

Malignant Colonic Obstruction

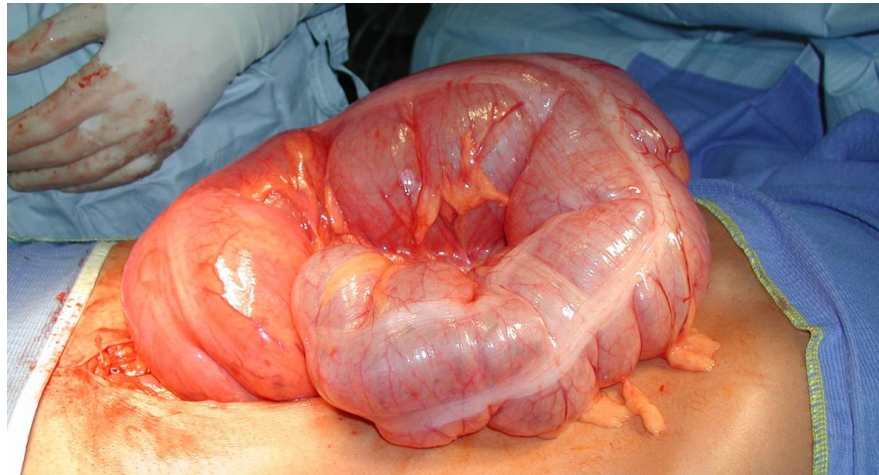
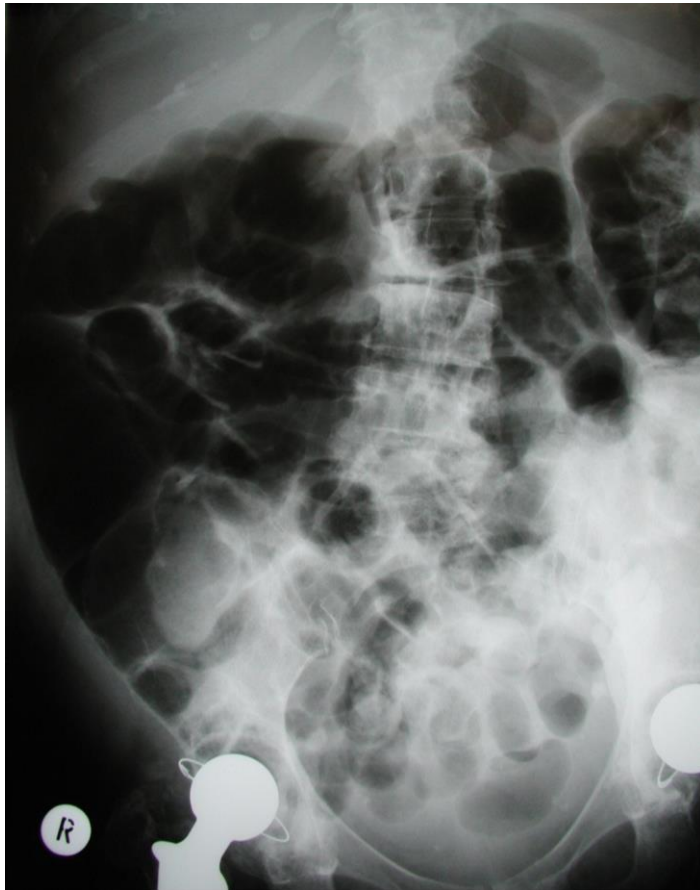


1st beyond EUROPE Masterclass

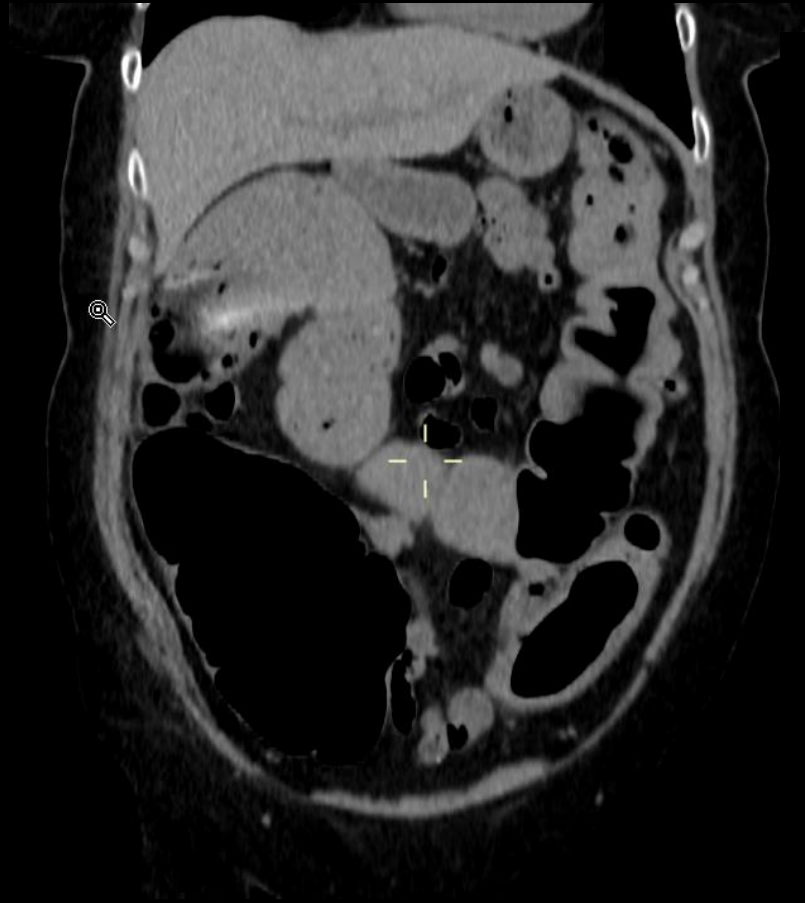
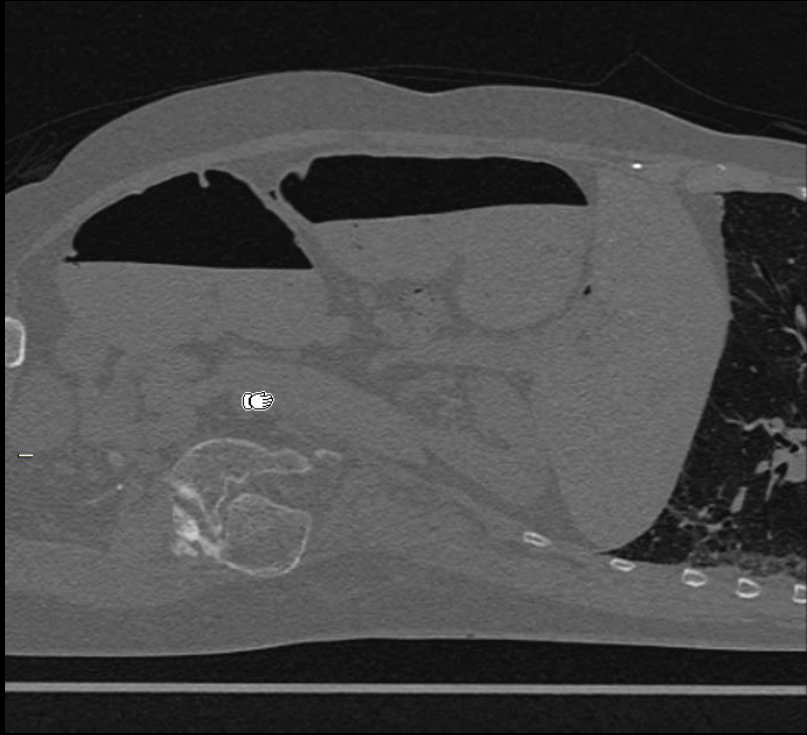
Dieter Hahnloser

