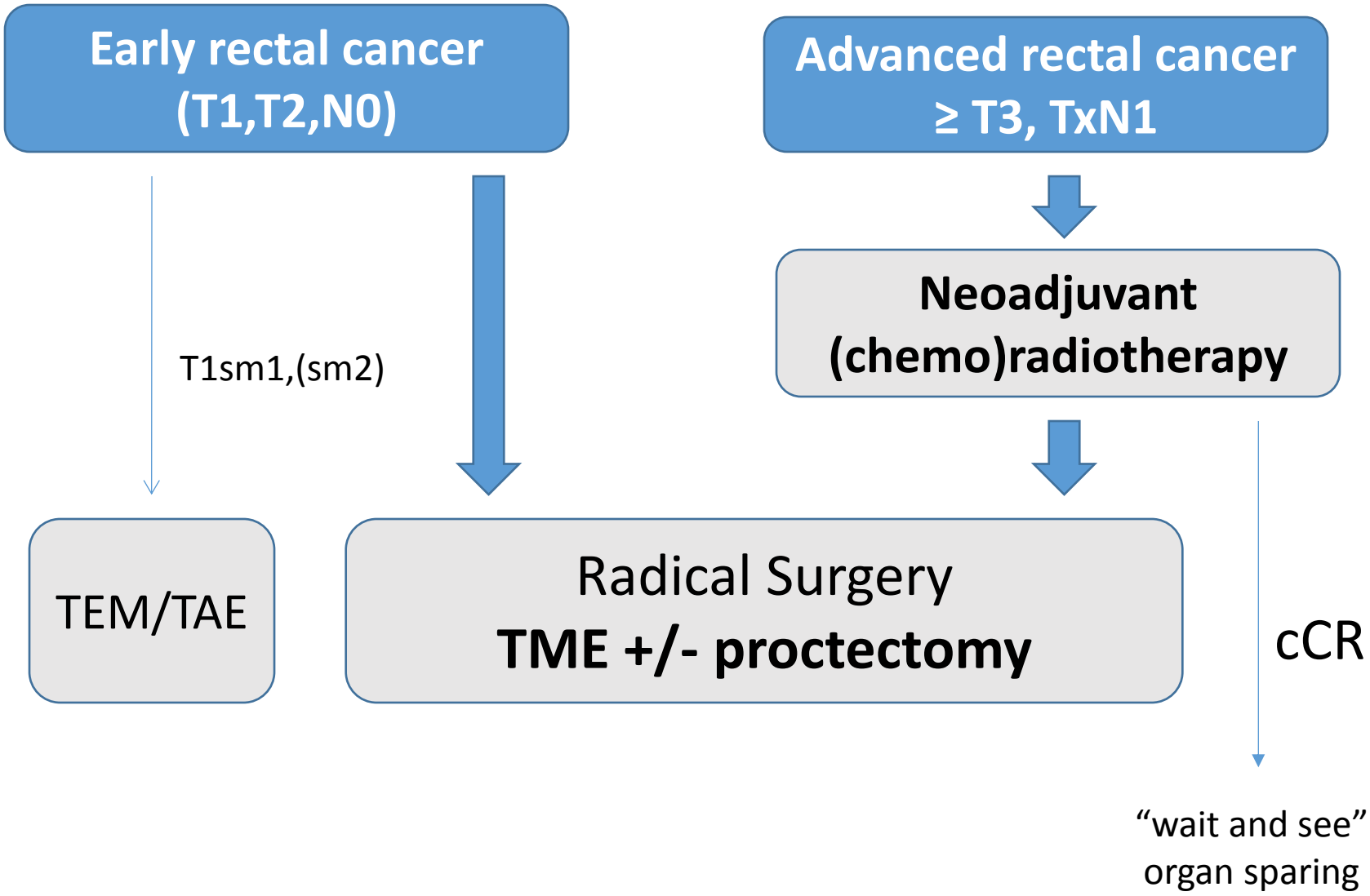
Surgery for rectal cancer locally advanced

A. D'HOORE MD PhD, EBSQ-CR, (hon)FASCRS
Professor of Surgery
Chair department of Visceral Surgery
University Hospital Leuven Belgium

UZ LEUVEN | KU LEUVEN | LKI KANKERINSTITUUT

Actual treatment in rectal cancer



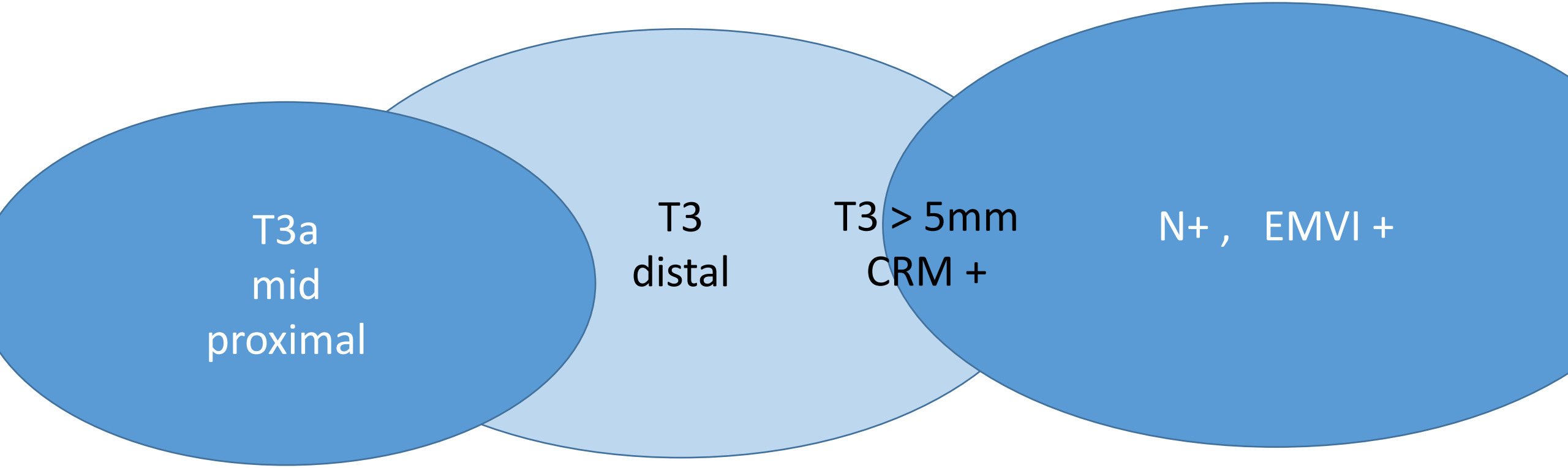
Beyond cTNM adverse MRI features

1. Deep mesorectal invasion

2. Involved MRF

3. EMV invasion

Hunter CJ et al. *Ann Surg Oncol* 2012


T3a
mid
proximal
T3
distal
T3 > 5mm
CRM +
N+ , EMVI +

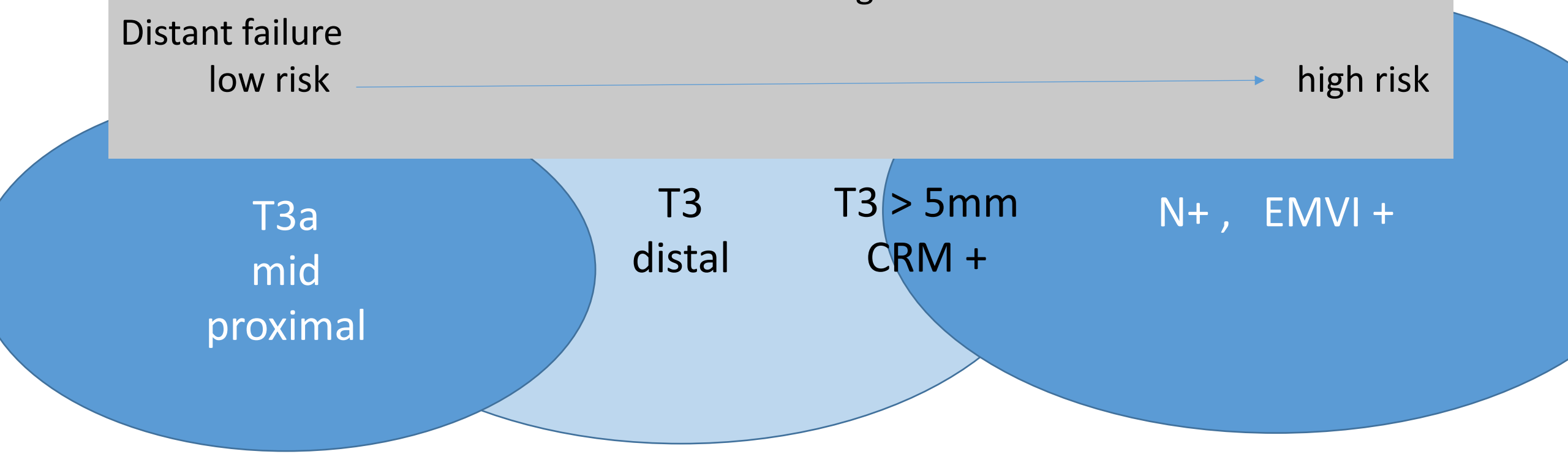
Risk profile

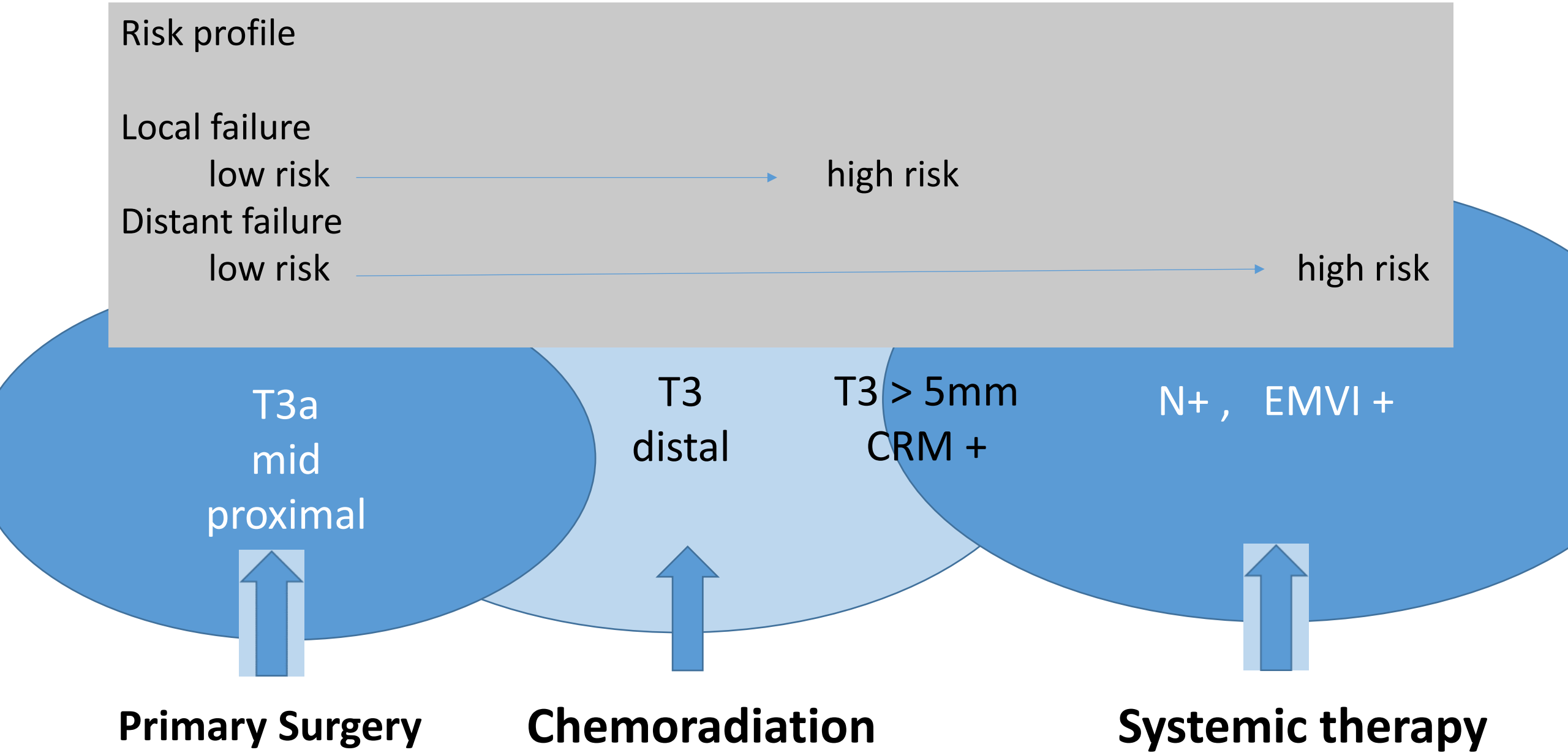
Local failure

low risk → high risk

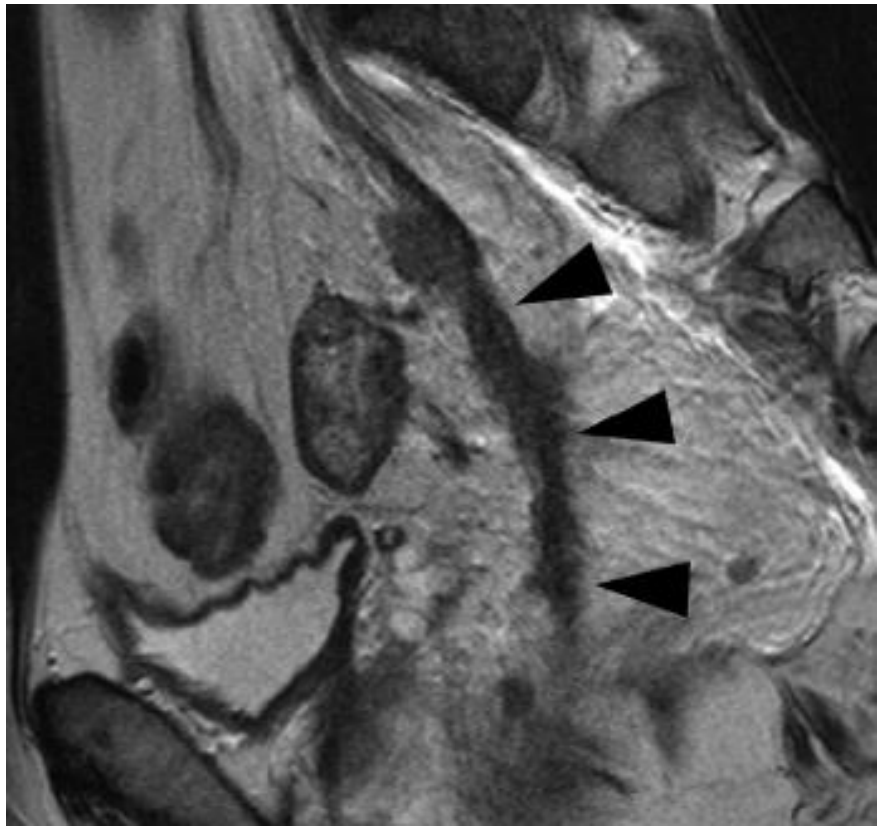
Distant failure

low risk → high risk



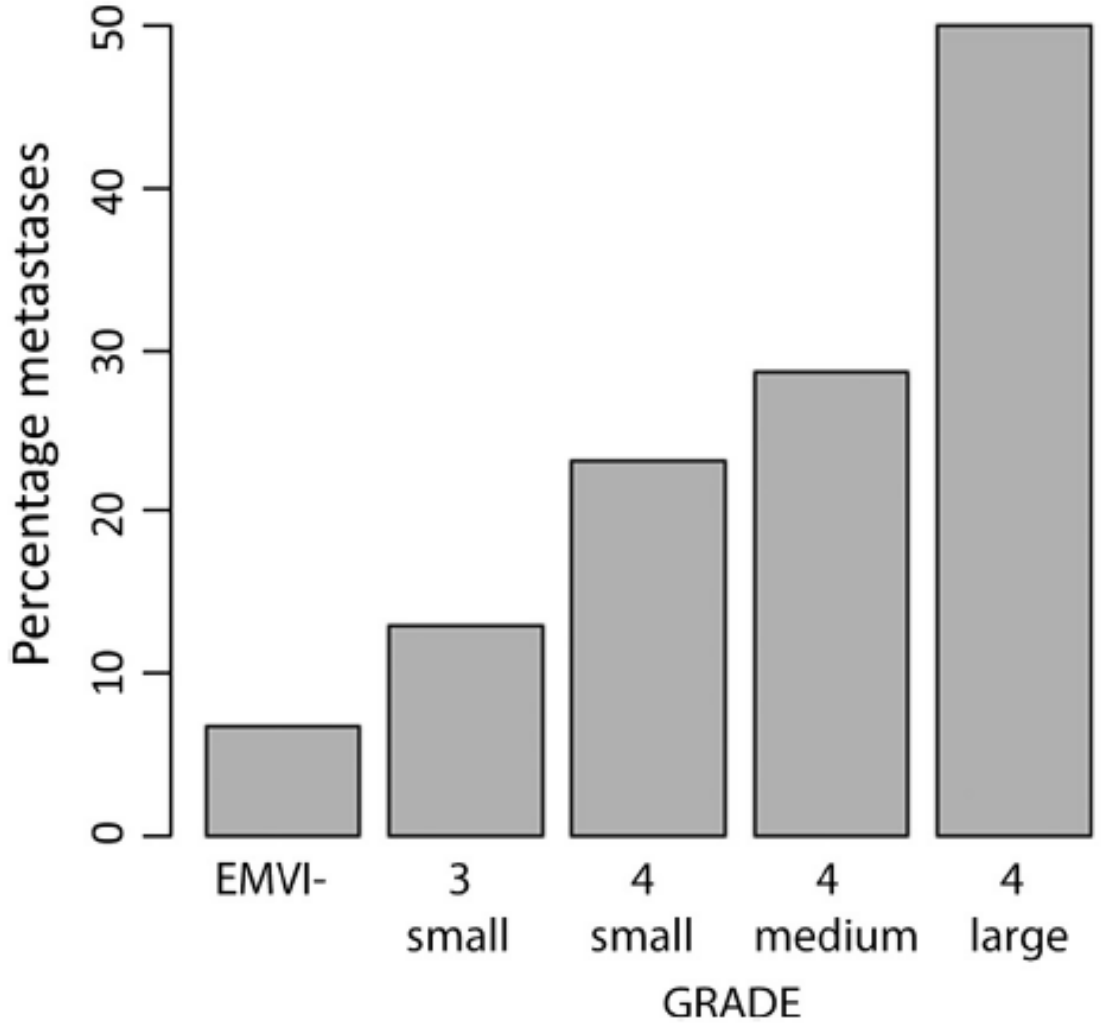

Risk profile
Local failure
low risk
high risk
Distant failure
low risk
high risk
T3a
mid
proximal
T3
distal
T3 > 5mm
CRM +
N+ , EMVI +
Primary Surgery
Chemoradiation
Systemic therapy

