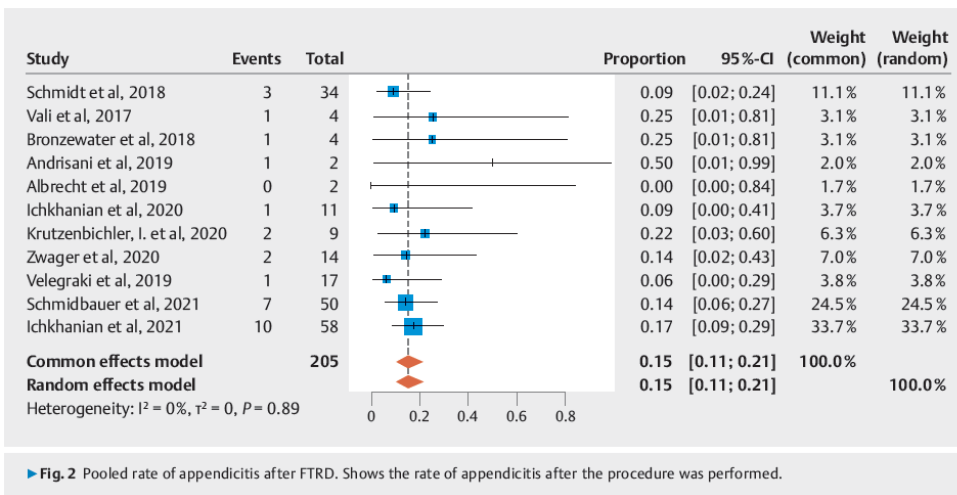
- **Hybrid-Verfahren in einer Sitzung möglich**
- **Keine Markierung notwendig**
- **Randablation (Snare-Tip Soft Coagulation) nach Abschluss der EMR und vor Beginn FTRD**



Daten aus Ludwigsburg und Ulm

- **50 Fälle**
 - Alle unter Antibiotika Prophylaxe
- **7 Appendizitis (14%)**
- **3x OP (42.9%)**

Meta-Analyse

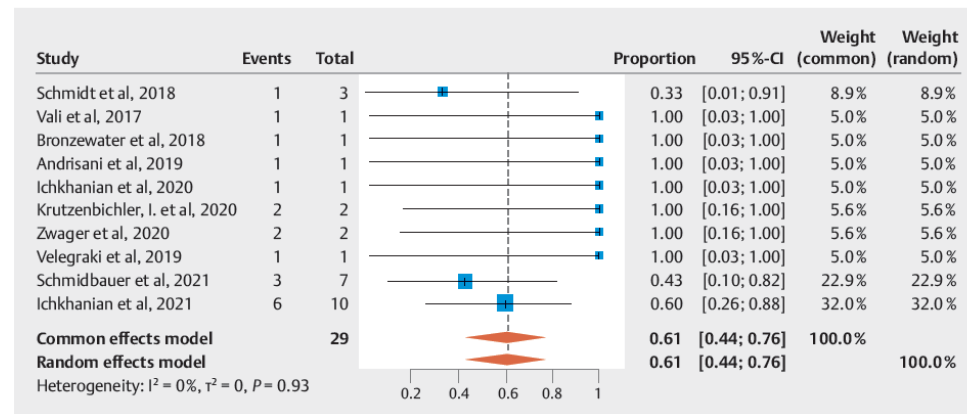


► Fig. 2 Pooled rate of appendicitis after FTRD. Shows the rate of appendicitis after the procedure was performed.