dieter.hahnloser@chuv.ch

CHUV
University Hospital Lausanne
Switzerland



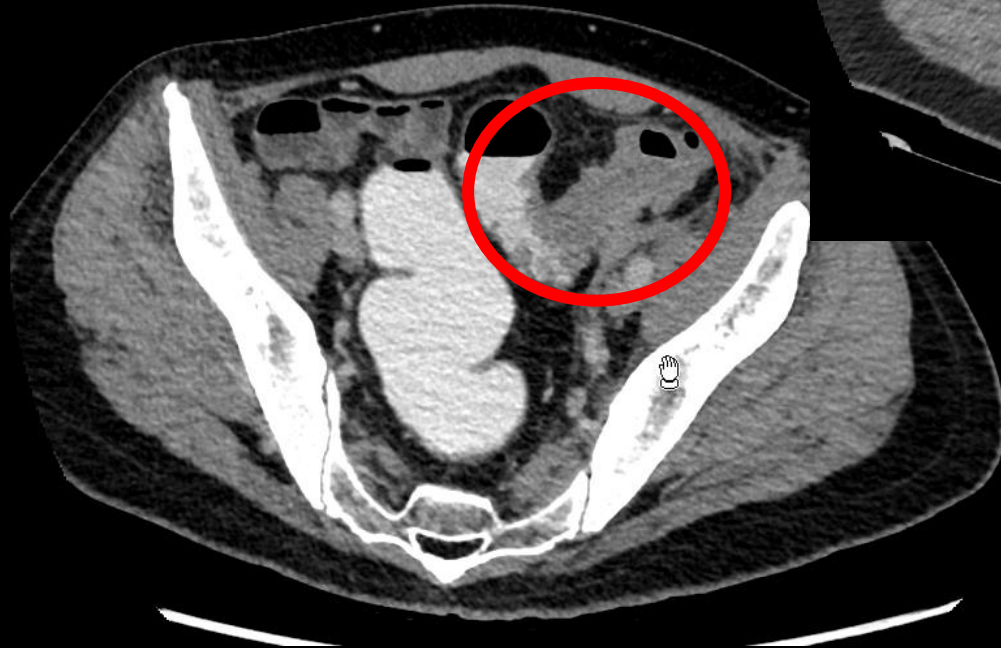
CT-scan



FOS

Malignant ?

Diverticulitis



Cancer

Ovarian cancer



30-Day, 90-day and 1-year mortality after emergency colonic surgery

T. Pedersen¹ · S. K. Watt² · M.-B. Tolstrup¹ · I. Gögenur²

N=380

Copenhagen, 2009-2013

Eur J Trauma Emerg Surg 2017

Postoperative diagnosis

Colon cancer	139 (36.6%)
Diverticulitis	64 (16.8%)
Volvulus	38 (10%)
Ischemia	27 (7.1%)
Other cancer	26 (6.8%)
Iatrogenic lesion	20 (5.3%)
IBD	20 (5.3%)
Appendicitis	14 (3.7%)
Clostridium difficile colitis	7 (1.8%)
Foreign body	5 (1.3%)
Hernia	5 (1.3%)
Hemorrhage	3 (0.8%)
Trauma	2 (0.5%)
Other	10 (2.8%)

Cancer

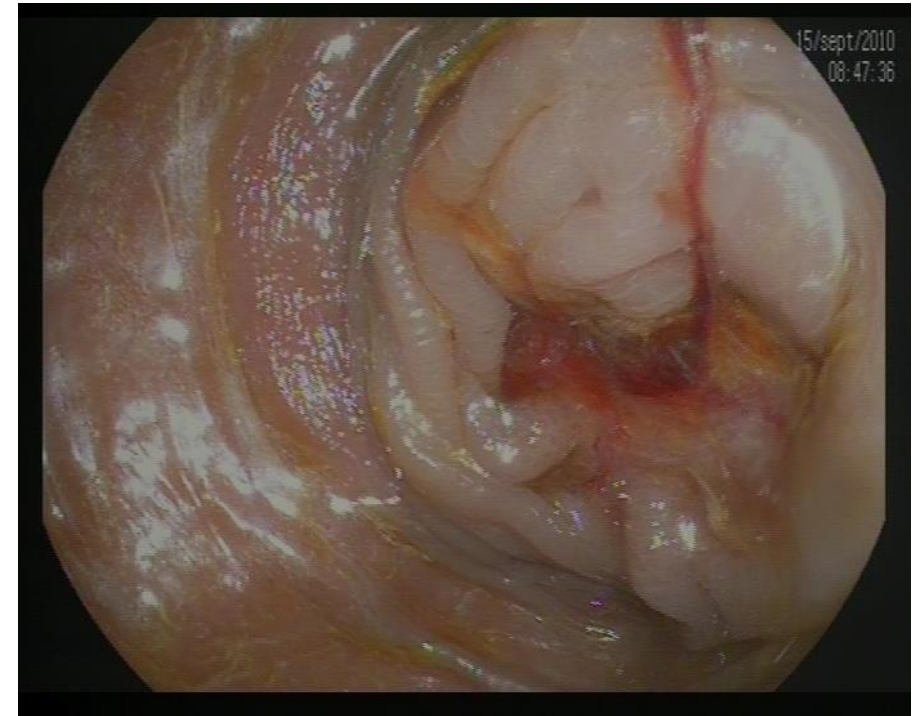
- 30-day mortality 13%
- 90-day mortality 22%
- 1-yr mortality 44%