EMVI is a poor prognostic factor



Clinical radiology 2014

EMVI is a poor prognostic factor



Clinical radiology 2014

MRI risk prediction for pCRM +

Mercury 2

		MRI SAFE > 1mm		MRI UNSAFE	
EMVI	**Anterior**	≥ 4 cm	< 4 cm	≥ 4 cm	< 4 cm
neg	neg	**1**	**4**	**4**	**13**
neg	positive	**3**	**10**	**11**	**29**
positive	neg	**4**	**13**	**14**	**35**
positive	positive	**11**	**30**	**31**	**60**

Validates the MRI low resection plane assessment

- avoids overuse of neoadjuvant treatement

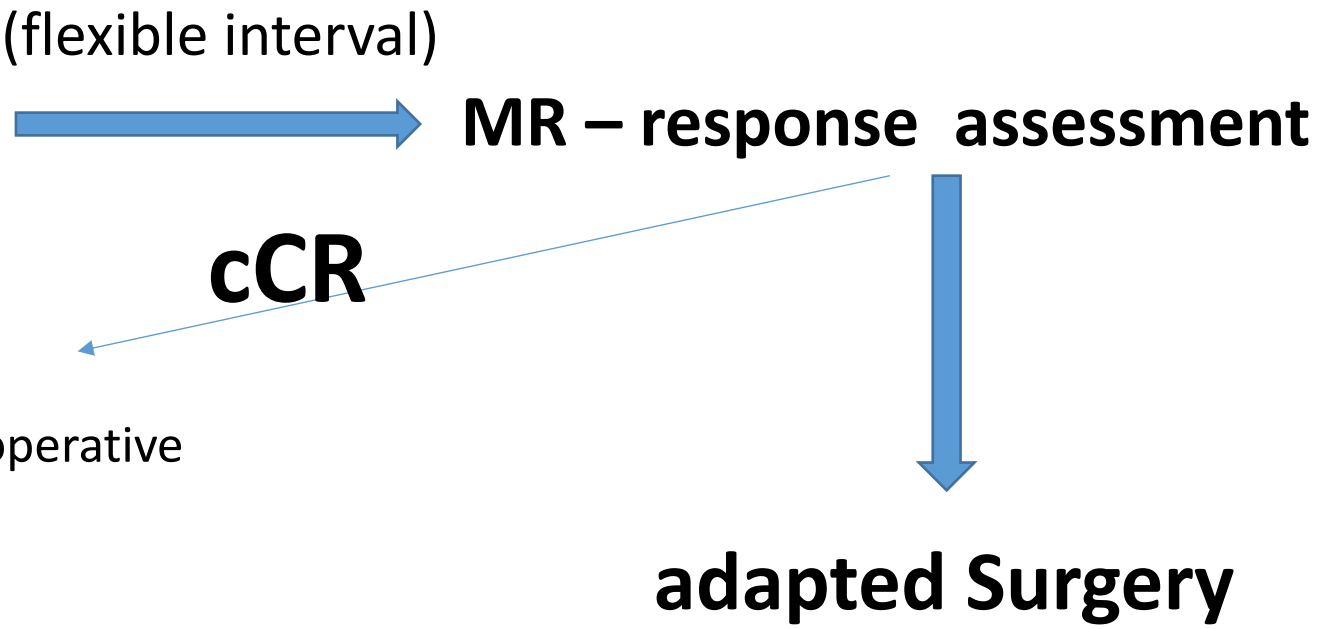
- need for reassessment after neoadjuvant treatment

Ann Surg 2016; **263** : 751 -763.

Response assessment becomes integrated part of surgical decision making

- Upfront surgery

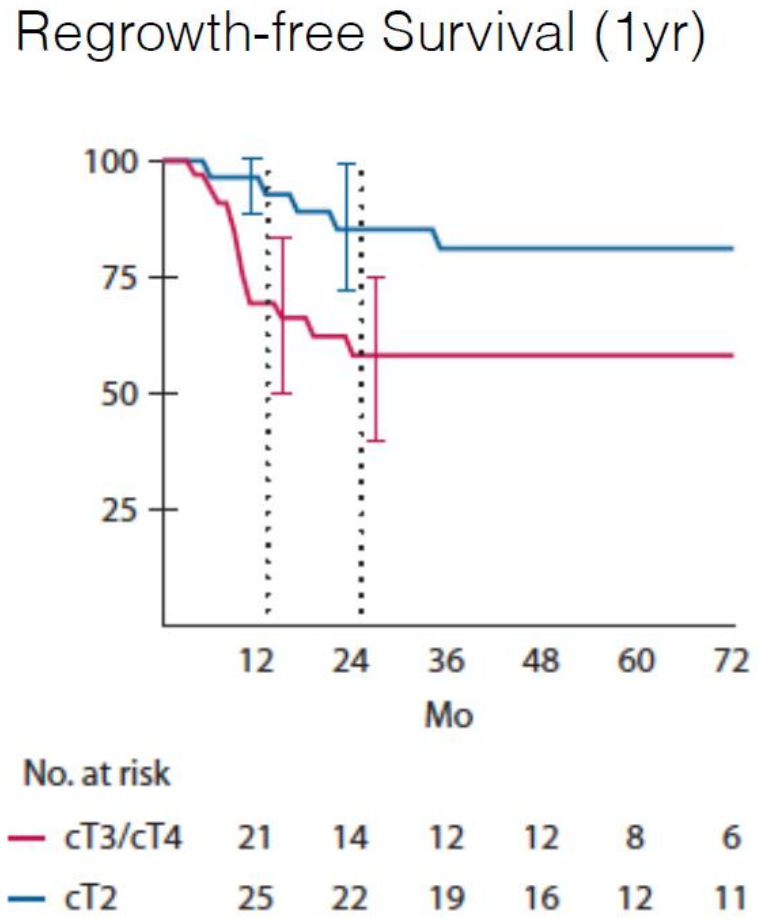
- Neoadjuvant chemo/rad



Watch and wait in cCR
in locally advanced rectal cancer

- **Reduced likelihood for cCR**

- **Significant regrowth rate**



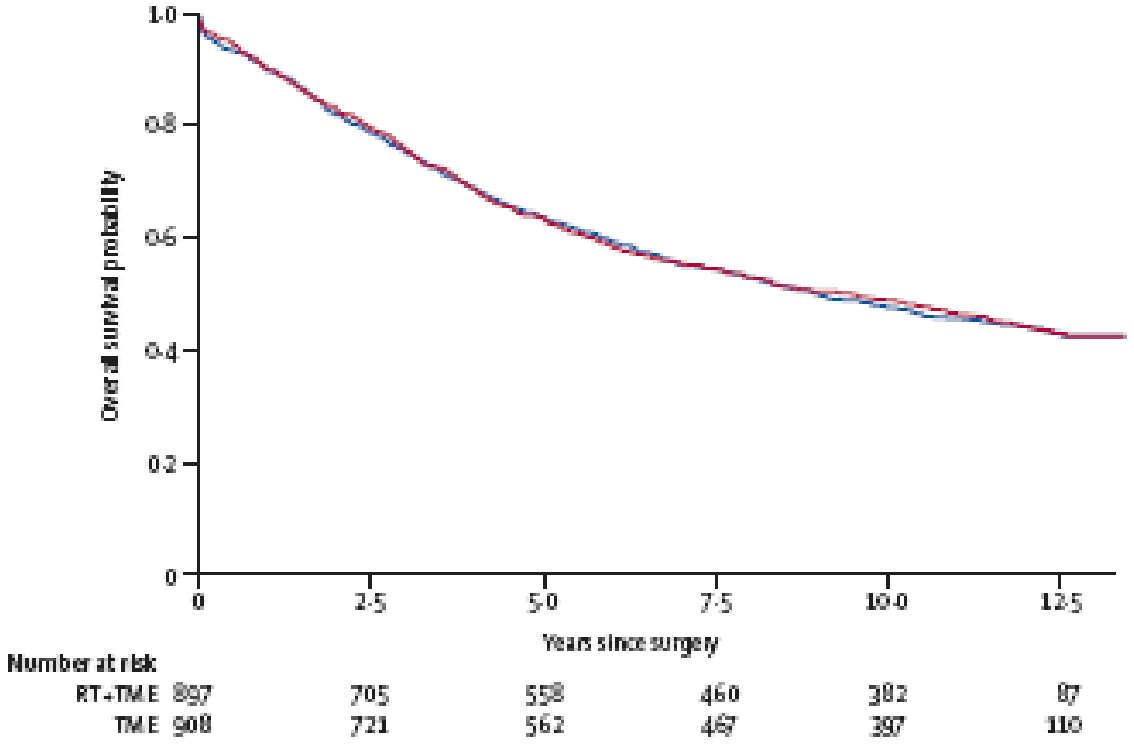
Habr Gama, *Dis Colon Rectum* 2017

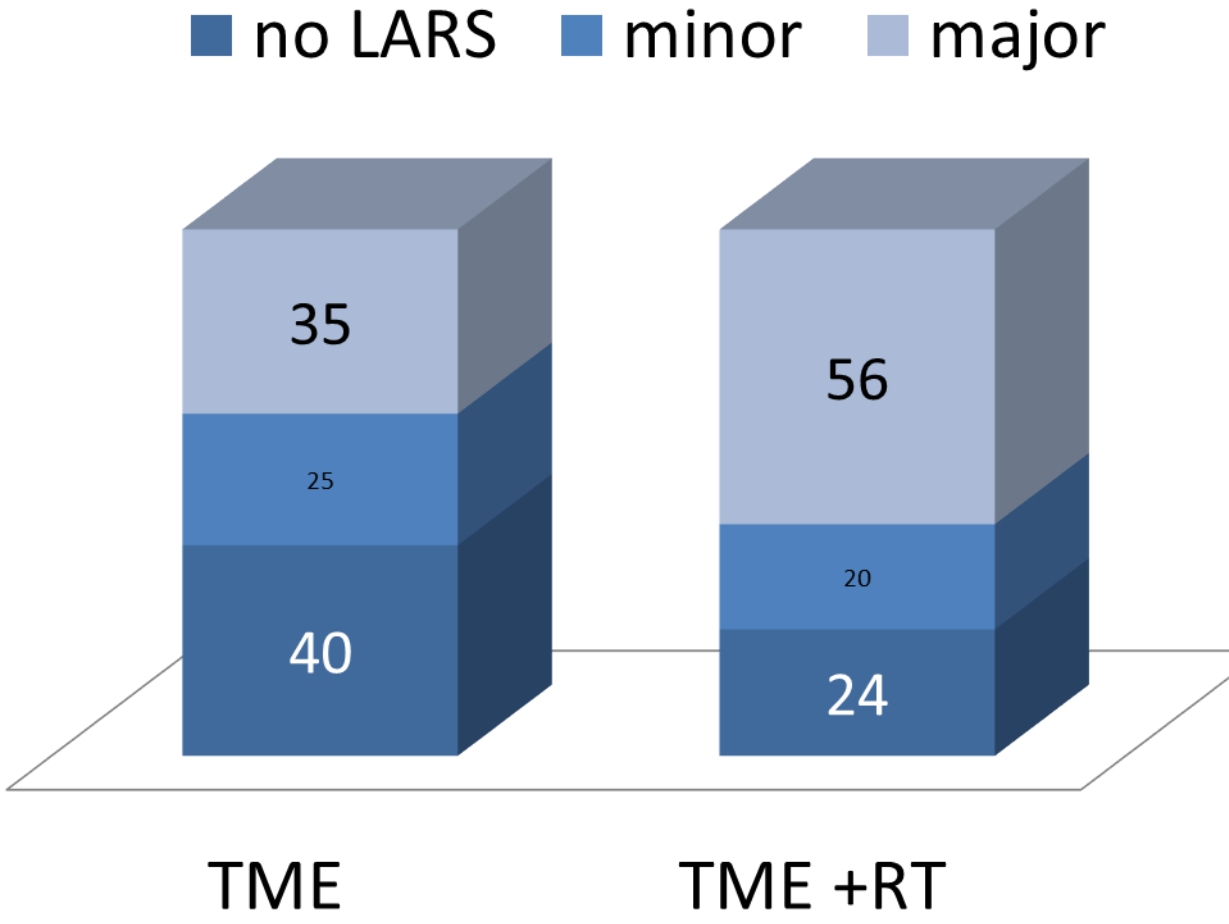
What is wrong with RT in low risk rectal cancer

- no survival benefit
- morbidity : acute and **late** toxicity

- increased risk for LARS, genitourinary dysfunction
- chronic pelvic sepsis

Long-term outcome Dutch TME trial





Lancet Oncol 2012

Clinical Colorectal cancer 2015

Surgical decision making in distal rectal cancer = complex

1. Type and extent of primary tumor

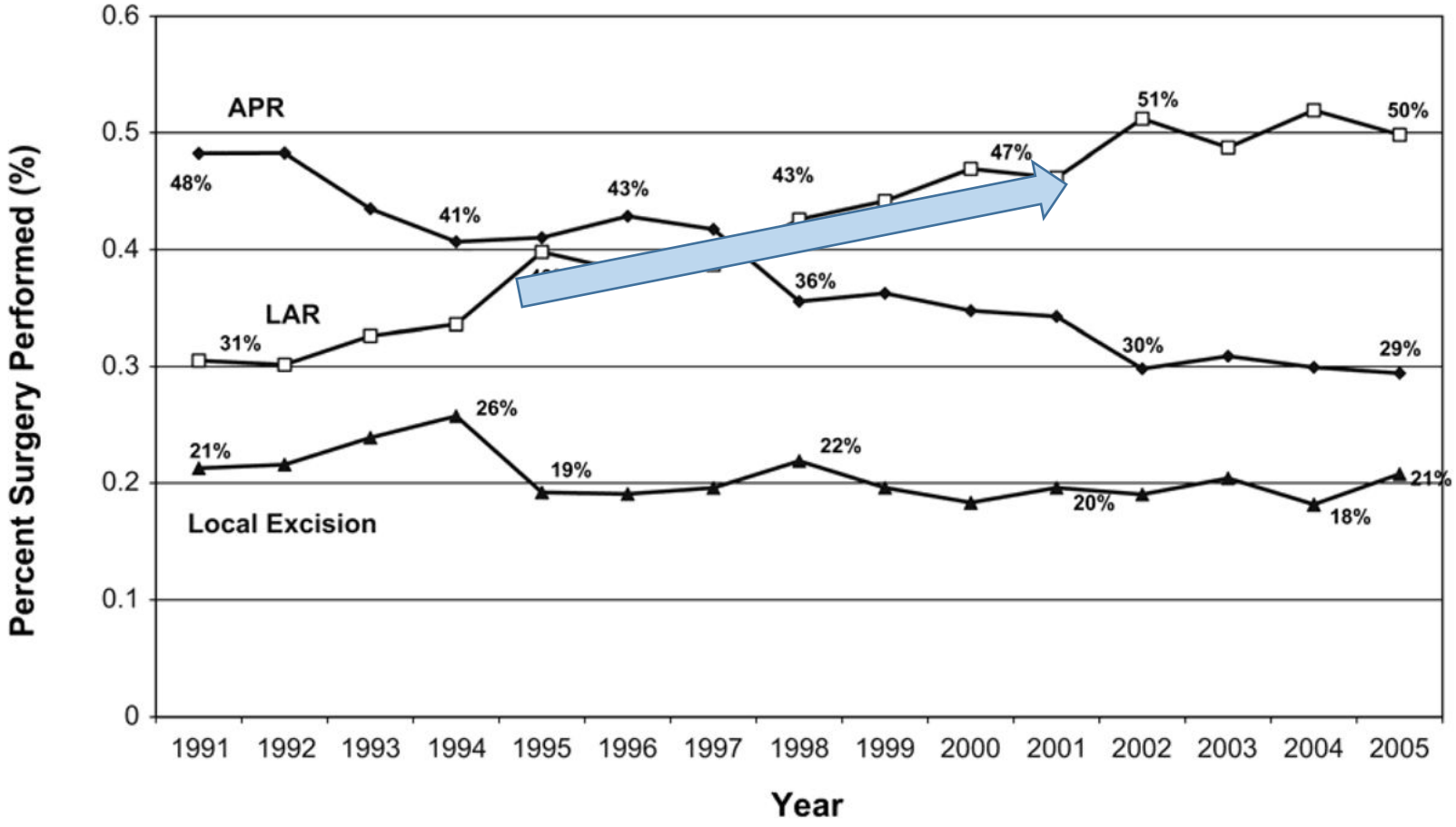
2. **Response to chemo-radiation**

3. Perceived ability to clear all tumor (adequate margins)
   DRM / CRM
4. Patient related factors (functional status, comorbidity)

