

The difficult pelvic anastomosis

+

Roel Hompes MD, PhD, FASCRS(hon)

Colorectal Cancer Masterclass – Cairo, Egypt | 30th August 2022



Topics for this talk....

- Pelvic anastomosis after TME surgery
- Redo surgery
 - Low Hartmanns reversal
 - Restorative surgery after pelvic sepsis

Quality Measures TME Surgery

Completeness of the Mesorectum

Clear CRM & DRM

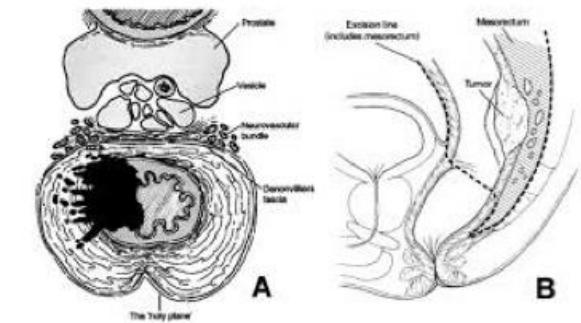
Minimal morbidity

Pelvic Nerve Preservation

Sphincter Preservation

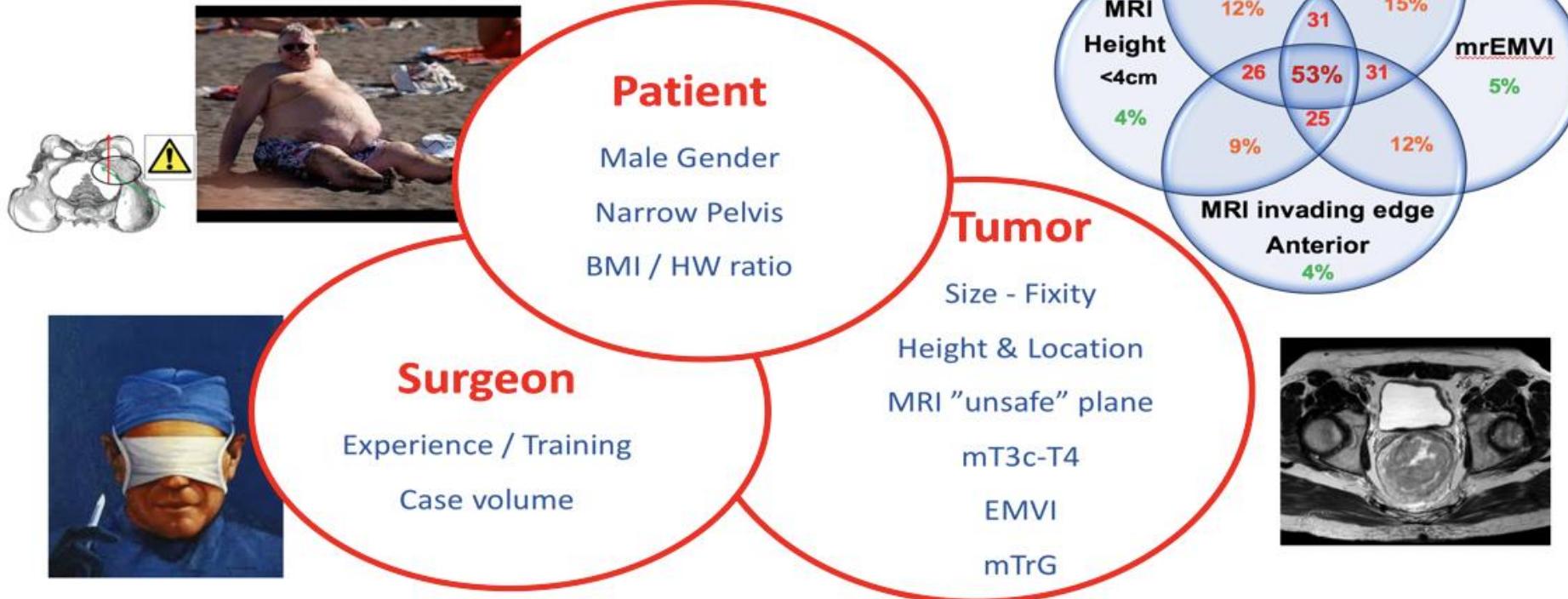
} Radicality

} QOL



Quality Measures TME Surgery

Factors impacting TME quality



Cecil, Colorectal Disease 2006; 8 (s3): 30-2. Mercery-II Study, Annals of Surgery, 2016
Al-Sukhni, *Predictors of CRM involvement, review of 23,464 cases*. Int J Surg, 2016

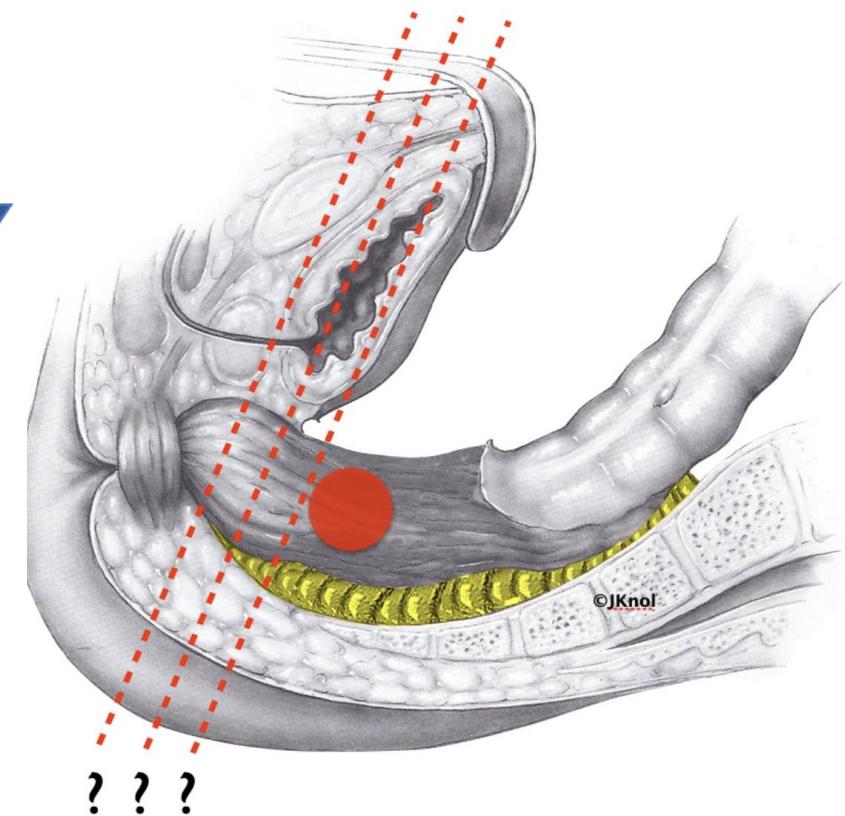
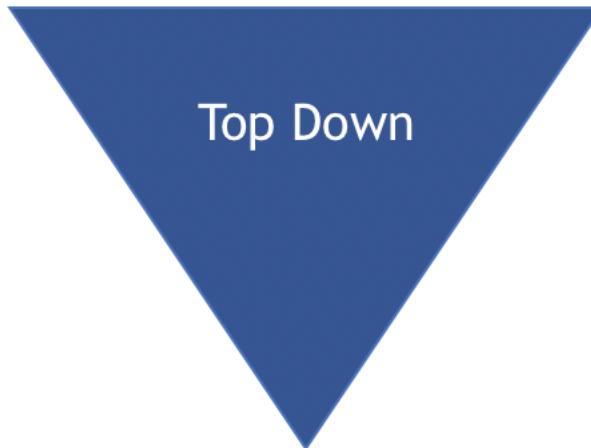


Limitations with (distal) rectal dissection

- Visualisation / Exposure of lower third of rectum
- Meticulous Dissection
- Defining distal margin
- Mechanics of perpendicular distal stapling



Low rectal cancer is a challenge



- Conversion to open surgery
- Higher leak rates
- Higher permanent stoma rates
- Unintended AP / Hartmann procedures

Distal rectal stapling

Surg Endosc (2006) 20: 952–955
DOI: 10.1007/s00464-005-0536-4
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Intracorporeal rectal stapling following laparoscopic total mesorectal excision

Overcoming a challenge

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Abstract
Background: Division of the rectum following total mesorectal excision (TME) using intracorporeal stapling devices is technically difficult due to their width and limited rotication. More than one cartridge is often required and resultant wedging of the stump may be associated with an appreciable leak rate.
Methods: Three-dimensional reconstruction was performed of CT and MRI images from the lower abdomen of six patients undergoing laparoscopic TME using the Amira software environment. The stapling device was virtually reconstructed by in-house developed software, superimposed over the point of division of the rectum and the site of skin entry identified.
Results: The 45° angulation of available roticulating stapling devices precludes perpendicular division of the rectum following laparoscopic TME. The optimal angulation for transverse rectal stapling varied between 62° and 68°.
Conclusion: A roticulating stapler with minimum angulation of 65° would achieve transverse division of the rectum following laparoscopic TME.

Key words: Laparoscopic surgery — Total mesorectal excision — Intracorporeal stapling — Virtual technology

The application of laparoscopic techniques to restorative rectal surgery is gaining acceptance as the feasibility of oncological resection and coloanal anastomosis is demonstrated [4, 5]. The published postoperative complication rate following laparoscopic total mesorectal excision (TME) is better or equivalent to that of conventional surgery, although these results should be interpreted with caution given the variability in the definition of specific complications [7] and a possible patient selection bias.

Anastomotic leak rates of approximately 20% have been reported in patients without a diverting stoma [5]. Although these figures are reported to be "in line" with those of conventional open surgery, the authors are concerned that current intracorporeal stapling techniques may contribute to anastomotic leakage in patients undergoing laparoscopic TME for tumors of the middle and lower third of the rectum [2].

Following TME, perpendicular application of the stapling device to the distal rectum is technically challenging and often not physically possible due to the limited maximum rotication of conventional staplers coupled with anatomical confinement of the pelvis [4, 8]. The resultant wedge-shaped staple line of the rectal stump may interfere with adequate circular stapling, and the effect on anastomotic leakage of stapling on this stump configuration is not known [8].

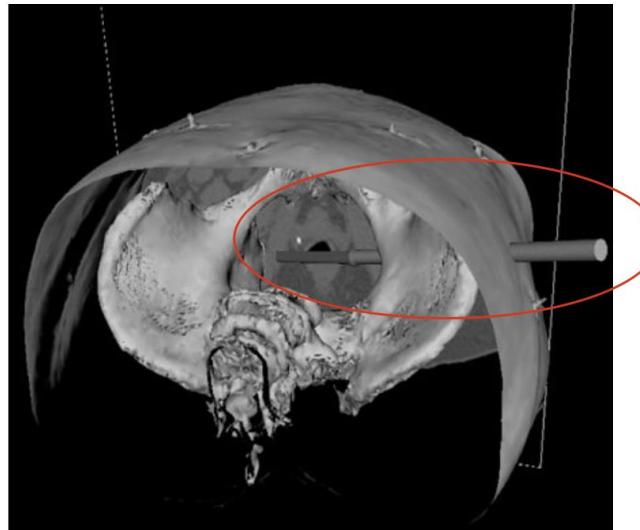
The aim of this study was to examine the technique of laparoscopic rectal stapling following TME using a virtual model to identify technical limitations and to explore potential solutions. This is achieved, for the first time, by means of a three-dimensional (3D) simulation environment that can predict optimal pose of the roticulating device before the patient goes to surgery.

Materials and methods

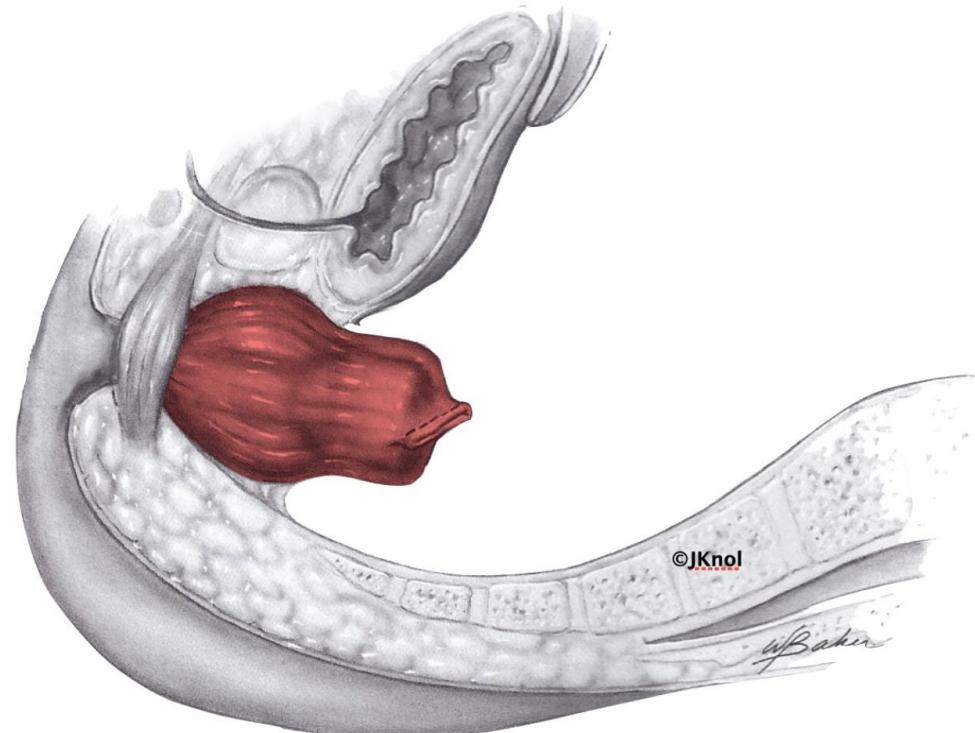
Six patients undergoing elective laparoscopic resection for cancer of the middle and lower third of the rectum were recruited. The male:female ratio was 1:1. Mean age was 66.5 years (range, 54–81). Each patient underwent routine preoperative assessment, including colonoscopy, CT, and pelvic MRI. Enrollment in the study required patients to provide informed consent for their radiological images to be used by the engineering department for research purposes.

Correspondence to: A. D'Hoore

Using diversity as a compensatory measure for suboptimal laparoscopic technique is unacceptable!



- Difficult intracorporeal stapling due to
 - their width
 - limited rotication
- Wedging of the stump: leak rate?
- 45° angulation precludes perpendicular division
- 65° is minimal angulation for transverse division

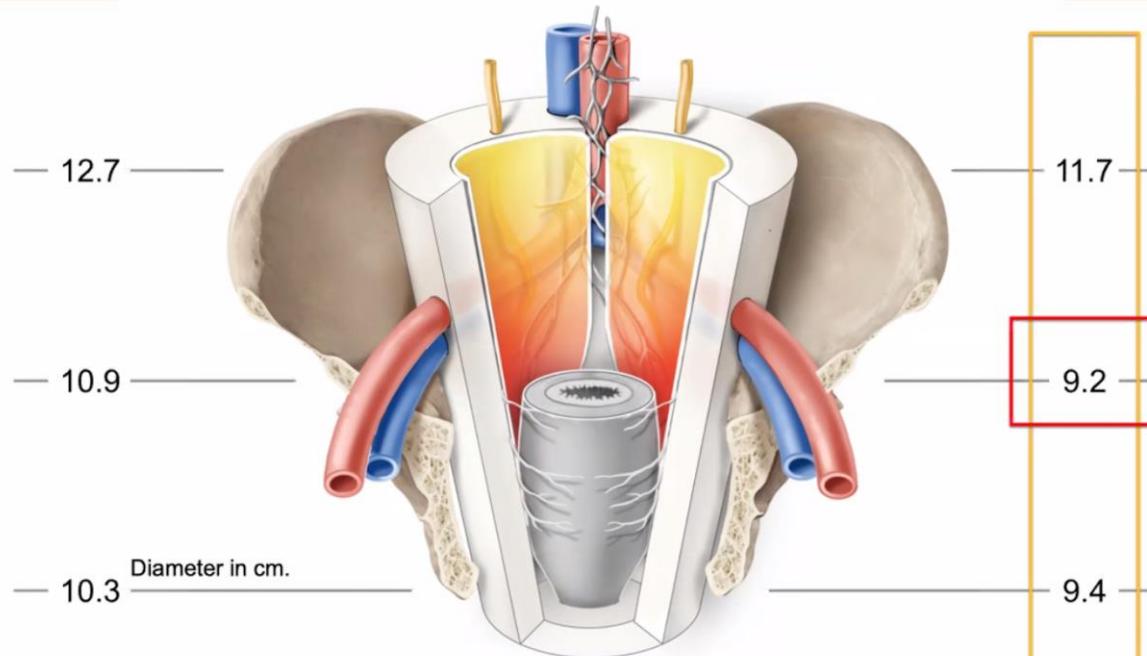




FEMALE

SURGERY OF THE RECTUM

MALE



Factors affecting the difficulty of laparoscopic TME with double stapling technique anastomosis for LRC
Akiyoshi T et al. – Surgery 2009

*Int J Colorectal Dis (2008) 23:703–707
DOI 10.1007/s00384-008-0470-8
ORIGINAL ARTICLE*

Relationship between multiple numbers of stapler firings during rectal division and anastomotic leakage after laparoscopic rectal resection

Masao Ito · Masanori Sugito · Akihiro Kobayashi · Yusuke Nishizawa · Yoshiyuki Tsunoda · Norio Saito

Accepted: 28 February 2008 / Published online: 1 April 2008
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Abstract We experienced some technical difficulty in dividing the middle and lower rectum through the right-lower quadrant approach. The aim of this study was to determine whether multiple stapler firings during rectal division are associated with anastomotic leakage after laparoscopic rectal resection.

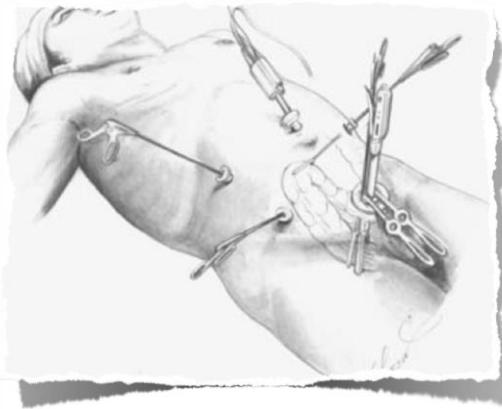
Methods Laparoscopic anterior resection with double-stapling technique anastomosis was performed in 180 consecutive rectal cancer patients. We often used vertical rectal division through a suprapubic site instead of the standard transverse rectal division for laparoscopic total mesorectal excision (LapTME). We attempted to determine whether there was an association between the number of stapler firings and procedures in rectal division. Moreover, we identified risk factors for anastomotic leakage after laparoscopic rectal resection by multivariate analysis.

Results Anastomotic leakage occurred in 5% of the subjects of this study. Vertical rectal division through a suprapubic site after LapTME required fewer staples than transverse division through the right-lower port and a smaller percentage of patients required three or more staples for vertical rectal division than for transverse division (15% vs. 45%, $p=0.03$). In the multivariate analysis, TME and the number of staples used for rectal division were the factors found to be associated with a significantly greater risk of subsequent leakage (odds' ratio = 5.3; 95% CI 1.2–22.7 and odds' ratio = 4.6; 95% CI 1.1–19.2).

