



Ist die CME bereits Standard?

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Klinikverbund-Südwest



7.5.2.2. **Komplette Mesokolische Exzision (CME)**

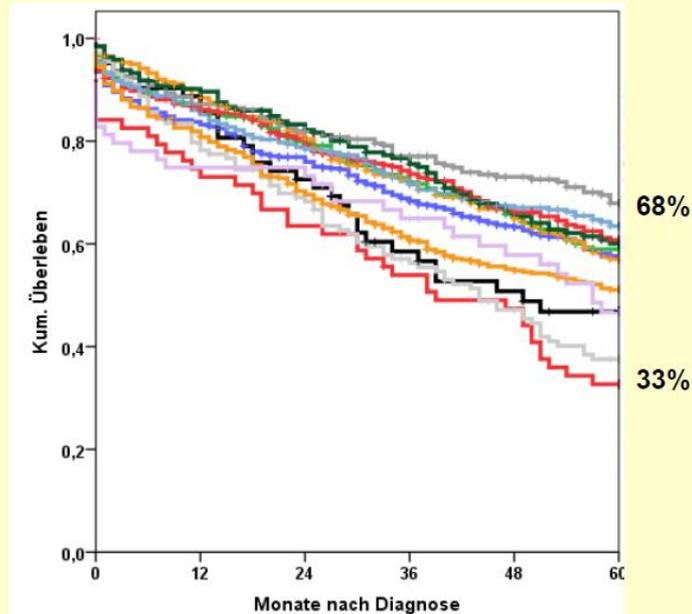
7.22.	Konsensbasierte Empfehlung	2013
GCP	Die chirurgische Therapie des Kolonkarzinoms sollte die komplette mesokolische Exzision beinhalten.	
	Konsens	

Einfluss der Klinik auf das Überleben bei kolorektalem Karzinom



TUMORZENTRUM
Oberfranken

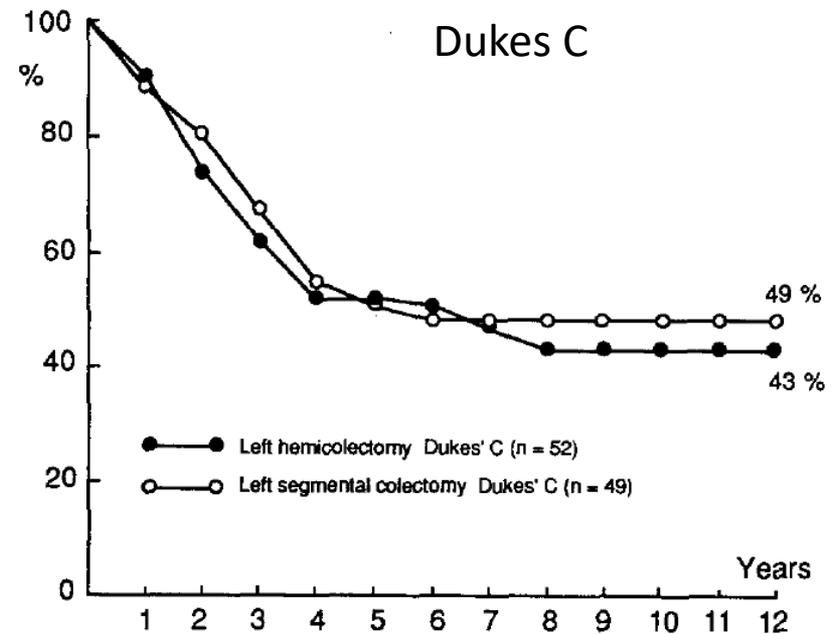
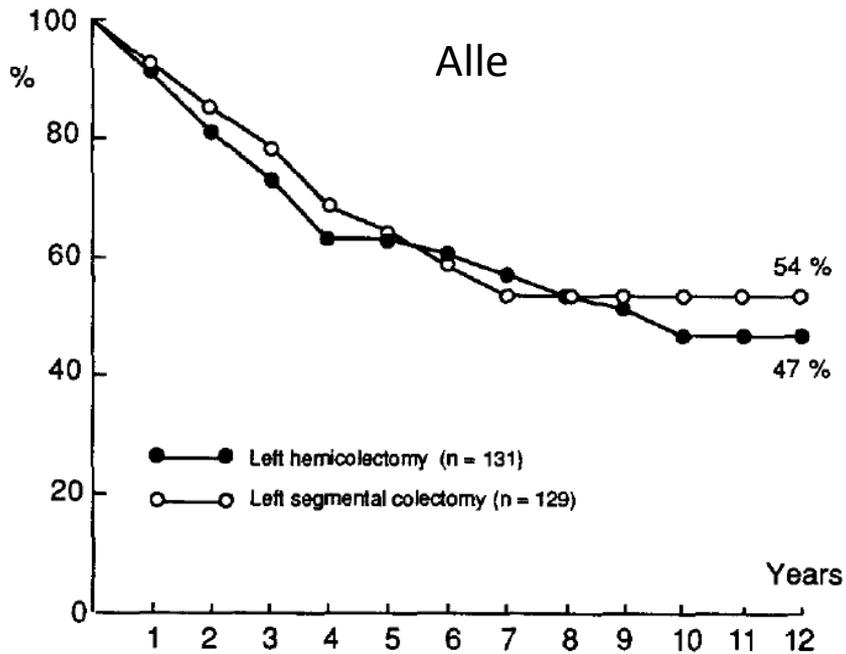
Langzeitüberleben nach R0-Resektion Kolon 2002 - 2014 Prognosefaktor Krankenhaus



UICC II/III



Linkshemikolektomie vs. Segmentresektion



Keine LK-Anzahl publiziert



Prinzipien der CME (complete mesocolic excision)

Original article

doi:10.1111/j.1463-1318.2008.01735.x

Standardized surgery for colonic cancer: complete mesocolic excision and central ligation – technical notes and outcome

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Received 5 August 2008; accepted 6 October 2008

Abstract

Objective Total mesorectal excision (TME) as proposed by R.J. Heald more than 20 years ago, is nowadays accepted worldwide for optimal rectal cancer surgery. This technique is focused on an intact package of the tumour and its main lymphatic drainage.

This concept can be translated into colon cancer surgery, as the mesorectum is only part of the mesenteric planes which cover the colon and its lymphatic drainage like envelopes. According to the concept of TME for rectal cancer, we perform a concept of complete mesocolic excision (CME) for colonic cancer. This technique aims at the separation of the mesocolic from the parietal plane and true central ligation of the supplying arteries

colon cancer between 1978 and 2002 were analysed. Patient data of three subdivided time periods were compared.

Results By consequent application of the procedure of CME, we were able to reduce local 5-year recurrence rates in colon cancer from 6.5% in the period from 1978 to 1984 to 3.6% in 1995 to 2002. In the same period, the cancer related 5-year survival rates in patients resected for cure increased from 82.1% to 89.1%.

Conclusion The technique of CME in colon cancer surgery aims at a specimen with intact layers and a maximum of lymphnode harvest. This is translated into

Complete mesocolic excision (CME)



Problem Standardhemikolektomie rechts

Fig. 4.