- 64% primary anastomosis
 - 5% anastomotic leakage
- 63% complication rate

	30 day mortality odds ratio (±95% CI)*	90 day mortality odds ratio (±95% CI)**	1 year mortality odds ratio (± 95% CI)***
Stoma	3.1 (1.7–5.3)	2.4 (1.4–4.1)	2.8 (1.6–4.9)
Age >70	2.9 (1.6–5.4)	3.2 (1.8–5.6)	3.2 (1.8–5.2)
Malignant disease	3.3 (1.8–6.3)	5.3 (2.7–10.4)	6.1 (3–12.5)
Performance status ≥3	5.9 (3.2–11)	5.0 (2.6–9.4)	6.1 (3–12.5)

Malignant colonic obstruction

- **Patient first** (stabilize, resuscitate)
- **Diagnosis second**
 - CT-scan with iv (and rectal contrast)
 - Endoscopy (water, little air)
- **Decompression? Stents ?**
- **Surgery?**
 - Stoma?
 - Resect?

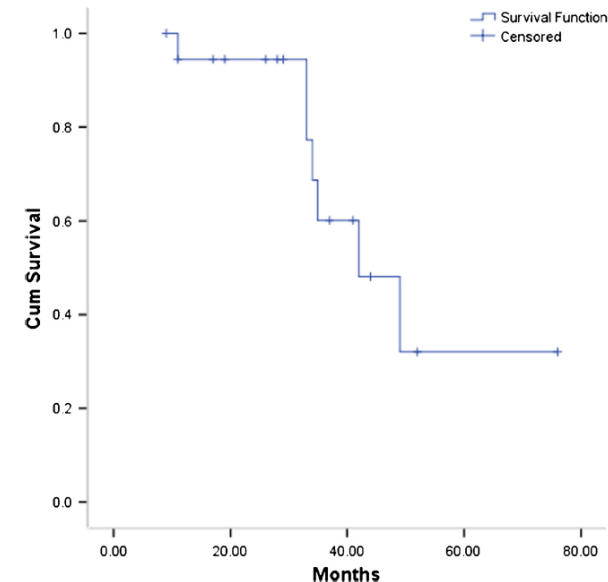
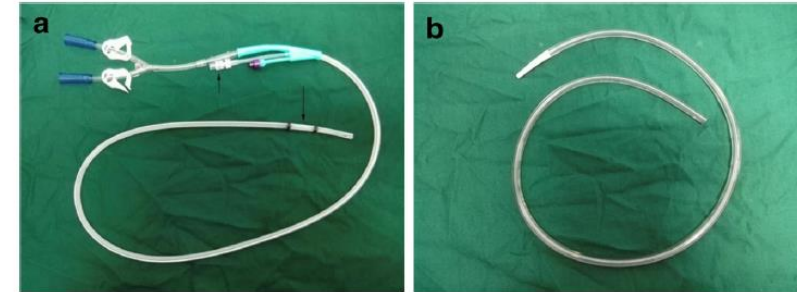


Placement of the Decompression Tube as a Bridge to Surgery for Acute Malignant Left-Sided Colonic Obstruction

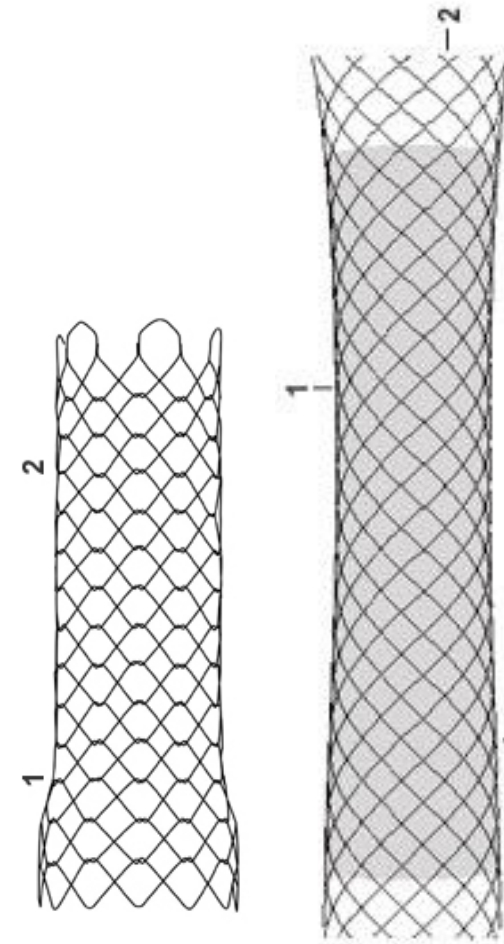
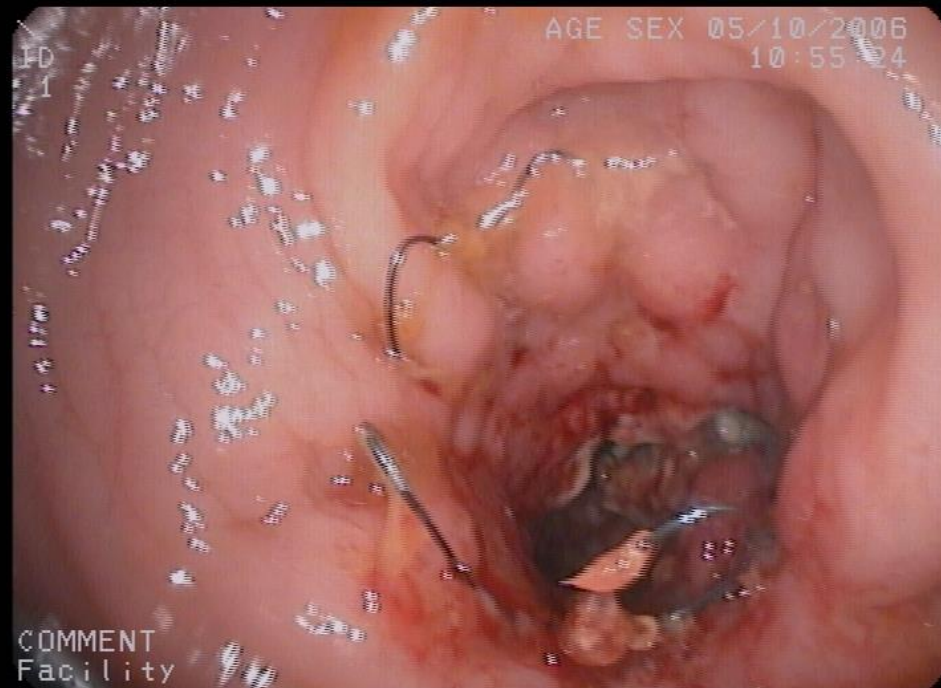
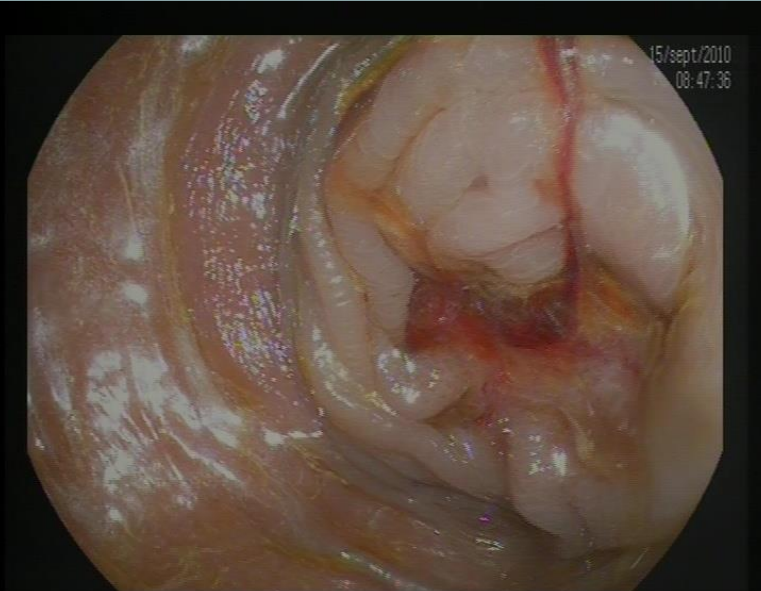
Yuan-Shun Xu¹ • Tao Song² • Yong-Tuan Guo¹ • Guo-Qing Shao¹ • Hong-Tao Du¹ • De-Chun Li¹ • Yu-Fei Fu¹