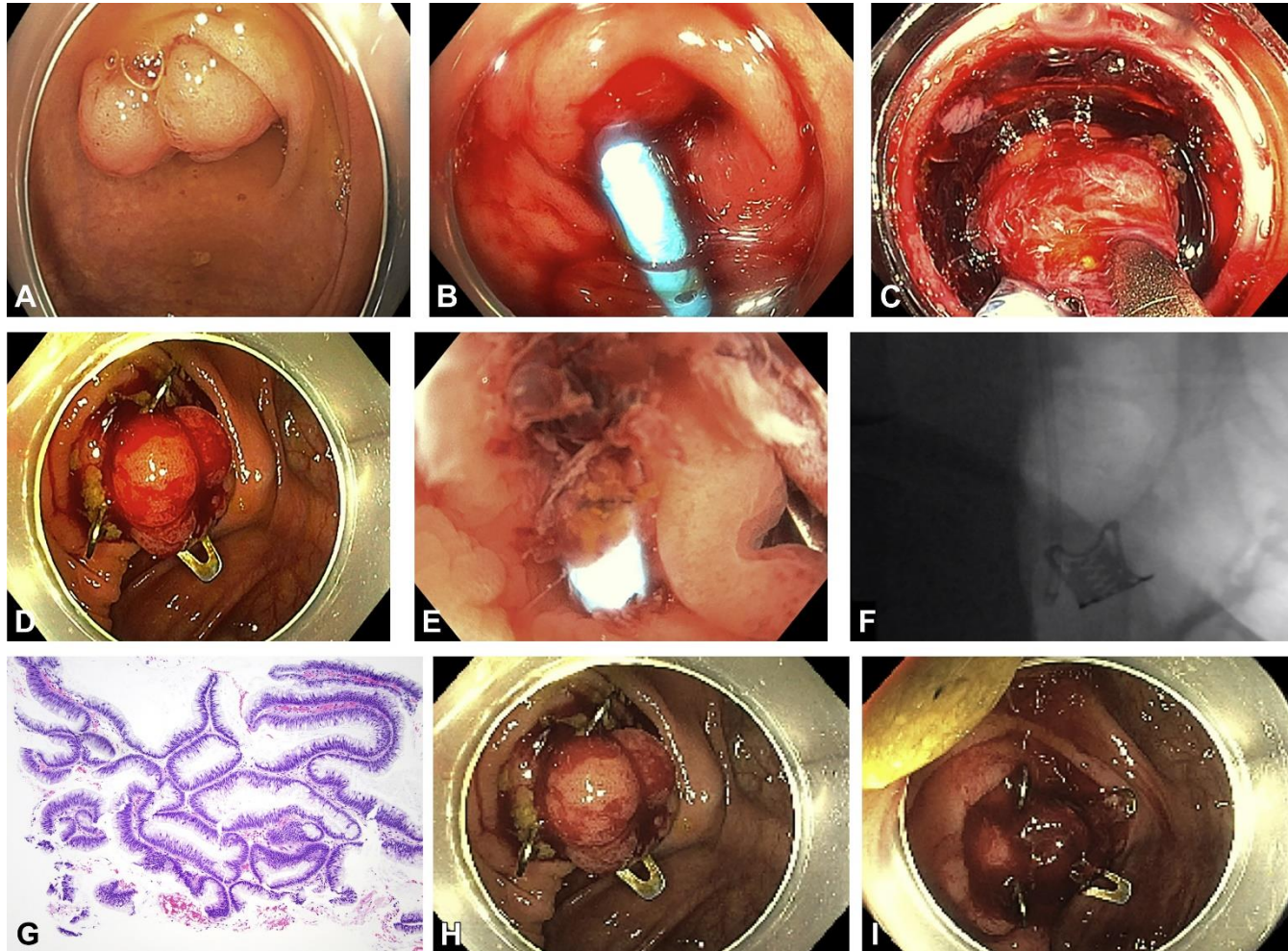
► Table 2 Characteristics of all seven cases with appendicitis.

	1	2	3	4	5	6	7
Age, years	75	58	51	77	72	71	52
Lesion diameter, mm	30	7	13	10	25	8	10
Resection method used	EFTR + EMR	EFTR	EFTR	EFTR	EFTR + EMR	EFTR	EFTR
Lesion pathology	SSA	SSA	SSA	–	TVA, HG	–	TVA, LG
R status	Rx	R0	R0	–	Rx	–	R0
Time of onset	With latency	With latency	Early	Early	Early	With latency	Early
Management	Conservative	Surgery	Conservative	Conservative	Conservative	Surgery	Surgery

EFTR, endoscopic full-thickness resection; EMR, endoscopic mucosal resection; SSA, sessile serrated adenoma; –, no adenoma; TVA, tubulovillous adenoma; HG, high grade; LG, low grade.