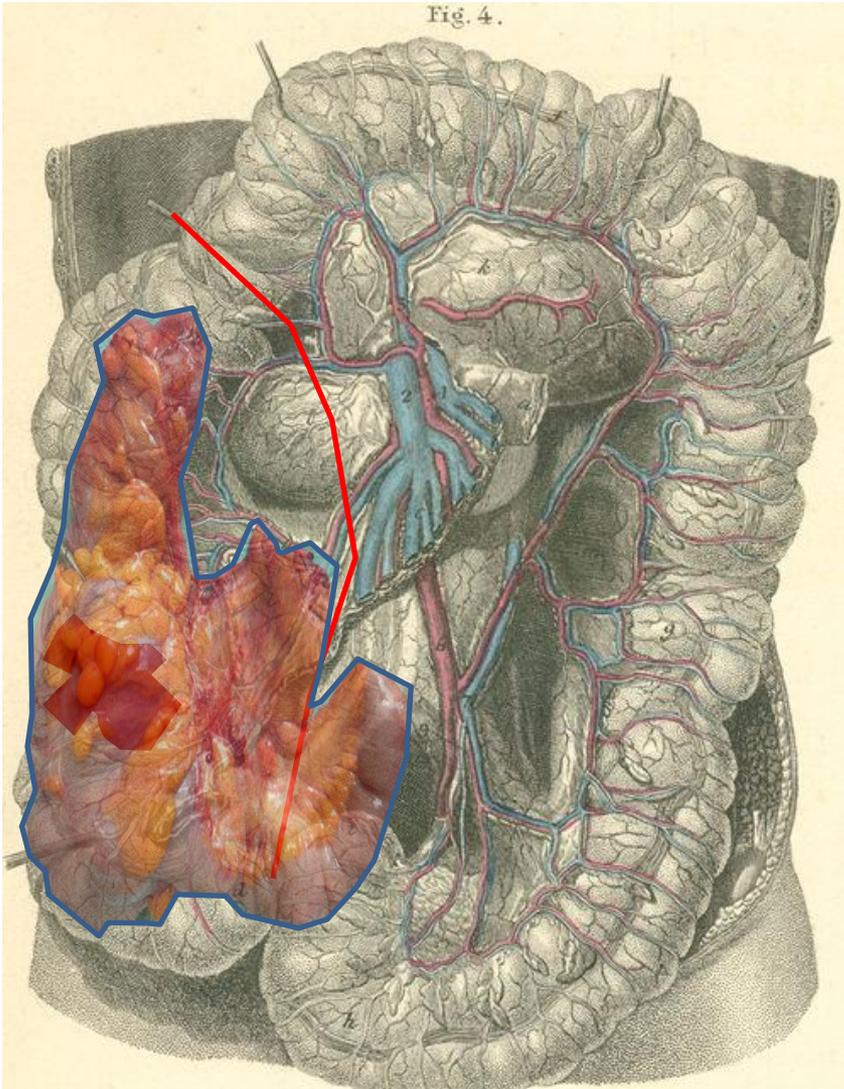
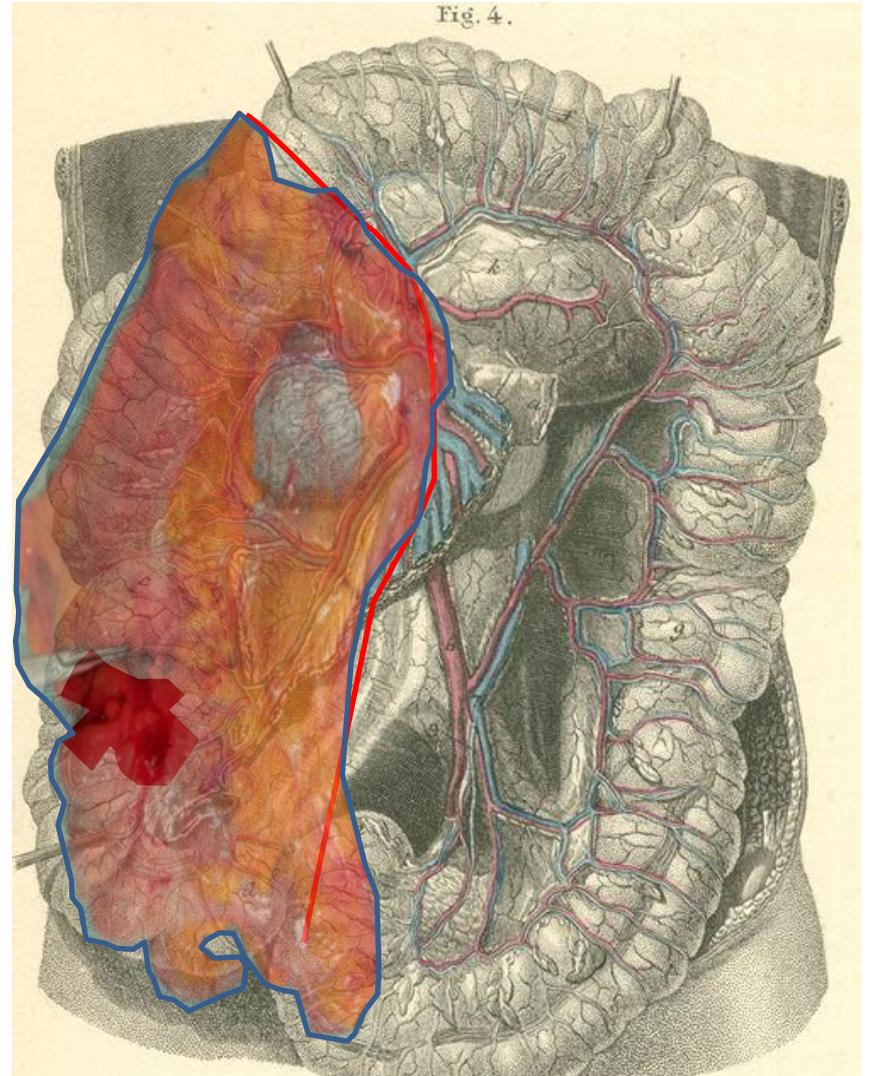


Fig. 4.





Complete Mesocolic Excision for Right-Sided Colon Cancer – The Role of Central Lymph Nodes

Autoren

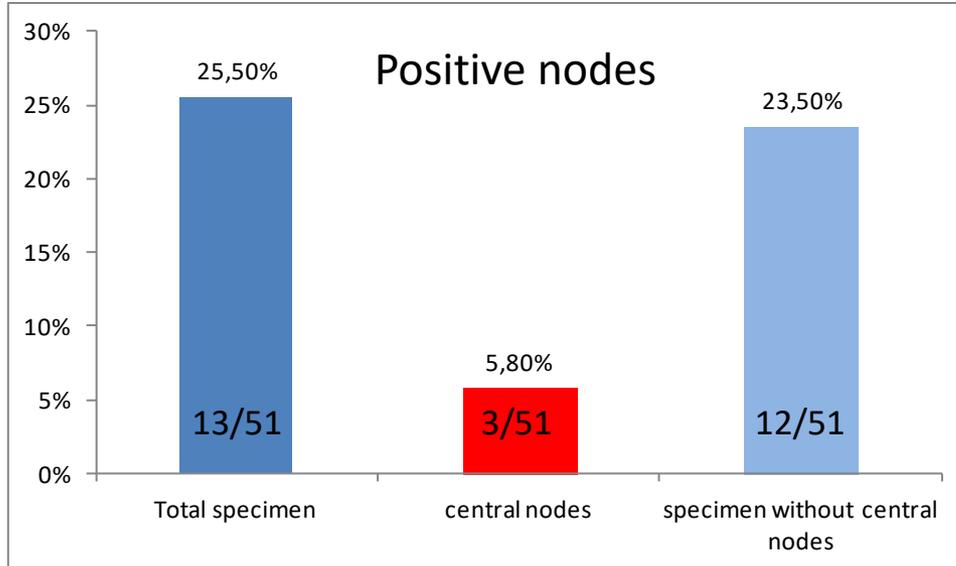
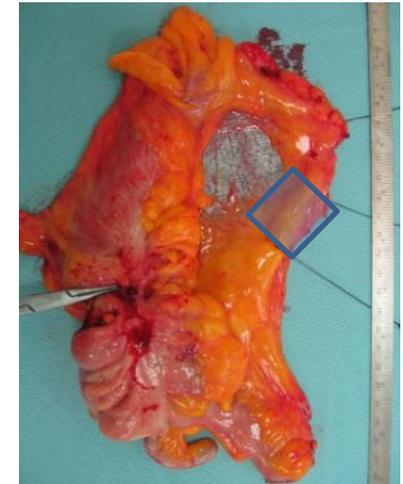
S. R. Benz¹, A. Tannapfel², Y. Tam², I. Stricker²