Materials and methods

We retrospectively analyzed 180 consecutive cases of laparoscopic anterior resection for the treatment of rectal cancer at the National Cancer Center Hospital East, Japan, between October 2002 and March 2006. In 90 cases, the tumor was in the upper rectum, in 60, it was in the middle rectum, and in 30, it was in the lower rectum. Our criteria for laparoscopic surgery candidates were as follows:

- TME
- number of staplers
 - 2 or less firings : leak rate of 3 %
 - 3 or more firings : leak rate of 15 %
- Vertical rectal division : fewer staples required

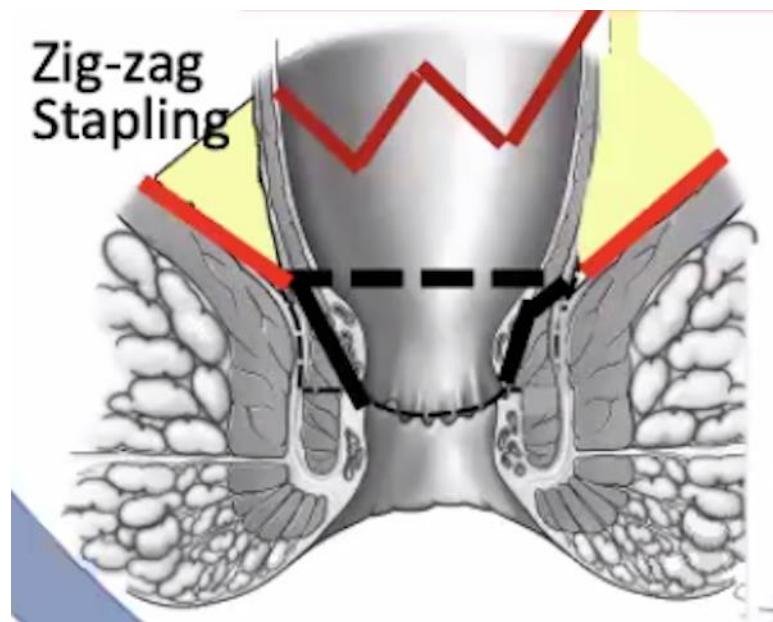
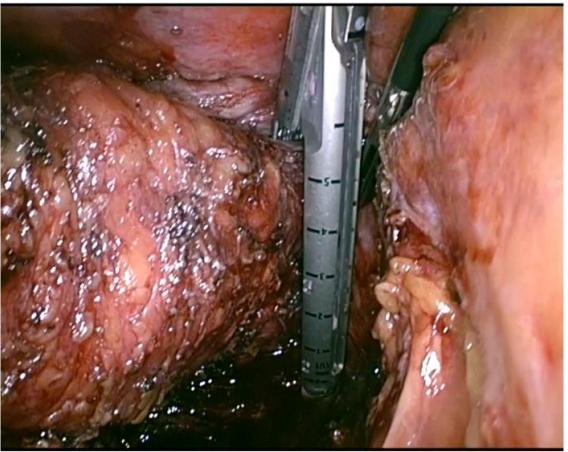


Multivariate analysis*:

(* 180 patients : no radiochemotherapy, I def. stoma)

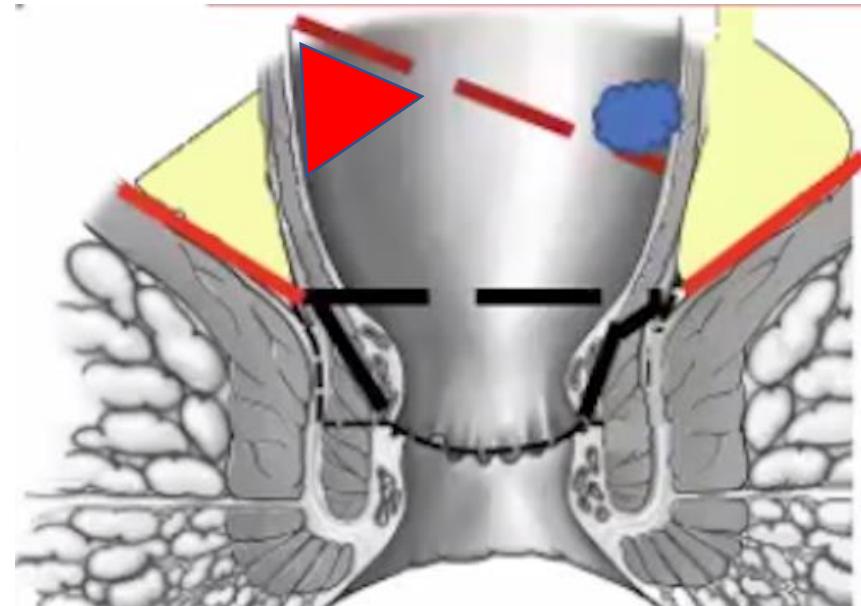
Risk factors for leakage:

- TME
- number of staplers
 - 2 or less firings : leak rate of 3 %
 - 3 or more firings : leak rate of 15 %
- Vertical rectal division : fewer staples required



Poor perfusion

R1





Predicting the level of difficulty of the double-stapling technique in laparoscopic total mesorectal excision

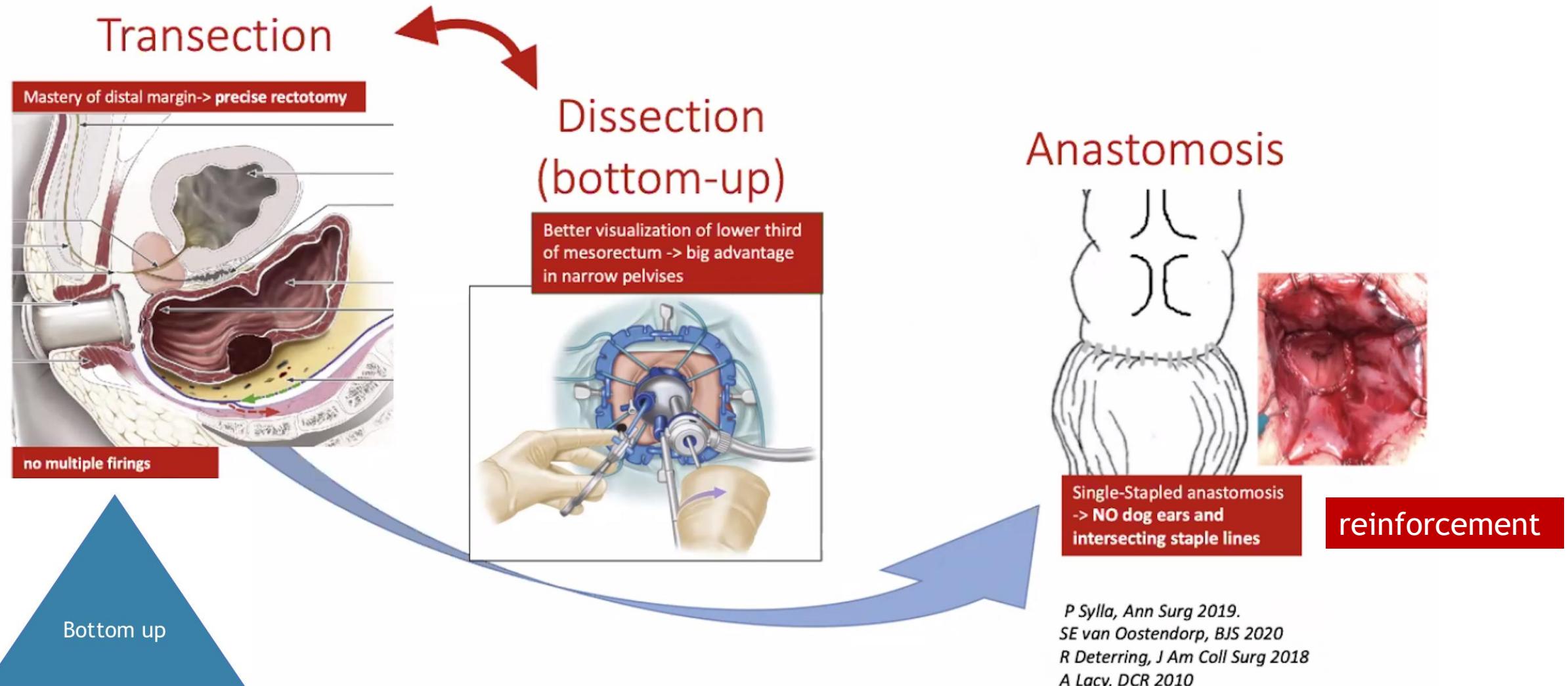
Chi Chung Foo^{1,3} · Hing Tsun Hung¹ · Yuen Chi Ho² · Wendy Wai Man Lam² · Wai Lun Law¹

- Single center
- 121 consecutive cases LAR
- Assessment of factors influencing stapling
- Median cartridges : 2.1 + 0.7
- Nr cartridges used determined by
 - Pelvic inlet ($p=0.002$)
 - Tumor height ($p=0.015$)

Gender (1 for female, 2 for male):	2	Probability (Stapler ≥ 3):	60.586%
Tumor Height (mm):	25		
Pelvic Inlet (mm):	110		
Interspinous Distance (mm):	95		
Intertuberous Distance (mm):	95		

<https://jscalc.io/calc/YpEblQrDJdzNxc7Y>

TaTME: the reverse strategy and its promise



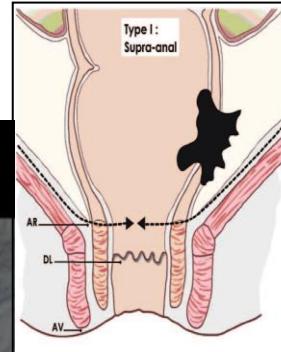
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Polecam



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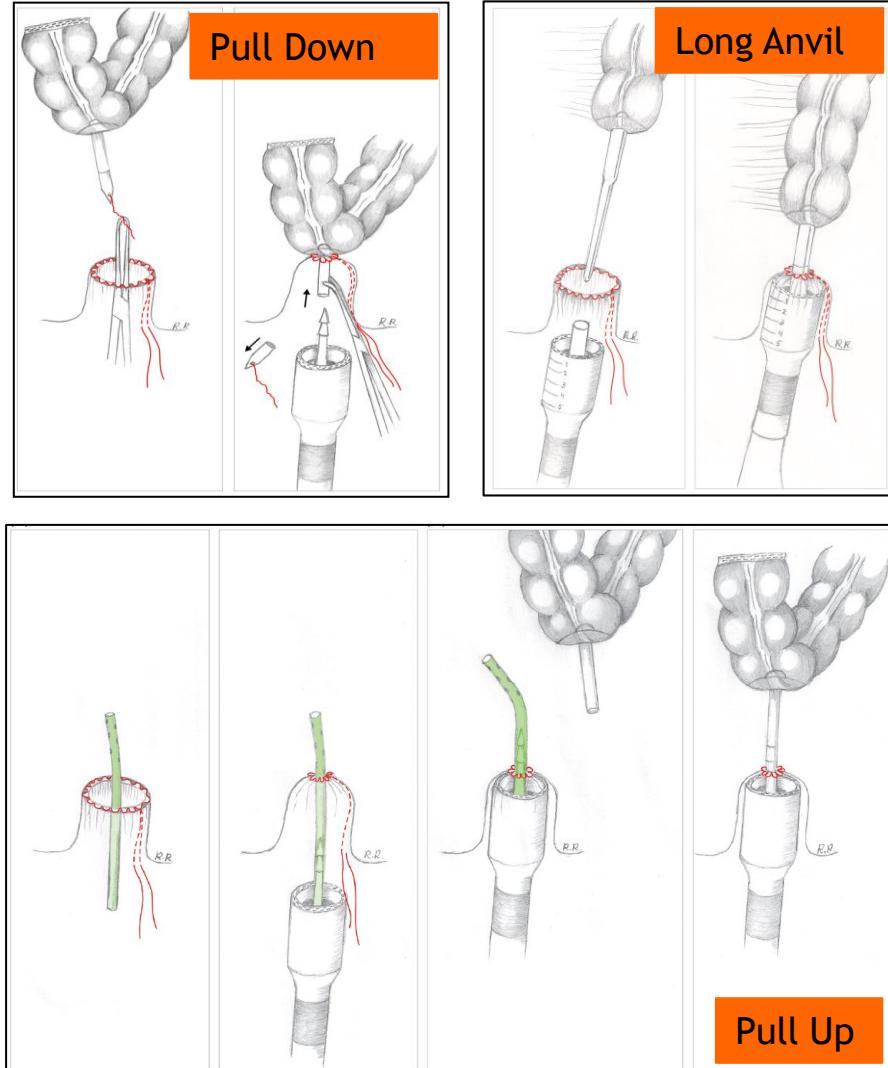


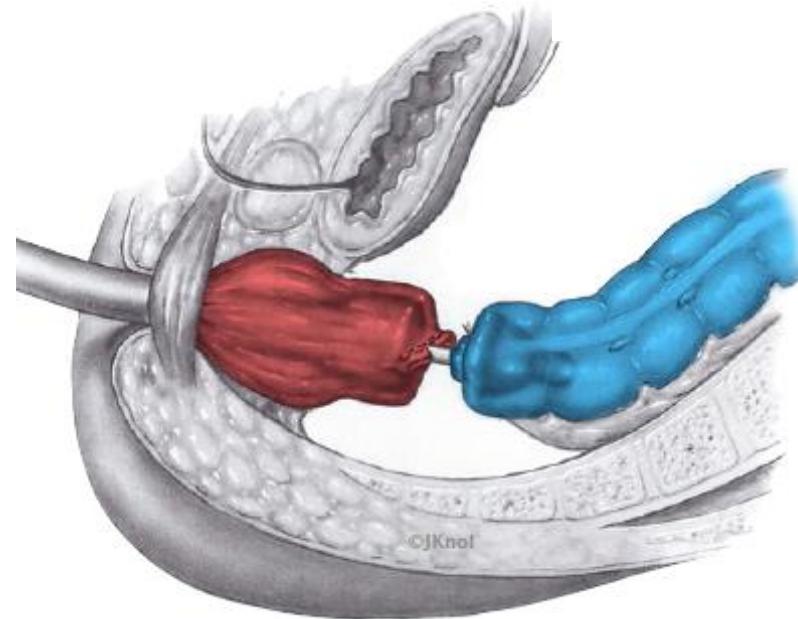
Four anastomotic techniques following transanal total mesorectal excision (TaTME)

M. Penna¹ · J. J. Knol² · J. B. Tuynman³ · P. P. Tekkis⁴ · N. J. Mortensen¹ · R. Hompes¹

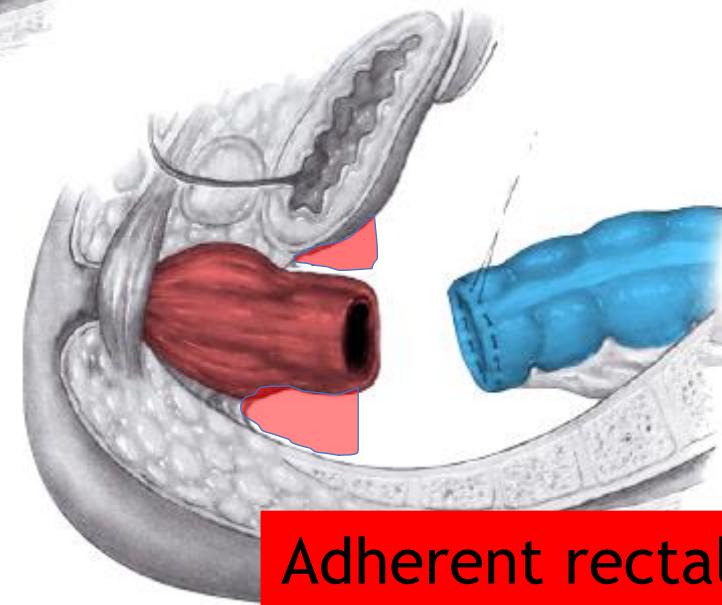
Tumour distance from anorectal junction (cm)	Start of transanal TME dissection	Anastomotic technique
Coloanal	Without platform	Handsewn
2 – 3	With platform	Long anvil Pull up Pull down
3-4	With platform	Long anvil Pull up
>4	With platform	Long anvil Pull up Standard abdominal

?





Laparoscopic TME



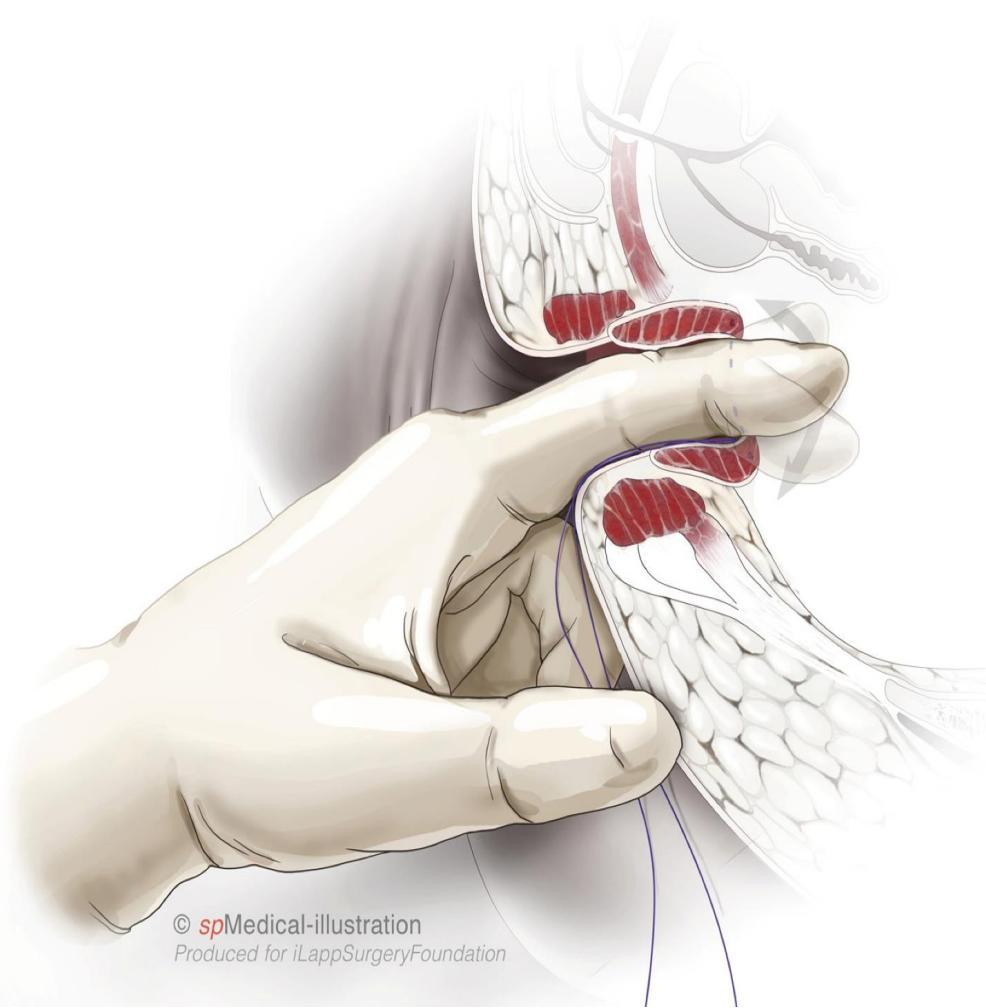
Adherent rectal cuff

1. Release Rectal Cuff
2. Distal FT Pursestring
3. Stapled anastomoses
 - > E-E / S-E / CAJP/IAJP
 - > EEA 33
 - > Standard Staplers

Transanal TME

Picture courtesy of J. Knol

Release Rectal Cuff



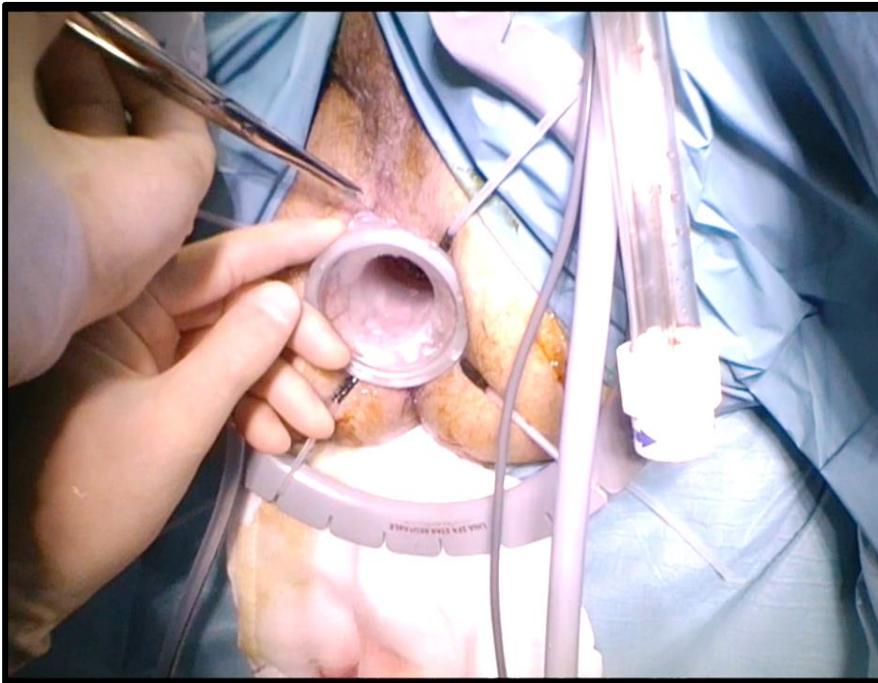
Open Blunt Release

- Bleeding
- Incomplete (anterior)
- Damage to cuff (tearing)