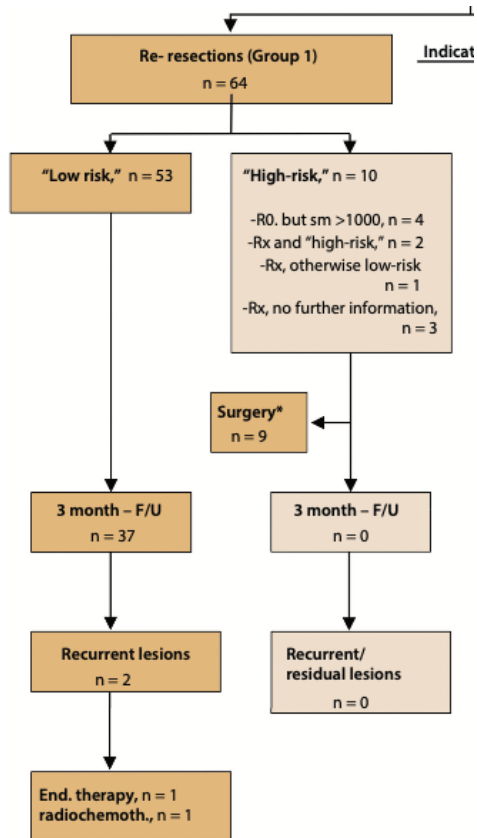
Prophylaktisches Stenting???



- **Mögliche Szenarien für den Einsatz des FTRD bei T1 KRK**
 - Nachresektion nach EMR eines malignen Polypen mit Rx/R1 Situation
 - Primäre EFTR eines makroskopisch suspekten Polypen
 - Inzidentelles KRK in einer Vollwandresektion (z.B. non-lifting Anteil bei Hybrid-EMR-EFTR)

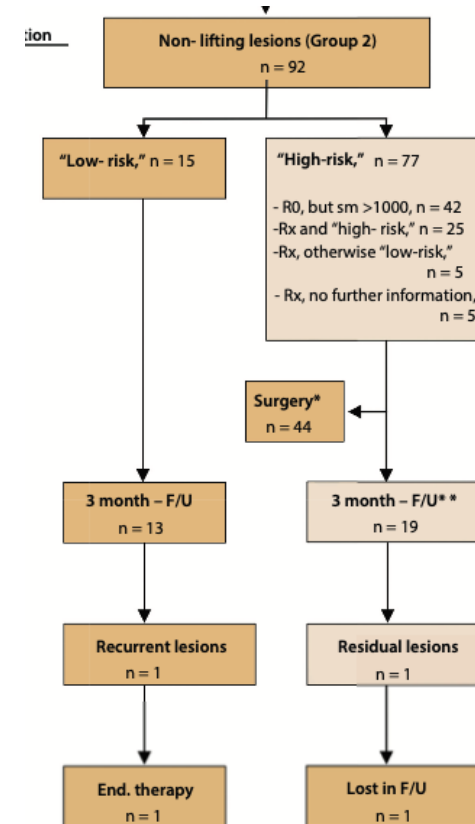


Indikation: Nachresektion

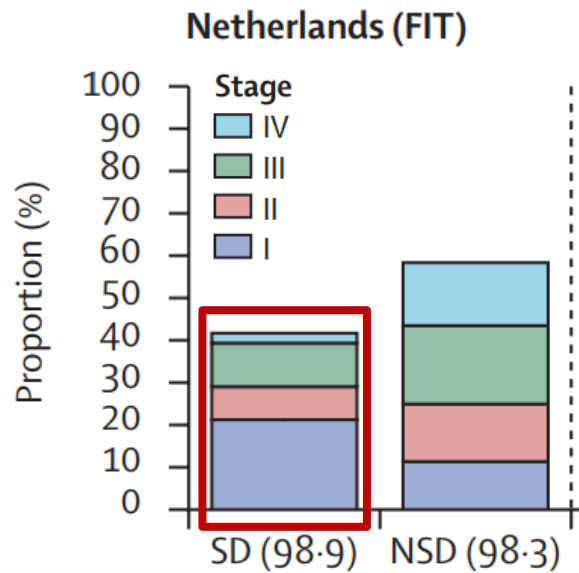


- Histologie: 76.6% „nur“ Narbe
- Keine OP notwendig in 54 / 64 (84.4%) Fällen
- R0 Resektion: 87.5%