Institute

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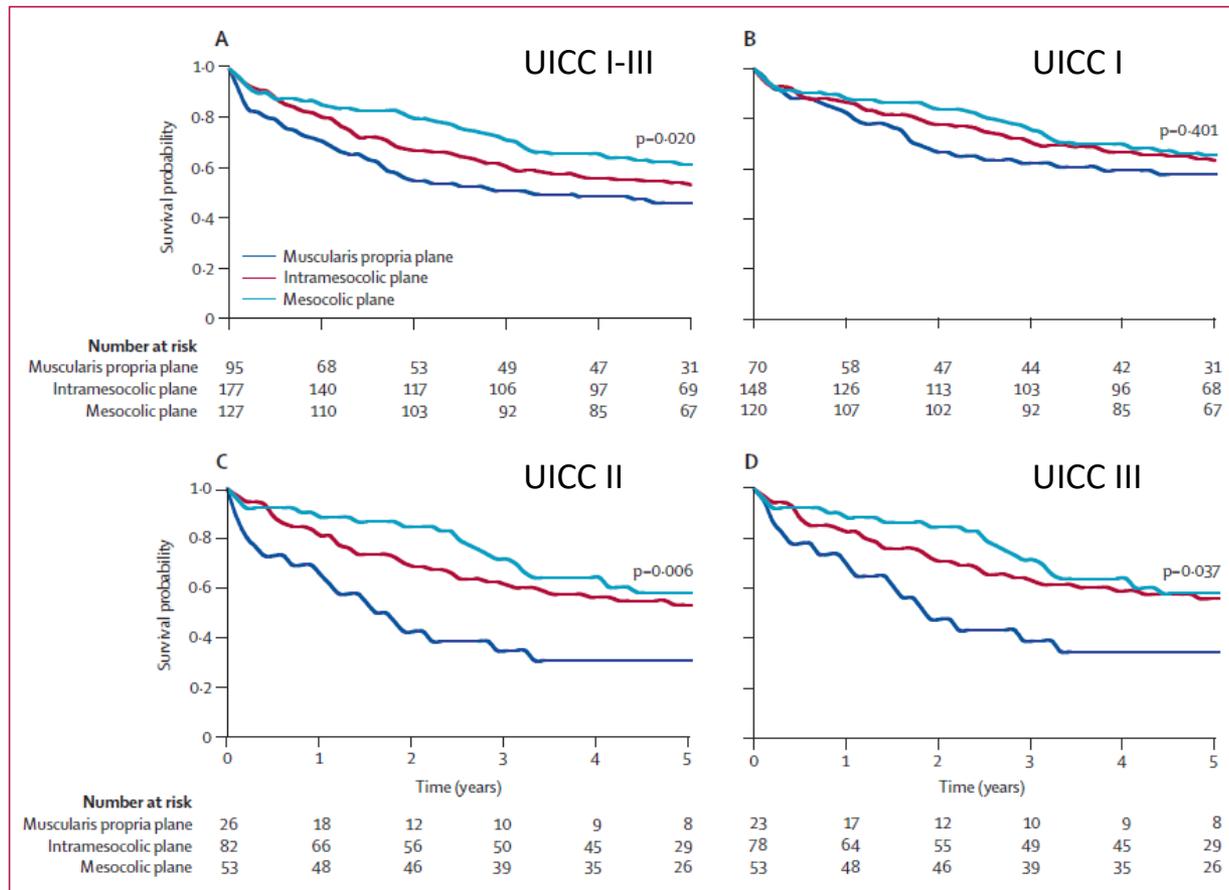
² Institut für Pathologie, Ruhr-Universität Bochum, Deutschland

Zentralbl Chir 2015



	pN+ central
Toyota S Dis Col Rect 1995	5,8%
Kanemitsu Y Dis Col Rect 2013	4,0%

Überleben in Abhängigkeit der schichtgerechten Präparation



- Mesokolisch
- Intramesokolisch
- Muskularis

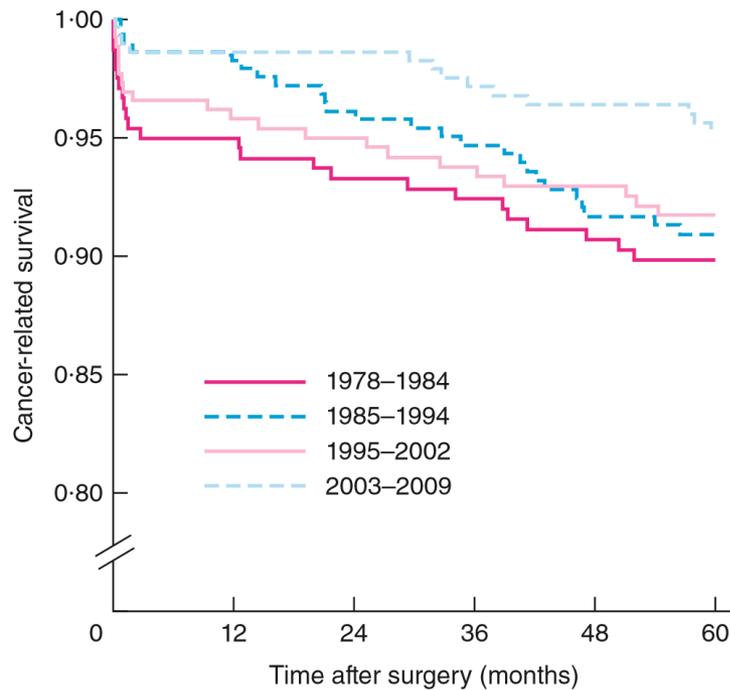
West N Lancet Oncol 2008



Cancer specific survival by era

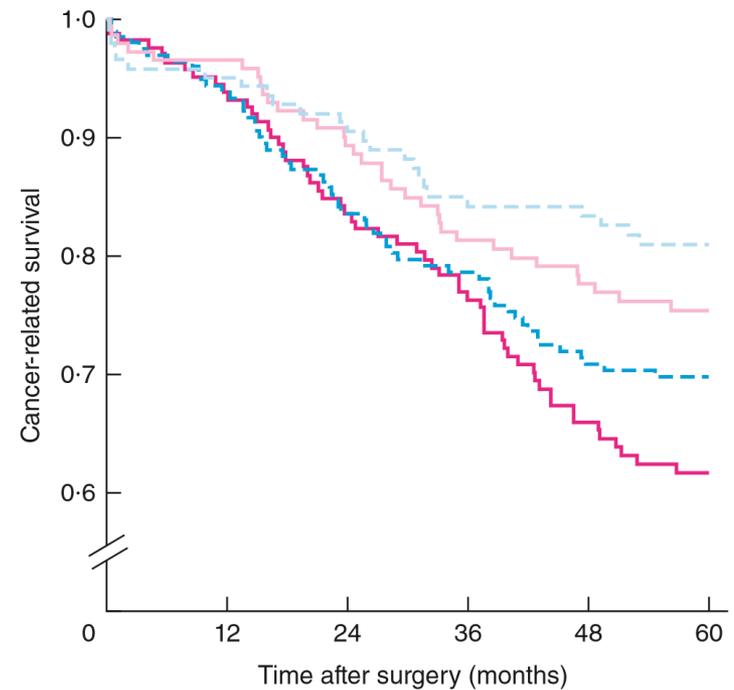
Br J Surg 2016

S. Merkel, K. Weber, K. E. Matzel, A. Agaimy, J. Göhl and W. Hohenberger



No. at risk	0	12	24	36	48	60
1978–1984	239	226	220	216	211	206
1985–1994	291	278	269	258	243	235
1995–2002	261	245	238	231	225	218
2003–2009	289	277	272	262	252	238

a Stage I-II



No. at risk	0	12	24	36	48	60
1978–1984	162	148	129	113	93	86
1985–1994	192	176	154	142	128	122
1995–2002	142	134	123	112	106	98
2003–2009	140	128	118	105	103	95