- Fluoroscopic guidance
- Bowel washing 4x/d for 7-9 days
- Clinical success 19/20 patients
- Surgery @7-9 days



SEMS (Self Expandable Metallic Stents)



Indications for SEMS

- **Palliative**
 - Non-eligible for general anesthesia
 - Non-eligible for curative surgery
- **Bridge to surgery**
 - Emergency : release of obstruction
 - Completion of oncologic staging
 - Conditionning for delayed surgery
 - More primary anastomosis

*Dohmoto M. Endoscopia Digestiva 1991
Grundmann RT. World J Gastrointest Surg 2013
Cirocchi R. Surg Oncol 2013*

Contra-indications for ~~SEMS~~

- Perforation
- Severe signs of obstruction (CT-scan)
 - Pneumatosis intestinalis (gas within wall)
 - Proximal colonic dilatation >10cm transverse (>13cm ascendens)
- Low rectum (5-8 cm anal verge)
 - High rate of migration
 - Pain

*Dohmoto M. Endoscopia Digestiva 1991
Grundmann RT. World J Gastrointest Surg 2013
Cirocchi R. Surg Oncol 2013*

Damage Control



Primary Surgery

Preoperative Noradrenalin
> 10 μ g/min

OR

Intraoperative ABGA
(after source control)

- pH < 7.2
- BE > -6
- lactate > 5mmol/l

- n=203 (22 cancer)
- Median 82 minutes
- Second look >36h or/and during day
- 26% mortality
- 65% discharged without stoma

Palliative

Long-term outcomes of palliative colonic stenting versus emergency surgery for acute proximal malignant colonic obstruction: a multicenter trial

5 institutions, 1999-2005
Siddiqui A. *Endoscopy International open* 2017

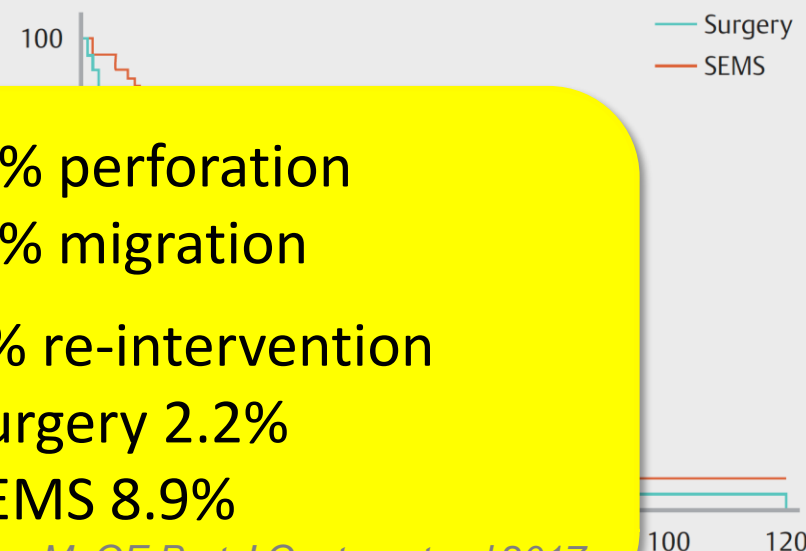
► **Table 3** Comparison of patients having insertion of a SEMS or emergency surgery.