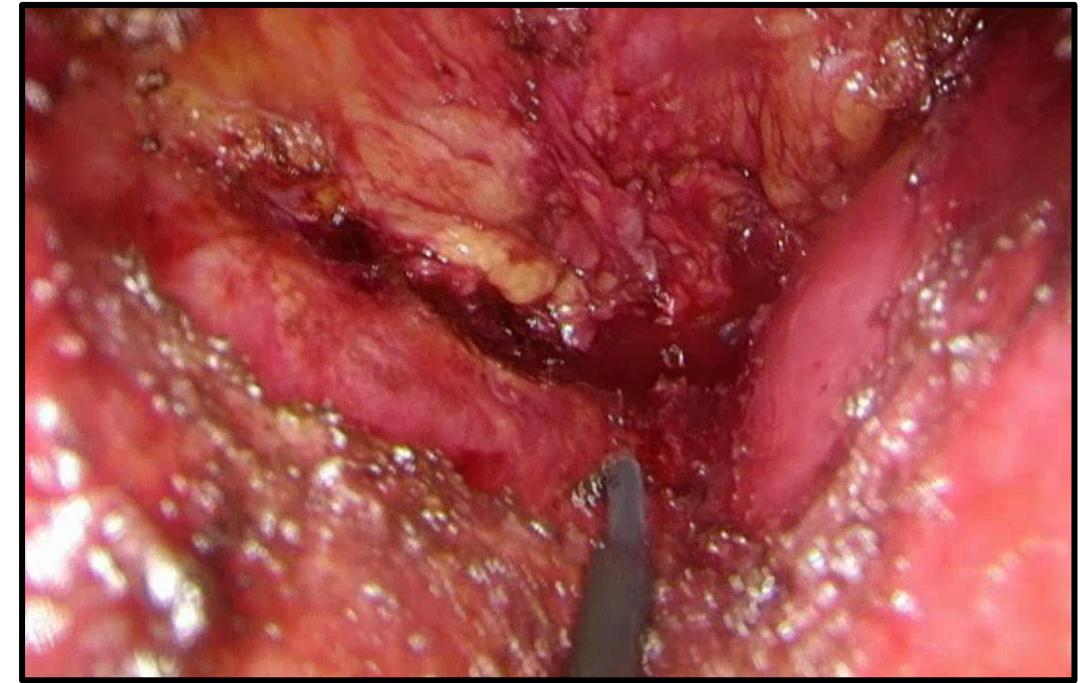


Release Rectal Cuff

Open sharp Release



Endoscopic Release

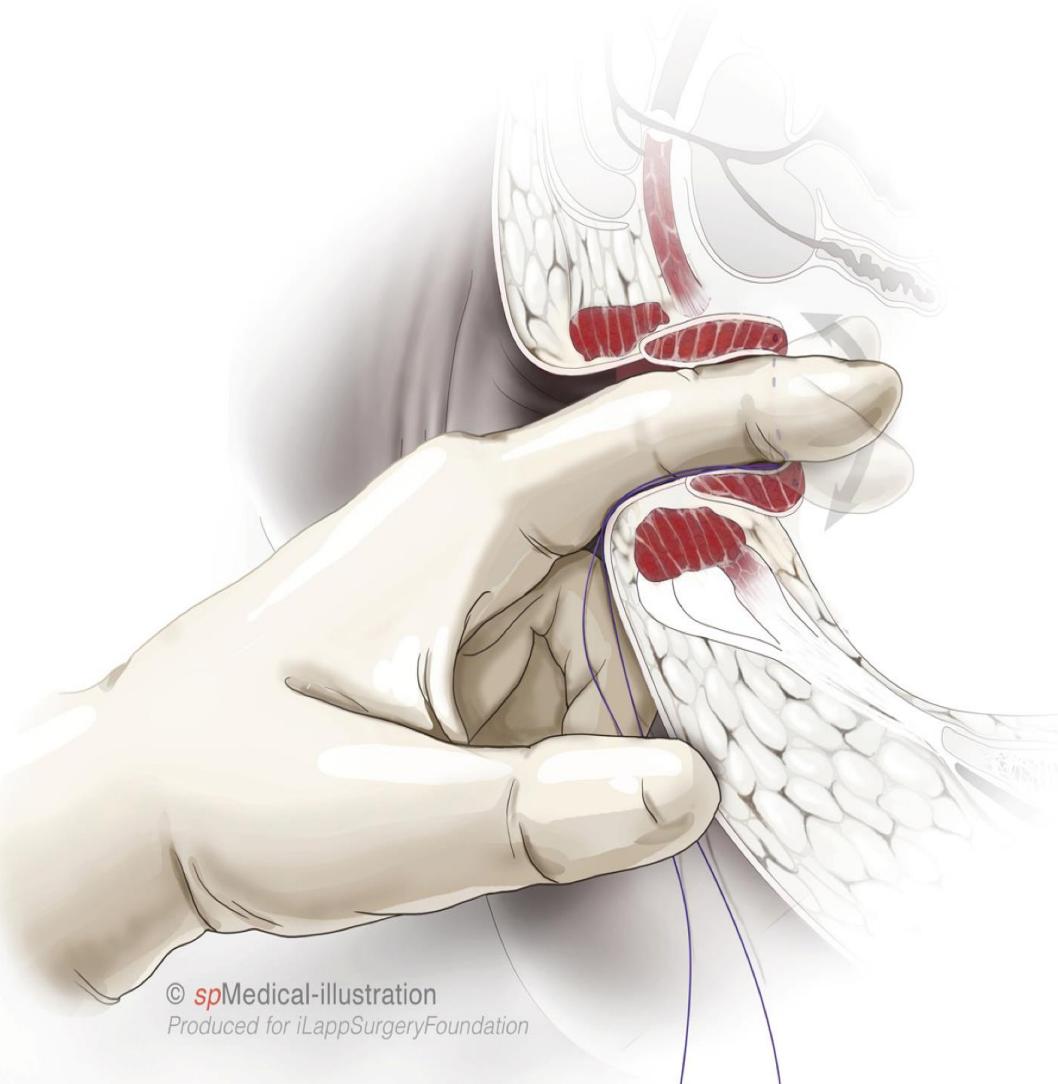


FT wall release

Initial Sharp Dissection

Open / Endoscopic

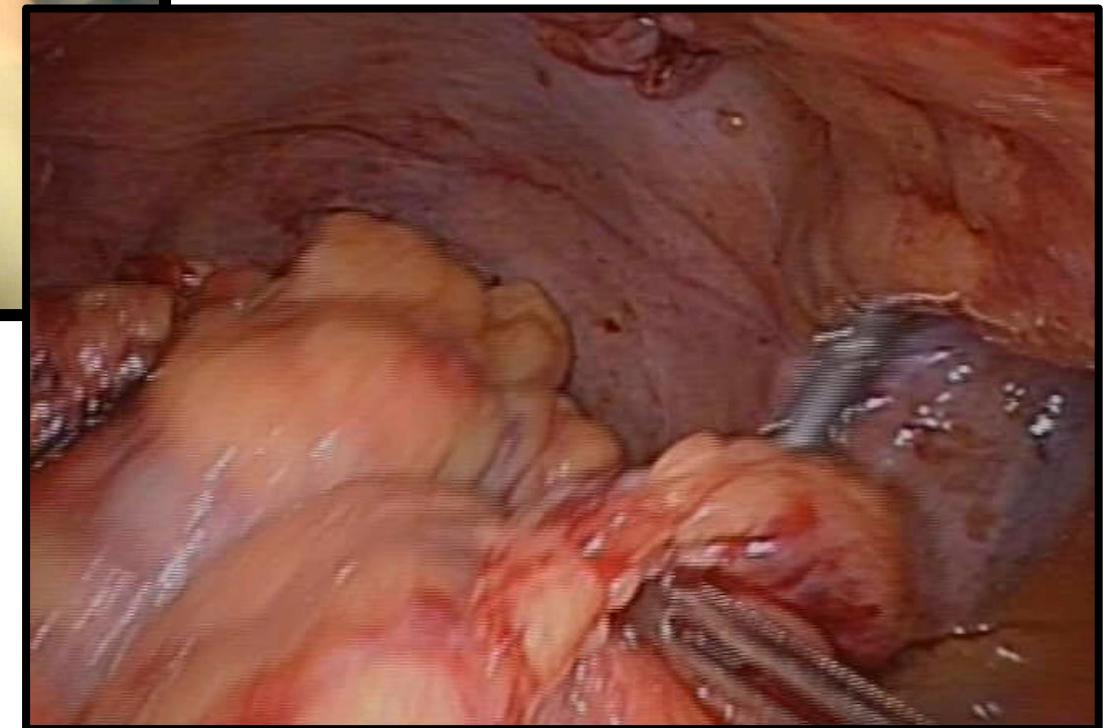
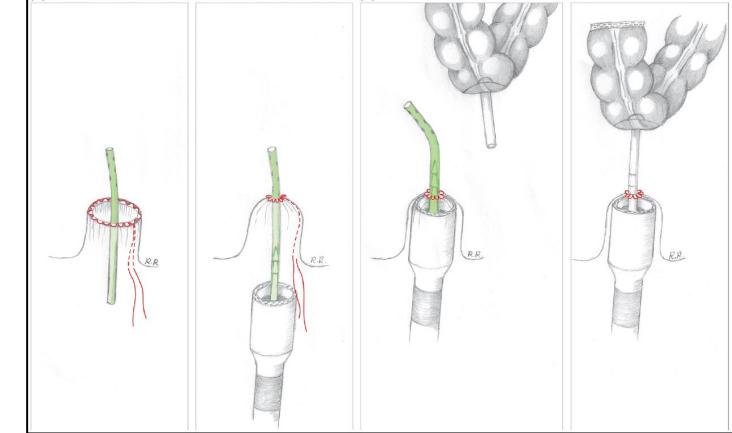
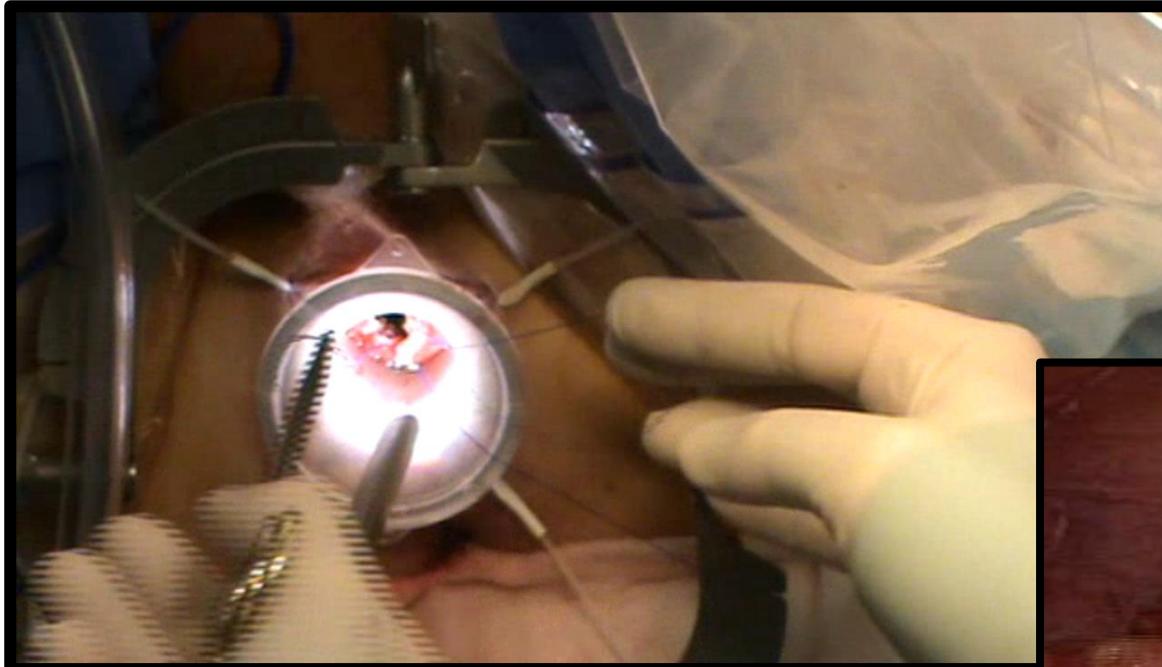
Distal Pursestring



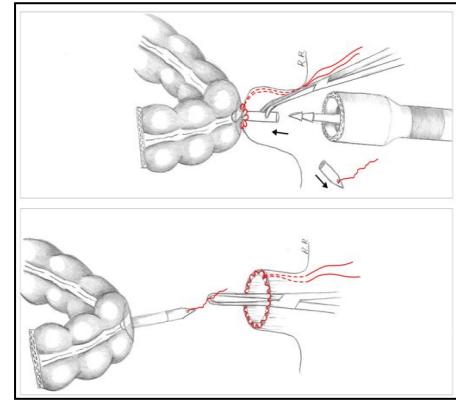
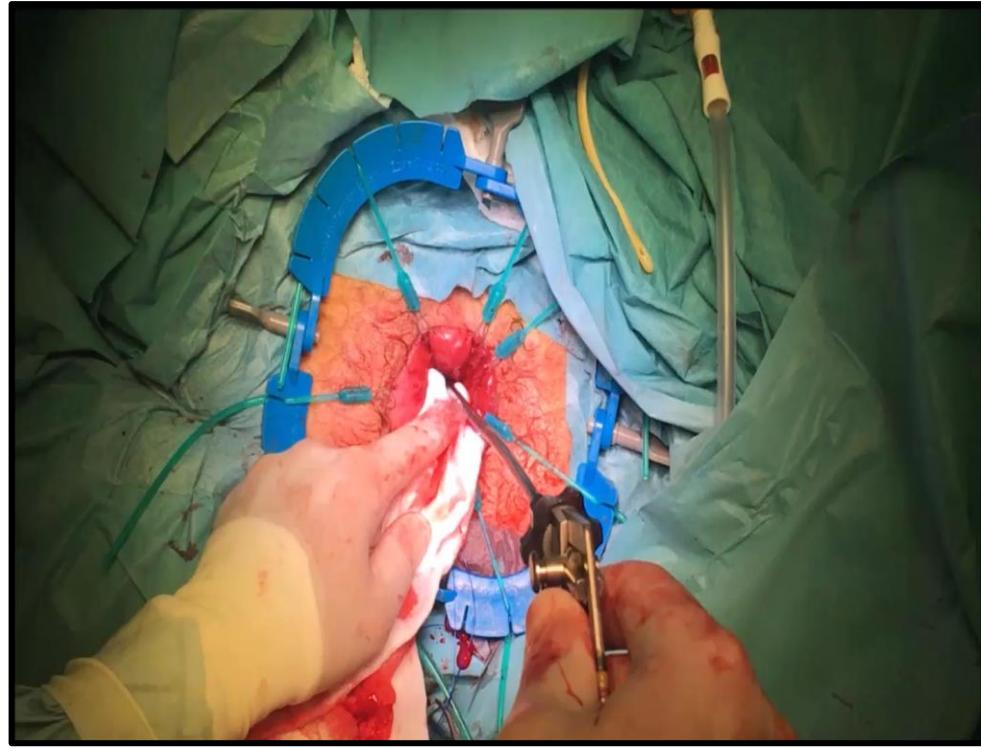
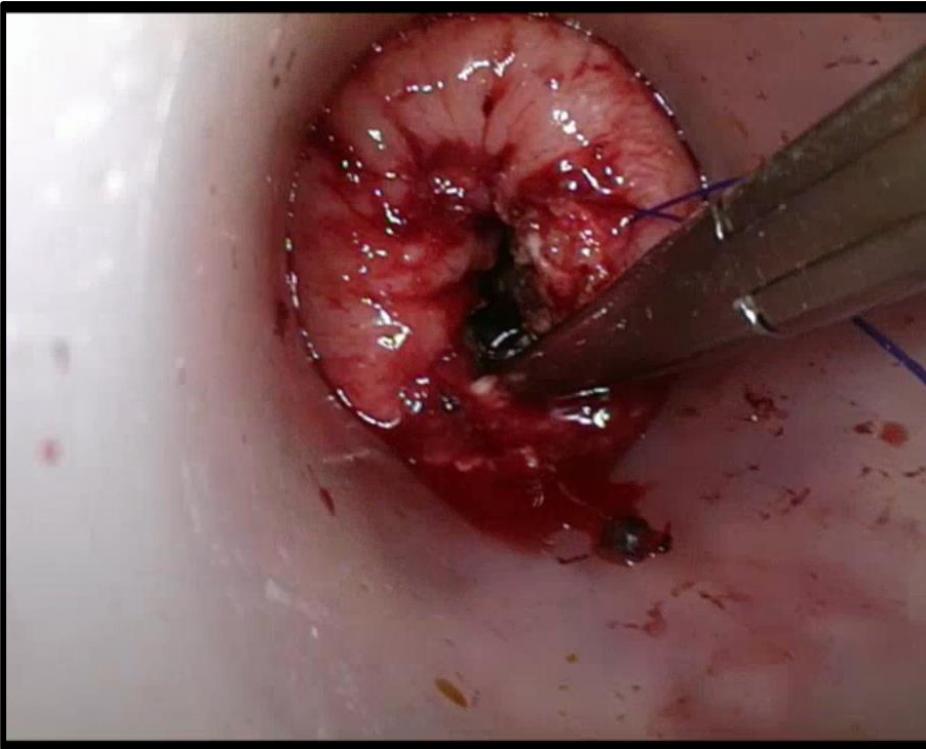
Picture courtesy of J. Knol

- Full Thickness bites, but not too wide (1-2mm)
- Start In to Out, than Out to In (Boomerang stitch)
- Overlap First & Last stich
- Check with pursestring in situ