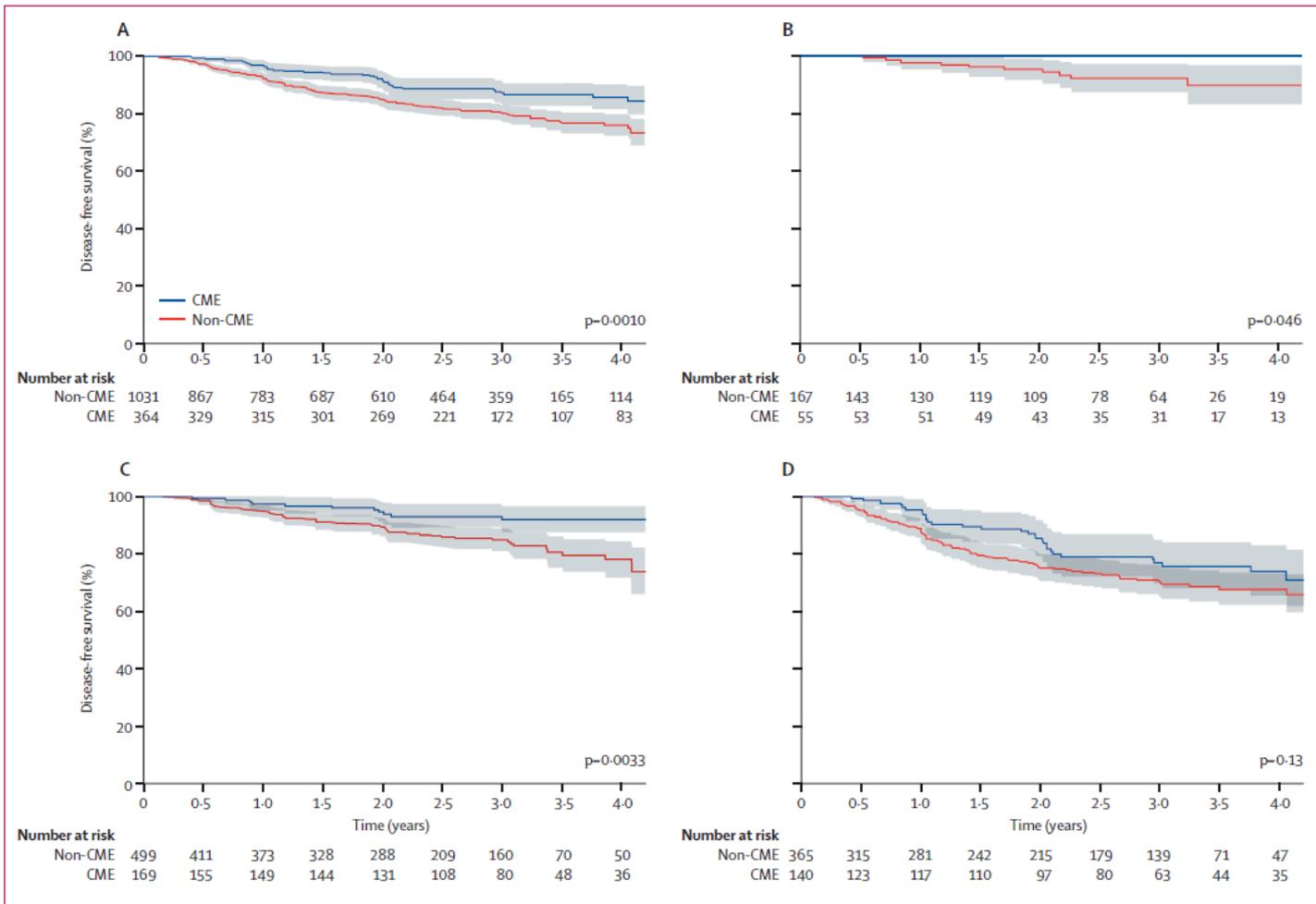
b Stage III

Disease-free survival after complete mesocolic excision compared with conventional colon cancer surgery: a retrospective, population-based study



Claus Anders Bertelsen, Anders Ulrich Neuvenschwander, Jens Erik Jansen, Michael Wilhelmsen, Anders Kirkegaard-Klitbo, Jutaka Reilin Tenma, Birgitte Bols, Peter Ingeholm, Leif Ahrenst Rasmussen, Lars Vedel Jepsen, Else Refsgaard Iversen, Bent Kristensen, Ismail Gögenur, on the behalf of the Danish Colorectal Cancer Group

Lancet Oncol 2015





Komplikationen CME vs. No-CME

Laparoskopisch und konventionell

	CME (n = 529)	'Conventional' resection (n = 1701)	P**
Injury to other organ*	48 (9.1)	61 (3.6)	< 0.001
Injury to superior mesenteric vein	9 (1.7)	4 (0.2)	< 0.001
Splenic injury	17 (3.2)	21 (1.2)	0.004
Injury to other (non-tumour) segments of colon	6 (1.1)	4 (0.2)	0.015
Postoperative complications (total)	162 (30.6)	484 (28.5)	0.351
Surgical complications†	110 (20.8)	329 (19.3)	0.491
Anastomotic leakage	42 of 495 (8.5)	113 of 1586 (7.1)	0.327
Relaparotomy after anastomotic leakage	41 of 42 (98)	99 of 113 (87.6)	0.071
Fascial dehiscence	15 (2.8)	34 (2.0)	0.239
Intra-abdominal abscess	14 (2.6)	44 (2.6)	1.000
Wound infection	42 (7.9)	142 (8.3)	0.856
Intra-abdominal bleeding‡	4 (0.8)	18 (1.1)	0.801
Postoperative obstruction‡	5 (0.9)	31 (1.8)	0.234
Other surgical complication	10 (1.9)	33 (1.9)	1.000
Non-surgical complications	100 (18.9)	276 (16.2)	0.163
Pneumonia	31 (5.9)	108 (6.3)	0.758
Respiratory failure§	43 (8.1)	58 (3.4)	< 0.001
Sepsis¶	35 (6.6)	55 (3.2)	0.001
Renal failure (dialysis indicated)	10 (1.9)	29 (1.7)	0.849
Other non-surgical complication#	52 (9.8)	174 (10.2)	0.869
Cause of mortality (90-day)	33 (6.2)	83 (4.9)	–
MODS (surgical complication)	5 (15)	19 (23)	–
Surgical complication without MODS	1 (3)	8 (10)	–
MODS (surgical non-complication)	3 (9)	4 (5)	–
Cardiovascular	4 (12)	6 (7)	–
Pulmonary	8 (24)	18 (22)	–
Other cause including unknown	12 (36)	28 (34)	–

Kein Unterschied in Gesamtmorbidität



Perioperative Letalität: CME vs. Non-CME

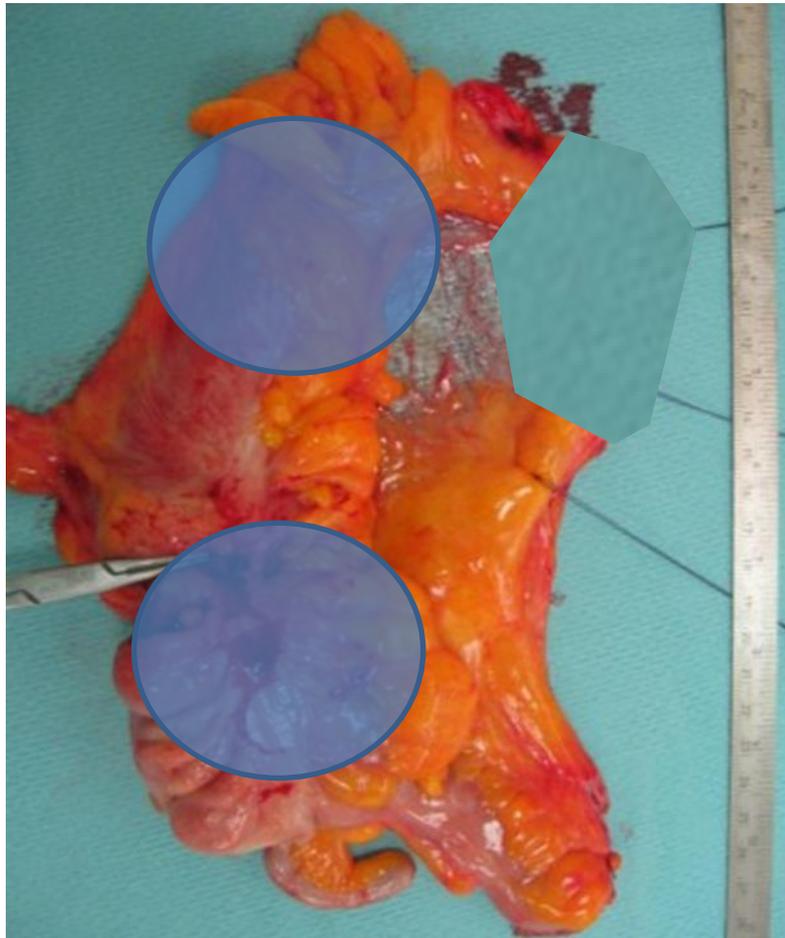
Bertelsen Br J Surg 2016

	30-day mortality	
	Odds ratio	<i>P</i> †
Univariable logistic regression		
Procedure		
‘Conventional’ colonic resection	1.00 (reference)	
CME	1.12 (0.67, 1.82)	0.633
Reduced multivariable logistic regression model		
Procedure		
‘Conventional’ colonic resection	1.00 (reference)	
CME	1.07 (0.62, 1.80)	0.795
Age (per decade)	1.93 (1.45, 2.60)	< 0.001
ASA grade		
I	1.00 (reference)	
II	3.41 (1.20, 14.34)	0.044
III–IV	9.71 (3.36, 41.17)	< 0.001
Body mass index (kg/m ²)	0.98 (0.93, 1.03)	0.466
Pathological T category		
pT1–T3	1.00 (reference)	
pT4	2.54 (1.57, 4.07)	< 0.001
Type of resection		
Open or converted	1.00 (reference)	
Laparoscopic	0.63 (0.39, 1.00)	0.052
Propensity score-adjusted		
Procedure		
‘Conventional’ colonic resection	1.00 (reference)	
CME	1.05 (0.63, 1.74)	0.861



Selektive CME?