Indikation: Suspekter Polyp



- R0-Resektion: 60,9%



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

67 studies
21,238 patients

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

8 studies, 3621 patients

Study	OR [95% CI]
Nakadori et al., 2011	5.88 [1.36, 25.42]
Kawachi et al., 2016	6.40 [2.20, 17.66]
Pai et al., 2017	2.20 [0.71, 6.88]
Shin et al., 2018	0.85 [0.32, 2.43]
Yabusaki et al., 2019	1.61 [0.60, 4.21]
Zhang et al., 2019	1.84 [0.55, 6.23]
Mochizuki et al., 2020	0.69 [0.23, 1.91]
Hosokoshi et al., 2020	0.79 [0.35, 2.33]
DSI overall OR	1.73 [0.96, 3.12]

OR 1.73 (95% CI 0.96-3.12)

DSI as solitary risk factor for LNM

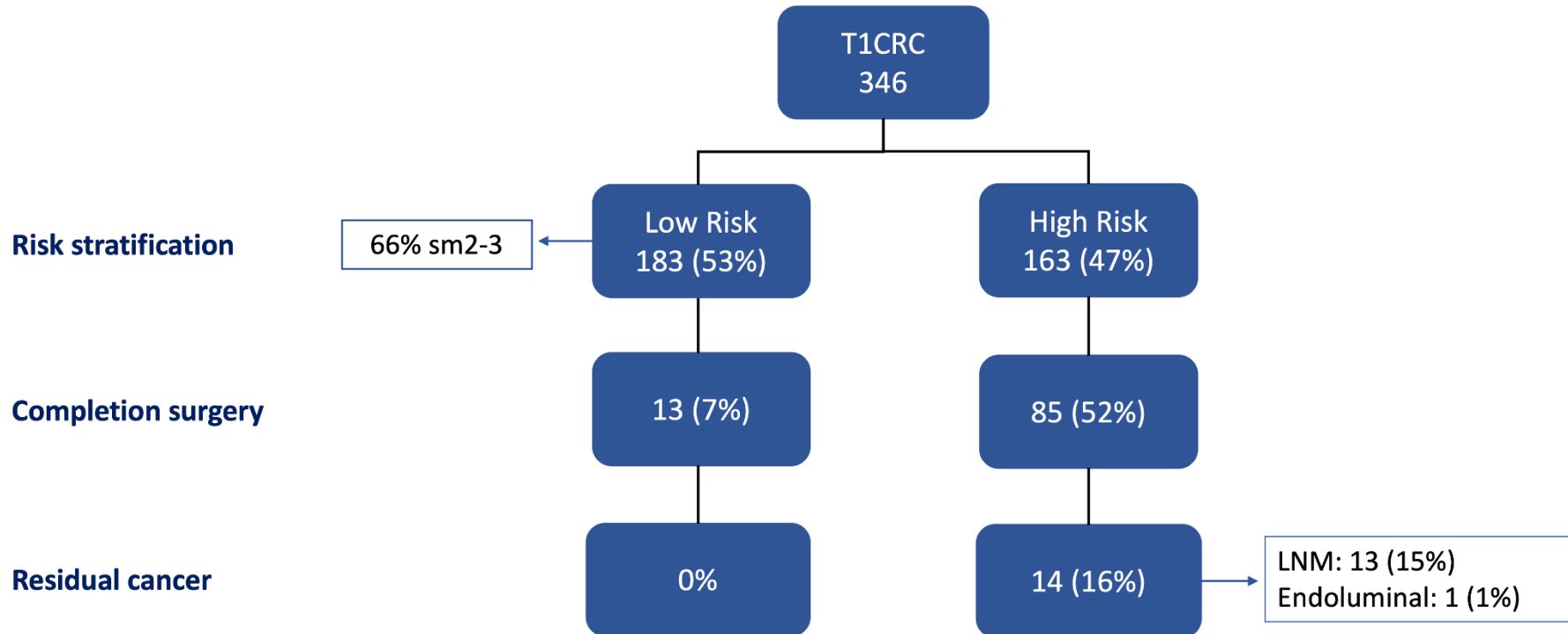
8 studies, 1146 patients

Absolute risk: 2.6%


DSI should be reconsidered as strong indicator for oncologic surgery


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

Gastroenterology



R0 Resektion: **sm1:** **91%**
 sm2/3: **88%**


 272 patients


 44 months (*range 6-94*)