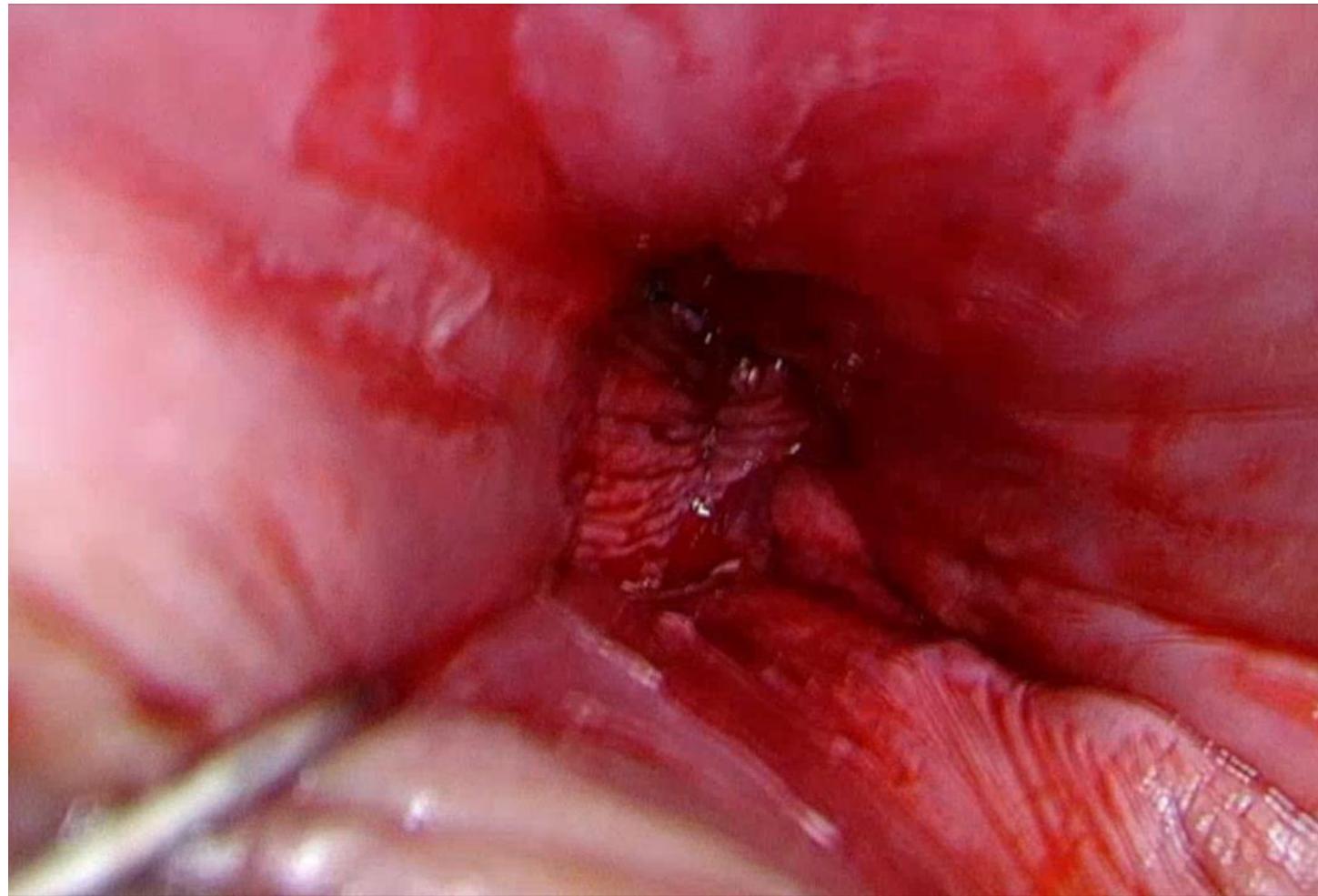
Pull Up Technique



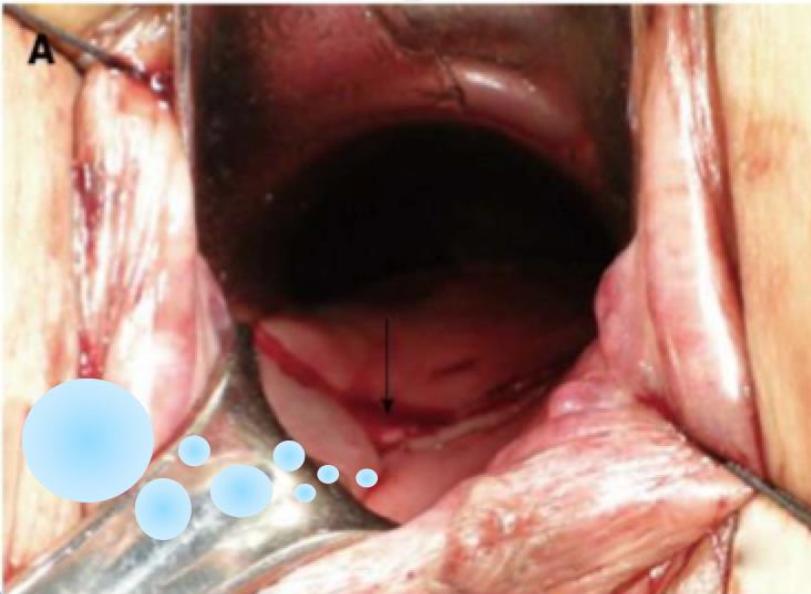
Pull Down Technique



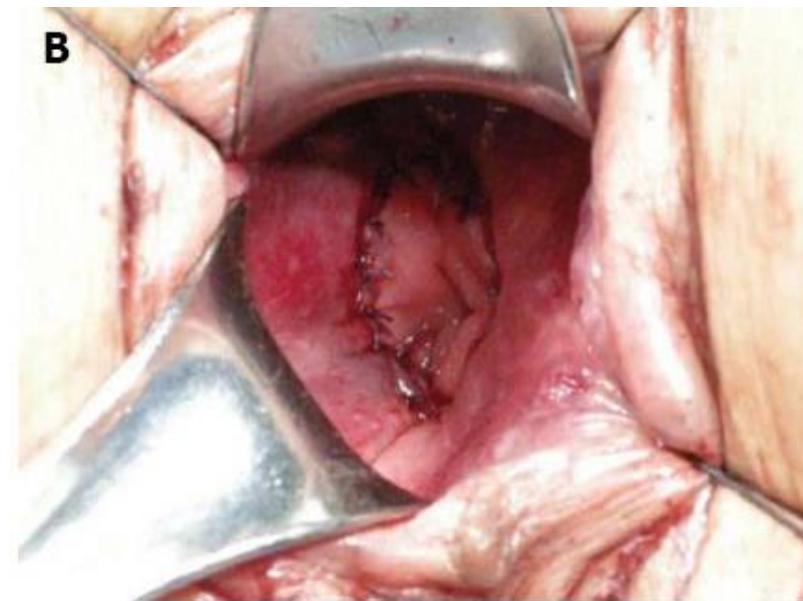
Thickness rectal cuff



POTENTIAL BENEFIT : DIRECT VISUALISATION

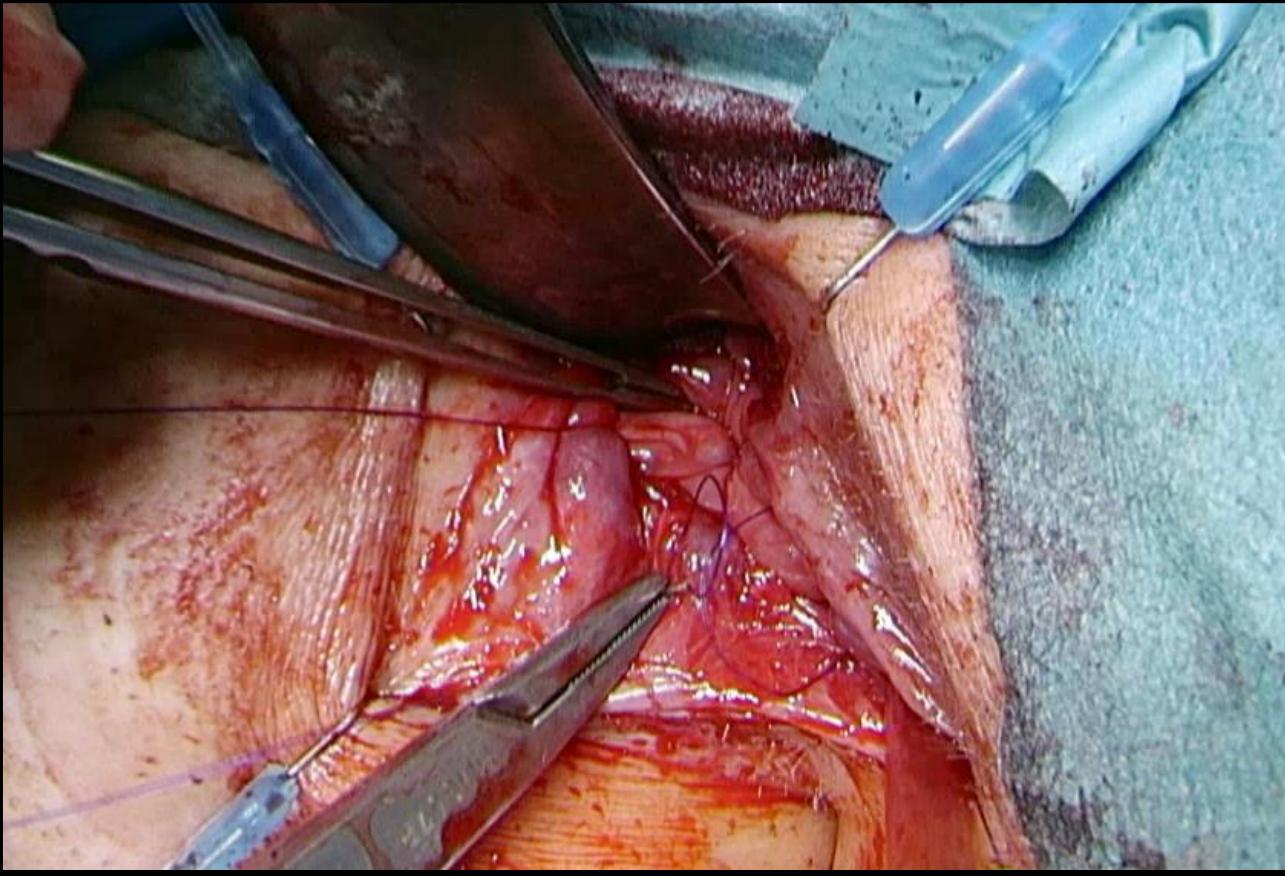


Reversed leak test using pneumoperitoneum



Transanal Over-Suturing Anastomoses

Suture Reinforcement



Circumferential

Running PDS 3/0

Lock Suture at 3, 6, 9 and 12 O'clock

TTSS : transanal transection single stapled anastomosis

Editorial

doi:10.1111/codi.14752

The rationale for expanding transanal transection and single-stapled anastomosis from transanal total mesorectal excision to open, laparoscopic and robotic resections

Rectal surgery remains a technically demanding procedure with several intrinsic difficulties related to the dissection, transection and anastomosis, regardless of technological improvements.

Currently available approaches to rectal dissection (open, laparoscopic, robotic, transanal) have different peculiarities and limitations, but in expert hands can provide adequate and similar oncological and functional outcomes in rectal cancer patients [1–3]. Rectal transection and anastomosis techniques, in addition to dissection, are performed differently across open, minimally invasive (laparoscopic and robotic) and transanal rectal surgery, potentially biasing studies that compare functional and oncological outcomes.

The transanal approach to rectal cancer surgery has been under the spotlight over recent years. Several surgeons, after gaining extensive experience of transanal proctectomy, have felt that the most relevant benefits of the bottom up approach were related to the following areas: the dissection of the lower third of the rectum in patients with a hostile pelvic anatomy; rectal transection performed under visual control – avoiding multiple stapling and reducing the risk of distal margin tumour involvement; and single stapled anastomosis – avoiding potential risk factors for leak such as cross stapling and dog ears, even if the comparative benefits of single stapled anastomosis over conventional double stapled are still unproven.

Recently, a number of criticisms have been raised over the transanal total mesorectal excision (TaTME) technique, including concerns about new complications like urethral damage or carbon dioxide embolism, and multifocal local cancer recurrence – potentially related to the use of pelvic insufflation and spread of cancer cells [4] very rarely previously reported in other approaches.

The transanal rectal transection and single stapled anastomosis (TTSS) strategy that we previously described in this journal [5] (video link: codi14631 sup 0001 VideoS1.mov) offers rectal transection under precise visual control and a single stapled anastomosis to all patients requiring a total proctectomy, independently of the approach chosen by the surgeon for rectal dissection whether based upon preference, availability, anatomy, expertise or indication.

Further interesting features of TTSS that are worthy of investigation include the possibility of a more selective use of transanal bottom up dissection with TaTME and

its related risks, which are currently being carefully scrutinized. TaTME dissection would be reserved only for those difficult cases where that approach can eventually be advantageous, while in all the remaining cases the surgeon and the patient could still benefit from the TTSS strategy paired to other approaches for dissection. Moreover, overall costs of the different surgical approaches could also be relevantly reduced by eliminating the use of staplers for the distal transection of the rectum.

From a scientific point of view, removing major confounders in the different techniques of transection and of anastomosis by adopting a uniform strategy, for example TTSS, would allow a more homogeneous and clean comparison of the different approaches to rectal dissection on several end points, both functional and oncological.

A prospective multicentre trial is currently being designed to investigate such a TTSS strategy in patients with rectal cancer in an effort to examine these intriguing surgical challenges, with an ongoing focus to lead to better outcomes for our patients.

Antonino Spinelli

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Humanitas Research Hospital, Milan, Italy

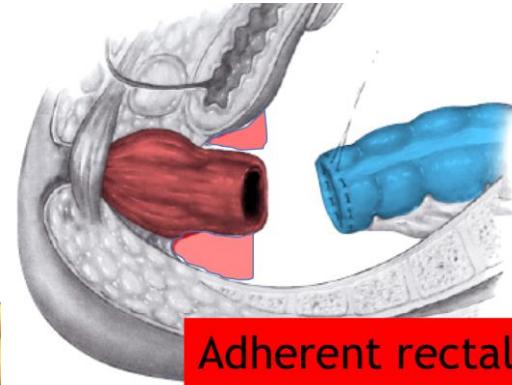
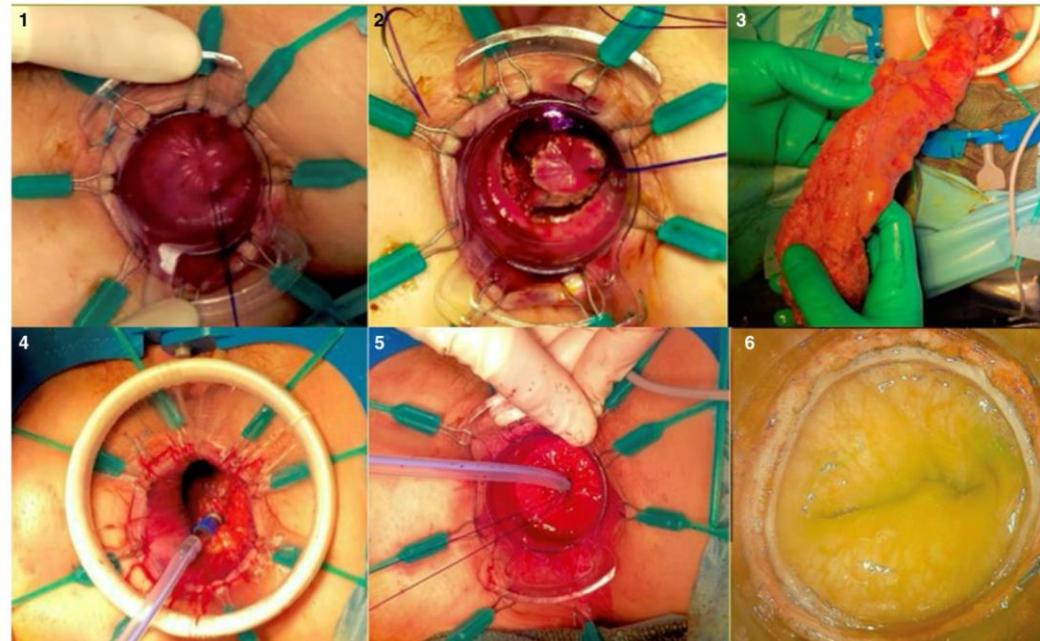
@AntoninoSpin

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Incorporates 2/3 essential steps of TaTME into any Low stapled anastomosis

- Transanal Resection
- Double pursestring single stapled
- Dissection



Adherent rectal cuff

• Available to every surgeon

• Reduce costs

• Distal TME dissection in LOREC

HUMANITAS

RESEARCH HOSPITAL



**Encorporating transanal techniques to standardize transection and anastomosis
in all approaches to rectal resection.**

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www.micors.org

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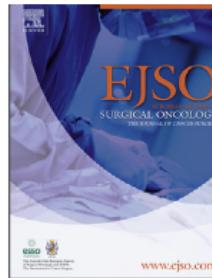
³Department of Abdominal Surgery. University Hospital Gasthuisberg Leuven, Belgium



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Transanal Transection and Single-Stapled Anastomosis (TTSS): A comparison of anastomotic leak rates with the double-stapled technique and with transanal total mesorectal excision (TaTME) for rectal cancer

Antonino Spinelli ^{a, b, 1,*}, Caterina Foppa ^{a, b, 1}, Michele Carvello ^{a, b}, Matteo Sacchi ^b, Francesca De Lucia ^b, Giuseppe Clerico ^b, Francesco Maria Carrano ^b, Annalisa Maroli ^b, Marco Montorsi ^{a, b}, Richard J. Heald ^c



277 pats → TME for rectal cancer

Comparison of **short-term outcomes** between:

- **127 LAP TME + double stapled (DS)**
- **100 Transanal Total Mesorectal Excision (TaTME)**
- **50 Transanal Transection and Single Stapled Anastomosis (TTSS)**

Outcome	DS (127)	TaTME (100)	TTSS (50)	P-value
Lenght of stay	5 [2-28]	5 [2-26]	5 [3-22]	0.791
30-days complications	16.5%	14%	8%	0.339
90-days complications	24.4%	16%	8%	0.029*
Anastomotic leak	17.3%	6%	2%	0.002**
Reintervention	12.6%	6%	2%	0.008***
Postop transfusions	2.3%	--	--	0.741
Stoma closed	96.8%	94%	100%	0.409

*significant for DS vs TTSS

**significant for DS vs TTSS and DS vs TaTME

***significant for DS vs TTSS

Spinelli, EJSO 2021

Mechanical vs handsewn

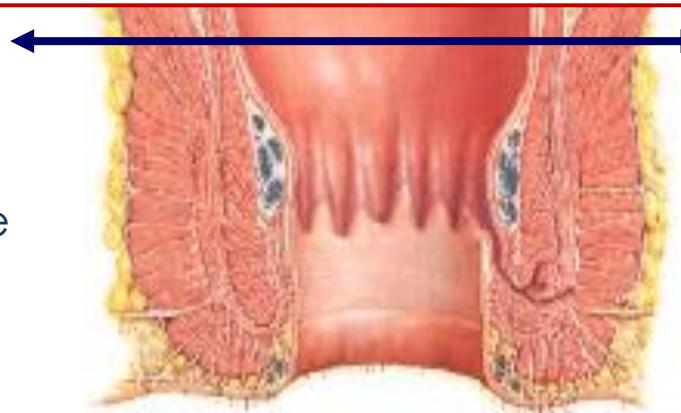
> 4 cm from dental line



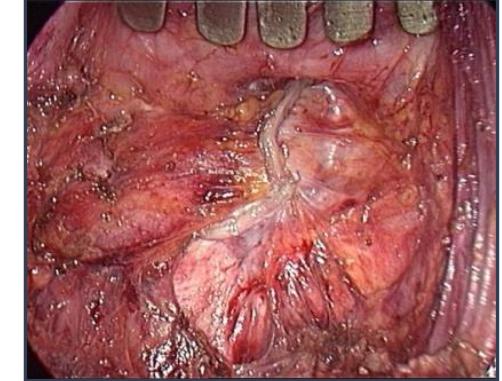
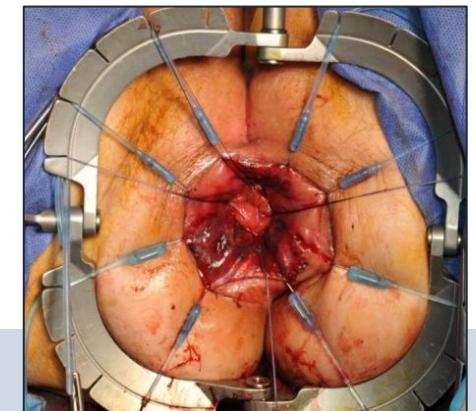
Mechanical CAA

"Critical zone" where the choice between manual and mechanical can be difficult
Interest of the first perineal approach TaTME

< 2 cm from dental line

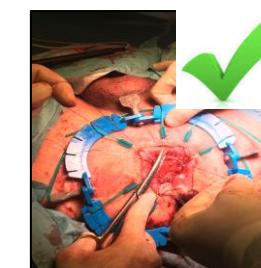
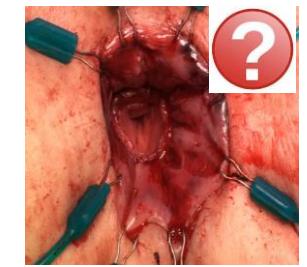
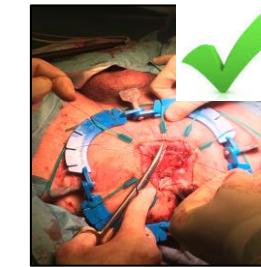
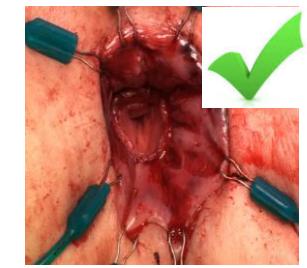
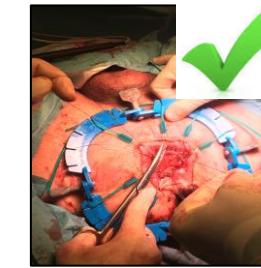


Hand sewn CAA



classification of coloanal anastomosis

- Type 1 - >2cm from DL
supra-anal tumour
- Type 2 - 1-2cm from DL
juxta-anal tumour
- Type 3 - <1cm from DL
intra-anal; tumour



Techniques - anastomosis rate

Top Down

Bottom up

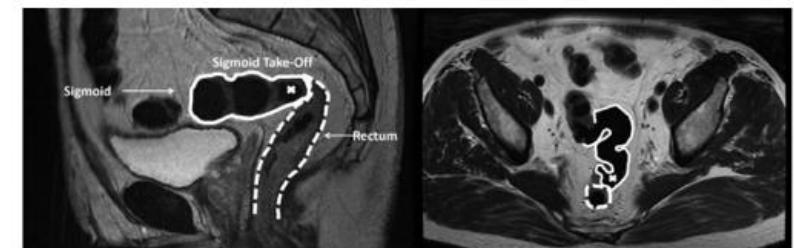
Experienced centres – retrospective cohort

11 Dutch centers:

- 3 Robot-assisted, 5 laparoscopic, 3 TaTME
- Rectal cancer (MRI defined)
- All comers
- 2015-2017
- Experienced surgeons -> beyond learning curve



Diakonessenhuis+



Techniques - anastomosis rate

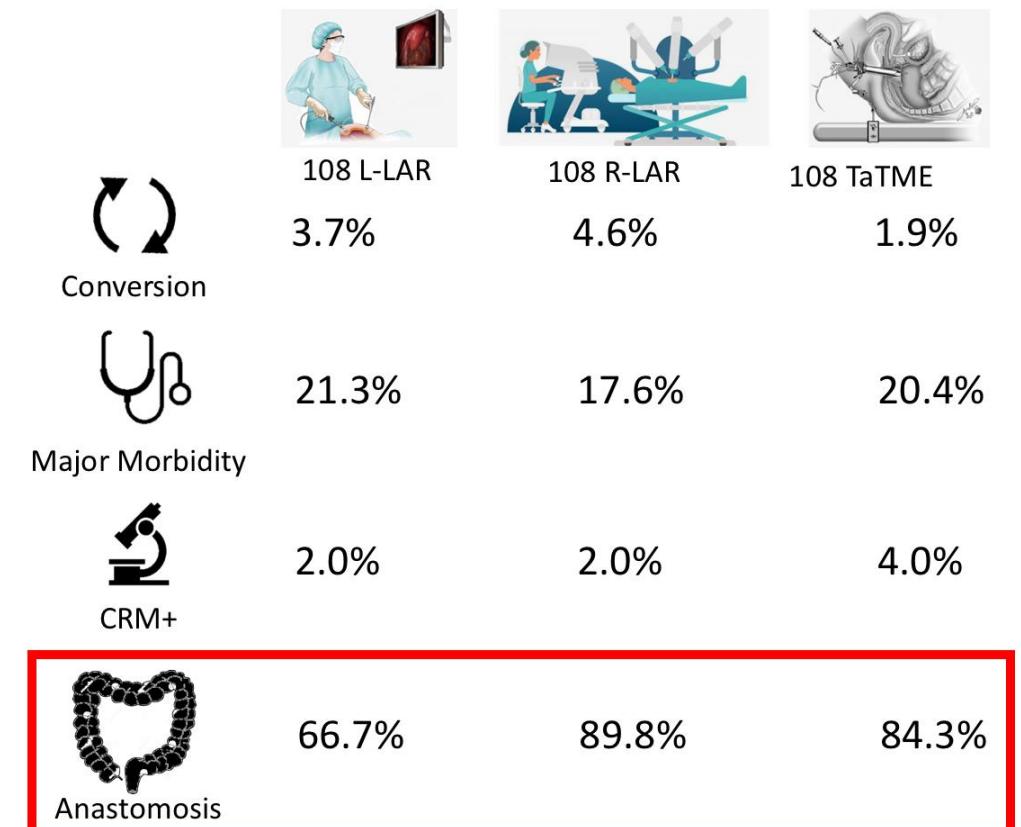
Comparison of laparoscopic versus robot-assisted versus transanal total mesorectal excision surgery for rectal cancer: a retrospective propensity score-matched cohort study of short-term outcomes. Hol et al, Br J Surgery, 2021 aug