Kritische R0-Resektion



R1-Resektion	konv	CME	
Bertelsen (a)	4.8	1.9	p<0.001
Merkel (b)	3.0	0.9	p<0.001

a: BJS 2016

b: BJS 2016

- Große Tumoren
- Flexurenkarzinome

➡ **Schwierigsten Fälle für CME**

➡ **Ohne Erfahrung nicht sicher möglich**

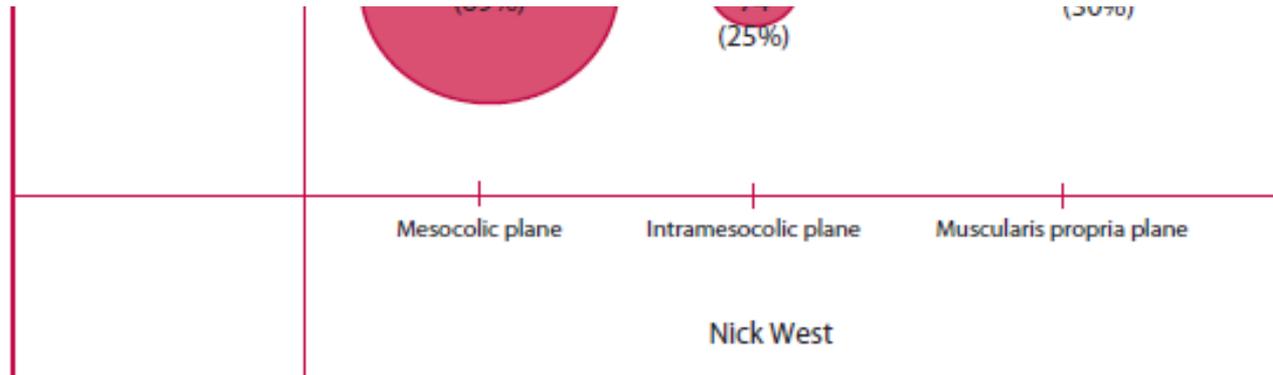


Klassifikation der CME

ORIGINAL CONTRIBUTION

Significant Individual Variation Between Pathologists in the Evaluation of Colon Cancer Specimens After Complete Mesocolic Excision

Ditte Louise E. Munkedal, M.D.¹ • Søren Laurberg, D.M.Sci.¹
Rikke Hagemann-Madsen, M.D.² • Katrine J. Stribolt, M.D.³ • Søren R. P. Krag, M.D.³
Philip Quirke, Ph.D.⁴ • Nicholas P. West, Ph.D.⁴

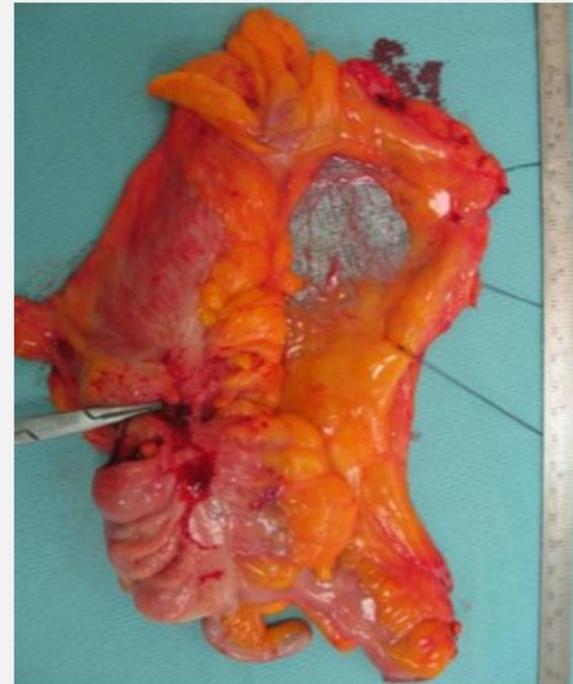


Munkedal DCR 2016

West-Klassifikation berücksichtigt nicht das Resektionsausmaß



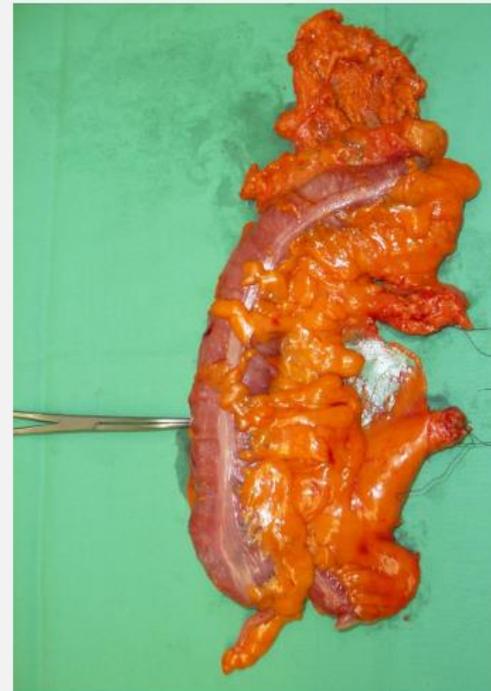
Type 0: CME-specimen



Subtyp a,b,c entsprechend Dissektionsebene n. West



Type I: missing/divided surgical trunk



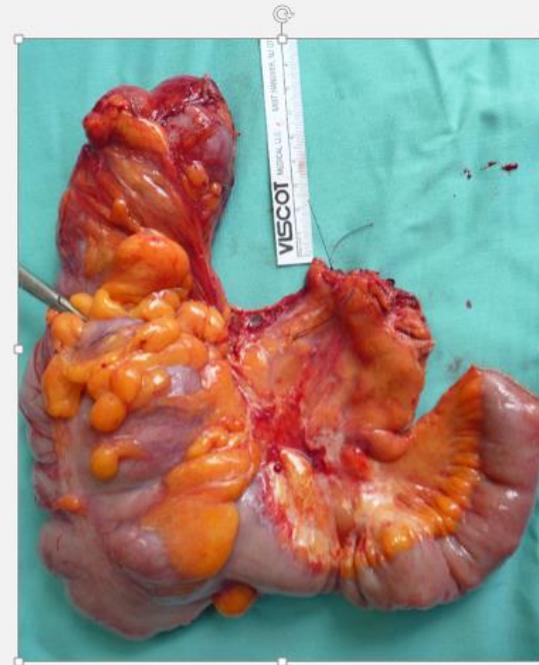
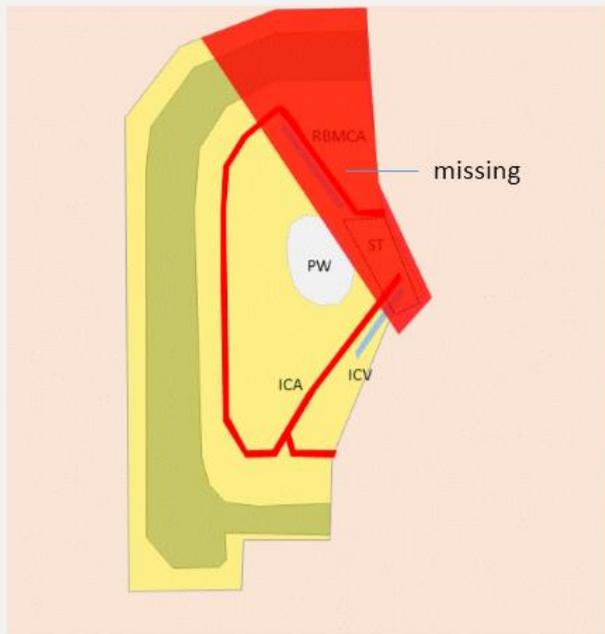
Subtyp a,b,c entsprechend Dissektionsebene n. West