5. Patients preference
   acceptance suboptimal functional outcome

Increasing SPS for rectal cancer

but large hospital variability : 26.9% - 77% (NCCN)



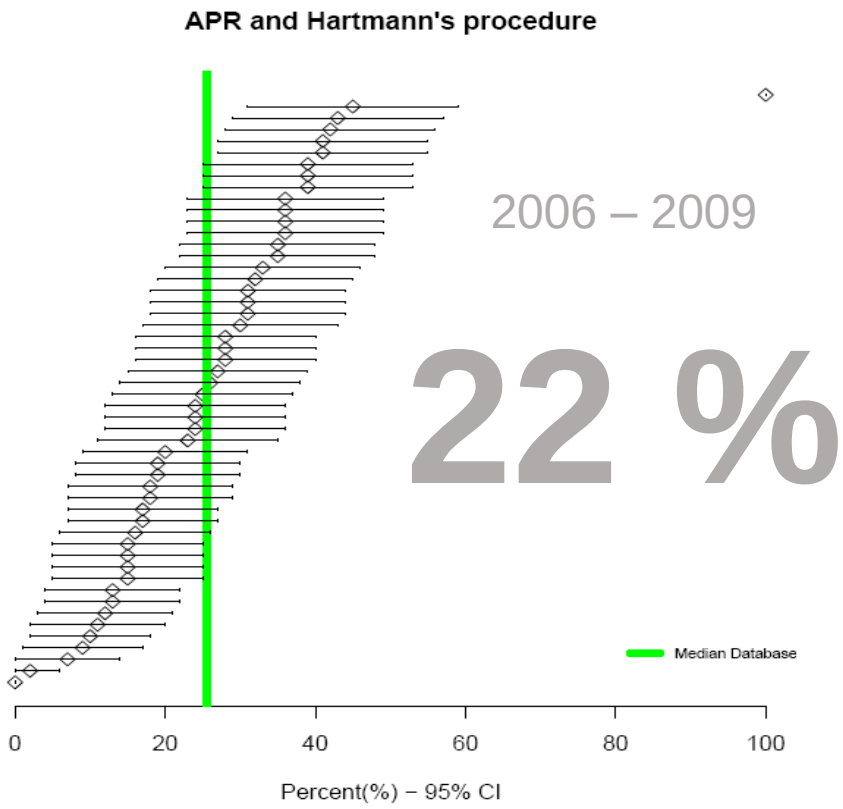
Dodgion CM et al. *J Surg Res* 2014; **191**

Large variability of sphincter preserving surgery in distal Rectal Cancer

PROCARE database

1995 – 1997

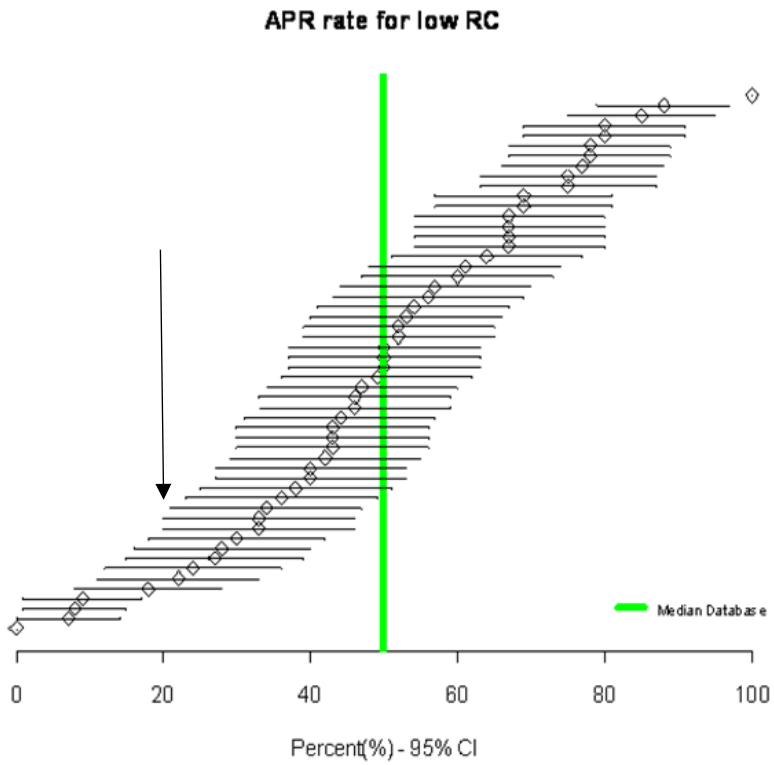
50 % →



2006 – 2009

22 %

low rectal cancer



APR rate 17% - 85%

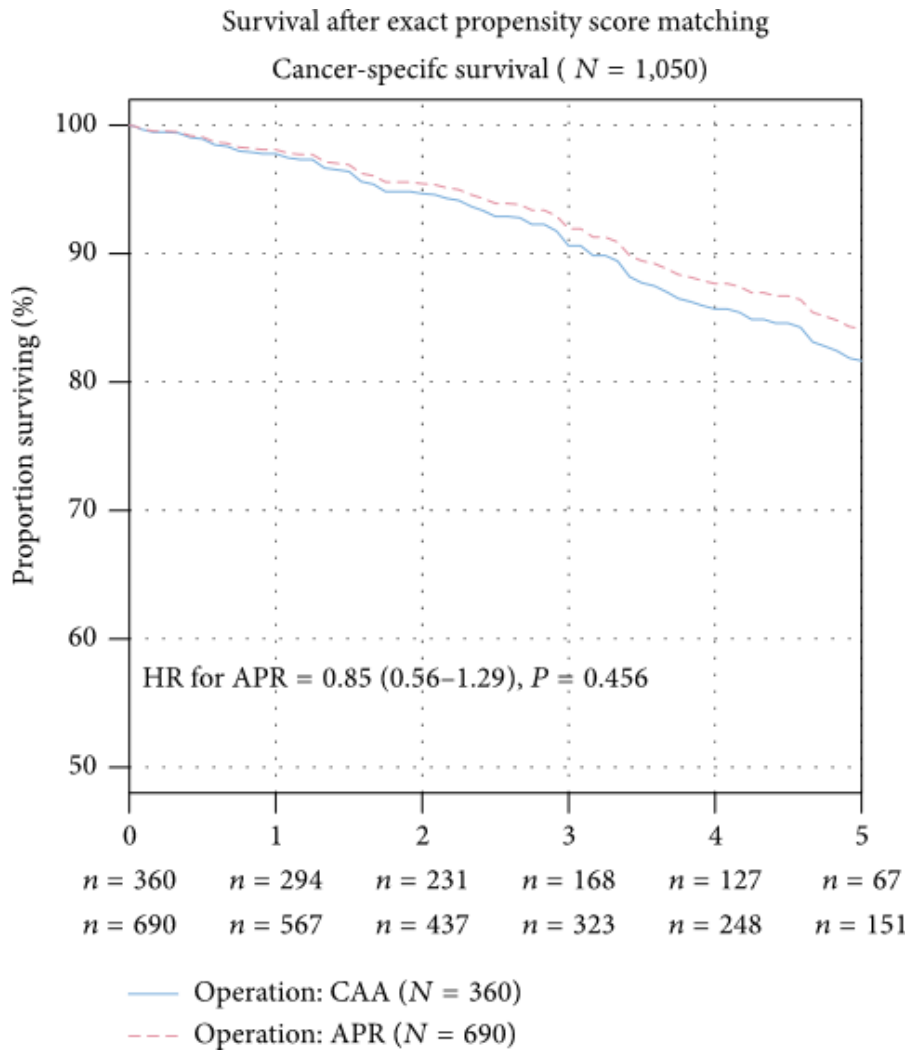
No difference in oncologic outcome between CAA vs APR

Survival relates to

poor prognostic factors (tumor specific)

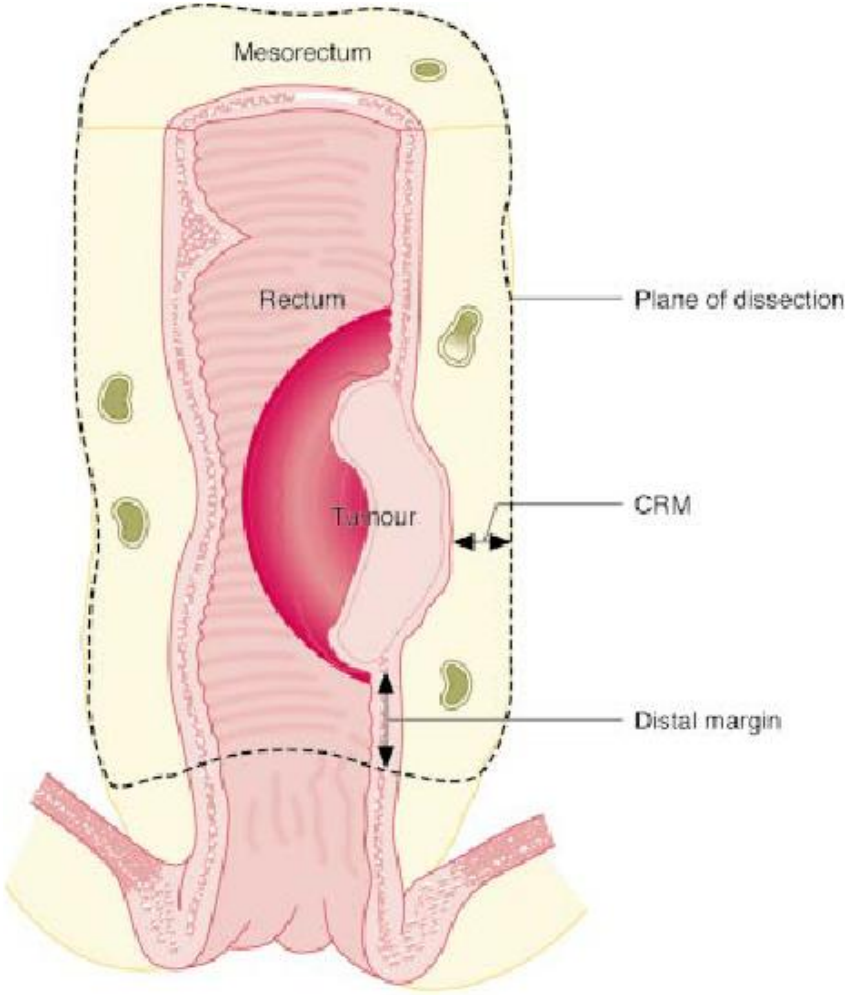
patient related factors

Not technique related



Gastroenterol Research and Practice 2017

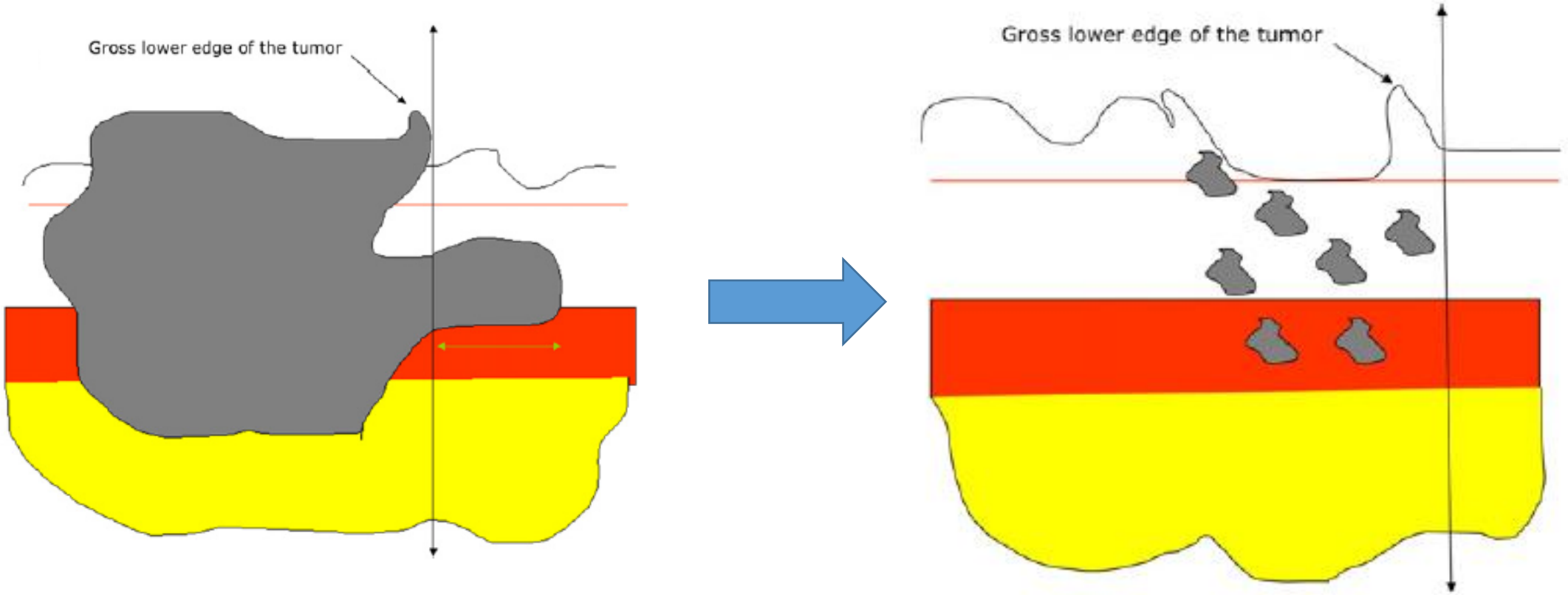
Can we safely reduce the DRM



2 cm → 1 cm → < 1 cm
close shave

J Am Coll Surg 1997; 184: 84±92. Original illustration by Kari C. Toverud

Distal IM spread after chemoradiation : 2% and all <1cm



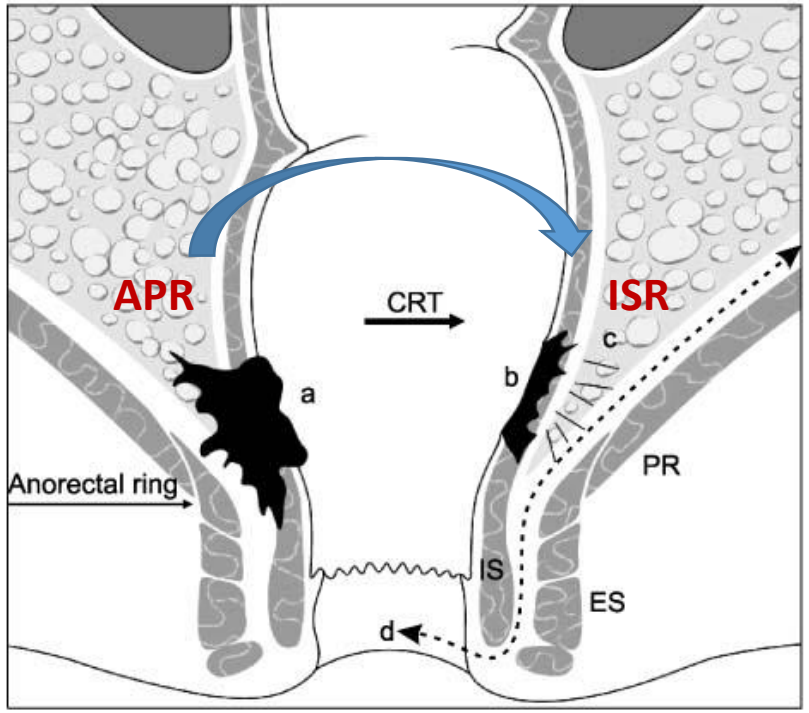
IM spread distal to macroscopic margin

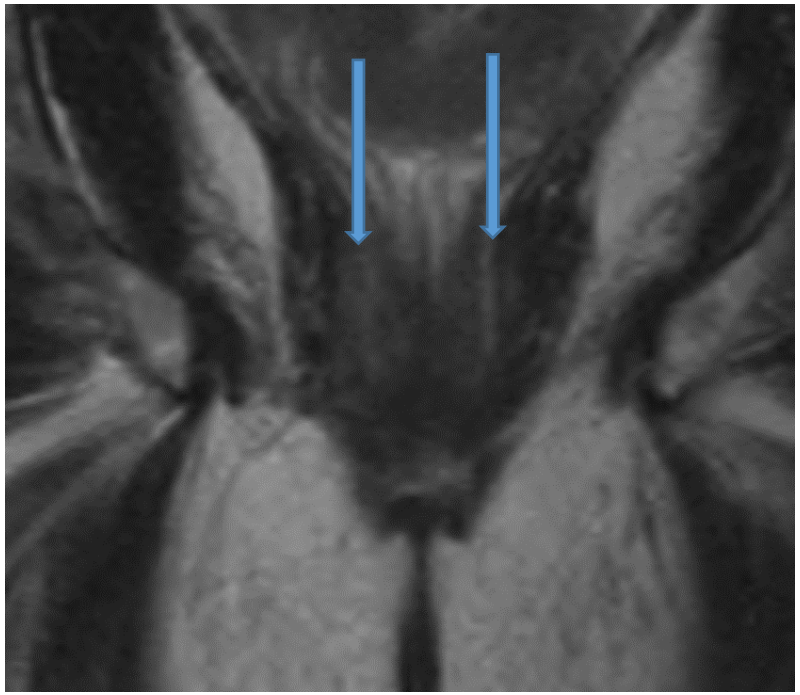
Caveat : poorly differentiated /signet cell/tumor budding