617 patients undergoing LAR

- Propensity scored matched analysis

Short term outcomes

- Primary outcomes: conversion
- Secondary outcomes:
 - Major morbidity
 - CRM+
 - Primary anastomosis



Techniques - anastomosis rate

Laparoscopic versus robot-assisted versus transanal low anterior resection: 3-year oncological results. Burghgraef et al (accepted Ann of Surg Onc)

- Same cohort
 - Cox regression
 - Logistic regression

- 3-year oncological outcomes
 - Local recurrence
 - DFS
 - OS

- Logistic regression:
 - R-TME / TaTME associated with lower permanent stoma rate



252 L-LAR	205 R-LAR	160 TaTME
3-yr OS	90.0%	90.4%
3-yr DFS	77.8%	75.8%
3-yr LR	6.1%	6.4%
Permanent stoma rate	42.1%	22.0%
	Ref.	OR 0.40
		OR 0.42

Techniques - anastomosis rate

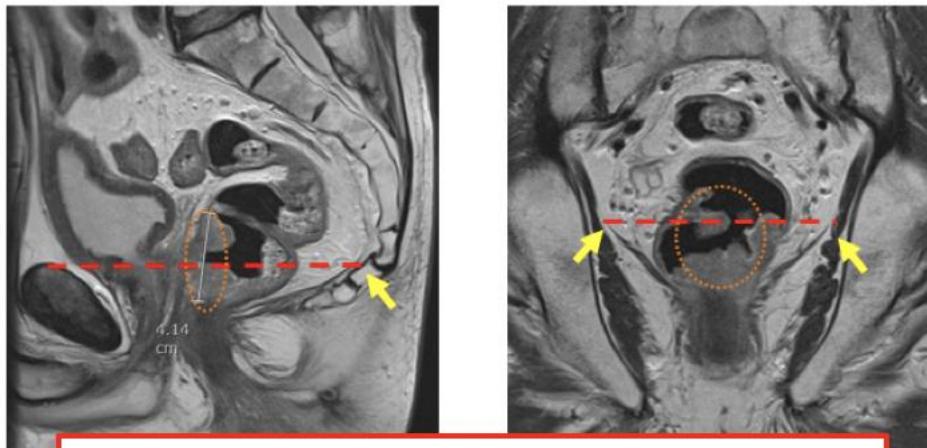
Original article

doi:10.1111/codi.12501

The English National Low Rectal Cancer Development Programme: key messages and future perspectives

B. J. Moran*, T. Holm†, G. Brannagan‡, H. Chave‡, P. Quirke§, N. West§, G. Brown , R. Glynn-Jones*, D. Sebag-Montefiore†, C. Cunningham‡, A. Z. Janjua , N. J. Battersby , S. Crane , and A. McMeeking

*Colorectal Surgery, Hampshire Hospitals Foundation Trust, Basingstoke, UK; †Colorectal Surgery, Karolinska Institutet, Stockholm, Sweden; ‡Colorectal Surgery, Salisbury NHS Foundation Trust, Salisbury, UK; §Institute of Cancer and Pathology, University of Leeds, Leeds, UK; ¶Academic Department of Radiology, Royal Marsden Hospital, London, UK; **Gastrointestinal Oncology, Mount Vernon Hospital, London, UK; ††Oncology and Clinical Research, University of Leeds, Leeds, UK; #Colorectal Surgery, Oxford University Hospitals NHS Trust, Oxford, UK; §§Colorectal Research, Pelican Cancer Foundation, Basingstoke, UK and ¶¶National Cancer Action Team, National Cancer Programme, London, UK



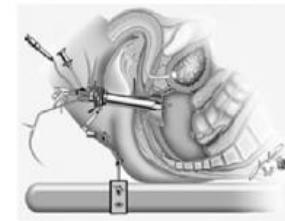
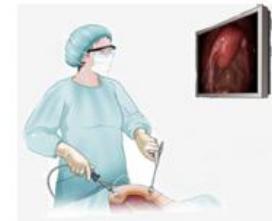
"tumour with its lower border at or below the origin of the levators on the pelvic sidewall"

Primary : short term oncologic outcomes
Secondary : conversion, morbidity, AR, CIM

Patient characteristics	Total n=633 (%)	LOREC			P-value
		Lap n=317 (n, %)	Rob n=173 (n, %)	TaTME n=143 (n, %)	
Age	Mean (SD)	67	67 (9.9)	68 (10.6)	65 (11.7) 0.04
BMI	Mean (SD)	26	26 (4.4)	26 (4.0)	26 (3.9) 0.47
Sex					
Male	63.5	197 (62.1)	109 (63.6)	95 (66.4)	0.68
Female	36.5	120 (37.9)	63 (36.6)	48 (33.6)	
ASA					
I	19.7	55 (17.4)	40 (23.1)	30 (21.0)	0.15
II	60.3	200 (63.1)	93 (53.8)	89 (62.2)	
III	19.0	57 (18.0)	40 (23.1)	23 (16.1)	
IV	0.9	5 (1.6)	0 (0.0)	1 (0.7)	
History of abd. surgery	Yes	30.0	98 (30.9)	48 (27.7)	44 (30.8) 0.77
Tumor characteristics					
Distance of tumor to ARJ in cm	Median [IQR]	3 [0-5]*	3 [1-5]	3 [1-5]	2 [0-3] <0.001
Preop MRF	≤1 mm	34.5	97 (30.9)	67 (39.0)	53 (37.1) 0.14
cT-stage	cT1	0.2*	0 (0.0)	0 (0.0)	1 (0.7) 0.18
	cT2	27.7	87 (27.5)	48 (27.9)	40 (28.0)
	cT3	61.3	202 (63.9)	98 (57.0)	87 (60.8)
	cT4	10.8	27 (8.5)	26 (15.1)	15 (10.5)
cN-stage	cN0	41.7	128 (40.4)	61 (35.5)	74 (52.1) 0.01
	cN1	32.6	97 (30.6)	65 (37.8)	44 (31.0)
	cN2	25.7	92 (29.0)	46 (26.7)	24 (16.9)
cM-stage	cM0	94.1	301 (95.0)	164 (95.3)	129 (90.8) 0.17
	cM1	5.9	16 (5.0)	8 (4.7)	13 (9.2)
Neoadjuvant therapy	None	32.6*	107 (34.9)	48 (27.7)	48 (33.6) 0.02
	RT	31.9	89 (29.0)	72 (41.6)	38 (26.6)
	CRT	35.5	111 (36.2)	53 (30.6)	57 (39.9)

Techniques - anastomosis rate

LOREC : short term



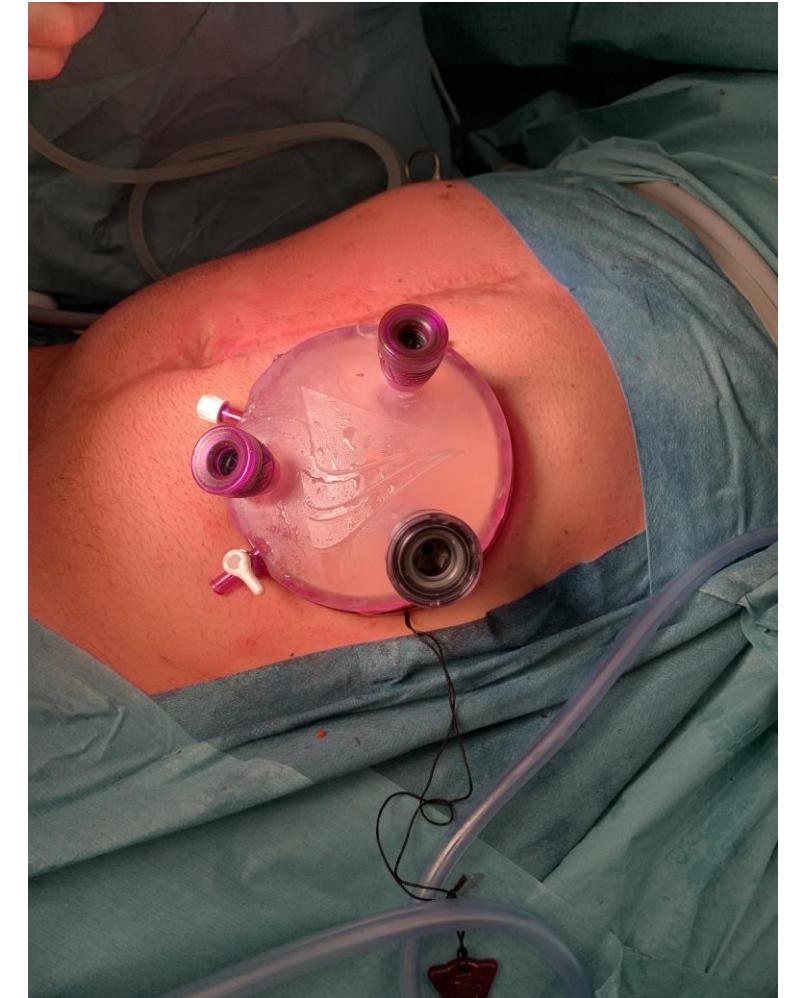
	L-TME (N=317)	R-TME (N=173)	TaTME (N=143)	P-value
Restorative procedure	24.6%	37.2%	50.3%	<0.001
Conversion	5.0%	2.3%	4.2%	0.35
Change of Mx plan intra-op	10.4%	5.2%	2.1%	0.004
30-day CD ≥3	22.1%	19.2%	23.1%	0.66
Anastomotic leakage	23.1%	23.4%	25%	0.96
CRM + and/or DRM +	4.8%	9.7%	9.1%	0.80
Incomplete TME specimen	7.7%	9.3%	5.1%	0.37
Composite endpoint	13.1%	17.1%	13.8%	0.52



Redo Surgery

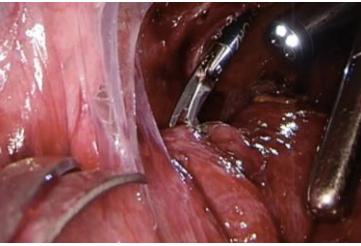
What is my preferred approach for HR?

- Majority of cases : explore laparoscopic approach (unless combination with AWR)
- Mobilise colostomy
 - Free up abdominal wall - impression of adhesions
 - Gelpoint - Glove port + 1 or 2 extra ports
- Adhesiolysis : set progression limits !
- Transanal for low Hartmann's stump



Transanal Hartmann reversal: a new technique

R. Bravo¹ · M. Fernández-Hevia¹ · M. Jiménez-Toscano¹ · L. F. Flores¹ ·
B. de Lacy¹ · S. Quaresima¹ · A. M. Lacy¹



Steps - 2team approach :

- Adhesiolysis Lap
- Preparation colonic conduit
- Division rectal stump TA
- Pursestring TA
- Anastomosis

Transanal Hartmann's colostomy reversal assisted by laparoscopy: outcomes of the first 10 patients

Jean-Sébastien Trépanier^{1,2} · María Clara Arroyave^{1,3} · Raquel Bravo¹ ·
Marta Jiménez-Toscano¹ · Francisco B. DeLacy¹ · María Fernandez-Hevia¹ ·
Antonio M. Lacy¹

- N=10 (M:F ; 5:5)
- BMI 26.5 (+/- 3.8) - Obese n=2
- Indication
 - AL : 4
 - Diverticulitis : 3
 - Colorectal Ca : 3
- Stump Length :
 - < 5cm: 2
 - 5-10 cm: 2
 - > 10cm: 6

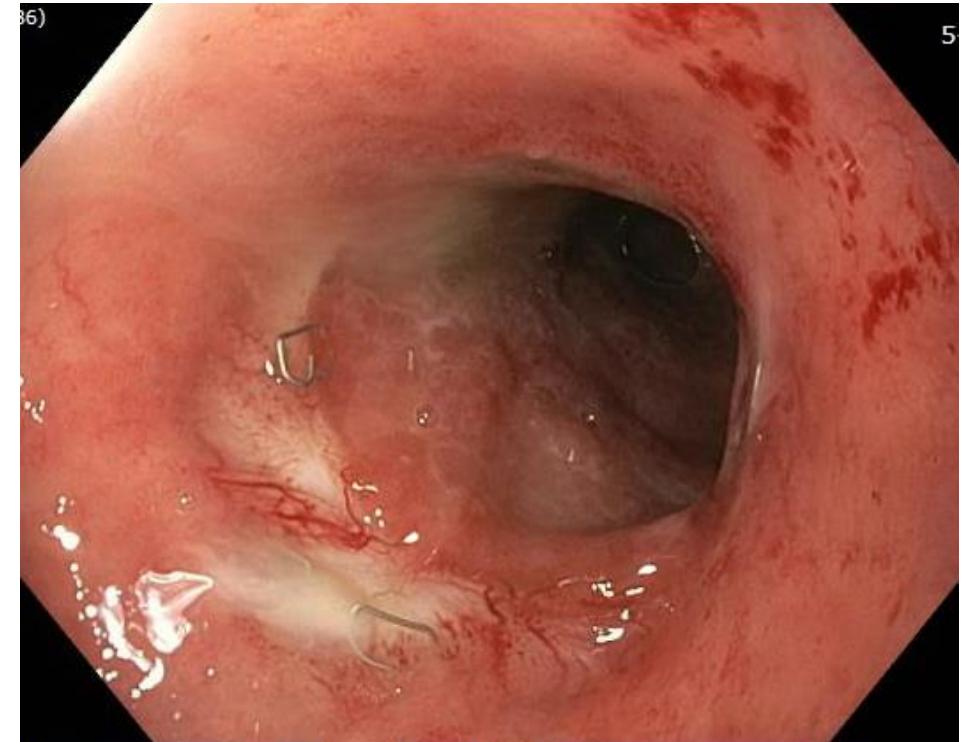
- No leaks
- Ileus (2)
- Abces (1)

TA approach : value in low stumps !!



Clinical Case (1)

- Febr 2016 low Hartmann for ypT2N0
 - Abscess Hartmann stump
 - Rectoscopy 2017: **seems** closed
- > tertiary referral for Hartmann's reversal

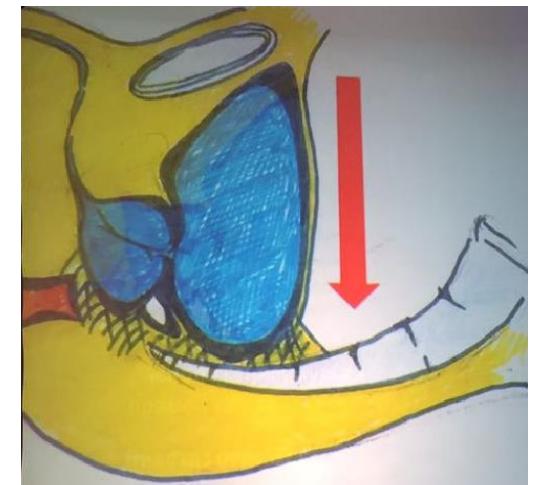
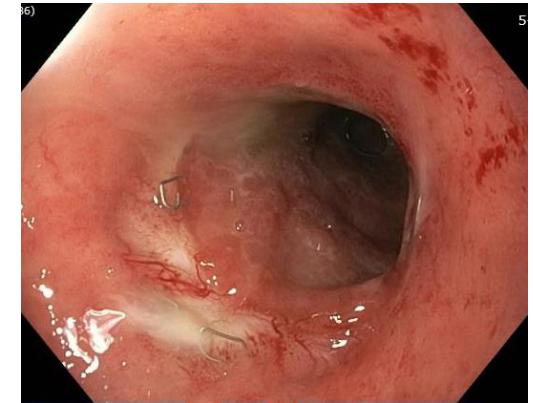
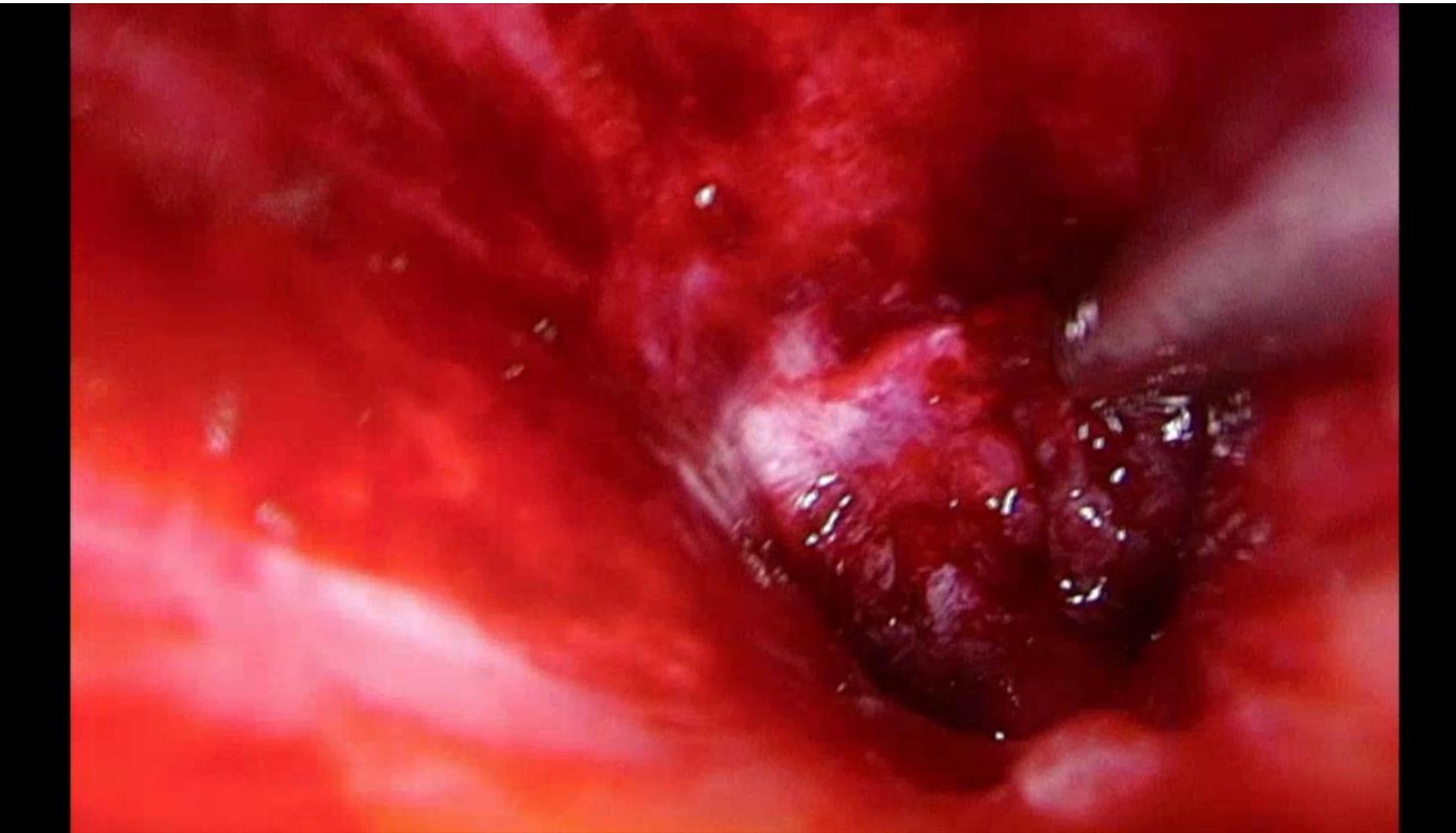


The problem in ultralow Hartmann's closure



- Bladder / prostate-vesiculae / vagina drop posterior
- Very difficult access from above

Awareness / Imaging !!