Klassifikation der CME

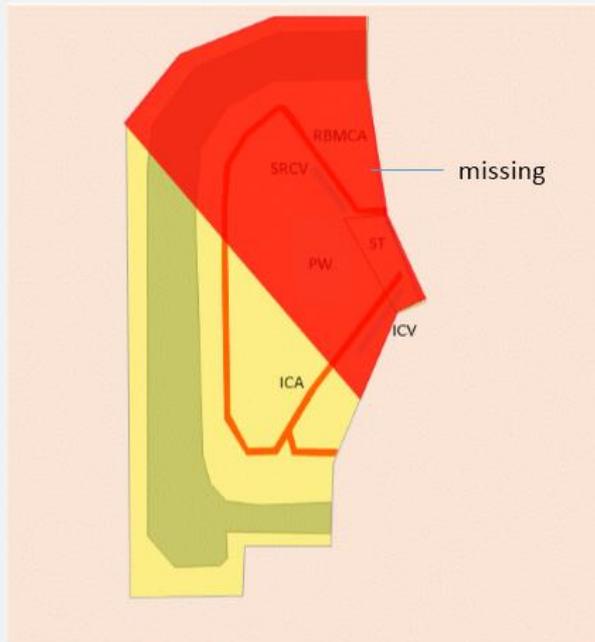
Benz, Tannapfel, Tam, Stricker

Type II: missing surgical trunk and RBMCA or MCA



Subtyp a,b,c entsprechend Dissektionsebene n. West

Type III: missing surgical trunk and > 50% of ileocolic artery +/- RBMCA



Subtyp a,b,c entsprechend Dissektionsebene n. West



Originalien

coloproctology
DOI 10.1007/s00053-017-0158-z

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² Institut für Pathologie, Ruhruniversität Bochum, Bochum, Germany

CME or traditional surgery for right-sided colon cancer?

Protocol of a registry-based multicenter prospective non-randomized trial (RESECTAT trial)

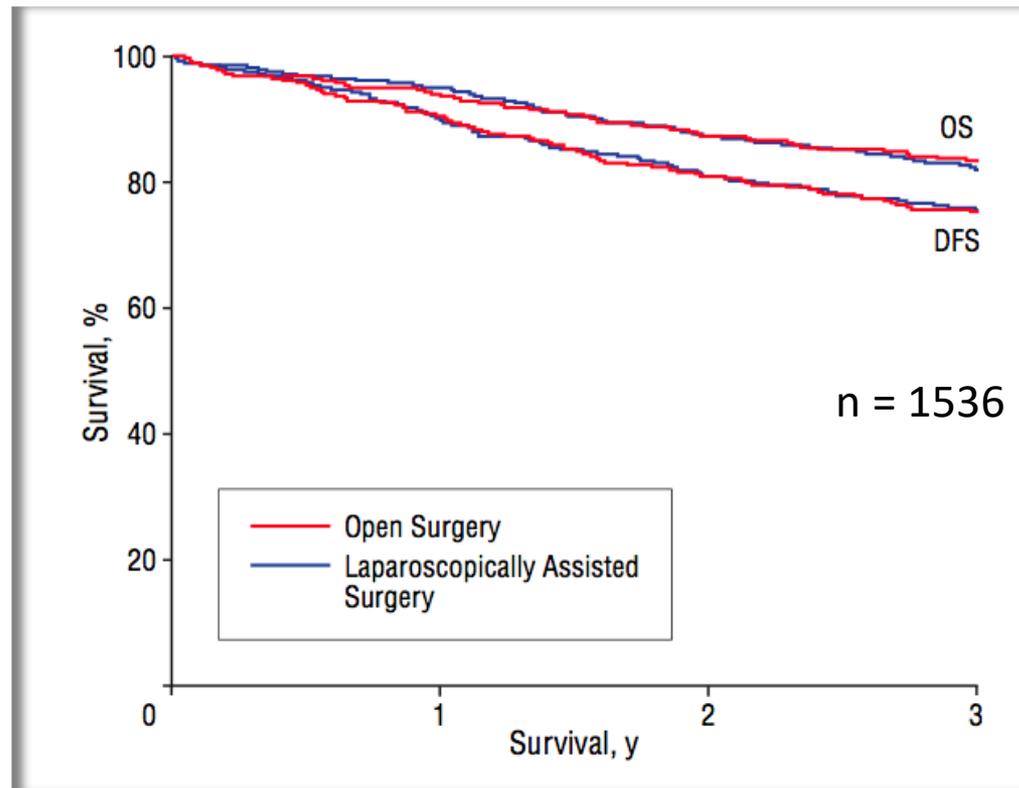
Type	Subtype	n	%
0	all	428	39,5%
0	a	395	36,4%
0	b	33	3,0%
0	c	0	0,0%
I	all	467	43,1%
I	a	386	35,6%
I	b	80	7,4%
I	c	1	0,1%
II	all	95	8,8%
II	a	79	7,3%
II	b	16	1,5%
II	c	0	0,0%
III	all	91	8,4%
III	a	58	5,4%
III	b	33	3,0%
III	c	0	0,0%
Not applicable		3	0,3%



Langzeitergebnisse

Metaanalyse

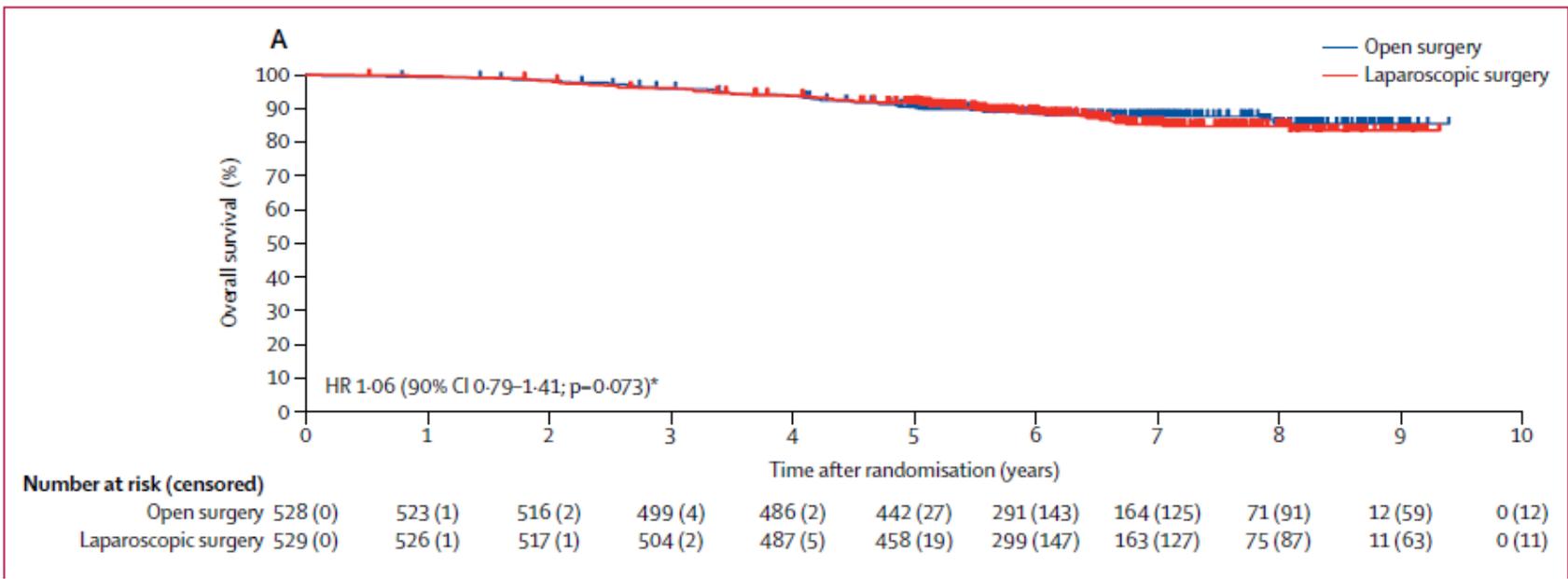
- Barcelona
- COST
- COLOR
- CLASICC



Bonjer, Arch Surg. 2007

Laparoskopische CME

Japanische CME-Gruppe



RCT: Laparoskopische vs. Offenen CME (D3)

30% Rechtshemikolektomie

	Open	Lap	p-Wert
Intraoperative Komplikationen	1,6	3,6	p = 0,08
KH Aufenthalt	11	10	p < 0,001
Morbidität	22,3	14,3	p < 0,002
Anastomososenleckage	3,6	3,6	p = 1



Laparoskopische Hemikolektomie rechts mit CME – die standardisierte Technik der deutschen Expertengruppe Lap-CME