Guedj N. *Human Pathol* 2016; **52**:164-172

Response to neo-adjuvant chemoradiation

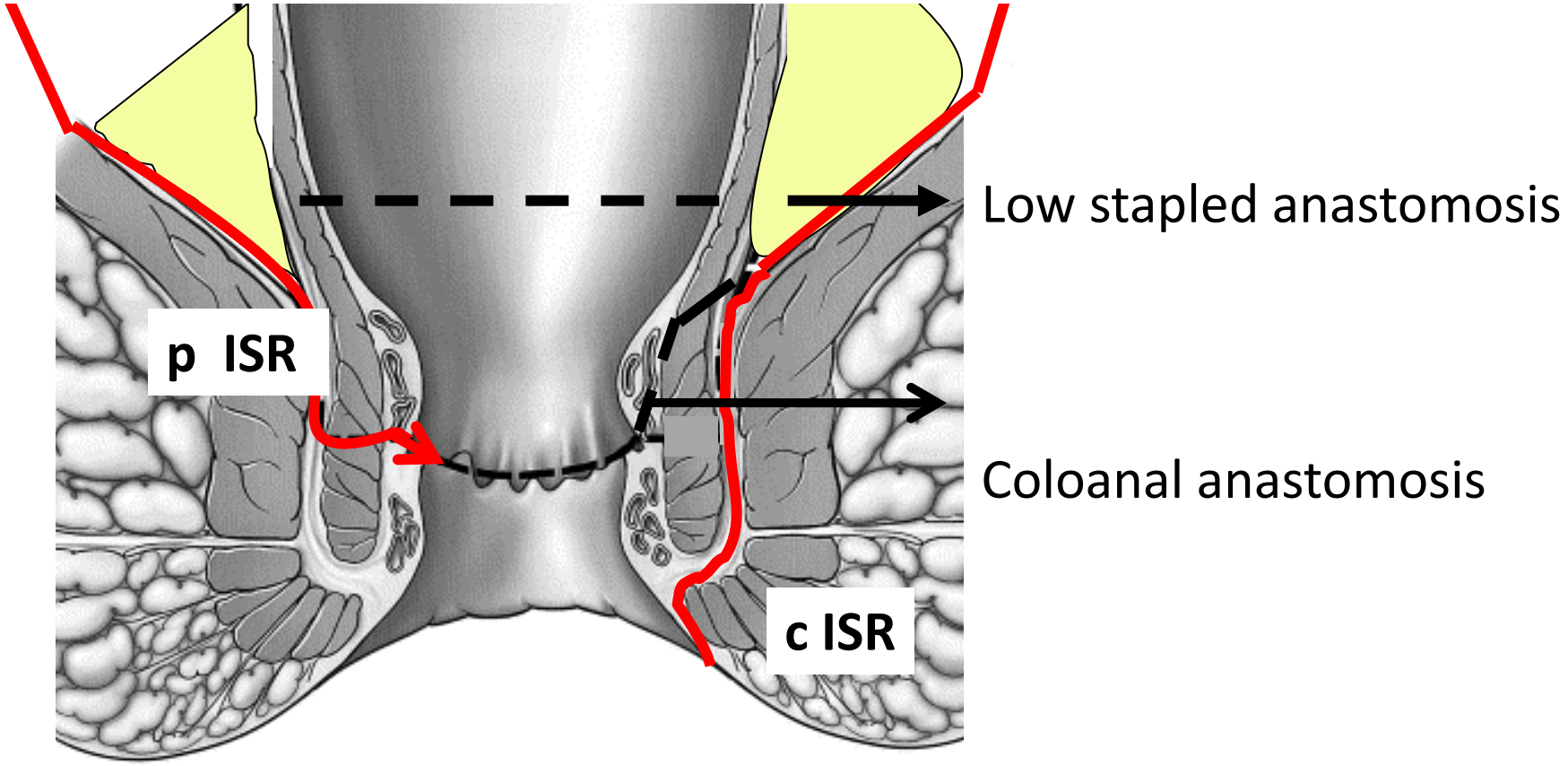
- assess response **(MRI)**
- **expand the interval** (from 6 w to 12w)



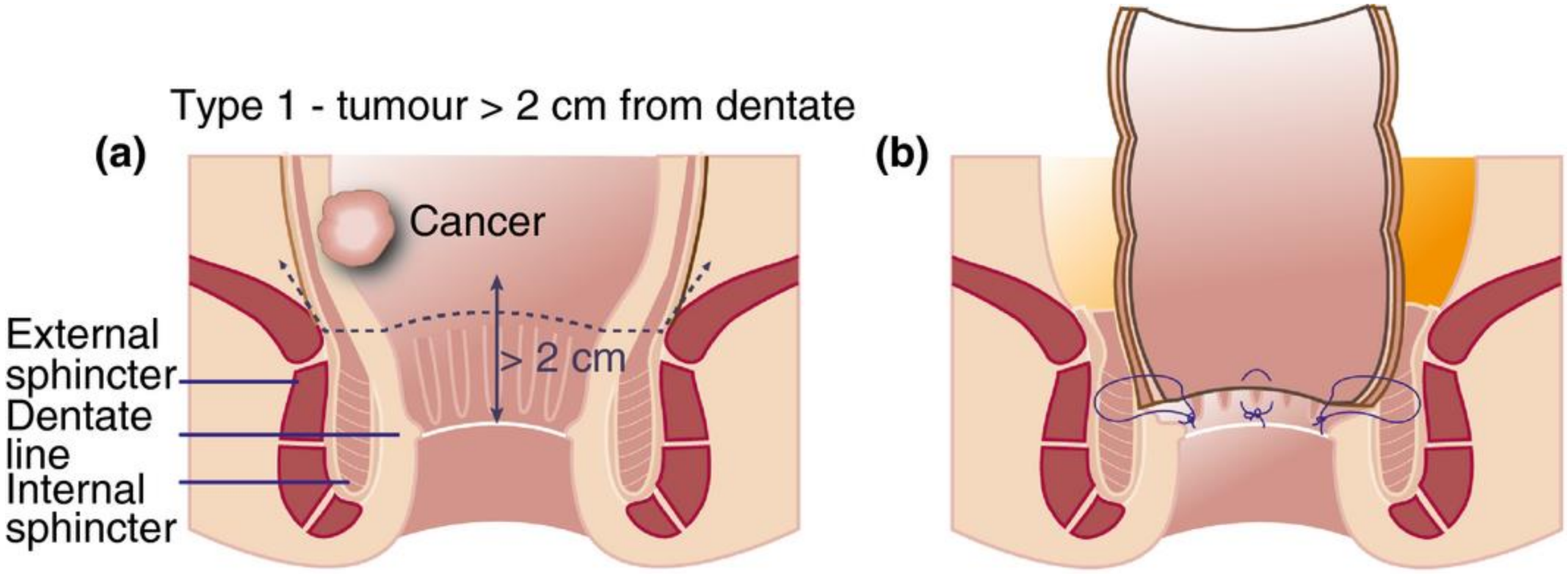


Technical aspects :

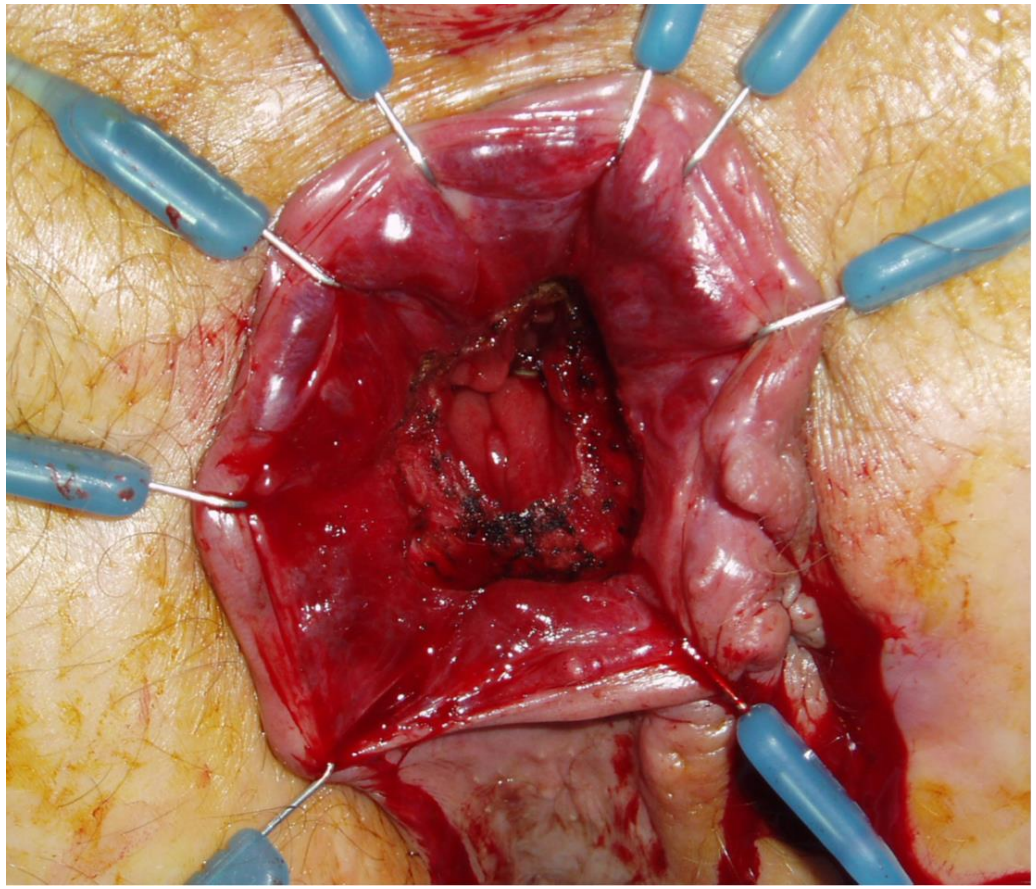
- low stapled and Colo-anal anastomosis (CAA)
- Intersphincteric resection : **partial ISR – complete ISR**

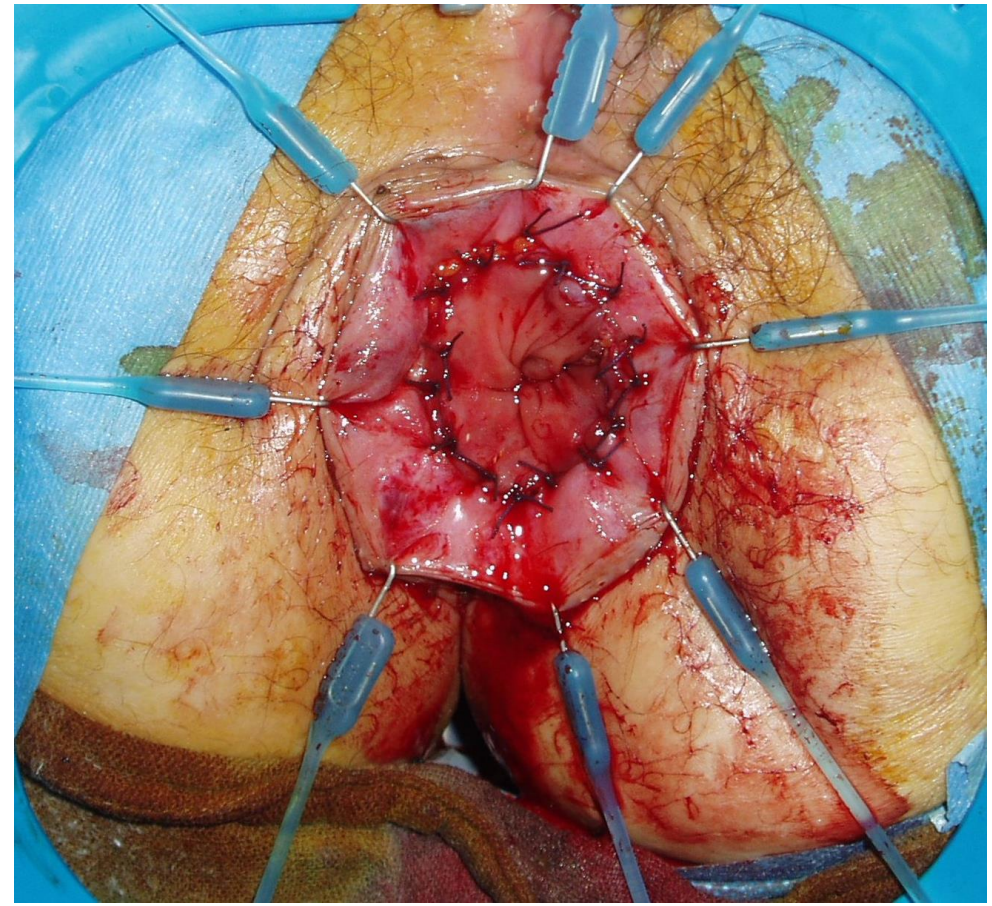


Rullier type I *
mucosal sleeve and colo-anal anastomosis preserves the IAS

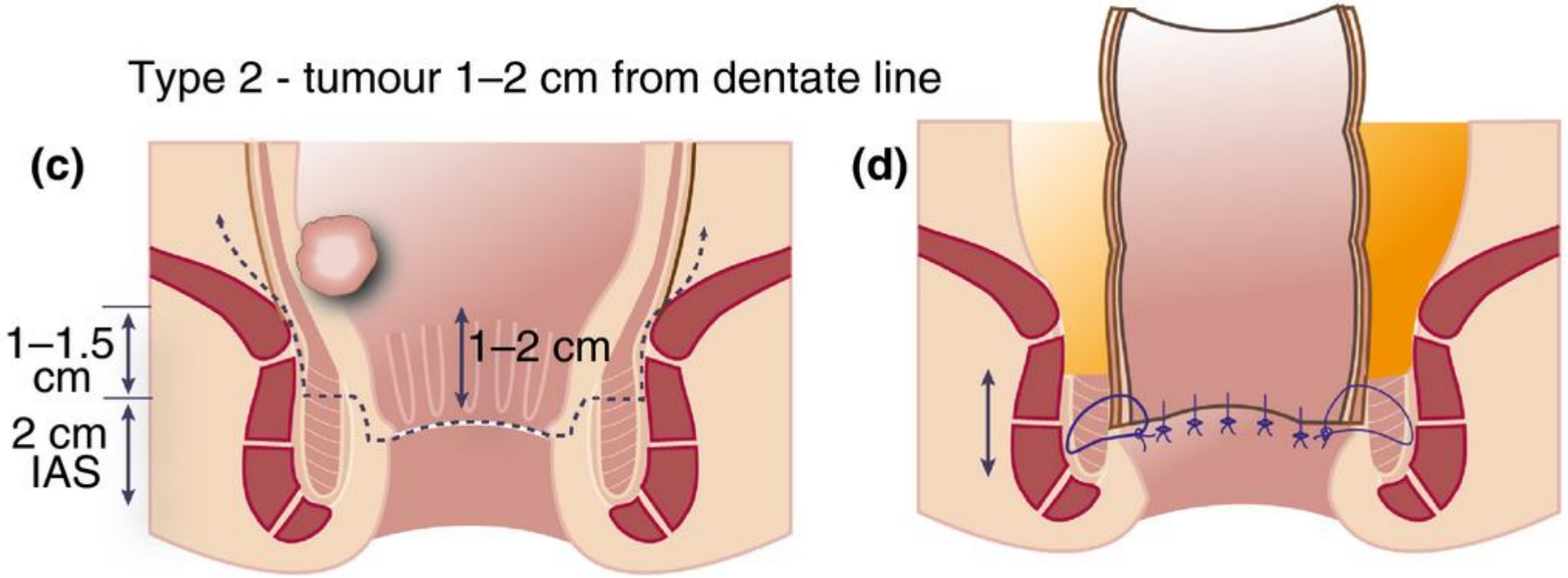


Tekkis P. et al. *Colorectal Dis* 2015
*Rulier E et al. *Dis Colon Rectum* 2013; **56**