Surveillance Low Risk T1
N=135

Surveillance High Risk T1
N=64

Completion Surgery
N=73

Recurrence

1 (1%)

3 (5%)

4 (6%)

Salvage surgery

0/1

2/3

0/4

TABLE 2. Overview of all 1892 cases with AEs

AEs	Overall	Mild	Moderate	Severe
Overall AEs	213 (11.3)	104 (5.5)	67 (3.5)	42 (2.2)
All bleeding	117 (6.2)	54 (2.9)	62 (3.3)	1 (.1)
Direct bleeding	31 (1.6)	30 (1.6)	1 (.1)	—
Delayed bleeding	86 (4.5)	24 (1.3)	61 (3.2)	1 (.1)
All perforations	47 (2.5)	16 (.8)	1 (.1)	30 (1.6)
Direct perforation	27 (1.4)	14 (.7)	—	13 (.7)
Delayed perforation	20 (1.1)	2 (.1)	1 (.1)	17 (.9)
Appendicitis	13 (.7)	6 (.3)	—	7 (.4)
Postpolypectomy syndrome	15 (.8)	13 (.7)	2 (.1)	—
Diverticulitis	2 (.1)	2 (.1)	—	—
Infection/inflammation	5 (.3)	5 (.3)	—	—
Stenosis	9 (.5)	5 (.3)	2 (.1)	2 (.1)
Other*	5 (.3)	3 (.2)	—	2 (.1)

Values are n (%).

AE, Adverse event; —, not available.

*Other mild AEs were a pressure ulcer (n = 1), collapse with head injury (n = 1), and bladder retention (n = 1). Two other AE cases graded as severe requiring surgery included severe pain after endoscopic full-thickness resection close to the dentate line (n = 1) and grasper entrapment in clip (n = 1).

- **Keine FTRD-assoziierte Mortalität**
- **Risikofaktoren:** - weibliches Geschlecht
- Techn. Schwierigkeiten
- **3/4 der Patienten mit verzögerter Perforation hatten min. 1 Risikofaktor: BMI, Immunsuppression, Rauchen**
- **Kein sign. Unterschied zw. niedrig-, mittel-, und hoch-volumen Zentren**

FTRD im oberen GI-Trakt

- **Insgesamt schlechtere Datenlage**
 - Weniger Publikationen und Fälle
 - Heterogenität (Art der Läsion, Magen vs. Duodenum, ...)

- **Subepitheliale Tumoren im Magen**
 - 76% R0 Resektionsrate für SET bis 15 mm

- **Resektion von Duodenaladenomen**
 - 20 Fälle (darunter 5x SET): 3x minor bleeding, keine schweren Komplikationen
 - Prospektive Studie (FTRD vs. EMR) kurz vor dem Abschluss (Erste Daten ggf. noch in 2024 erwartet)

- **dNET**
 - EMR: schlechte R0-Resektionsrate | ESD: hohe Komplikationsrate
 - FTRD: hohe R0 Rate und niedriger AE-Rate (zukünftiger Standard?)

Prospektives Register
(Start in 2024)

ESGE Days 2024
Best Abstract Award



- **FTRD im Kolon → hohe Erfolgsrate und niedrige Komplikationsrate**
- **Hybrid-EMR-FTRD erweitert das Indikationsspektrum**
- **Resektionen am Appendixabgang erfordern eine gute Aufklärung der Patienten/-innen**
- **EFTR von T1-Karzinomen ist die Zukunft**
- **dNET sollten mit FTRD reseziert werden**
- **Ergebnisse zur Resektion von Duodenaladenomen werde in diesem Jahr erwartet**