Chirurgie: S. R.Benz¹, M.Adamina², A.Agha³, T.Becker⁴, R. Grützmann⁵, W. Kneist⁶, B. Mann⁷, T. Moesta⁸, N. Runkel⁹, C. Schafmayer¹⁰, C. Strey¹¹, A. Türler¹², C. Wullstein¹⁴

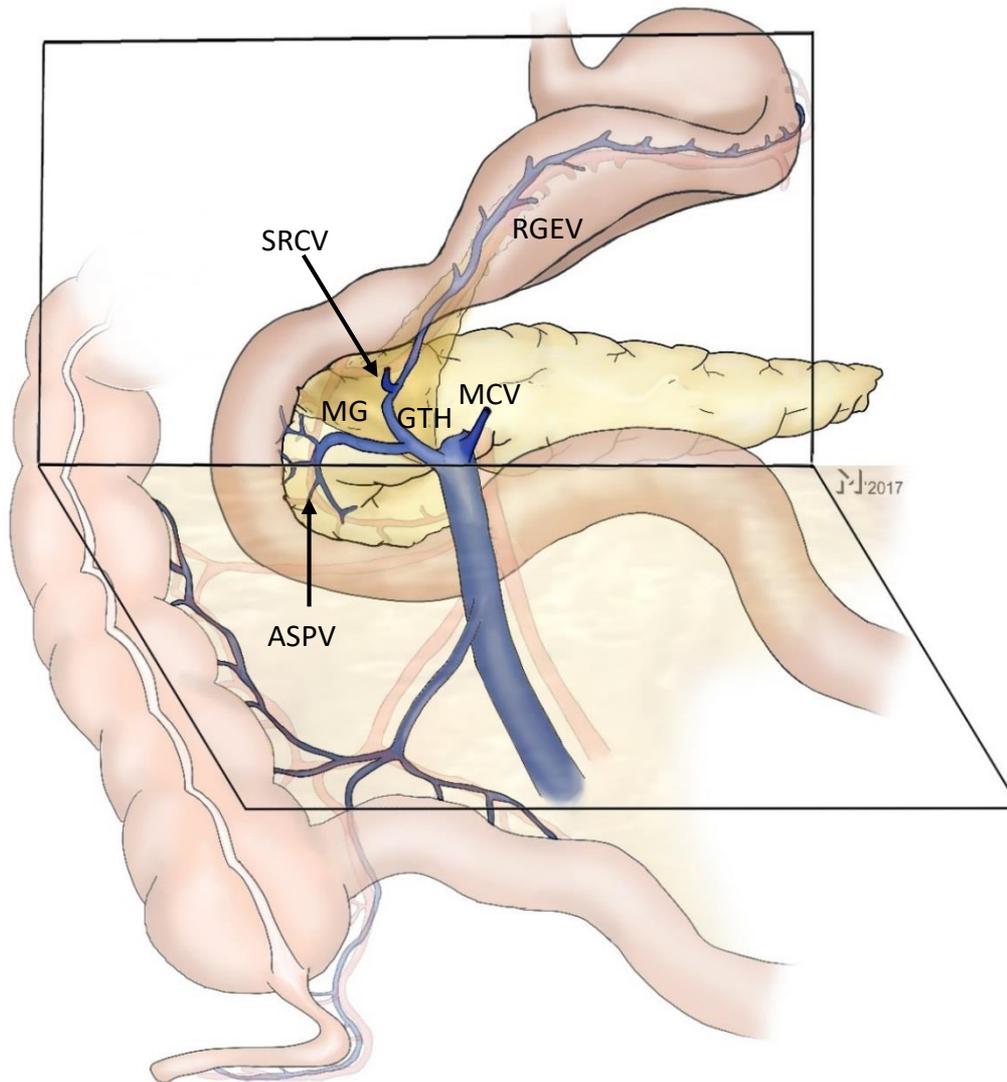
Anatomie. T. Wedel¹³

Graphik: M. Maak⁵

¹Klinikum Böblingen-Sindelfingen, ²Winterthur, ³Städtisches Klinikum München Bogenhausen, ⁴UKSH Campus Kiel, ⁵Universitätsklinikum Erlangen, ⁶Universitätsmedizin Mainz, ⁷AKA Bochum, ⁸KRH Siloah-Oststadt-Heidehaus, Hannover, ⁹Schwarzwald-Baar Klinikum Villingen-Schwenningen, ¹⁰Universitätsklinikum Schleswig Holstein Campus Kiel, ¹¹DIAKOVERE Friederikenstift gGmbH, Hannover ¹²Johanniter Kliniken Bonn, ¹³Universität Kiel, ¹⁴HELIOS Klinikum Krefeld, Krefeld