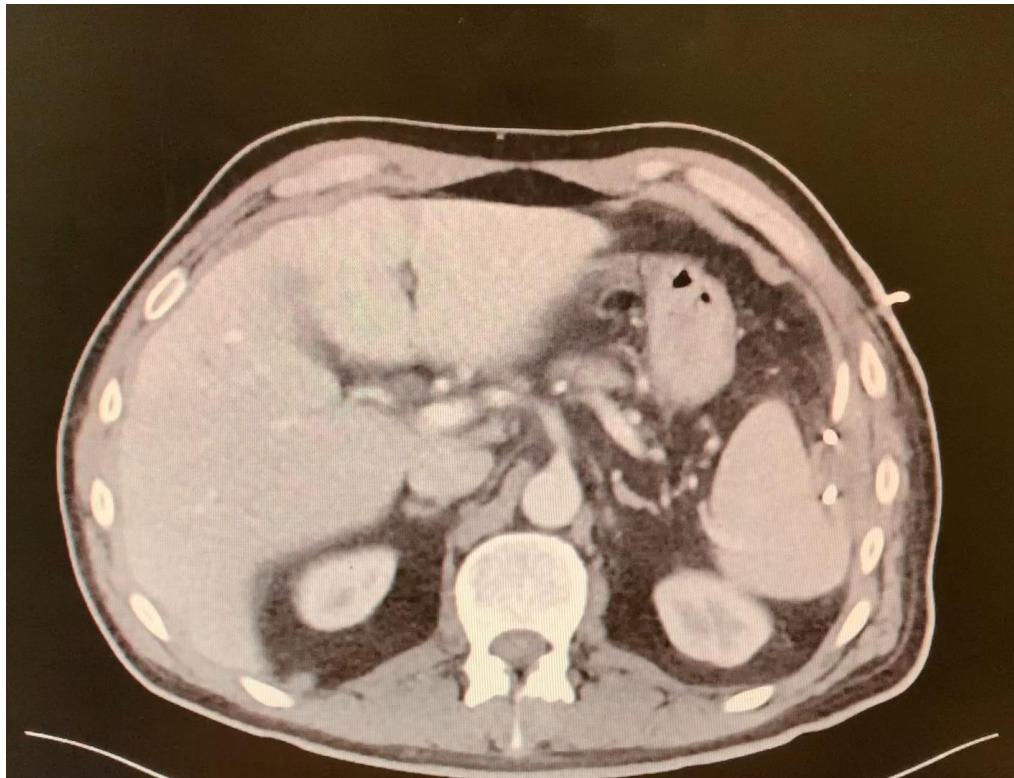
Clinical Case (2)

- 46 yo Male
- mT3bN1 mid Rectal tumor
- LAR with E-E anastomosis
- Re-op post-op day 3 : ischemic colonic conduit (open)
 - Hartmann's : stoma distal transversum
 - Omentoplasty to rectal stump
 - Catheter in rectal stump



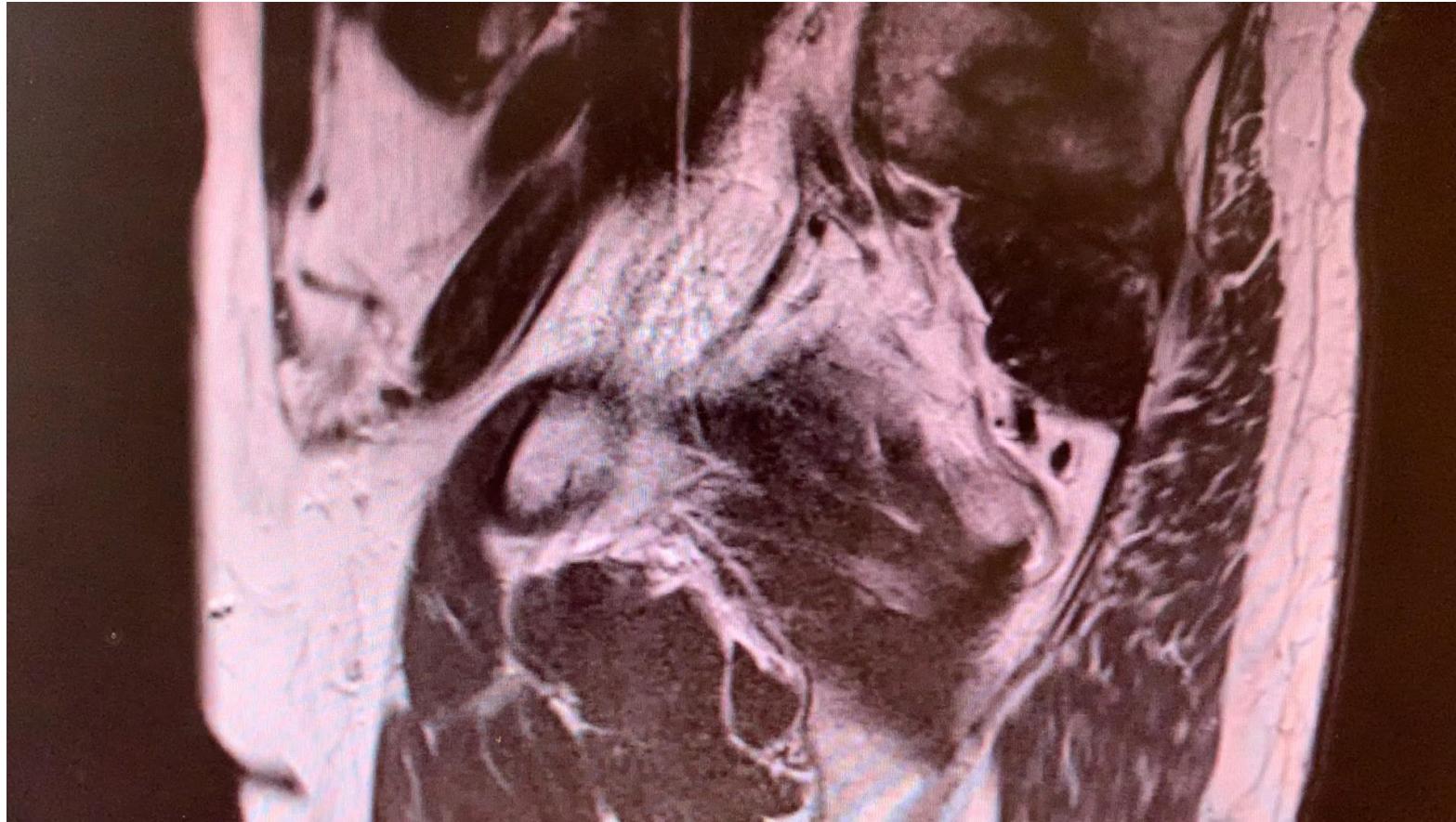


Clinical Case (2)





Clinical Case (2)



Right Colon to Rectal Anastomosis (Deloyers Procedure) as a Salvage Technique for Low Colorectal or Coloanal Anastomosis: Postoperative and Long-Term Outcomes

Gilles Manceau, M.D. • Mehdi Karoui, M.D., Ph.D. • Sylvie Breton, M.D.
 Anne-Sophie Blanchet, M.D. • Geraldine Rousseau, M.D. • Eric Savier, M.D.
 Jean-Michel Siksek, M.D. • Jean-Christophe Vaillant, M.D. • Laurent Hannoun, M.D.

TABLE 1. Characteristics of patients who underwent a Deloyers procedure

Variable	No. of patients (%)
Sex	
Male	38 (79)
Female	10 (21)
Age at surgery, y ^a	67 (38–83.5)
BMI (kg/m ²) ^a	24 (17.5–42)
ASA score	
1–2	19 (40)
3–4	29 (60)
No. of comorbidities ^{a,b}	1.5 (0–5)

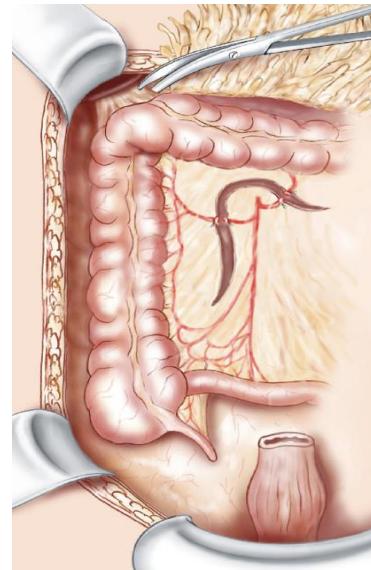
^aMedian (range).

^bIncluding cardiovascular history, neurologic comorbidity, diabetes, chronic obstructive pulmonary disease, pulmonary embolism history, cirrhosis, and chronic renal failure.

Single center - 12 years
 N=48
 Median FY : 27 months

TABLE 2. Indications for Deloyers procedure

	No. of patients (%)
Hartmann reversal	17 (35)
Failed previous colorectal anastomosis	11 (23)
Leakage with chronic pelvis sepsis	6
Stenosis	5
Diverticular disease	6 (12)
Left colonic diverticulitis	5
Diverticular hemorrhage	1
Left colon cancer	6 (12)
Ischemic colitis	3 (6)
Iterative colectomy for cancer	3 (6)
Local recurrence of rectal cancer	1 (2)
Synchronous primary (transverse and sigmoid) colon cancer	1 (2)



Right Colon to Rectal Anastomosis (Deloyers Procedure) as a Salvage Technique for Low Colorectal or Coloanal Anastomosis: Postoperative and Long-Term Outcomes

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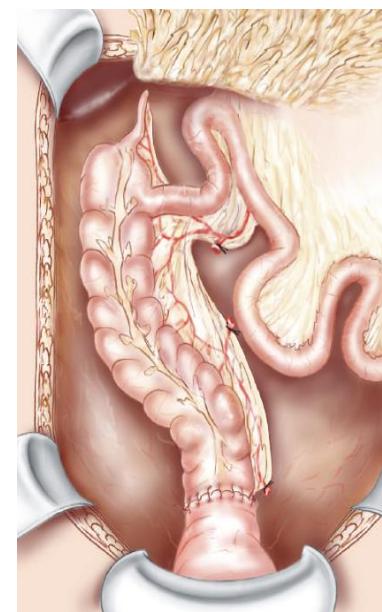
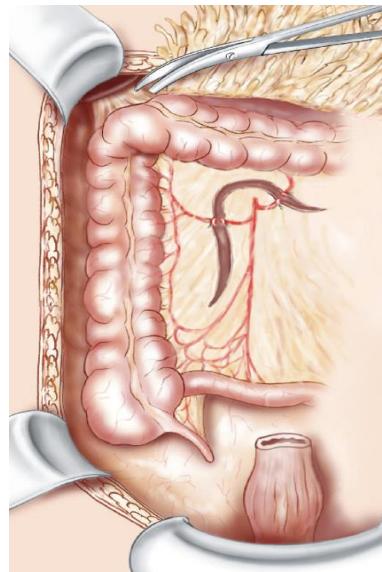
TABLE 3. Postoperative morbidity (early complications) after Deloyers procedure

	No. of patients (%)
Postoperative mortality	1 (2)
Early complications	11 (23)
Severe complications (Dindo ≥ 3)	3 (6)
Type of complications	
Intra-abdominal hemorrhage	2
Wound infection	2
Persistent ileus	3
Pneumonia	2
Acute renal failure	1
Acute urinary retention	1
Reoperation	2 (4)
Length of hospital stay	12 (6-23)

Single center - 12 years
 N=48
 Median FY : 27 months

Functional outcomes (n=39) : 83%

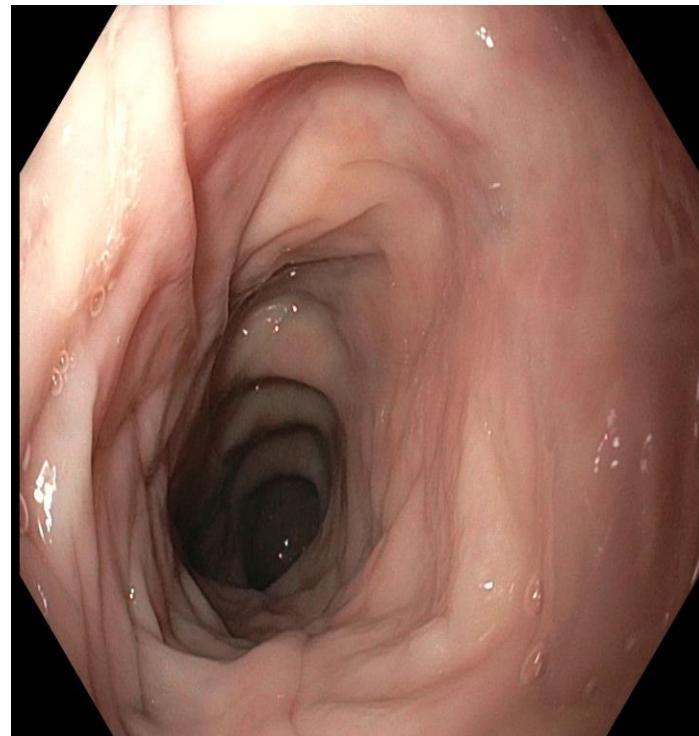
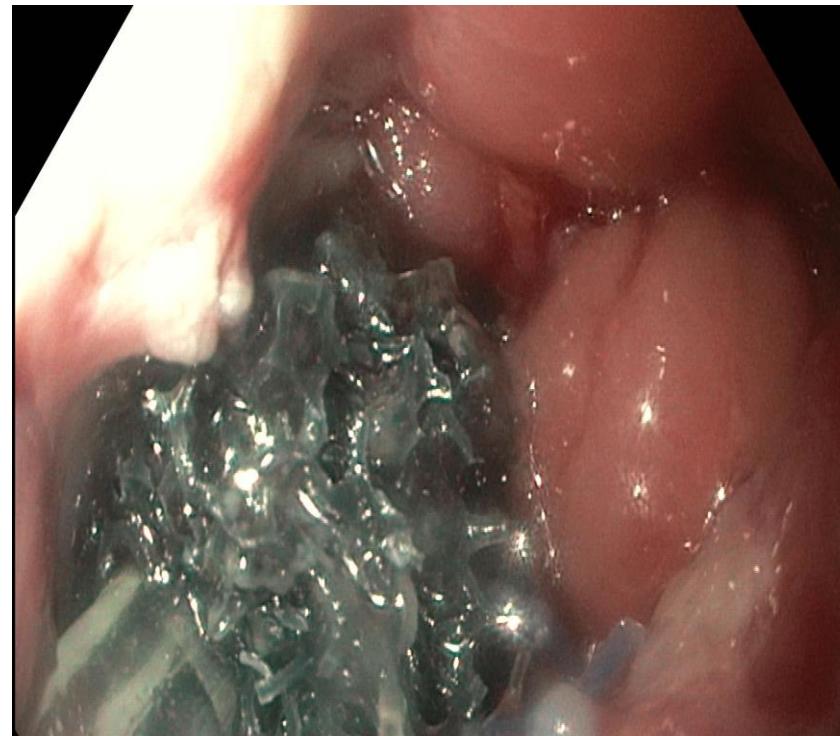
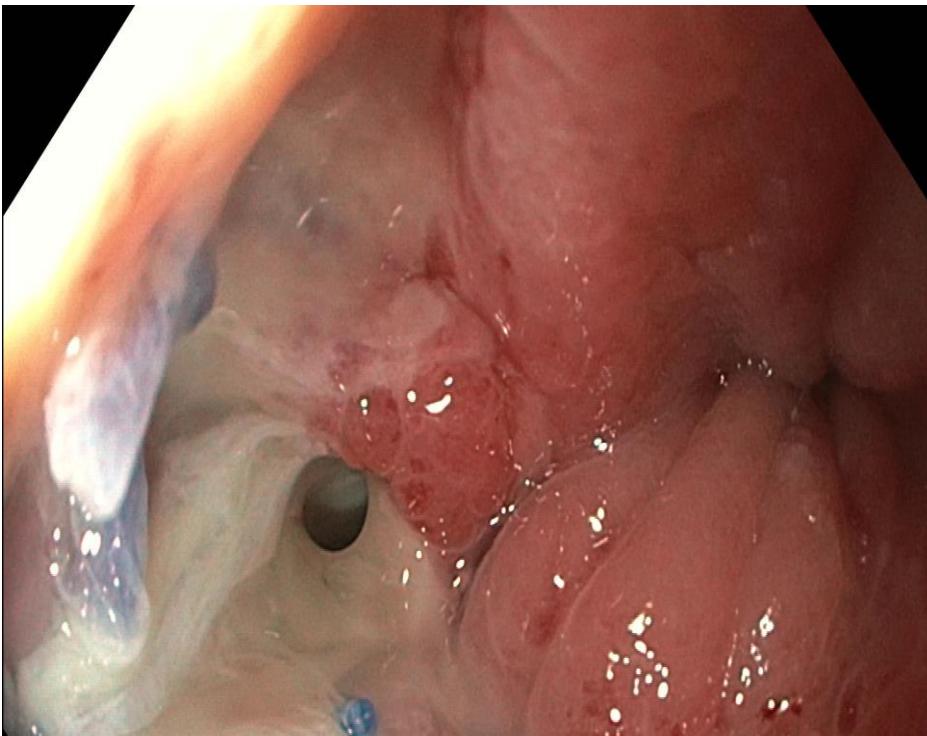
- Median Toilet visits day: 3 (1-7)
- Median Toilet visits night: 1 (0-2)
- 67% < 3 BM per 24h
- 82% < 4BM per 24h
- 23% routinely used loperamide
- 1 patient : ileostomy





Clinical Case (2)

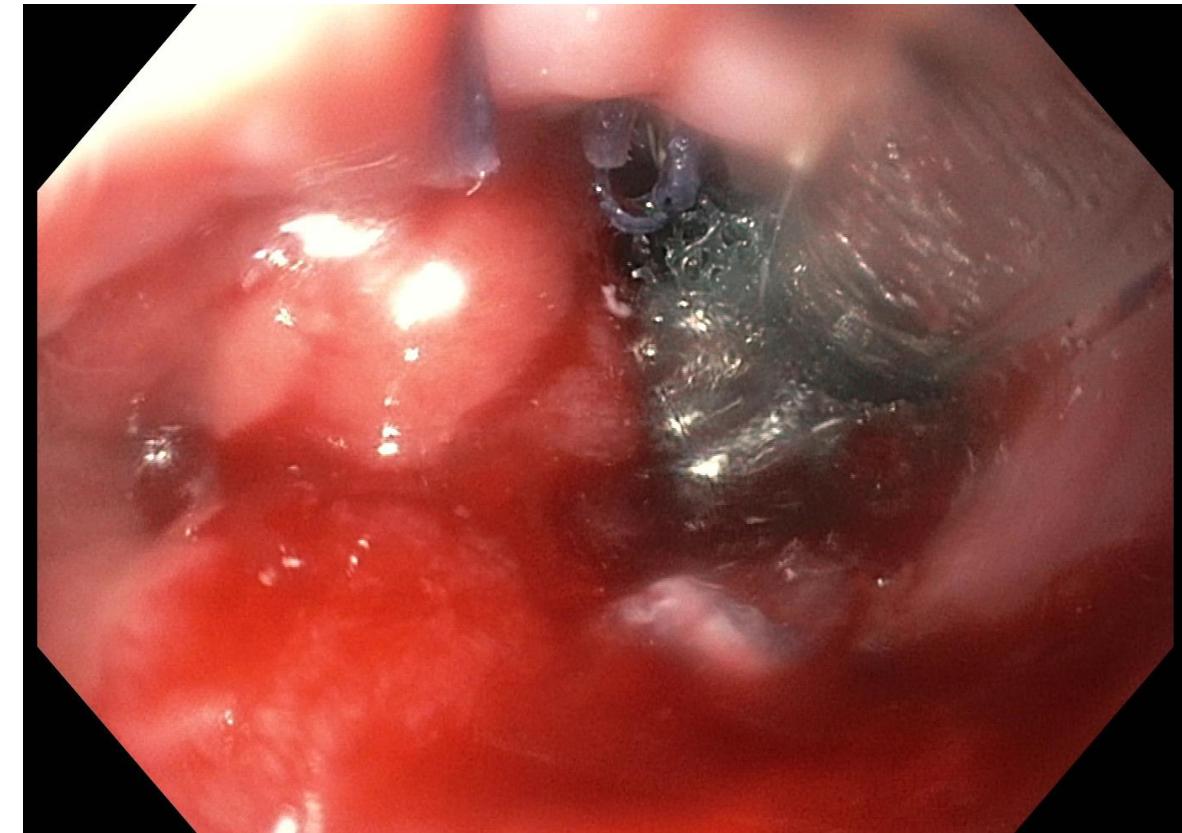
Post-op day 14 (at home)





Clinical Case (2)