	Surgery (n = 36)	SEMS (n = 69)	P value
Early success, no. (%)			
▪ Technical Success	36 (100%)	62 (89.9%)	0.09
▪ Clinical success after procedure	36 (100%)	54 (78%)	<0.001
Maintenance of colonic decompression until patient death or last follow-up, no. (%)	34 (94.4%)	51 (73.9%)	0.02
Adverse events, no. (%)			
▪ Early	11 (30.5%)	5 (7.2%)	0.003
▪ Late	4 (11%)	14 (21%)	0.29
Acute mortality (within 30 days of procedure)	2 (5.5%)	0 (0%)	0.12
Mean hospital stay (days)	3.5	<0.001	

1.4% perforation
1.4% bleeding
11.6% tumor ingrowth
5.8% stent migration

8.5% perforation
4.4% migration
11% re-intervention
- Surgery 2.2%
- SEMS 8.9%

Sousa M. *GE Port J Gastroenterol* 2017



Self-expandable metal stent (SEMS) placement or emergency surgery as palliative treatment for obstructive colorectal cancer: A systematic review and meta-analysis

Joyce Veld^{a,b}, Devica Umans^a, Emo van Halsema^a, Femke Amelung^c, Dália Fernandes^d, Mei Sze Lee^e, Douglas Stupart^f, Javier Suárez^g, Yuichi Tomiki^h, Willem Bemelman^b, Paul Fockens^a, Esther Consten^{i,j}, Pieter Tanis^b, Jeanin van Hooft^{a,k,*}

	SEMS	SURGERY	
Clinical success	93.9%	97%	ns
Early complications	13.6%	25.5%	OR 0.46
30d Mortality	3.9%	9.4%	OR 0.44
Stoma	14.3%	51.4%	OR 0.17
Hospital stay (days)	8	15	heterogen
Chemotherapy	70.4%	69.5%	ns
Time to chemotherapy (days)	19	37	<0.001
Late complication	23.2%	9.8%	OR 2.55
Survival (days)	259	287	ns
QoL 1, 3 and 6 month	↑ = ↓	↓ = ↑	Slg, ns, ns

18 studies, 1518 patients
Critical Review in Oncology 2020

Palliative SEMS

PROS



- vs. colostomy:
 - shorter hospital stays
 - earlier tolerance of oral diet
 - better QoL

- No difference in overall costs
- Incremental cost-effectiveness ratio for QALYs was 22'955 AUD\$ in favour of stenting.

PRT 56 patients, Australia *Joung C. Colorectal Dis 2018*

CONS



- High rate of complications
 - Perforations
- Non-eligible for further chemotherapy (bevacizumab)

*Fiori E. Anticancer Res 2004
Xinopoulos D. Surg Endos 2014
Critical Review in Oncology 2020*

*Frago R, Cir Esp, 2011
Van Hooft JE, Endoscopy, 2008
Lee YM, J Am Coll Surg, 2001*

Palliative

Goals

1. Relief symptoms
2. Rapid return to chemotherapy or baseline QoL

SEMS > Osotmy

(little data on resection)

Caveat: anti-angiogenesis chemotherapy

Extracolonic

Predictors of clinical outcome of colonic stents in patients with malignant large-bowel obstruction because of extracolonic malignancy

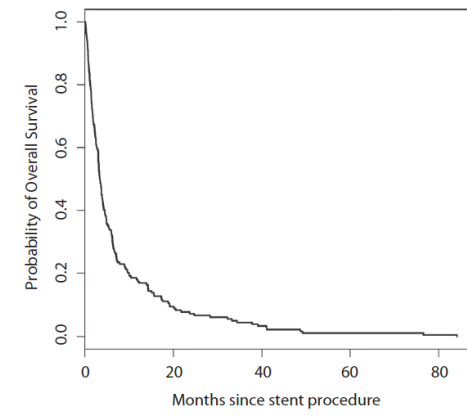
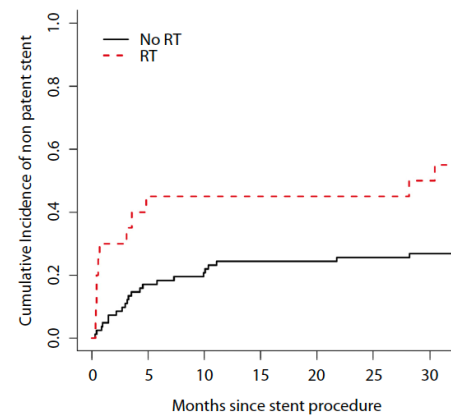
Shahdabul Faraz, BS, Suhail B. Salem, MD, Mark Schattner, MD, Robin Mendelsohn, MD, Arnold Markowitz, MD, Emmy Ludwig, MD, Junting Zheng, MS, Hans Gerdes, MD, Pari M. Shah, MD

New York, New York, USA

187 patients
left-sided obstruction
Gastrointest Endosc 2018

Tumor type	
Urogynecologic	104 (56)
GI	41 (22)
Pancreaticobiliary	15 (8)
Breast	10 (5)
Other	17 (9)
Stent location	
Rectum	12 (7)
Sigmoid colon	128 (68)
Descending colon	8 (4)
Transverse colon	30 (16)
Ascending colon	9 (5)

- Technical 75.9% and clinical success 54.5%
 - Peritoneal carcinomatosis ($p < .001$)
 - Multifocal disease ($p < .001$)
- 14.7% stent occlusion 3month
- Median overall SV 3.3 month



Right-sided

Colonic stent as a bridge to surgery versus emergency resection for right-sided malignant large bowel obstruction: a meta-analysis

Shintaro Kanaka¹ · Akihisa Matsuda¹ · Takeshi Yamada¹ · Ryo Ohta¹ · Hiromichi Sonoda¹ · Seiichi Shinji¹ · Goro Takahashi¹ · Takuma Iwai¹ · Kohki Takeda¹ · Koji Ueda¹ · Sho Kuriyama¹ · Toshimitsu Miyasaka¹ · Hiroshi Yoshida¹

	SEMS 32.4%	SURGERY 67.6%	
Post-op complications	19.3%	31.3%	OR 0.78
severe compl. Dindo \geq III	same		
Primary anastomosis	97.8%	85.9%	OR 0.31
Stoma	2%	11%	OR 0.45
Lap surgery	48.5%	15.7%	OR 0.21

7 studies, 5136 patients
Surg Endosc 2022

A Population-Based Analysis of Three Treatment Modalities for Malignant Obstruction of the Proximal Colon: Acute Resection Versus Stent or Stoma as a Bridge to Surgery



F. J. Amelung, MD¹, E. C. J. Consten, MD, PhD¹, P. D. Siersema, MD, PhD², and P. J. Tanis, MD, PhD³

¹Department of Surgery, Meander Medical Centre, Amersfoort, The Netherlands; ²Department of Gastroenterology and Hepatology, Academic Medical Centre, Utrecht, The Netherlands; ³Department of Surgery, Academic Medical Centre, University of Amsterdam, Amsterdam, The Netherlands

	Mortality	Post resection complication
• 95.4% surgery	8.8%	39.6%
• 2.4% SEMS + surgery	2.4%	27.3%
• 2.3% stoma + surgery	2.4%	31.7%