Rullier type 2
Partial intersphincteric (full-thickness)



Schiesser et al. Intersphincteric resection 1994

COLOR II trial (non-inferiority phase III) 20004-2010

1044 patients randomised (2:1)

699 in laparoscopic surgery group

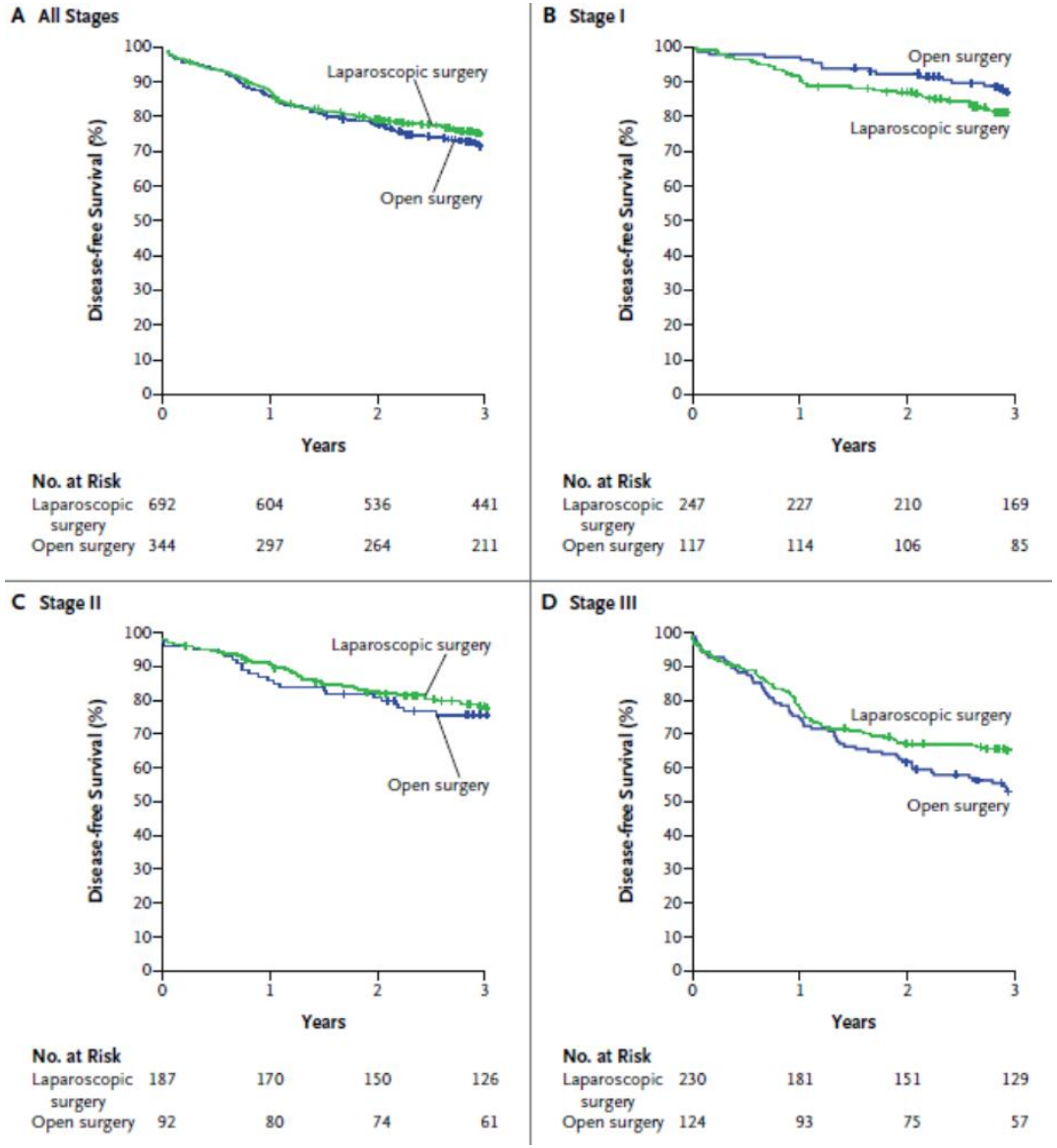
345 in open surgery group

Locoregional recurrence rate at 3 years : 5.0% in both groups

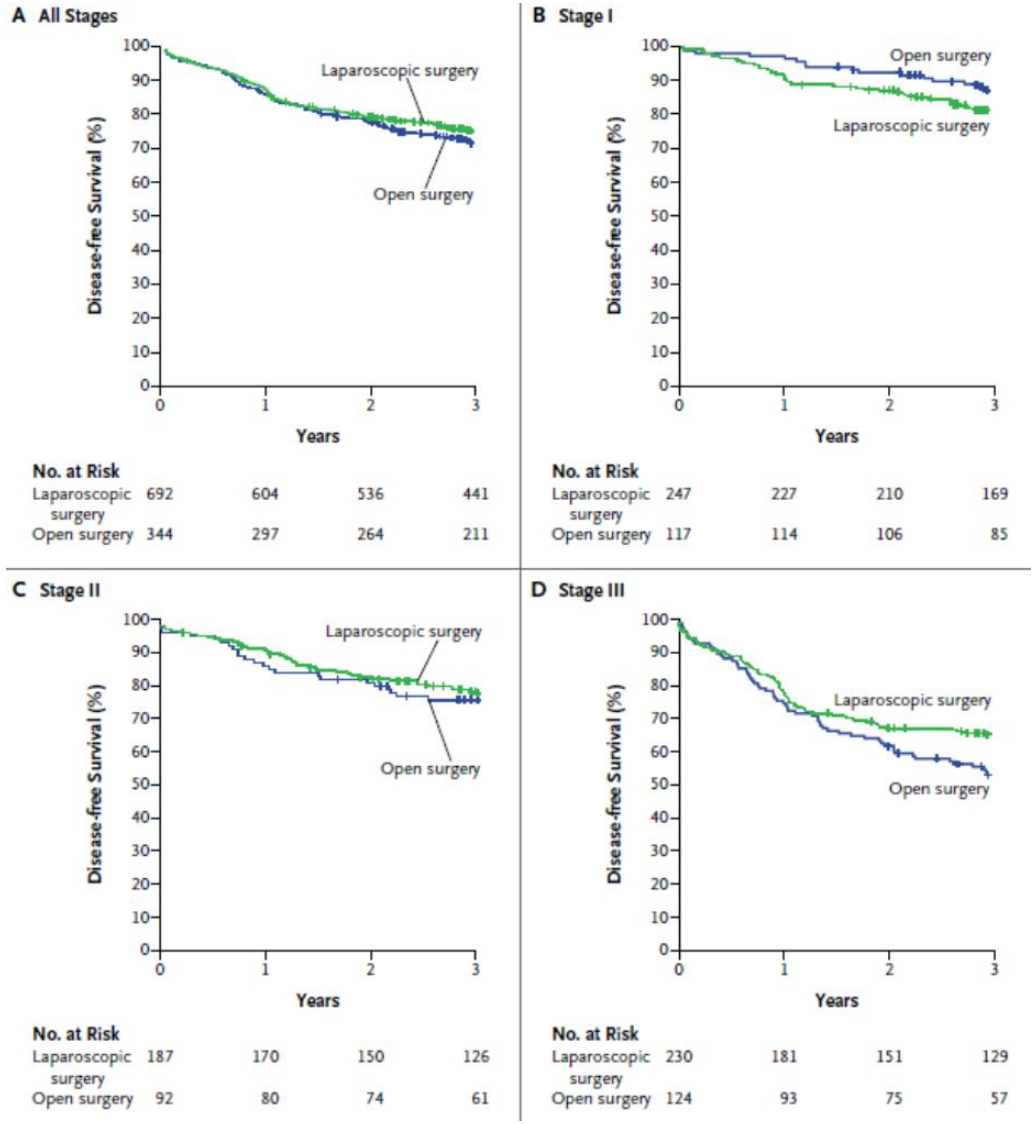
DFS: 74.8% (laparoscopic) and 70.8% (open)

OS : 86.7% (laparoscopic) and 83.6% (open)

N Engl J Med 2015



Disease free survival



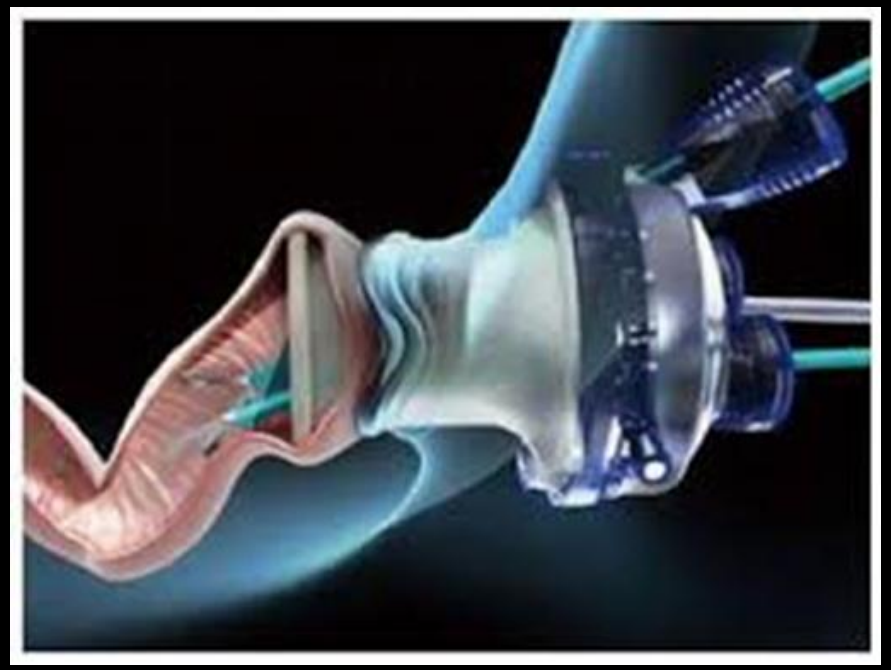
Overall survival

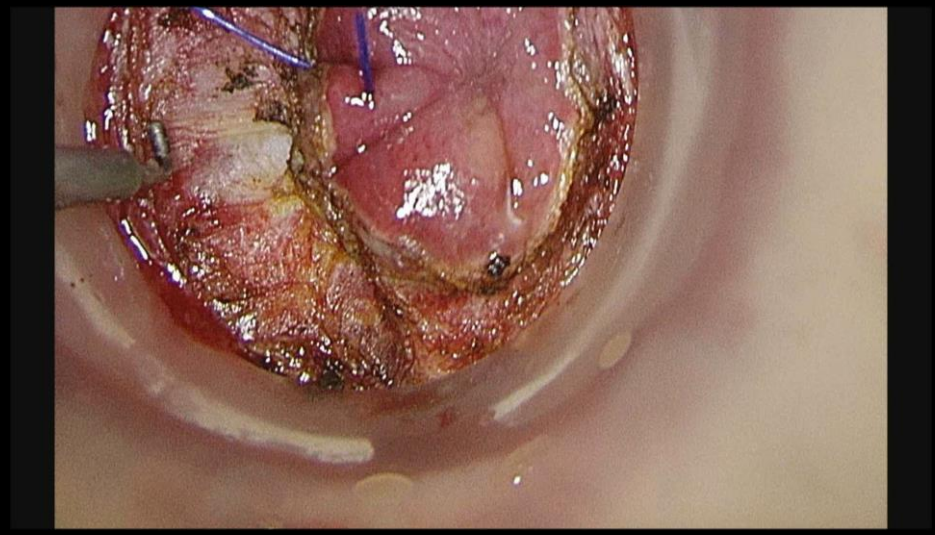
Color II trial : short-term

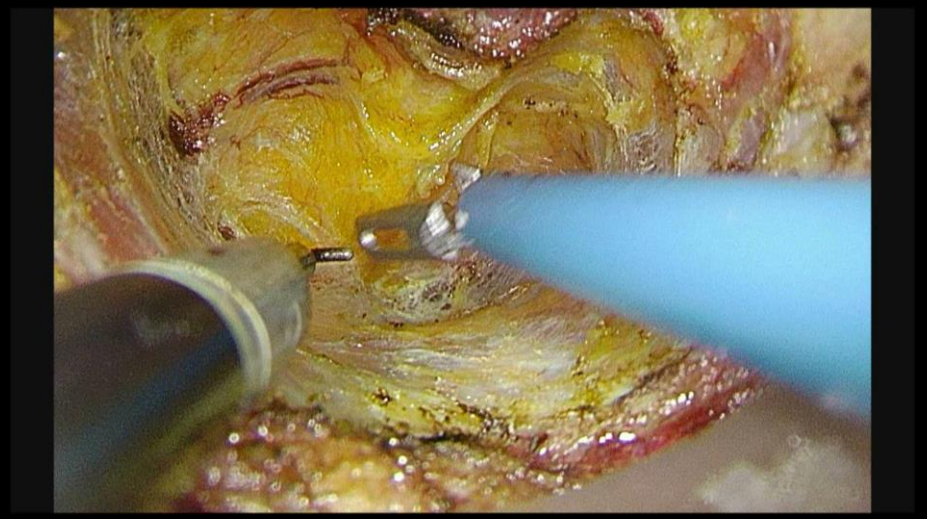
	laparoscopy	open	
Duration of surgery	240 (184-300)	188 (150-240)	<0.0001
Conversions	**17%**		
Blood loss	200 (100-400)	400 (200-700)	<0.0001
30-day mortality	1%	2%	ns
Overall morbidity	40%	37%	ns
Leak rate	**13%**	10%	ns
Hospital stay	8.0 (6.0-13.0)	9.0 (7.0-14.0)	<0.36