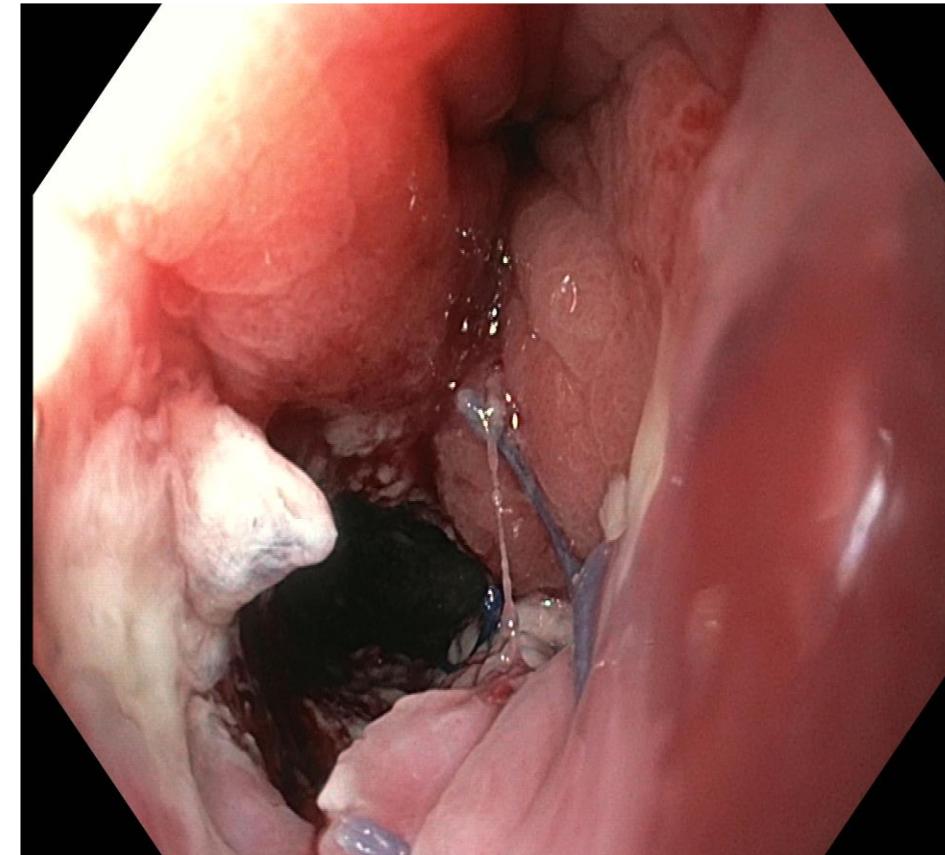
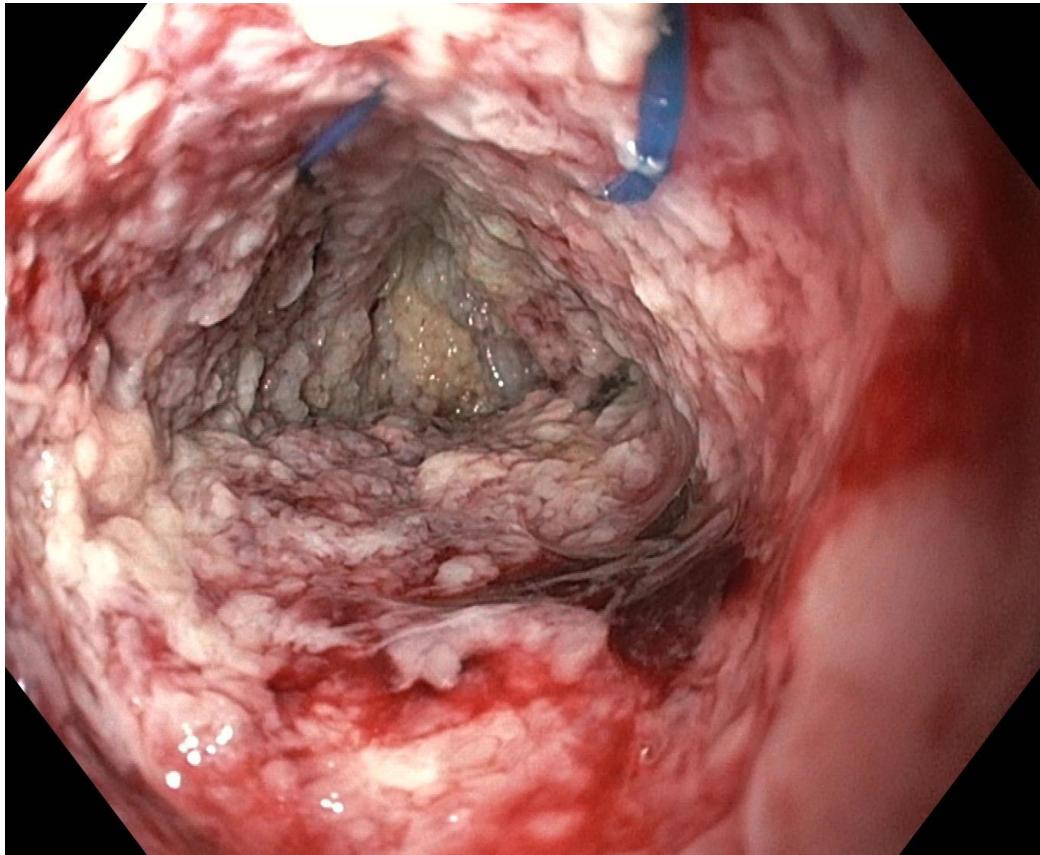
Post-op day 17 (at home)





Post-op day 20 (at home)

Clinical Case (2)



Transanal closure post-op day 21



Clinical Case (3) : unplanned Hartmann's !

46 yo Male - Lorry driver

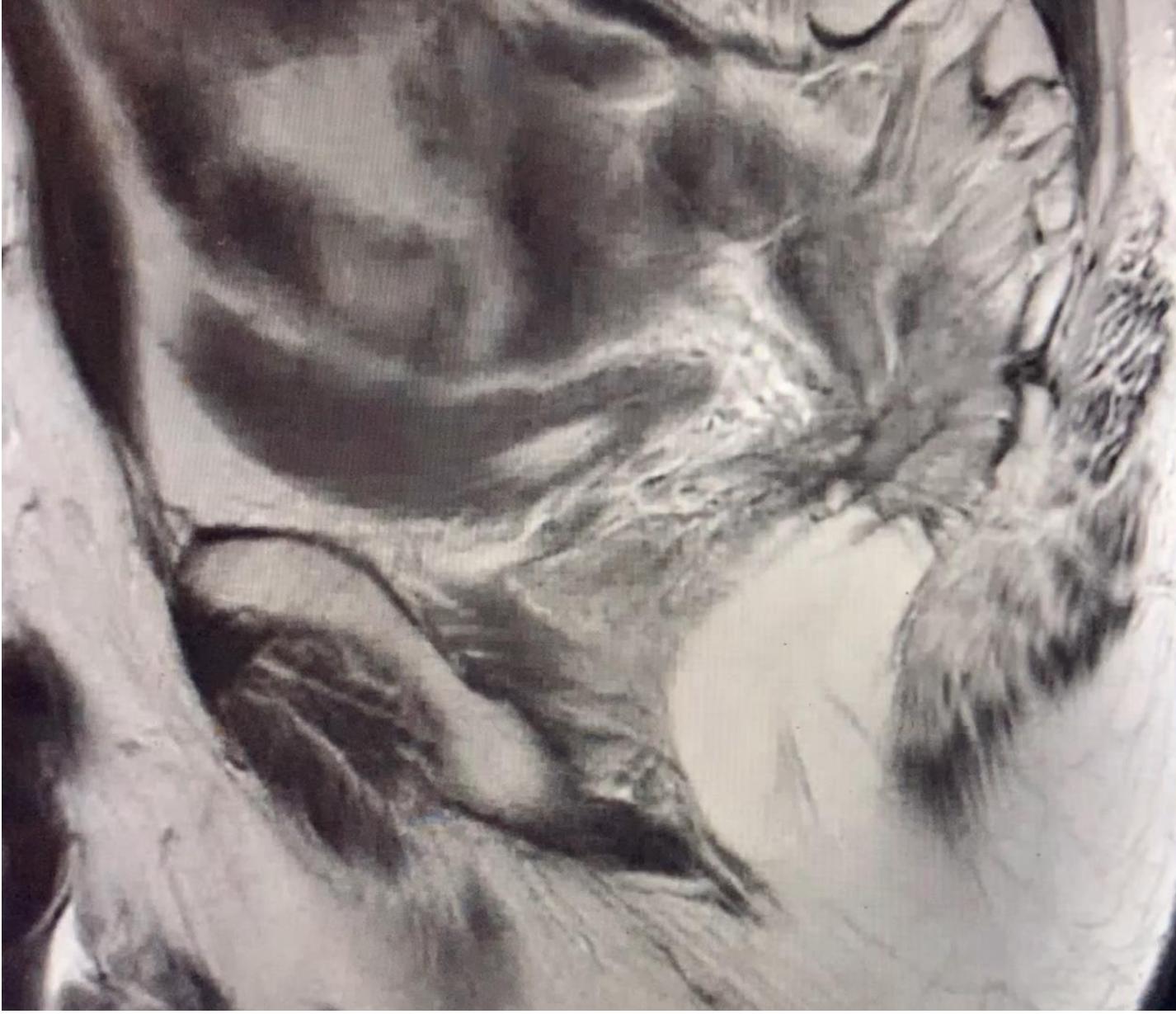
mT3bN1 mid-rectal Cancer

Planned LAR after 5x5Gy -> Lap Hartmann

Post-op Rectal stump leak

Persistent drainage pus...







Clinical Case (4) : unplanned Hartmann's !

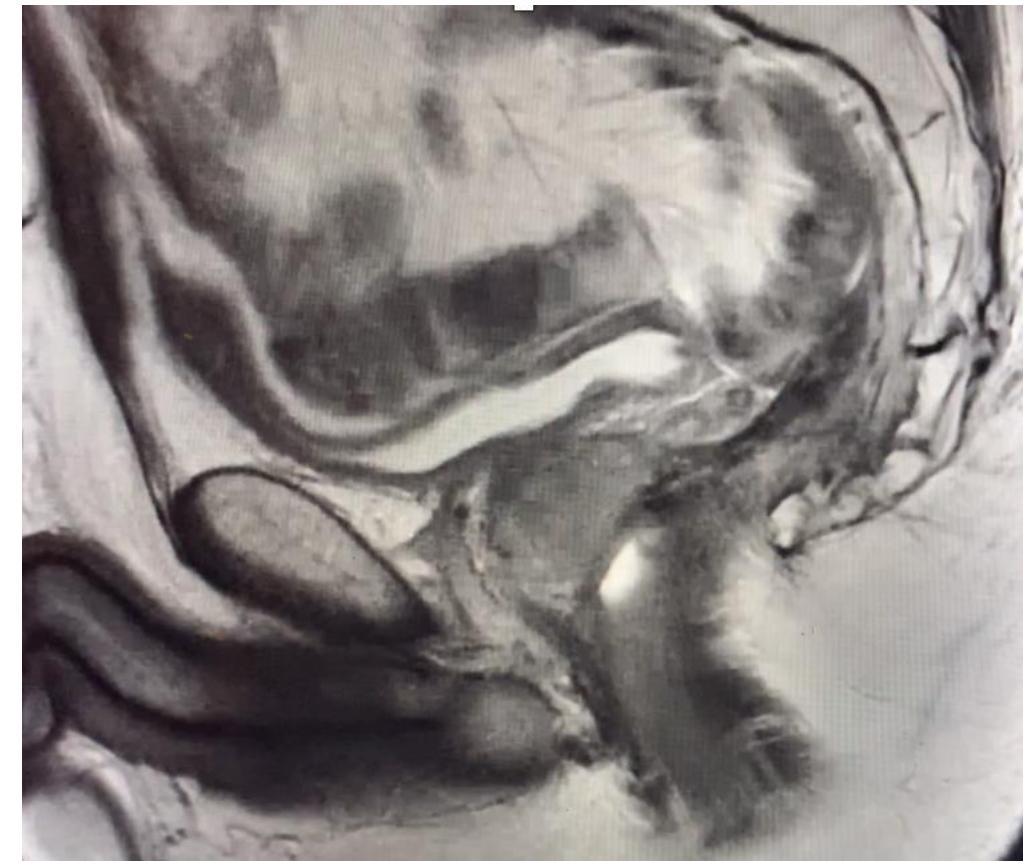
Explorative laparoscopy

Adhesiolysis : serosal tear

Mobilisation splenic flexure

TAMIS cuff transection + dissection
cranially and debridement chronic
sinus (TA + Lap)

Stapled Colo-rectal anastomosis (E-E)





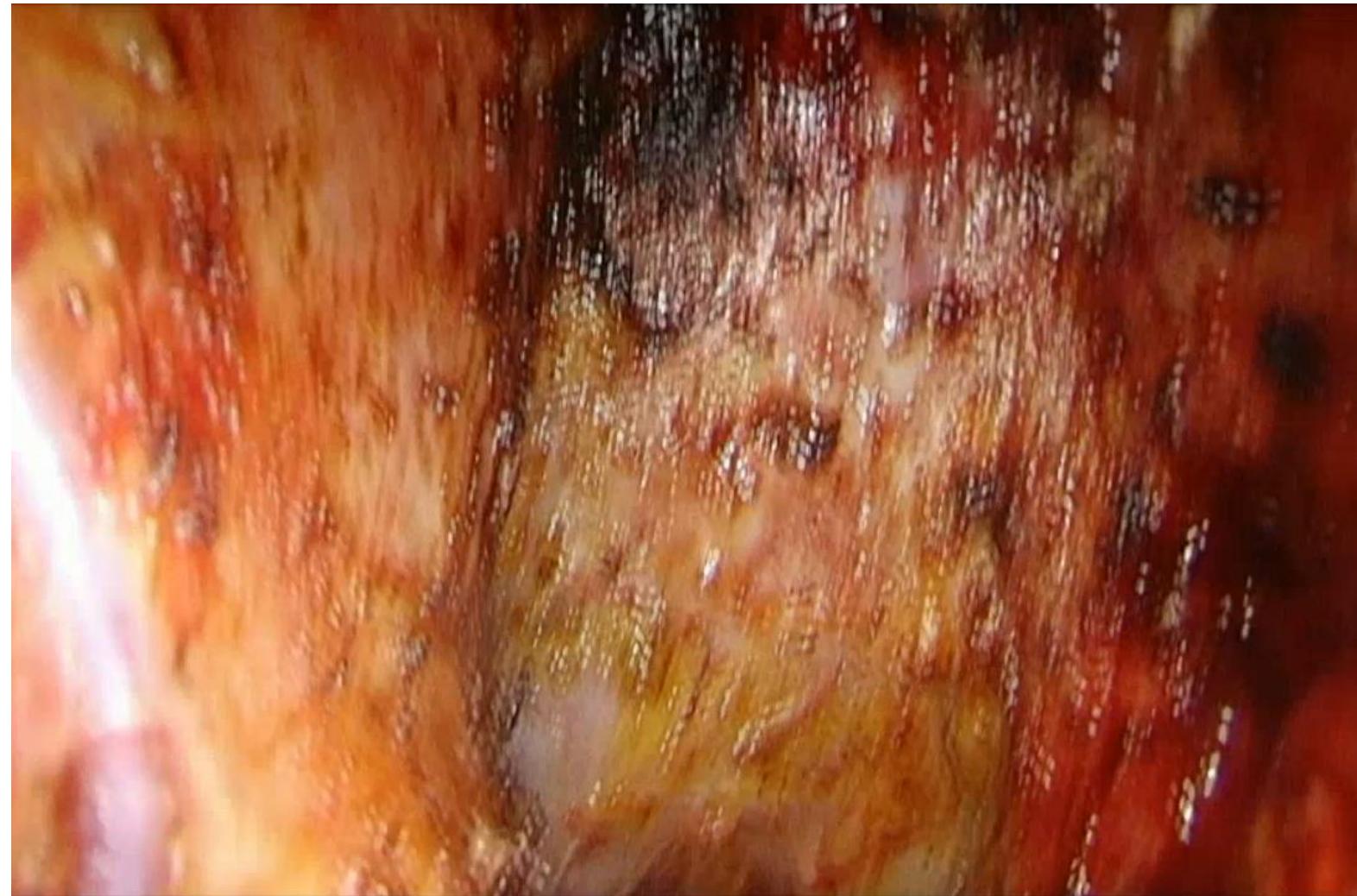
Explorative laparoscopy

Adhesiolysis : serosal tear

Mobilisation splenic flexure

TAMIS cuff transection + dissection
cranially and debridement chronic
sinus (TA + Lap)

Stapled Colo-rectal anastomosis (E-E)

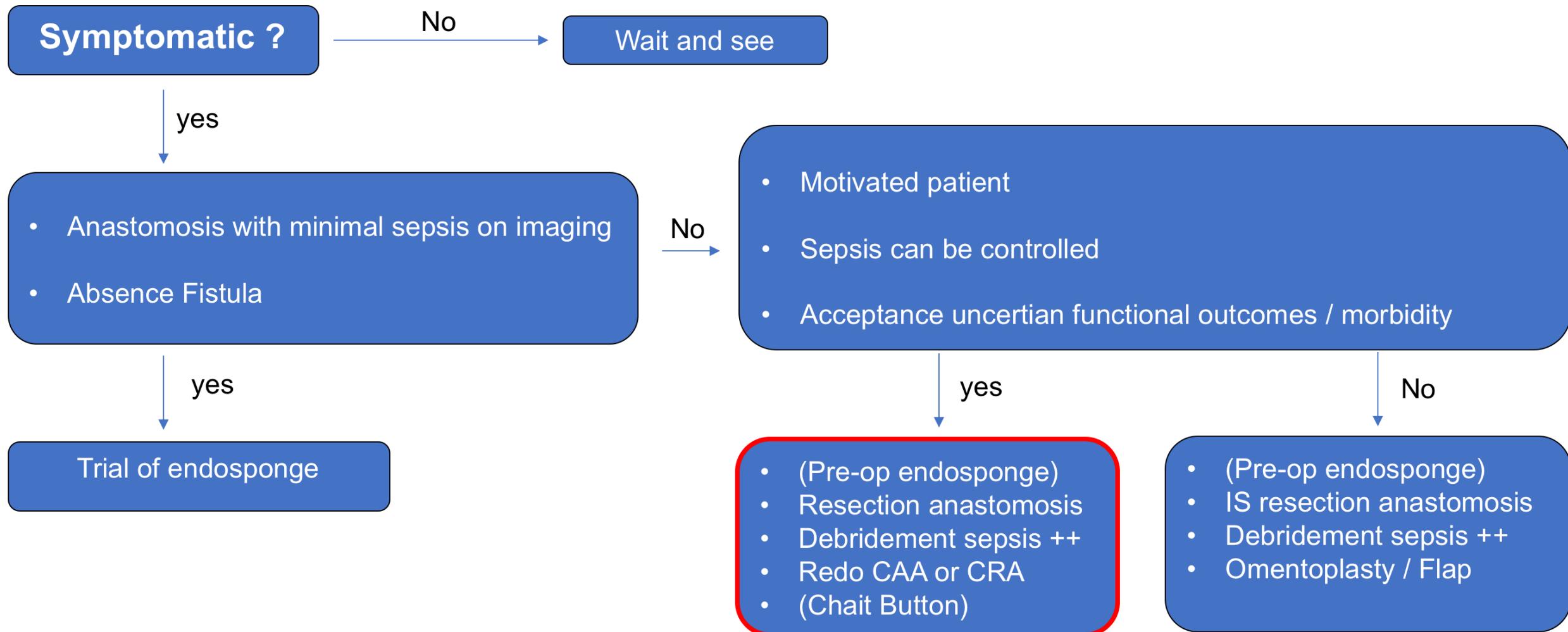


Basic principles definitive treatment

Chronic Presacral Sinus / Leak

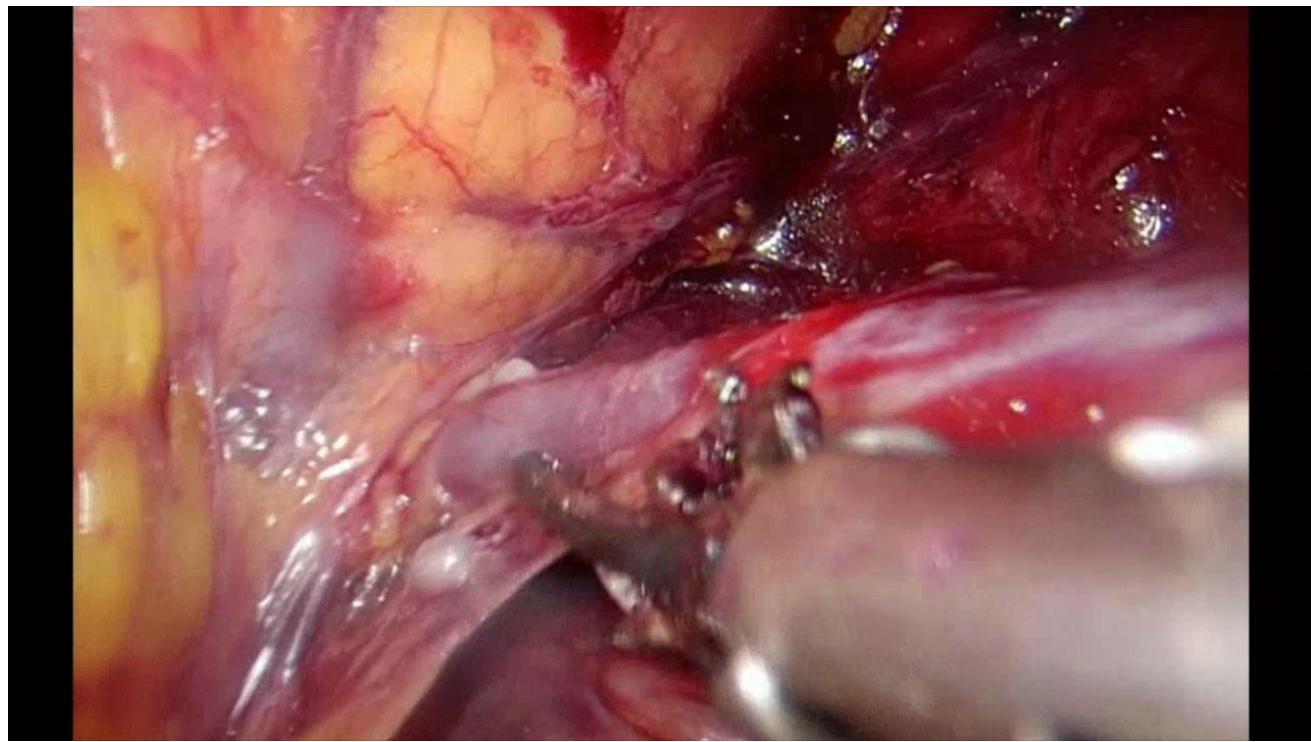
- Eliminating bowel as source of pus / mucous
 - Restoring continuity
 - Resection rectal stump with end colostomy
- Complete debridement of sinus / excision fibrosis
- Filling op pelvic dead space with well vascularized tissue
 - Mesocolon in case of restoring continuity (+ omental plasty)
 - Omentoplasty
 - Autologous tissue flap (VRAM, SGAP)