1860 patients
(3.8% of all database patients)
Ann Surg Oncol 2016

Right-sided

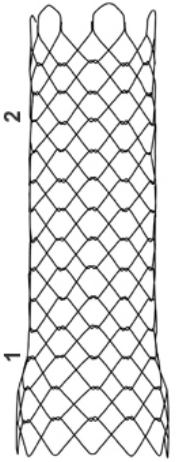
Consider SEMS if feasible

Surgery (resection)

Left-sided

Stent as bridge to surgery for left-sided malignant colonic obstruction reduces adverse events and stoma rate compared with emergency surgery: results of a systematic review and meta-analysis of randomized controlled trials (CME)

Alberto Arezzo, MD,¹ Roberto Passera, PhD,² Giacomo Lo Secco, MD,¹ Mauro Verra, MD,¹
Marco Augusto Bonino, MD,¹ Eduardo Targarona, MD,³ Mario Morino, MD¹



	Stents Bridge to Surgery	Emergency Surgery	P-value
60-days mortality	9.6%	9.9%	0.97
60-days morbidity	33.9%	51.2%	0.023
Temporary stoma rate	33.9%	51.4%	<0.01
Permanent stoma rate	22.2%	35.2%	0.003
Primary anastomosis	70.0%	54.1%	0.43

5days – 4 weeks

**...offers some advantage
with less risks...in the short-term**

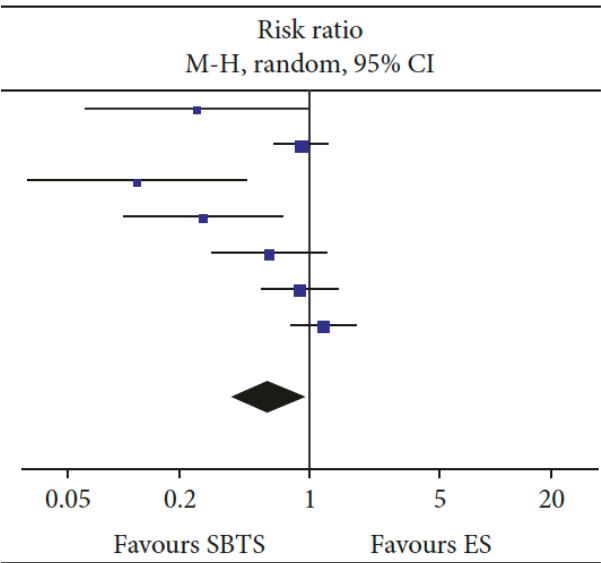
Meta-analysis
8 RCT, 497 patients
60-day morbidity
Gastrointest Endosc 2017

Endoscopic Stenting as Bridge to Surgery versus Emergency Resection for Left-Sided Malignant Colorectal Obstruction: An Updated Meta-Analysis

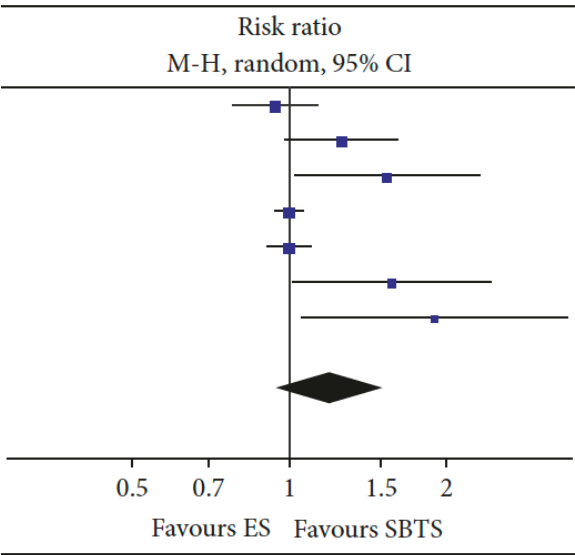
Niccolò Allievi, Marco Ceresoli, Paola Fugazzola,
Giulia Montori, Federico Coccolini, and Luca Ansaloni

1st Surgical Department, Papa Giovanni XXIII Hospital, Bergamo, Italy

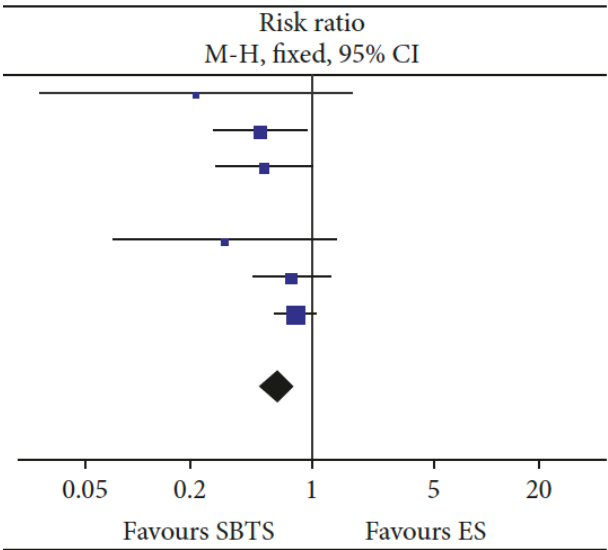
Study or subgroup	SBTS		ES		Weight	Risk ratio		Risk ratio	
	Events	Total	Events	Total		M-H, fixed, 95% CI	M-H, fixed, 95% CI		
Alcántara et al. 2011	0	15	1	13	9.0%	0.29 [0.01, 6.60]			
Arezzo et al. 2016	4	56	3	59	16.5%	1.40 [0.33, 6.00]			
Cheung et al. 2009	0	24	0	24		Not estimable			
Ghazal et al. 2013	0	30	0	30		Not estimable			
Ho et al. 2012	0	20	3	19	20.2%	0.14 [0.01, 2.47]			
Pirlet et al. 2011	3	30	1	30	5.6%	3.00 [0.33, 27.23]			
van Hooft et al. 2011	9	47	9	51	48.7%	1.09 [0.47, 2.50]			
Total (95% CI)		222		226	100.0%	0.98 [0.53, 1.82]			
Total events	16		17						
Heterogeneity: $\chi^2 = 3.64$, df = 4 ($P = 0.46$); $I^2 = 0\%$									
Test for overall effect: $Z = 0.06$ ($P = 0.95$)									