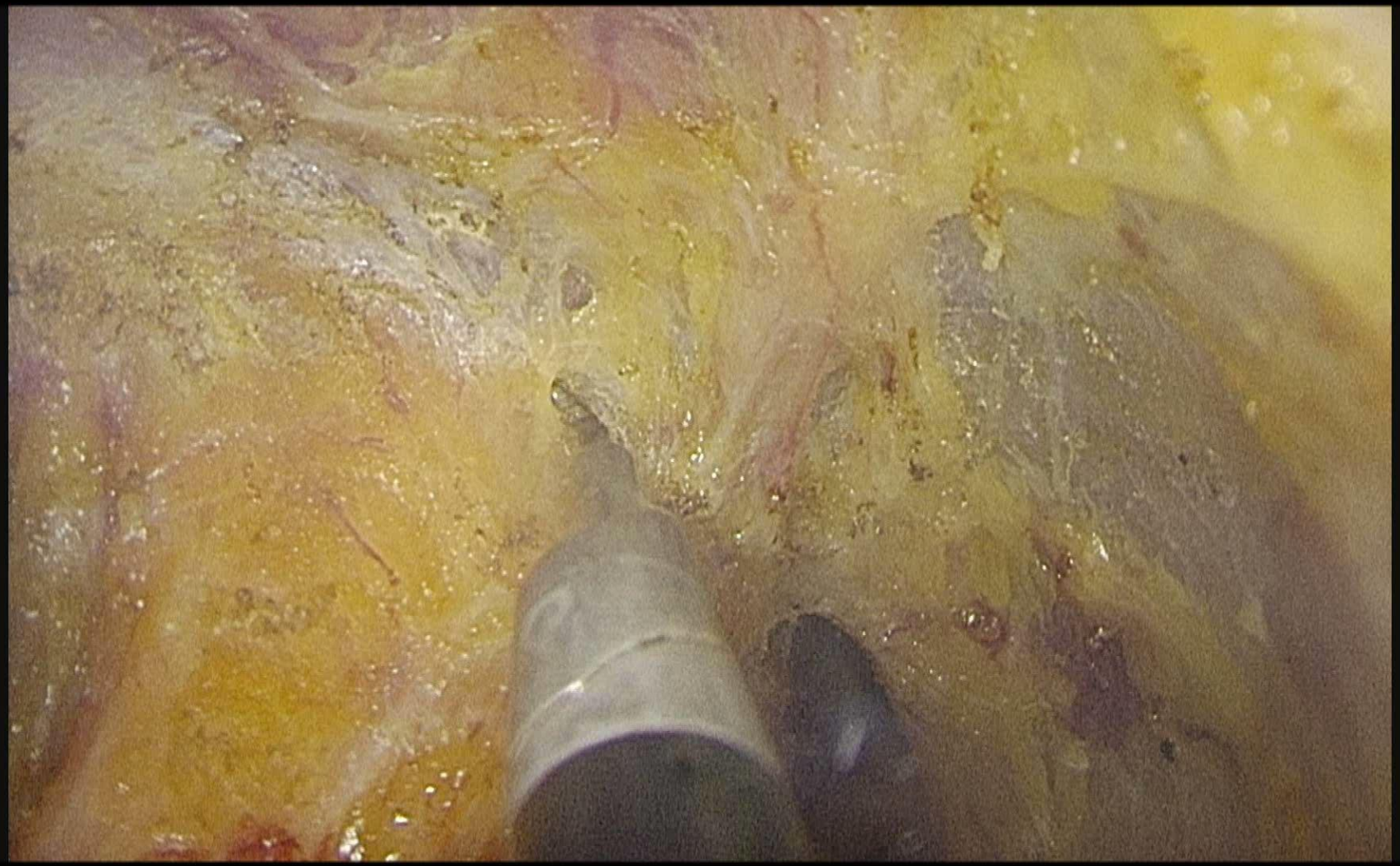
Lancet Oncol 2013

Transanal TME :
optimizing the minimally invasive approach



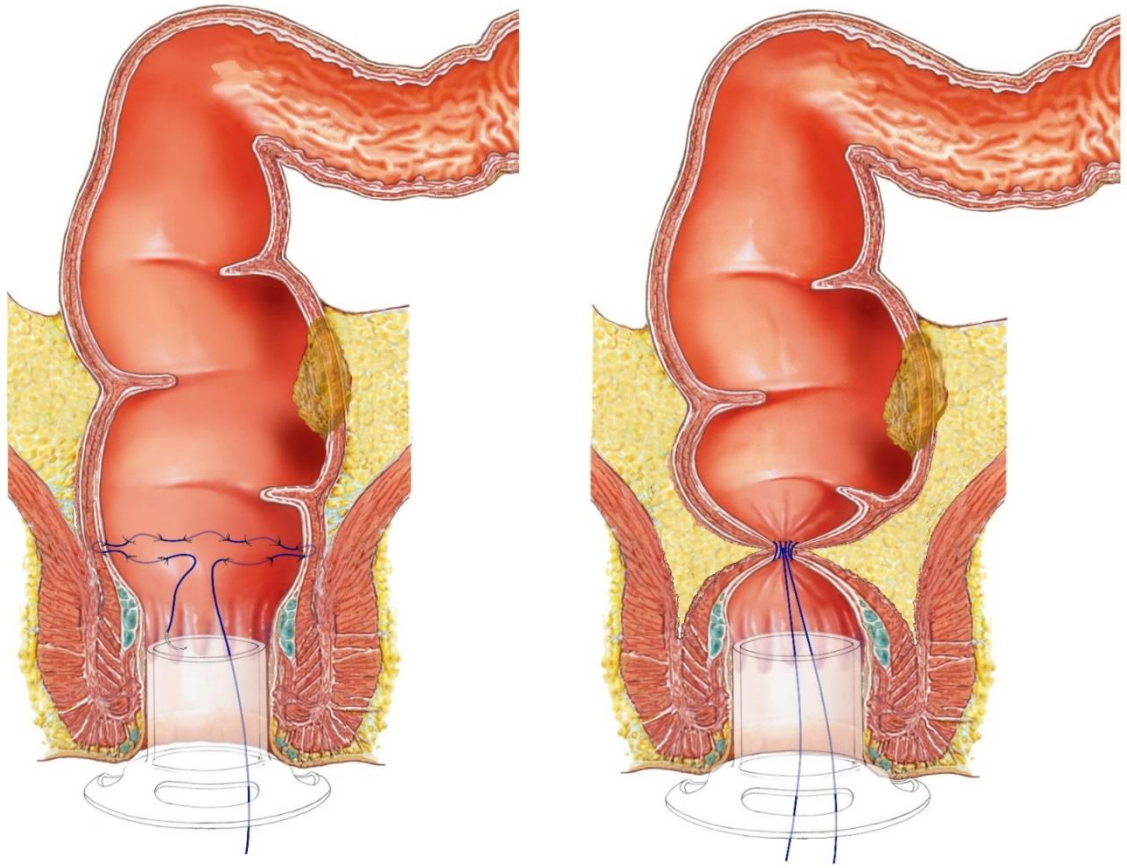


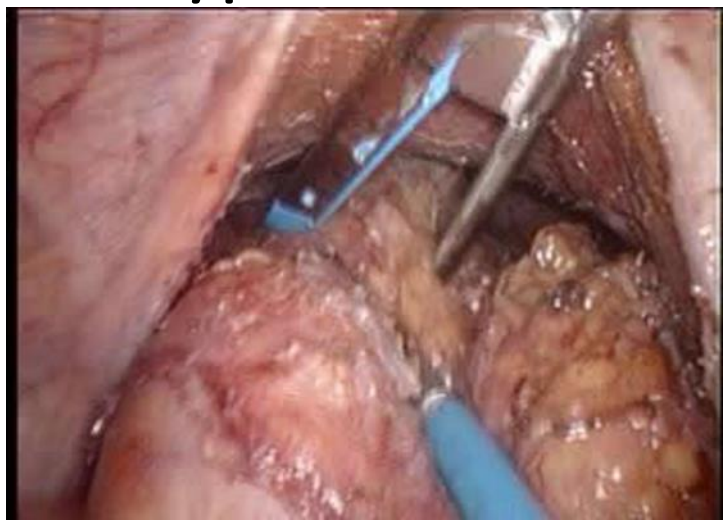


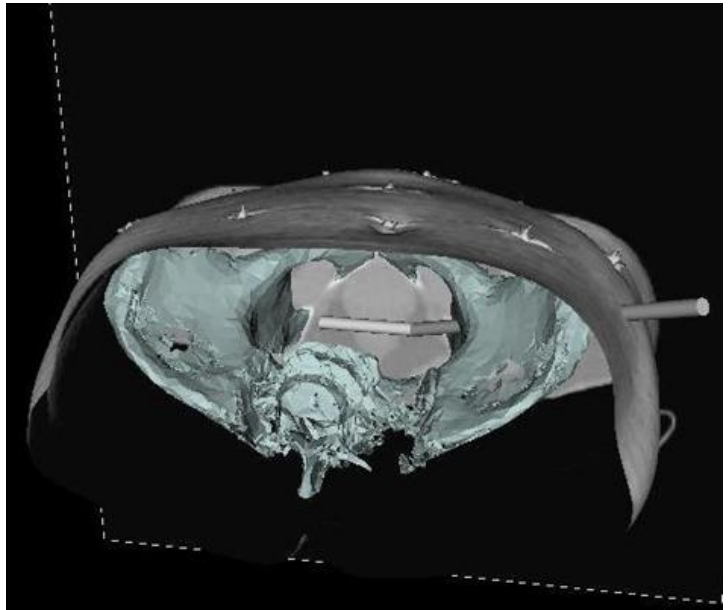


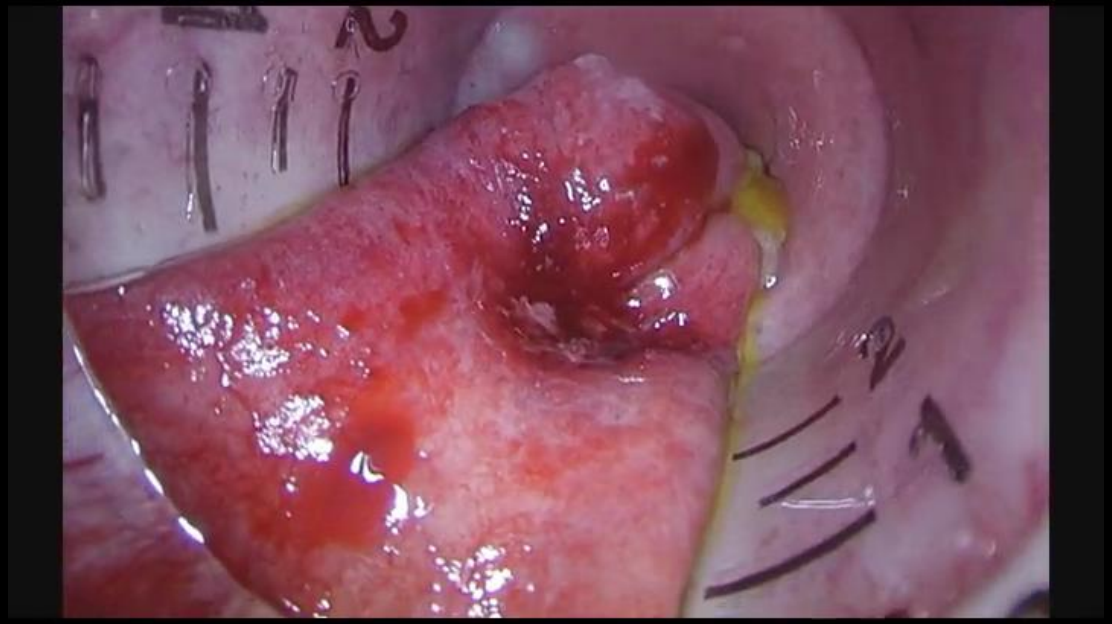
Distal margin in ta-TME : under direct visual control

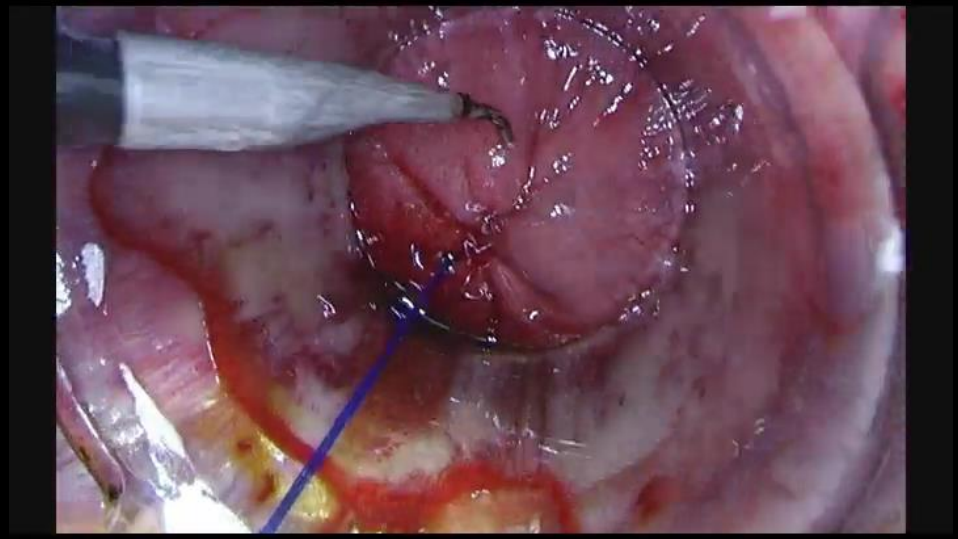
single stapled vs manual anastomosis in Rullier type I