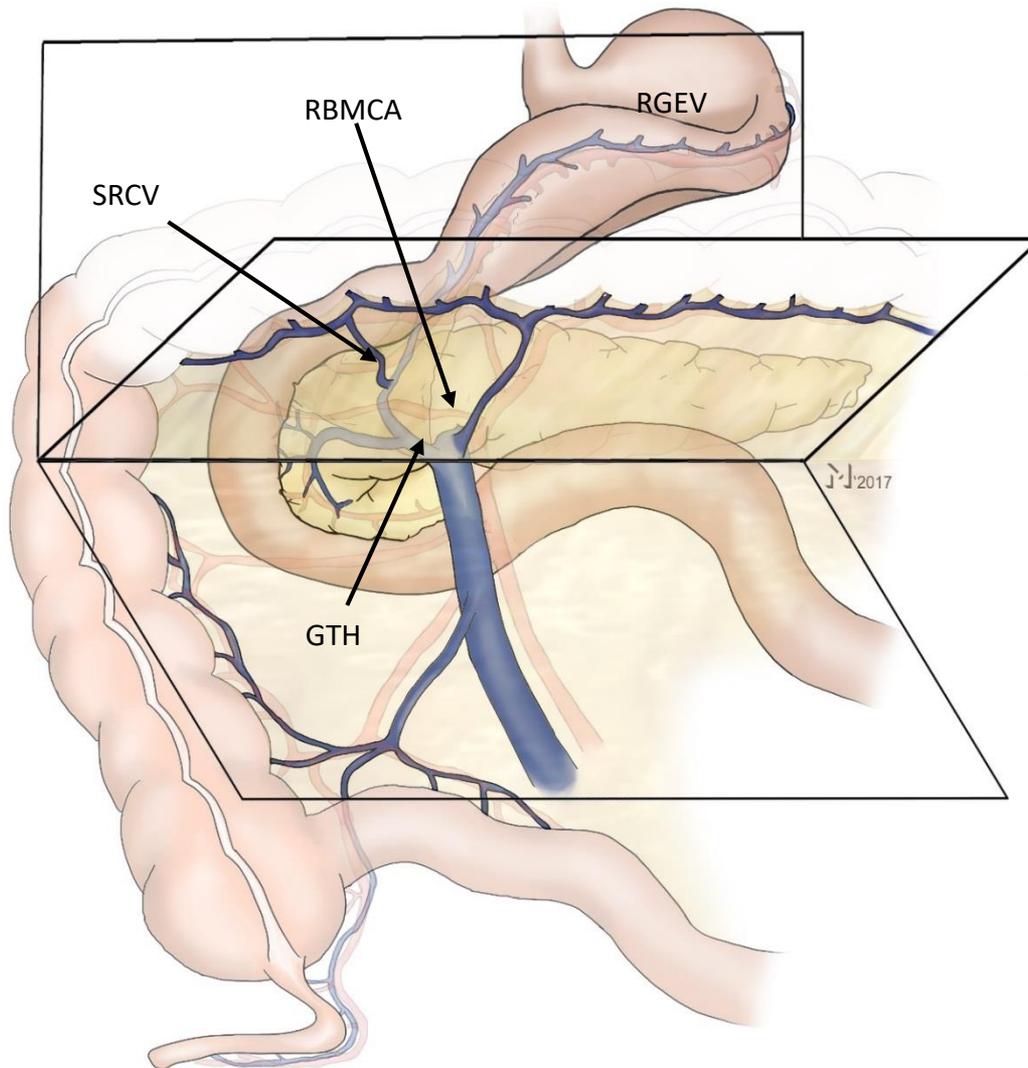
Dreiebenenmodell der CME

- Ohne Mesokolon -



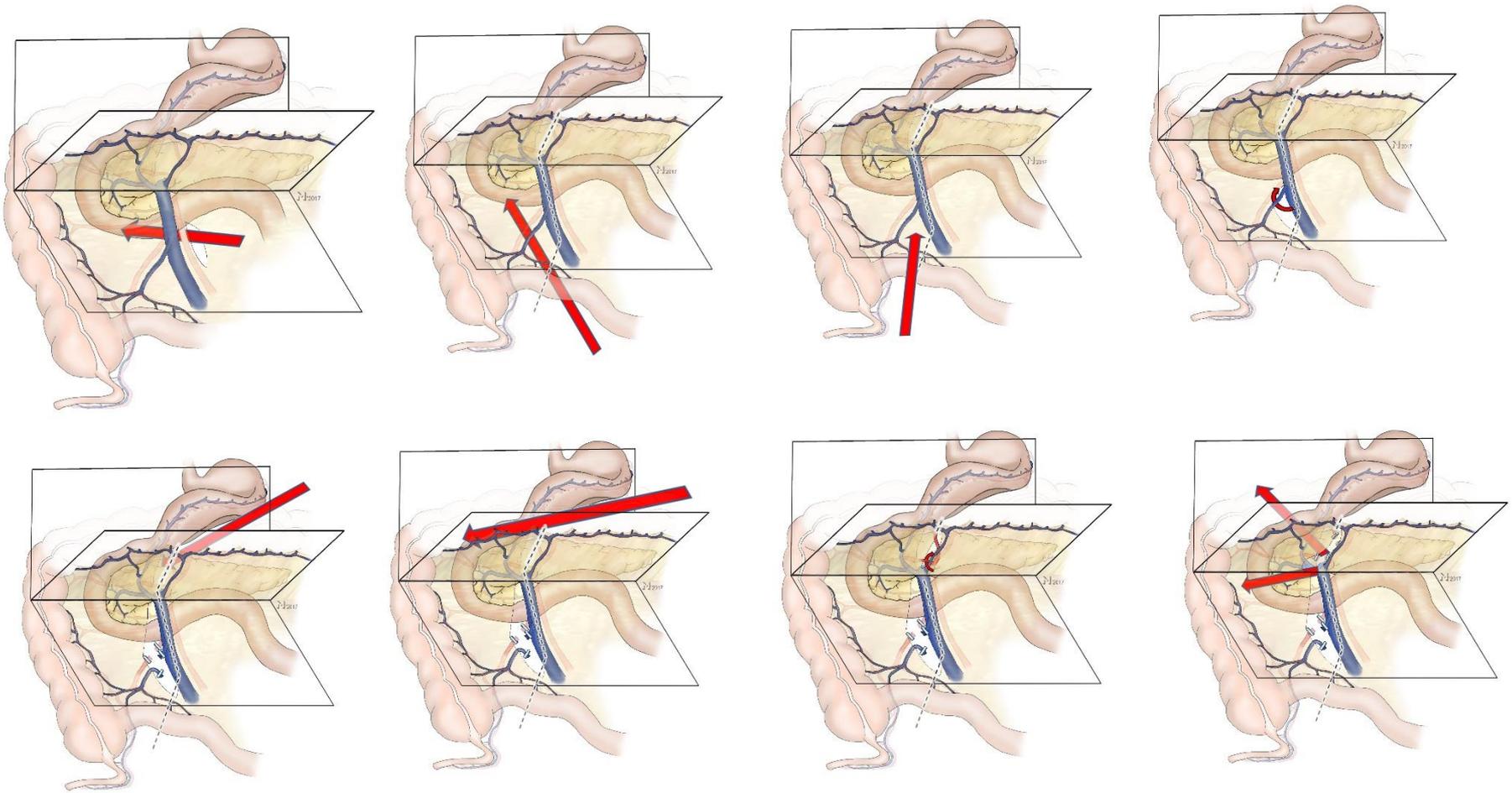
RGEV	V. gastroepiploika dextra
GTH	Trunkus Henle
MG	Mesogastrium dorsale = Infrapylorische Lymphknoten
ASPV	Vordere obere Pankreasvene
SRCV:	Rechte obere kolische Vene = bleeding point vene
MCV	V. kolika media

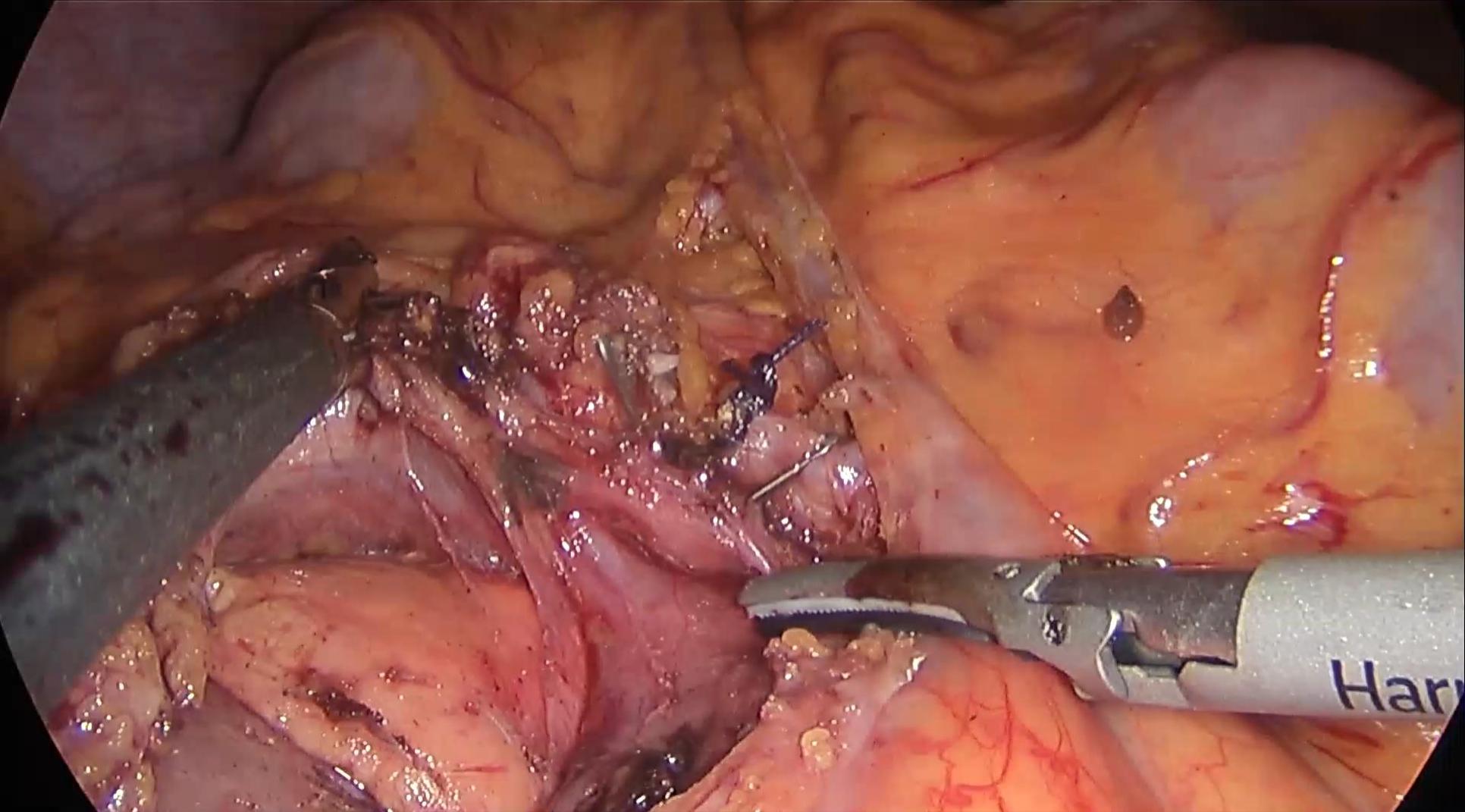
Open-book-Modell der CME



RGEV	V. gastrpepiploika dextra
GTH	Trunkus Henle
ASPV	Vordere obere Pankreasvene
MCV	V. kolika media
RBMCA	Tiefer rechter Ast A. kolika media
SRCV:	Rechte obere kolische Vene = bleeding point vene

Standardisierte Operation für Lap-CME







-
- Die CME scheint einen onkologischen Vorteil zu haben
 - Als Leitlinienempfehlung ist sie ein angestrebter Standard
 - Die Umsetzung dürfte unter 50% liegen
 - Die laparoskopische CME ist technisch komplex und erfordert in gezieltes Training

Lap-CME Kurs Kiel 15/16.11.2018