Mortality




Primary Anastomosis

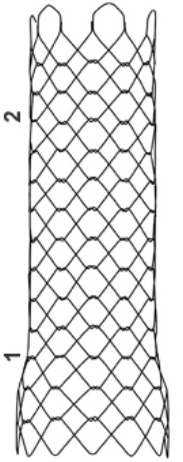


Stoma rate

Meta-analysis
7 studies, 448 patients
Int J Surg Oncol 2017patients

Controversies of colonic stenting in obstructive left colorectal cancer: a critical analysis with meta-analysis and meta-regression

Vernicia Shu Qi Neo¹ • Sneha Rajiv Jain¹ • Jun Wei Yeo¹ • Cheng Han Ng¹ • Tiffany Rui Xuan Gan² • Emile Tan³ • Choon Seng Chong^{1,2,4} 



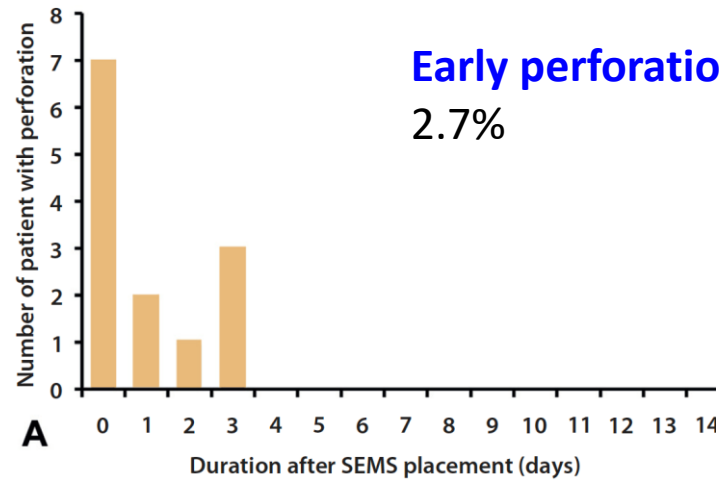
- Technical 92% and clinical success 82%
- 5% perforation
 - 90d in-hospital mortality =
 - 5yrs overall SV =
- Mean 10d until surgery
 - > 2 weeks more clinical success
 - same mortality and 5yrs SV

36 studies, 2002 patients
Int J Colorectal Dis 2021

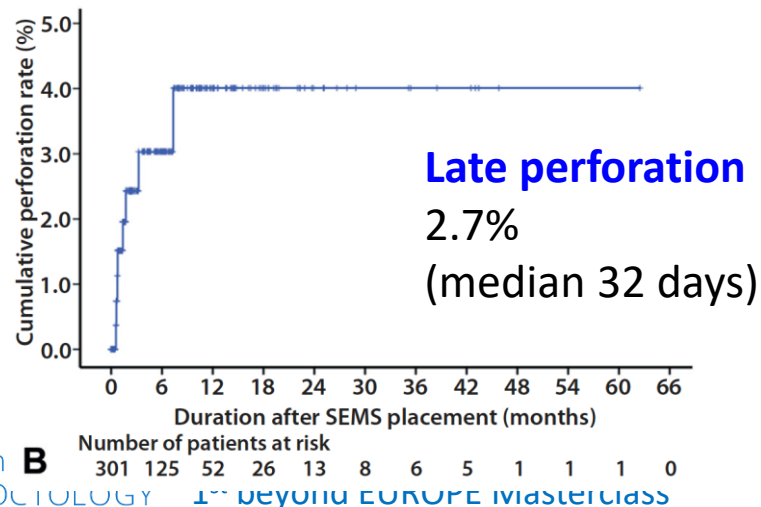
Clinical outcomes and factors related to colonic perforations in patients receiving self-expandable metal stent insertion for malignant colorectal obstruction

Yoo Jin Lee, MD,^{1,2} Jin Young Yoon, MD,³ Jae Jun Park, MD, PhD,¹ Soo Jung Park, MD, PhD,⁴
Jie-Hyun Kim, MD, PhD,¹ Young Hoon Youn, MD, PhD,¹ Tae Il Kim, MD, PhD,⁴ Hyojin Park, MD, PhD,⁴
Won Ho Kim, MD, PhD,⁴ Jae Hee Cheon, MD, PhD⁴

Seoul, Daegu, Korea



- >70yrs OR 3.2
- Sigmoid colon OR 7.7



- Flexure OR 17.5
- No carcinomatosis OR 6.1

474 patients
164 bridge to surgery, 310 palliative
Gastrointest Endosc 2018

Long-term outcomes of stent-related perforation in malignant colon obstruction: a systematic review and meta-analysis

Izaskun Balciscueta¹  • Zutoia Balciscueta²  • Natalia Uribe²  • Eduardo García-Granero¹ 

8.9% stent-related perforation

- Overall recurrence 41.2%. vs 30.8%. $p=0.04$
- **Local recurrence** 26.6% vs 12.5% $p=0.04$
- Distant metastasis = (13.6% vs. 20.5%)

3yrs SV =

65% vs 75%

5yrs SV =

48% vs 59%

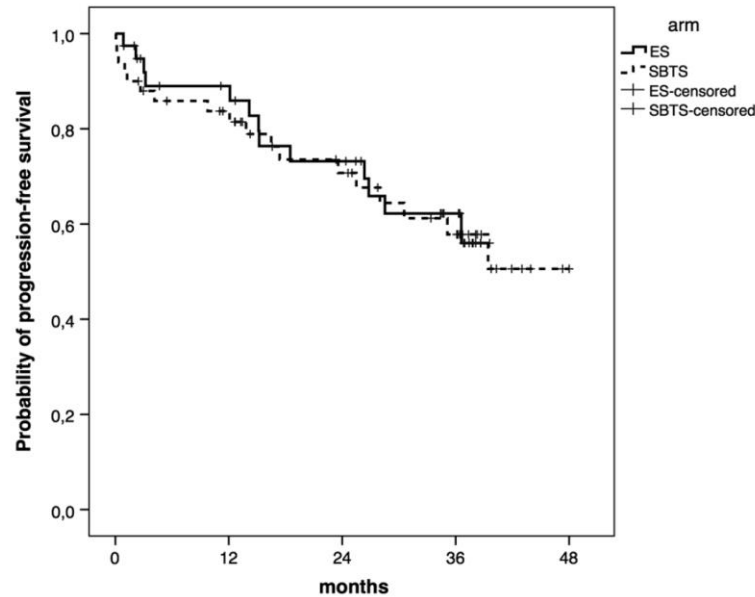
*13 studies, 950 patients
Int J Colorectal Dis 2020*