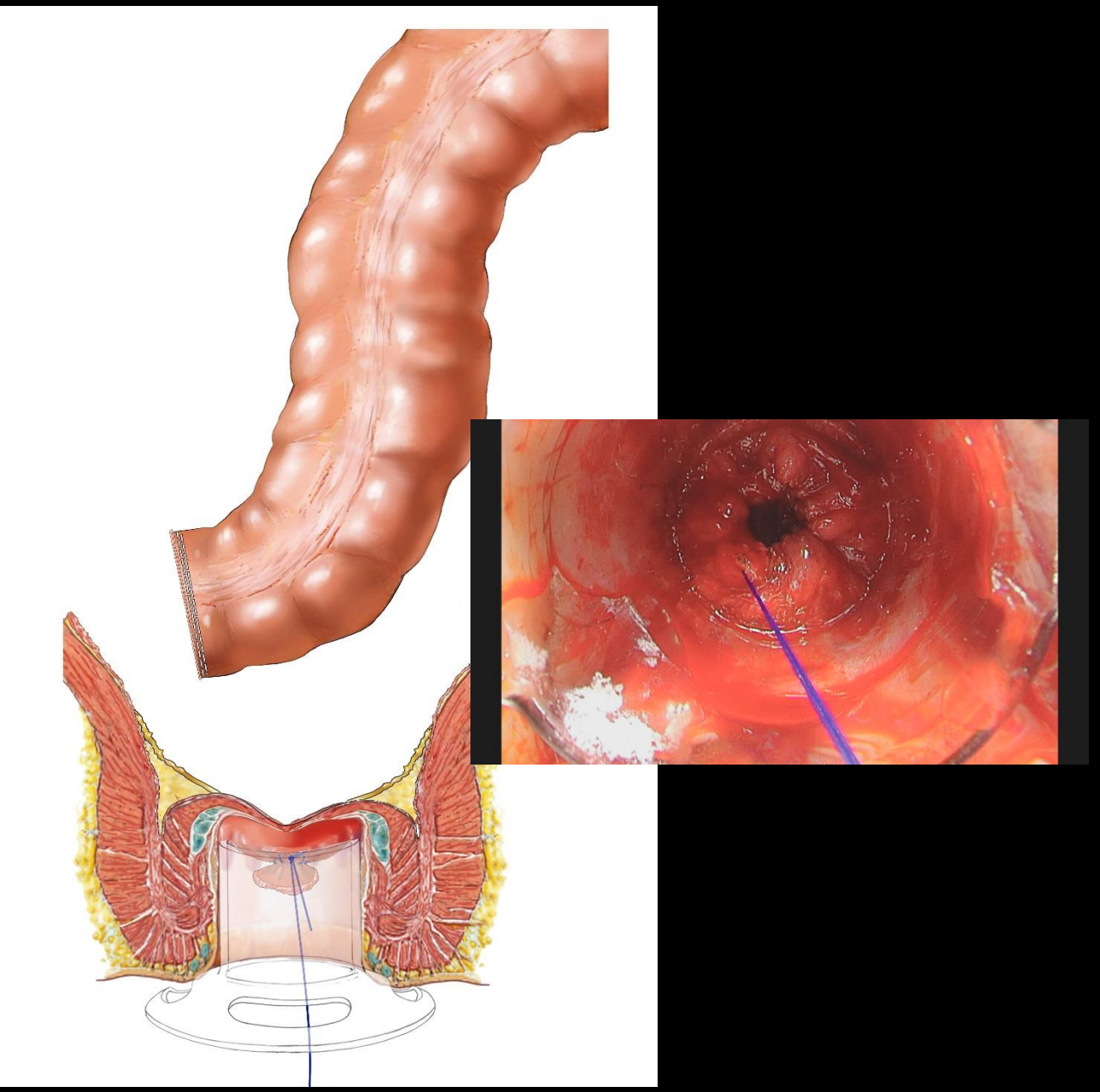


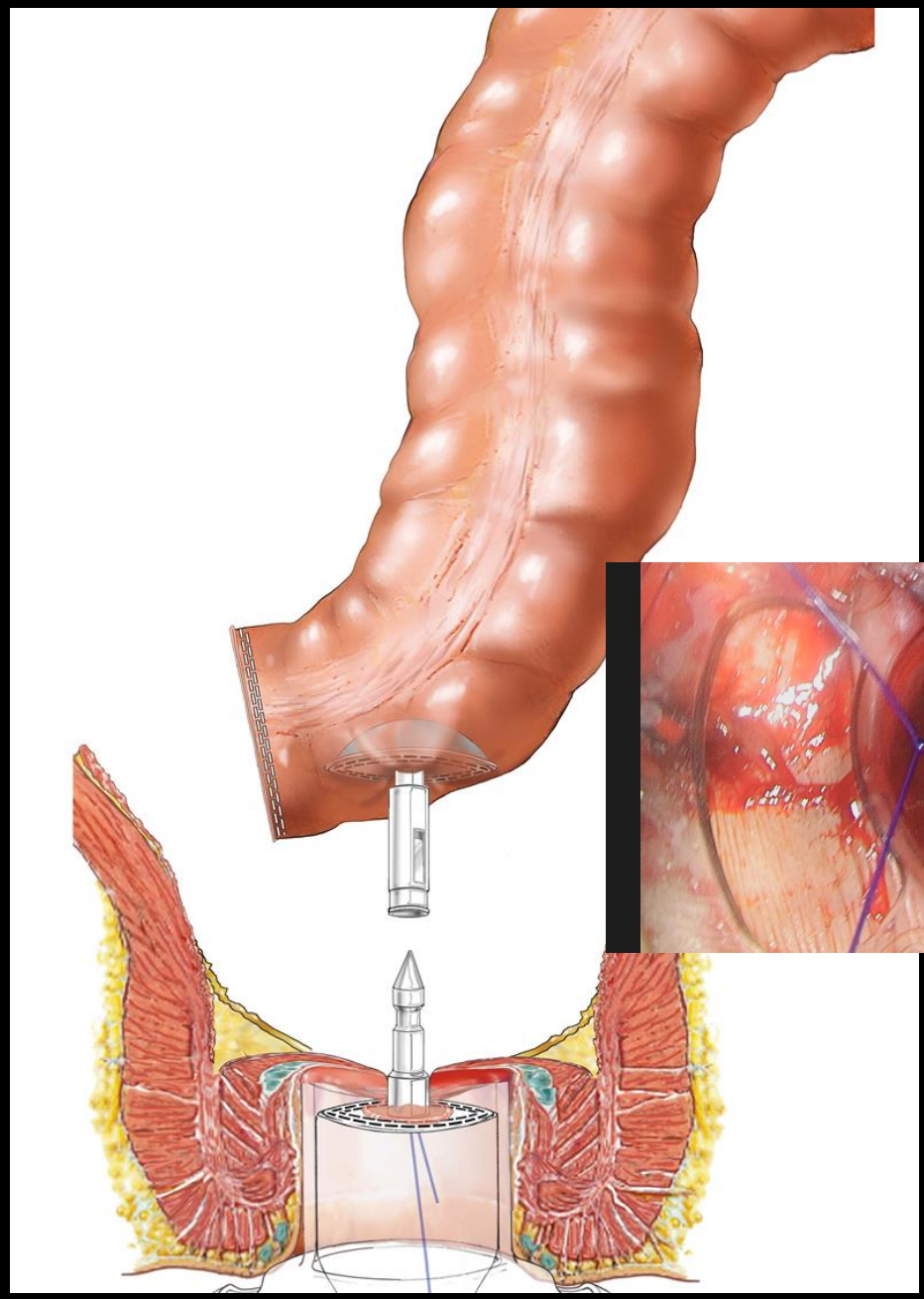




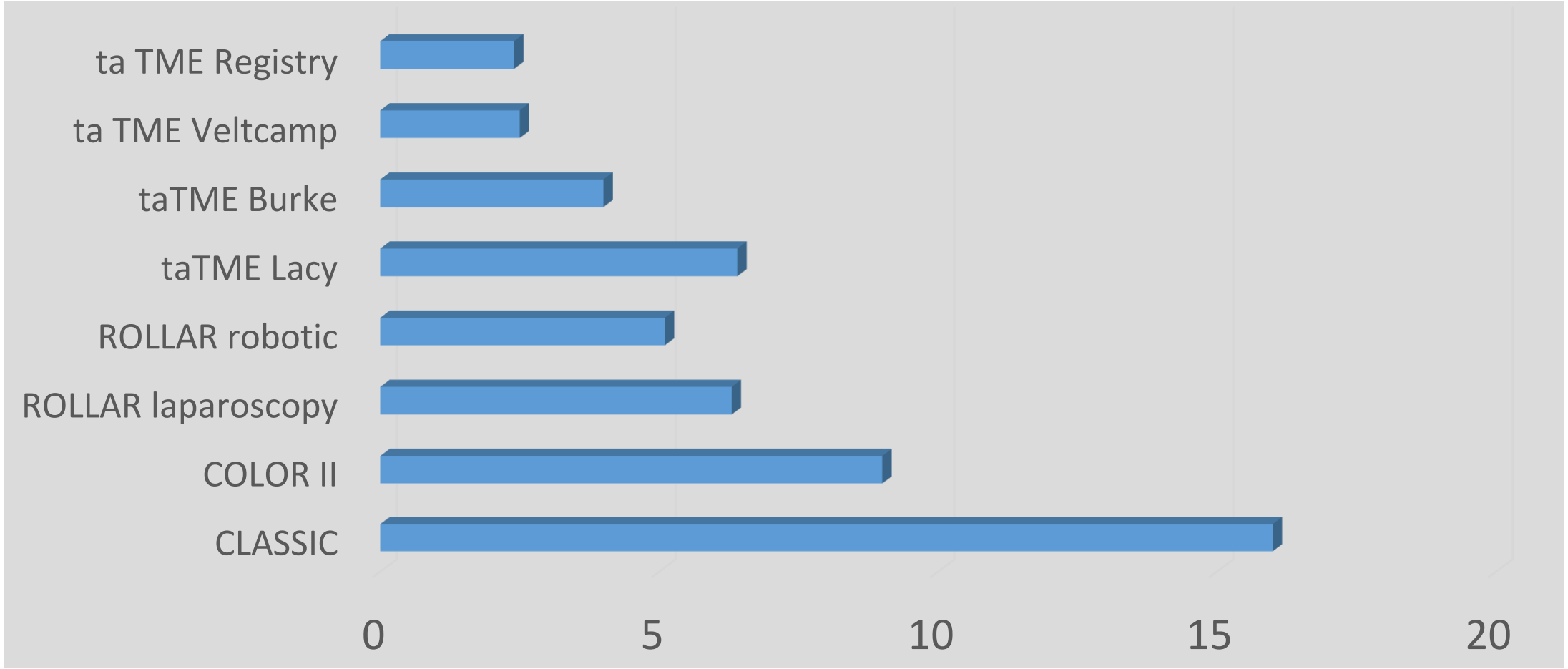








CRM positivity



Despite optimized minimally invasive surgery and more sphincter preservation

functional impairement rather the rule

- **mean BM/ day 2.7**
- **perfect fecal continence : 51.2%**
- **urgency 18.9%**

Marin ST et al. Systematic review. *Br J Surg* 2012

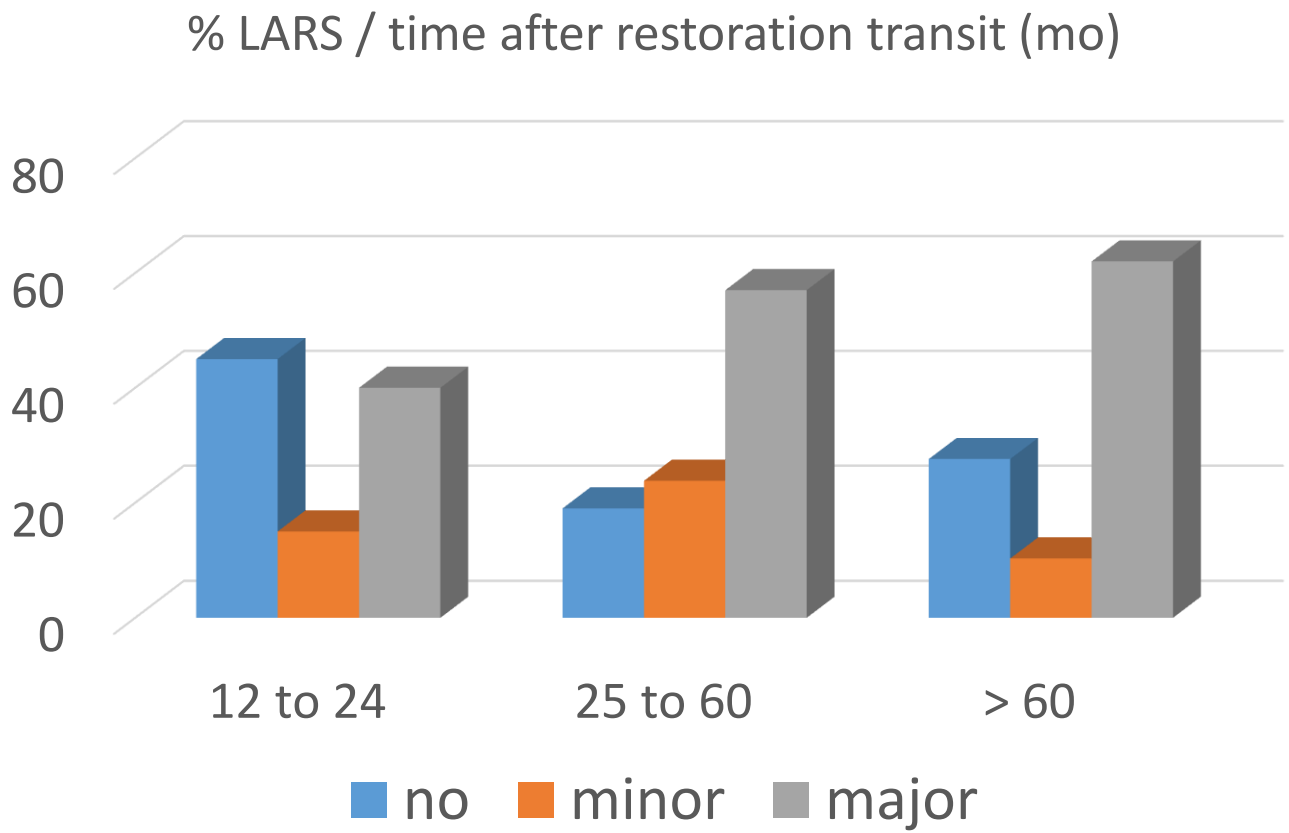
Factors influencing functional outcome after colo-anal and intersphincteric resection

		OR	95%CI	*p*
Age		1.03	0.98 – 1.08	*ns*
Gender		1.14	0.37 – 3.52	*ns*
Stage	0-2	1		
	3-4	1.31	0.44 – 3.95	*ns*
Preop RT		3.07	1.05 – 8.89	*0.04*

Chamlou R et al. *Ann Surg* 2007;**246**:916-22

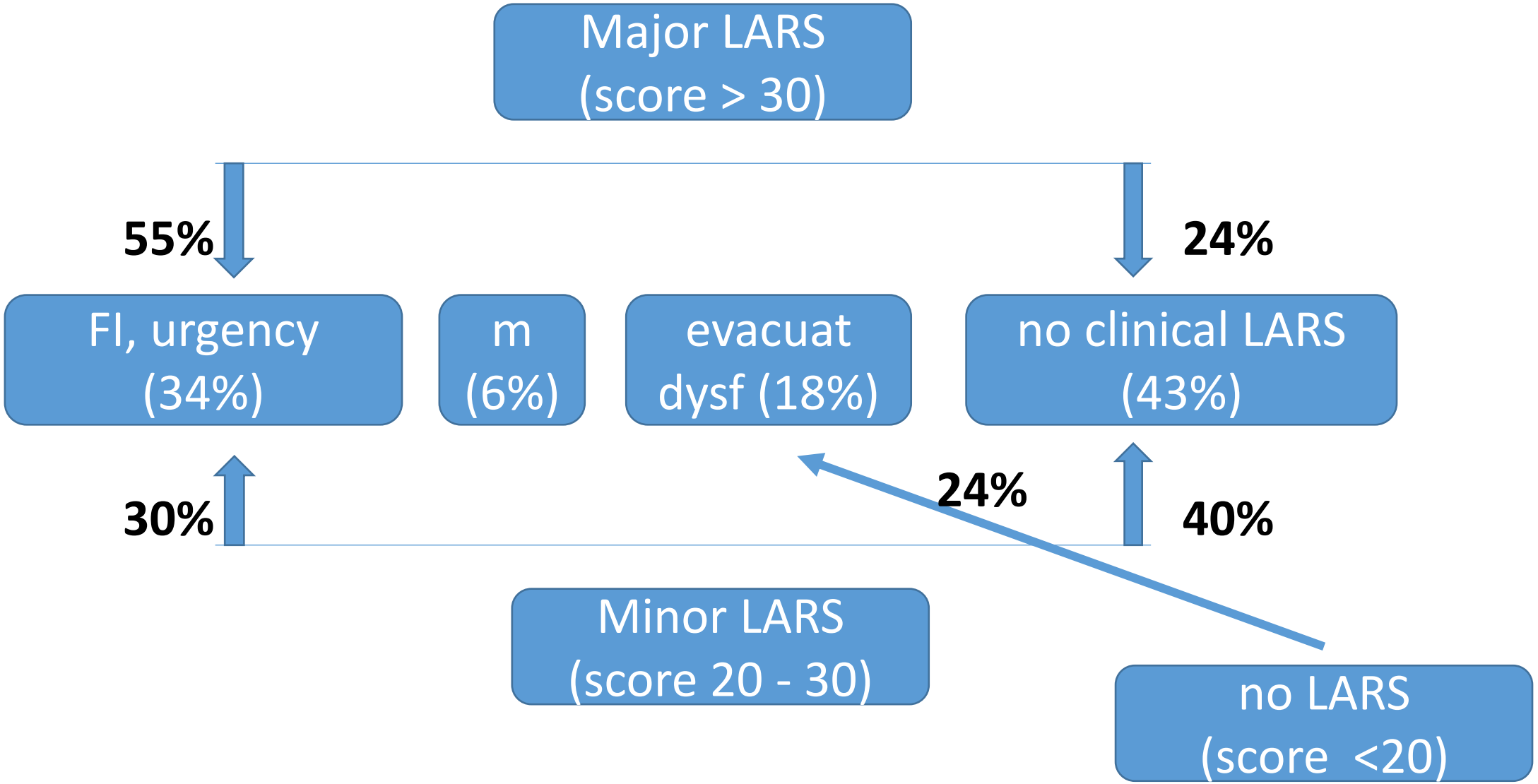
Need to improve functional outcome after TME

Understanding LARS



Clustering	76%
> 4 BM/day	54%
Urgency	47%
Incomplete evacuation	33%
Nocturanl BM	30%

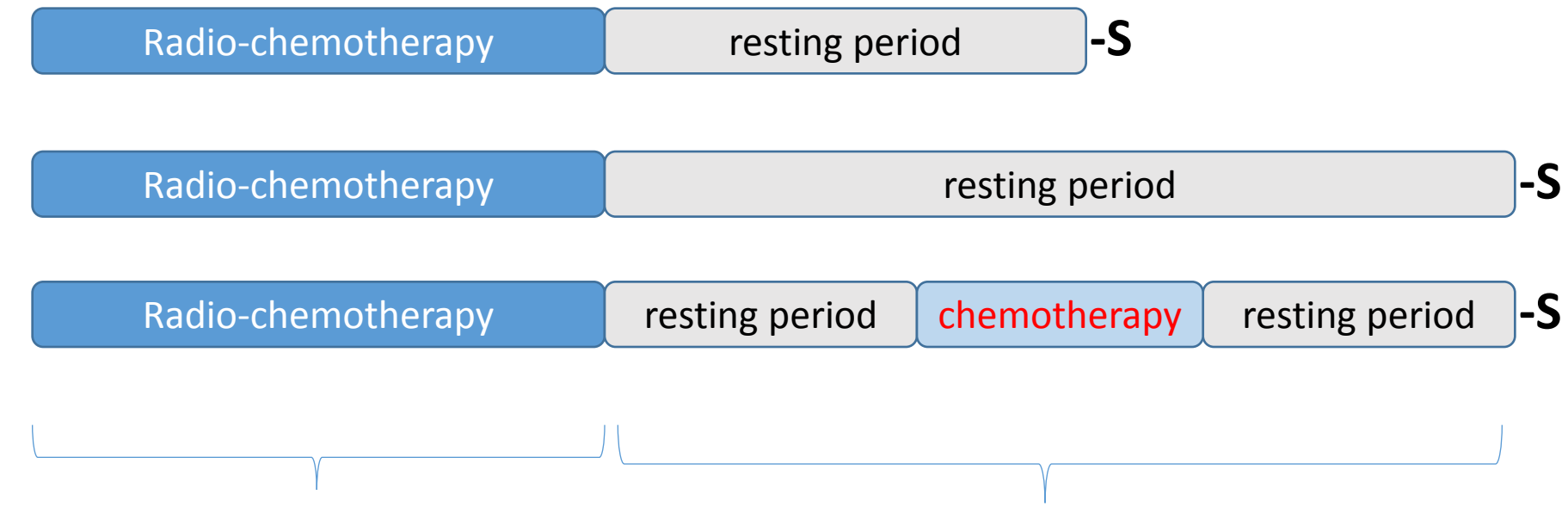
Ribas Y. et al *Int J Colorectal Dis* 2017


Major LARS
(score > 30)
55%
24%
FI, urgency
(34%)
m
(6%)
evacuat
dysf (18%)
no clinical LARS
(43%)
30%
24%
40%
Minor LARS
(score 20 - 30)
no LARS
(score <20)

Advanced rectal cancer
increased risk for local and distant failure

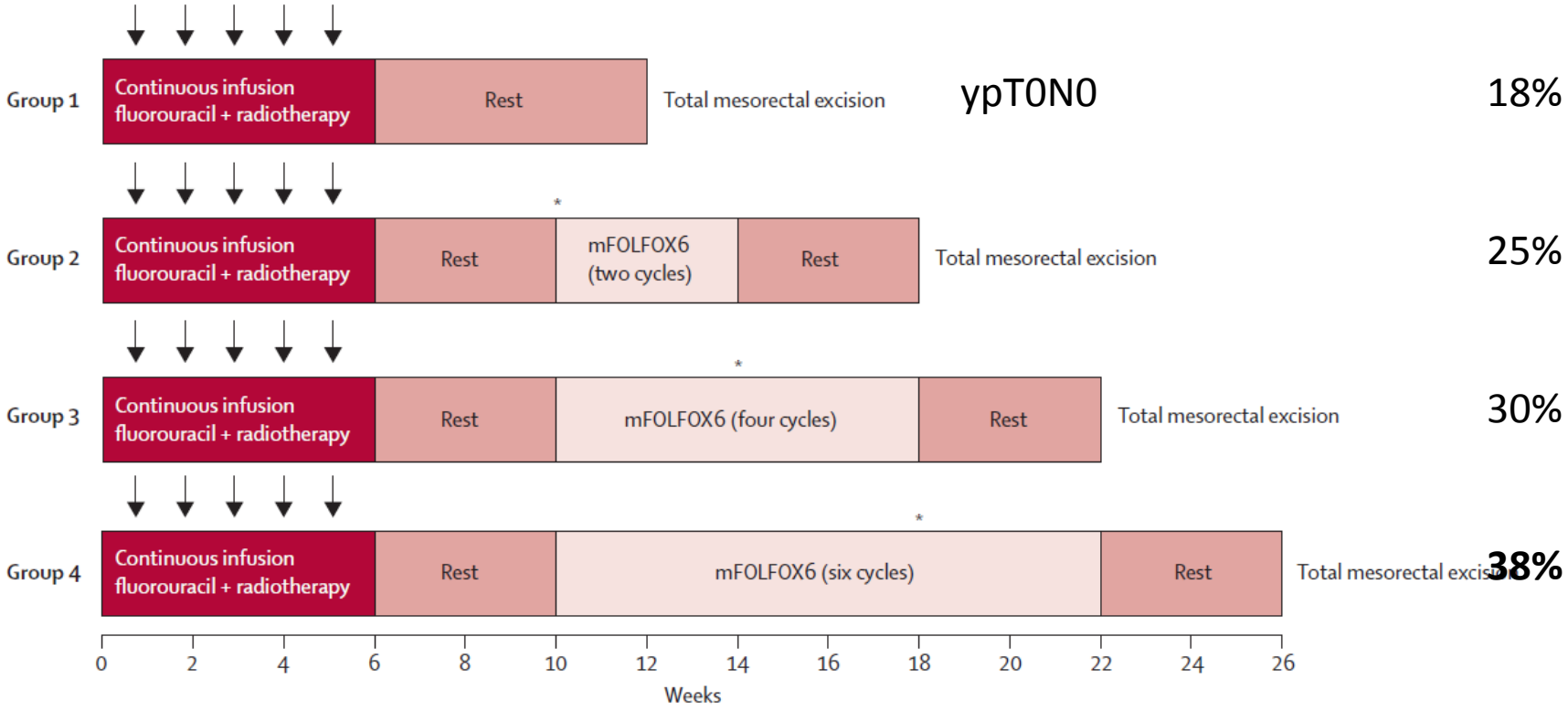
- deep mesorectal invasion (> 5mm, >T3b)
- threatened CMF (< 1-2 mm), invaded CMF
- nodes +++ (extramesorectal)
- **EMVI**
- signet cell, …