Algoritm (chronic) presacral sinus

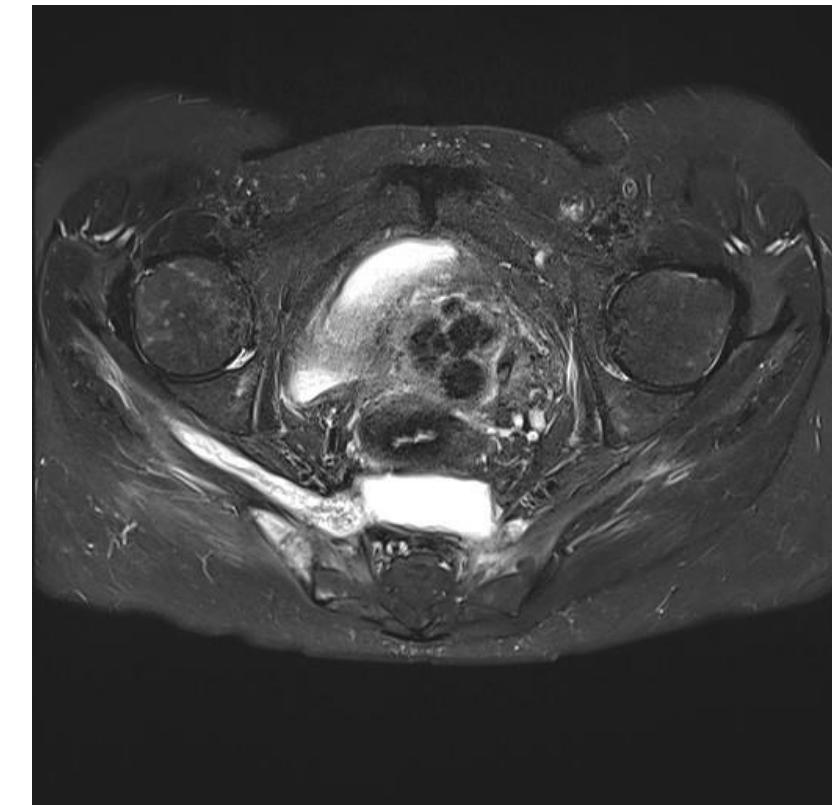
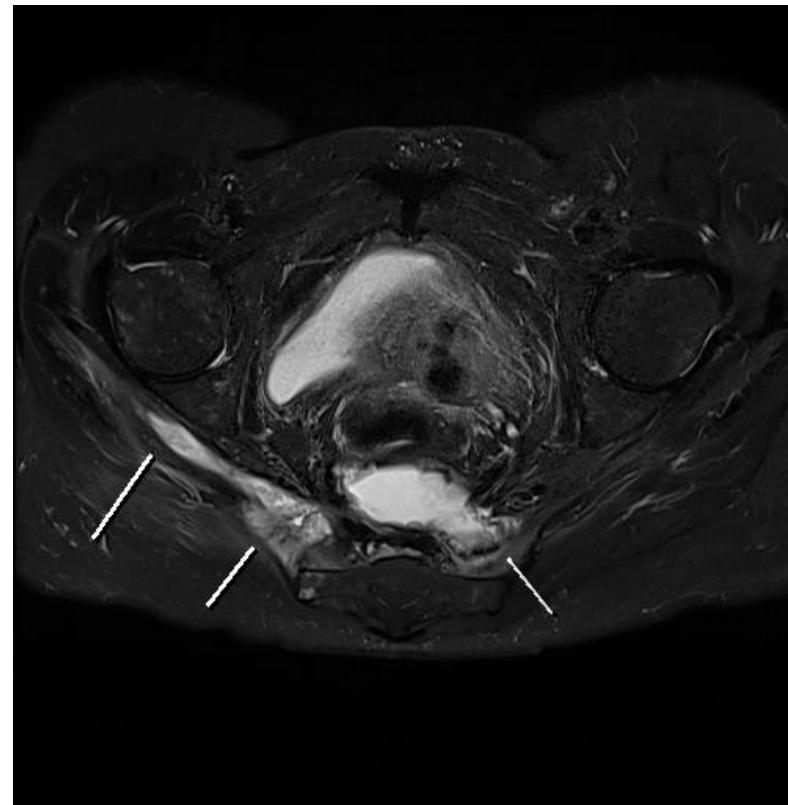


Chronic pelvic sepsis : redo anastomosis

- Bottom up dissection beyond prostate or vagina
- Rendez-vous with :
 - Straight laparoscopy / SILS
 - Hand Assisted
 - Open
- If technical feasible stapled anastomosis

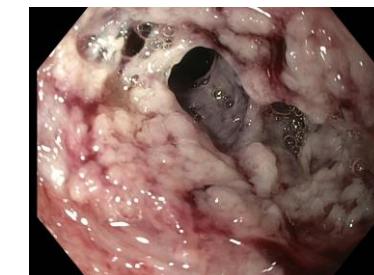
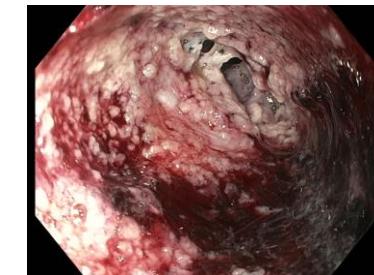
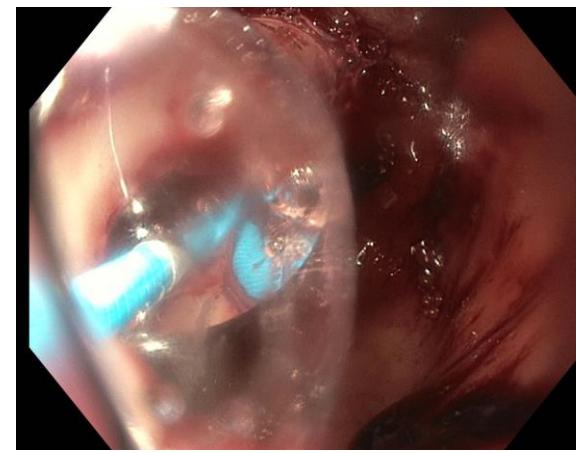
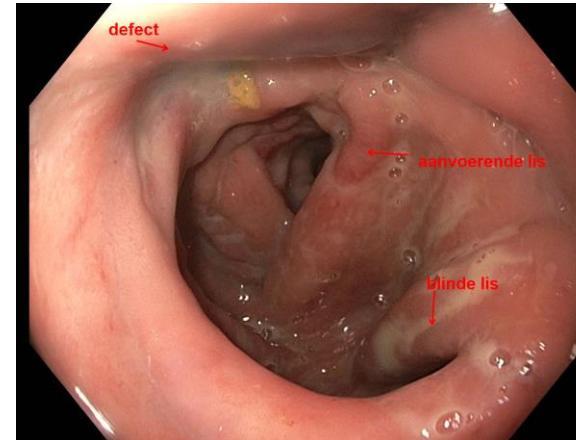


Not every patient is suitable

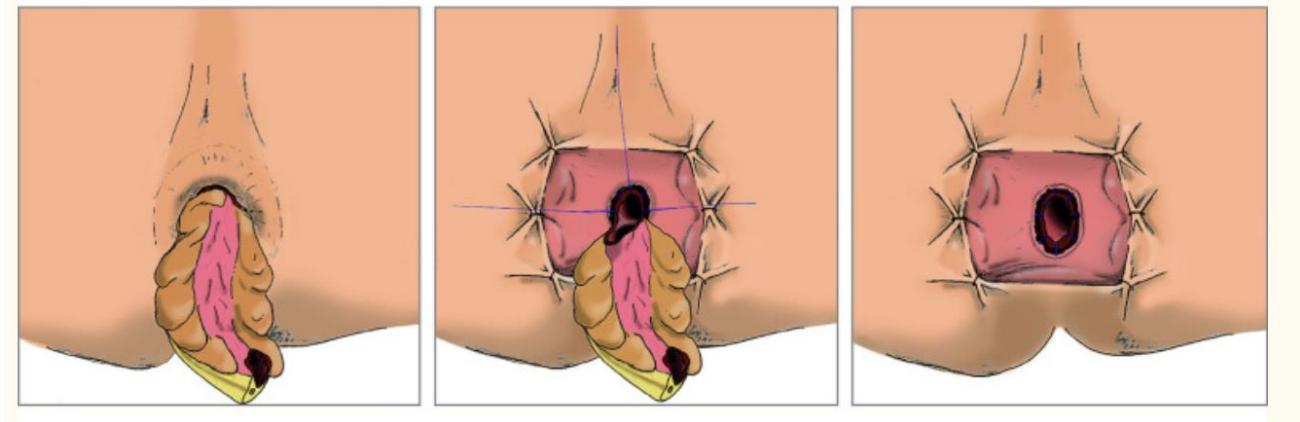
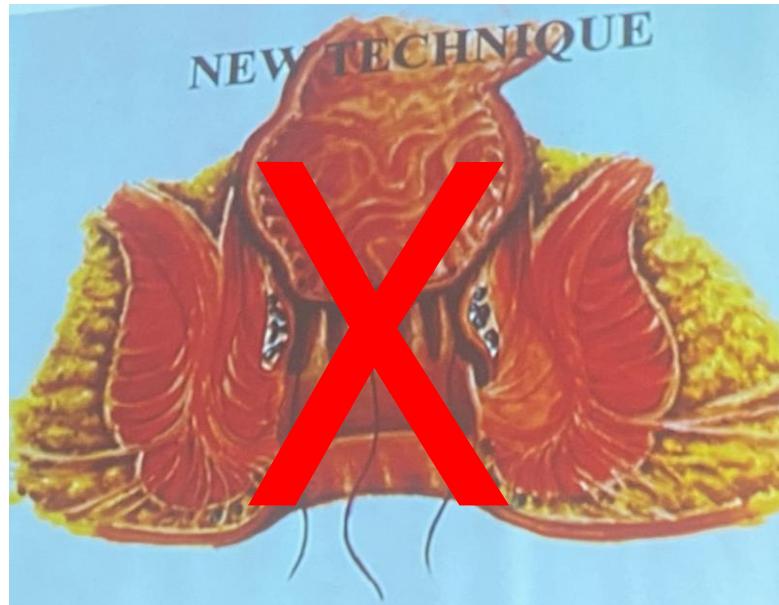




Pre-operative optimisation for redo/salvage surgery

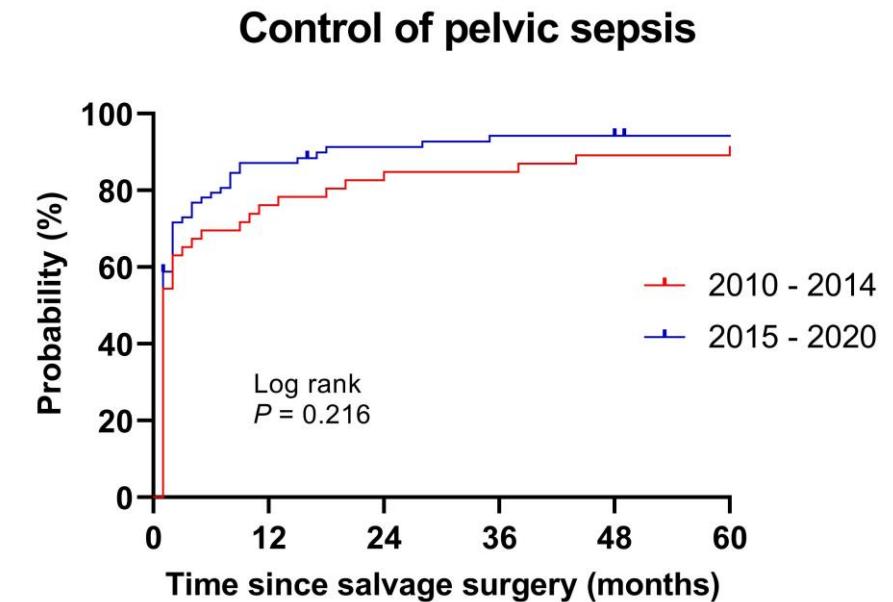


Associated fistula : Turnbull-Cutait pull-through DCAA





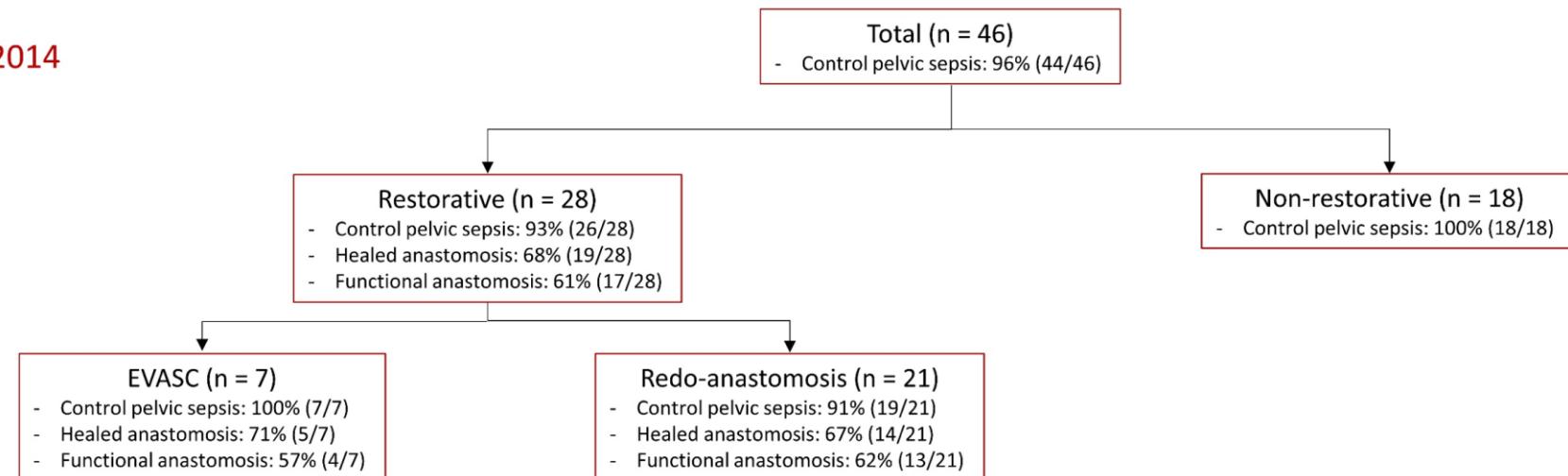
- Total mesorectal excision for rectal cancer
- Total 136 patients: 49 (2010-2014) and 87 (2015-2020)
- 10 year study period
- Main outcome: control of pelvic sepsis
- Secondary outcome: functional anastomosis



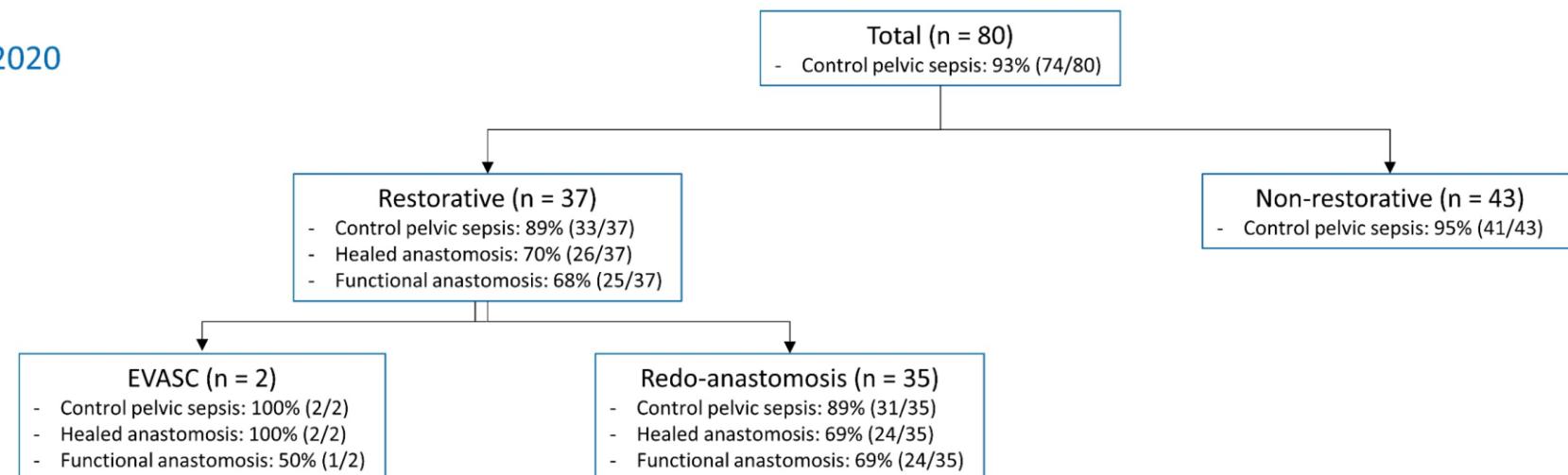
	No. at risk						
2010 - 2014	46	15	8	8	6	5	
2015 - 2020	80	15	7	5	4	3	

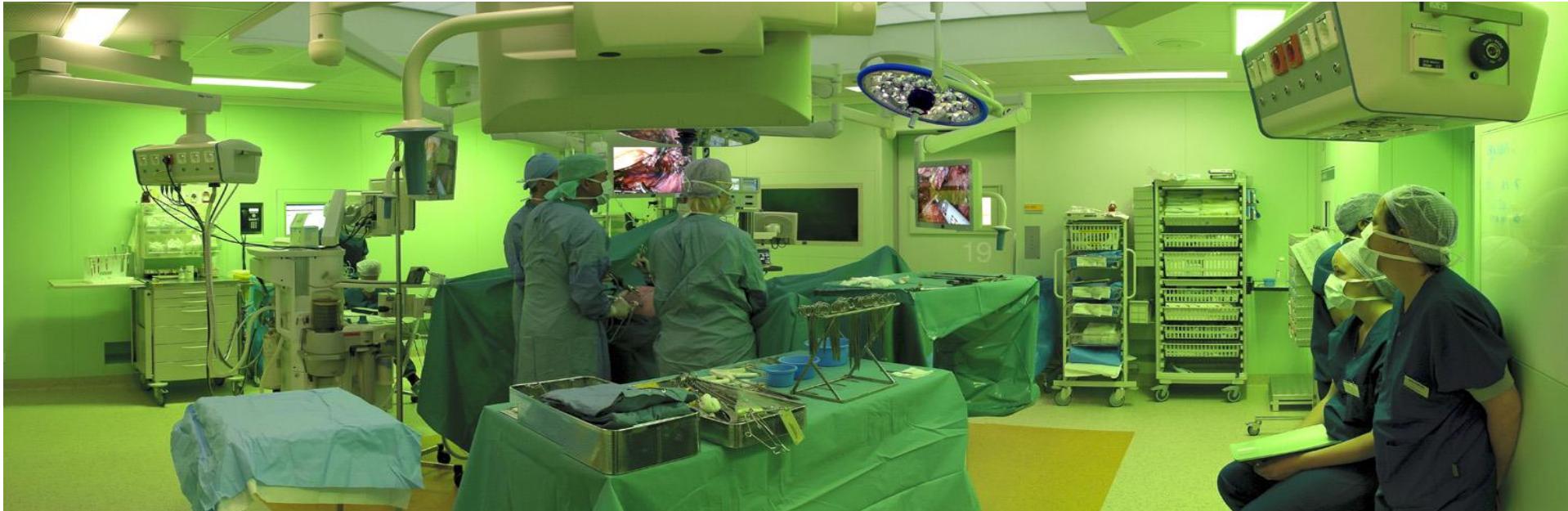


2010-2014



2015-2020





Questions ?

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r.hompes@amsterdamumc.nl