Improving local and distant control in advanced rectal cancer

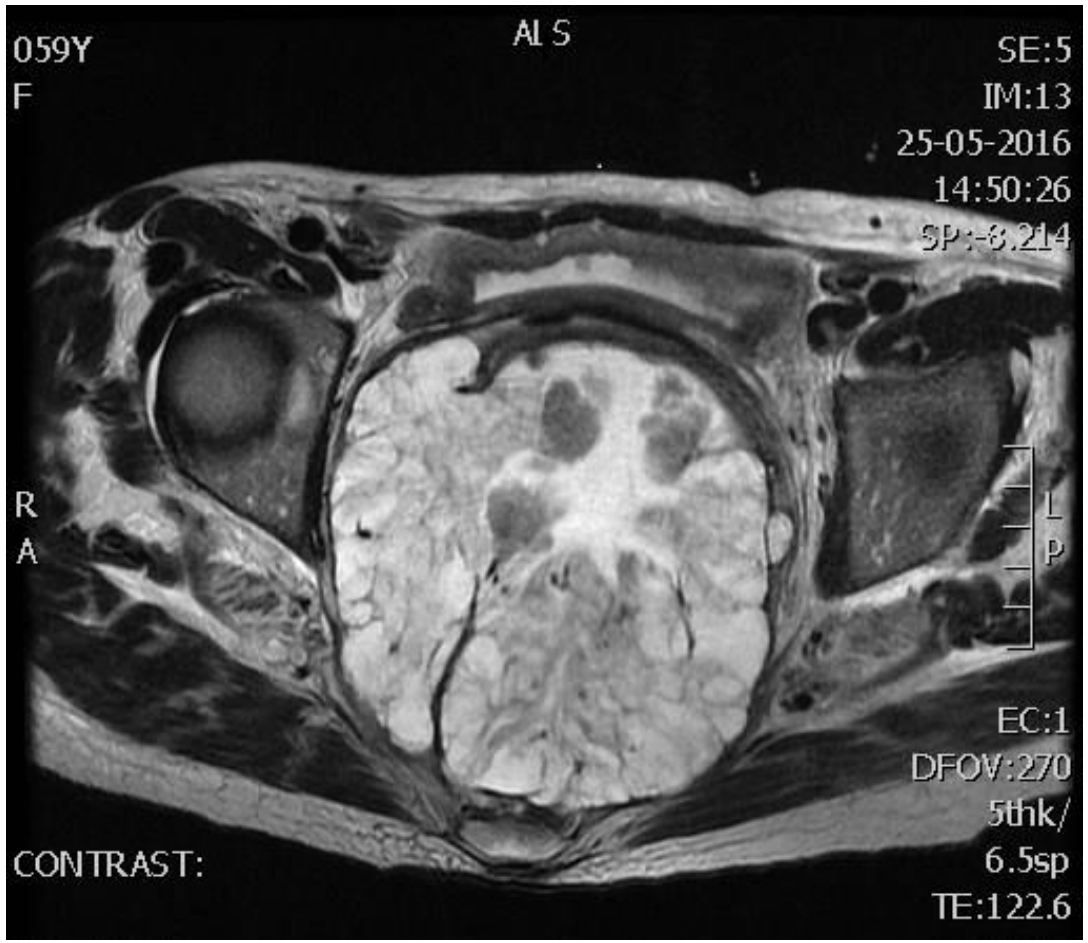


Effect of adding mFOLFOX6 after neoadjuvant chemoradiation in locally advanced rectal cancer: a multicentre, phase 2 trial

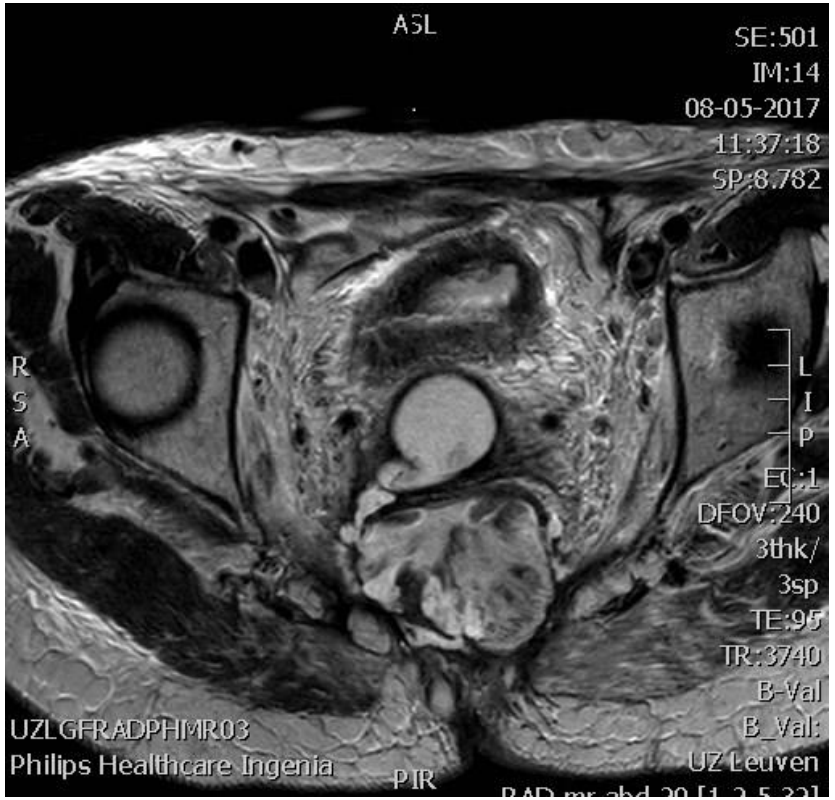
Julio Garcia-Aguilar, Oliver S Chow, David D Smith, Jorge E Marcet, Peter A Cataldo, Madhulika G Varma, Anjali S Kumar, Samuel Oommen, Theodore Coutsoftides, Steven R Hunt, Michael J Stamos, Charles A Ternent, Daniel O Herzig, Alessandro Fichera, Blase N Polite, David W Dietz, Sujata Patil, Karin Avila, for the Timing of Rectal Cancer Response to Chemoradiation Consortium




059Y
F
S114
A
i
3
7
CONTRAST:
OVAAMR1A

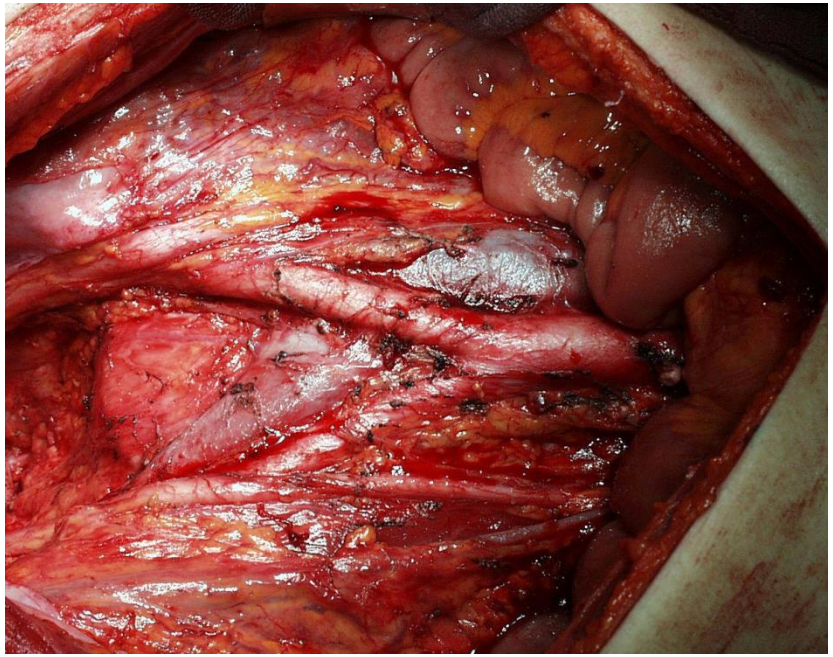

059Y
F
Al S
SE:5
IM:13
25-05-2016
14:50:26
R
A
L
P
EC:1
DFOV:270
5thk/
6.5sp
CONTRAST:
TE:122.6

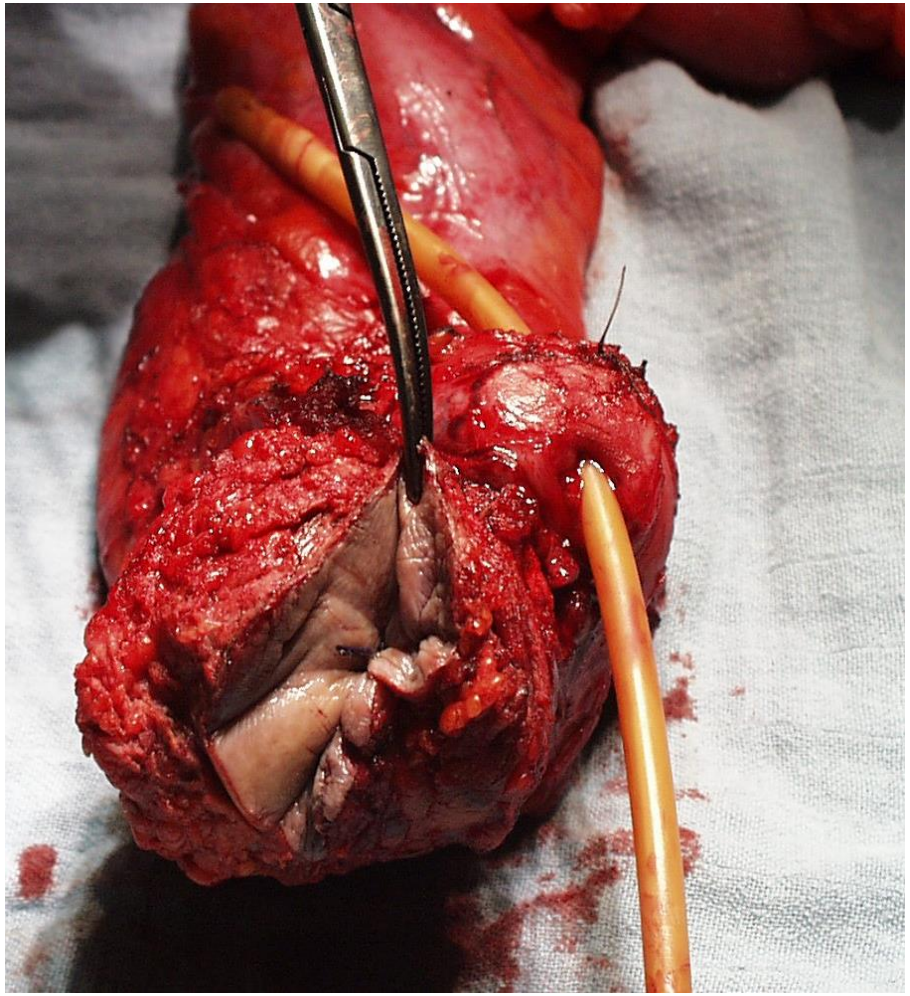
Ileostomy
Radiotherapy (54 gray) infusional 5 FU additional cycles of **Folfox**



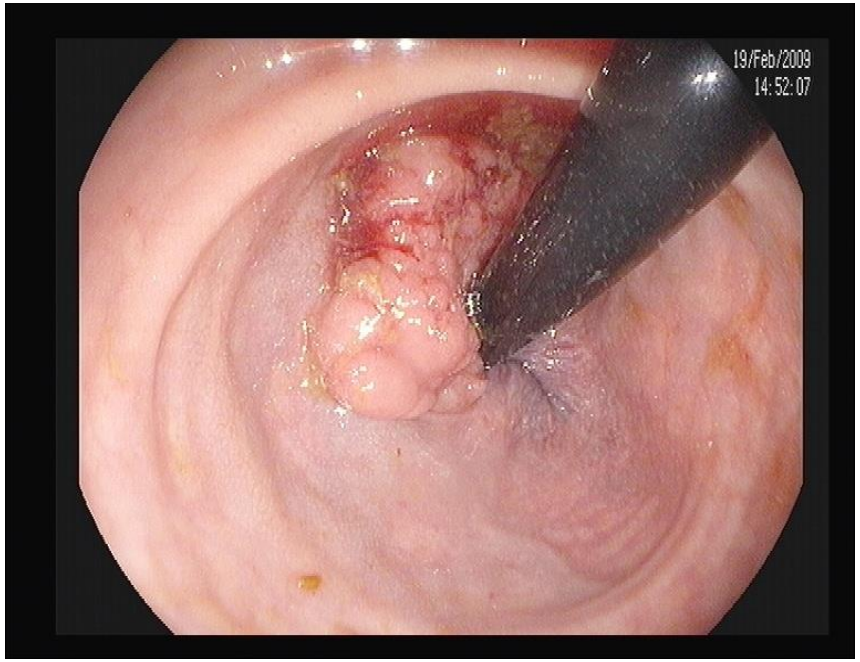
Posterior pelvic exenteration

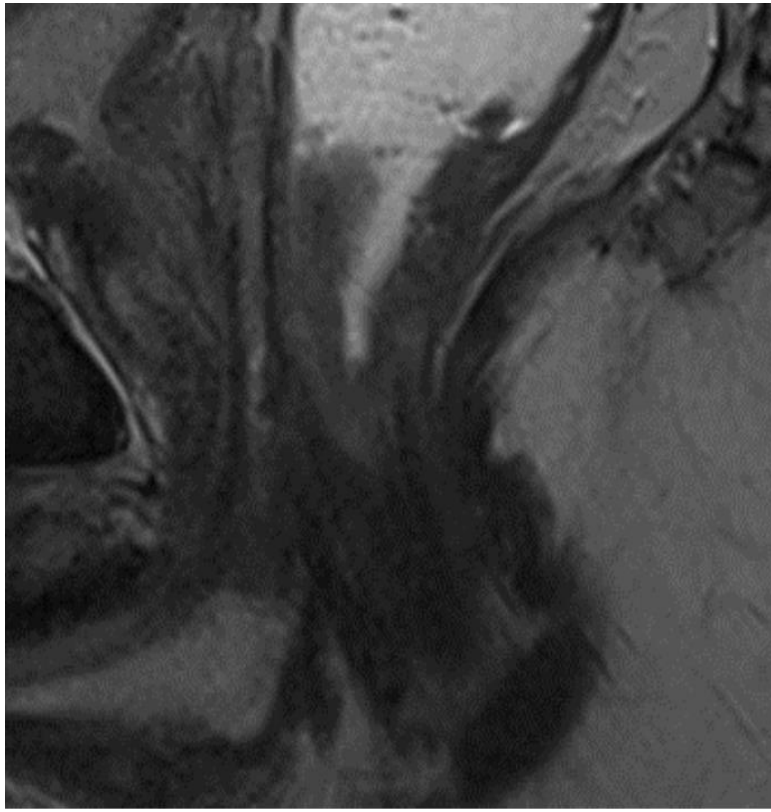
Radical ‘en bloc’ surgery in T4b = only chance for cure





Male patient: 75 yrs.
Moderate operative risk, ASA 2
well differentiated adenocarcinoma,juxta-anal (Rullier II) cT3a N?, M0





Different strategies

Low risk cancer : primary surgery: IS proctectomy + def stoma

Low risk cancer – expects sphincter preservation

radiochemotherapy and surgery (TME + colo-anal anastomosis)
but impaired function

radiochemotherapy and increased interval and watch and wait
if c CR

Locally advanced rectal cancer

- Spectrum with different risk profiles: local and distant
  requires adapted multimodal treatment strategies

- MRI optimizes TME and radical surgery

- Transanal TME is the next step in the minimally invasive approach

- Functional outcome should be optimised (focus of clinical research)