Oncological outcome



Colonic stenting as a bridge to surgery versus emergency surgery for malignant colonic obstruction: results of a multicentre randomised controlled trial (ESCO trial)

Alberto Arezzo¹ · Carmen Balague² · Eduardo Targarona² · Felice Borghi³ · Giorgio Giraudo³ · Luigi Ghezzi³ · Antonio Arroyo⁴ · Javier Sola-Vera⁴ · Paolo De Paolis⁵ · Maurizio Bossotti⁵ · Elisa Bannone¹ · Edoardo Forcignano¹ · Marco Augusto Bonino¹ · Roberto Passera⁶ · Mario Morino¹



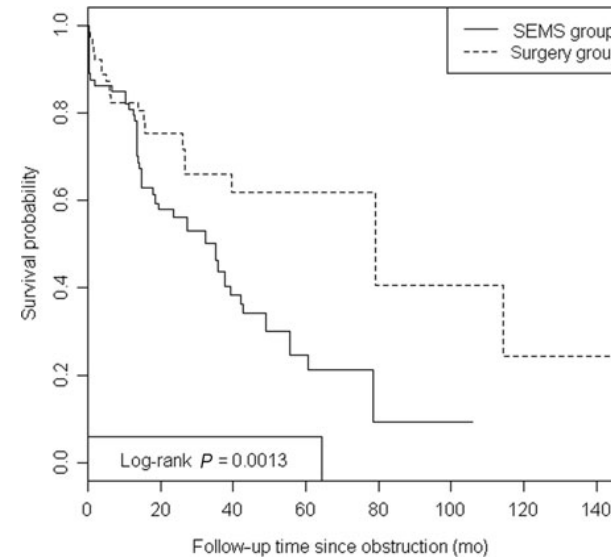
Multicenter RCT, 115 patients
 79.2% complete 3yrs FU
 Surg Endosc 2017



Is Stenting as “a Bridge to Surgery” an Oncologically Safe Strategy for the Management of Acute, Left-Sided, Malignant, Colonic Obstruction?

A Comparative Study With a Propensity Score Analysis

Charles Sabbagh, MD,* || François Browet, MD,* Momar Dionf, PhD,† Cyril Cosse, MD,* || Olivier Brehant, MD,*
 Eric Bartoli, MD,‡ François Mauvais, MD,§ Bruno Chauffert, MD, PhD,¶ Jean-Louis Dupas, MD,‡
 Eric Nguyen-Khac, MD, PhD,‡ and Jean-Marc Regimbeau, MD, PhD*



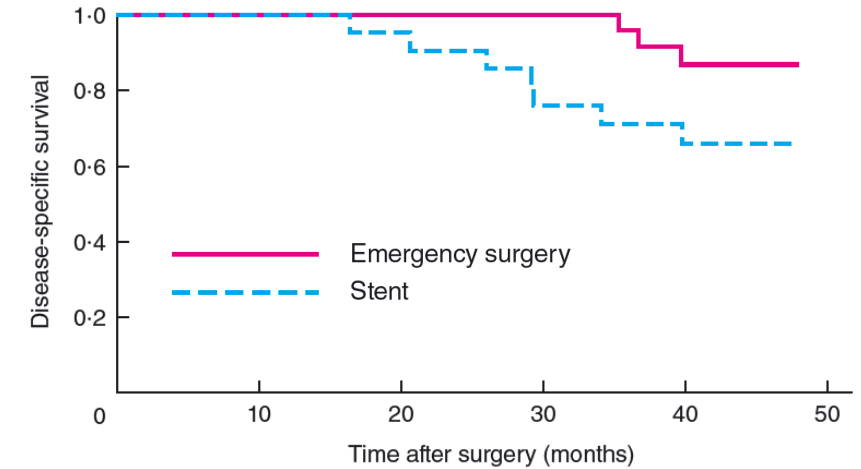
2 centers, 87 patients
 Ann Surg 2013



Oncological outcome of malignant colonic obstruction in the Dutch Stent-In 2 trial

D. A. M. Sloothaak¹, M. W. van den Berg², M. G. W. Dijkgraaf³, P. Fockens², P. J. Tanis¹, J. E. van Hooft² and W. A. Bemelman¹ on behalf of the collaborative Dutch Stent-In study group

¹Department of Surgery, ²Department of Gastroenterology and Hepatology, and ³Clinical Research Unit, Academic Medical Centre, Amsterdam, The Netherlands



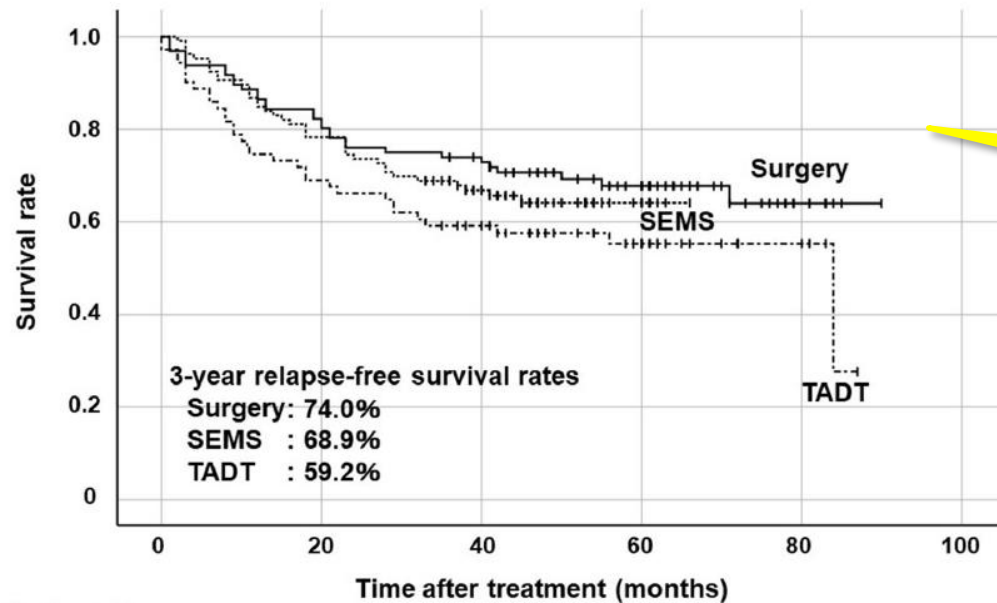
58 patients
 prematurely stopped
 BJS 2014

Oncological outcome



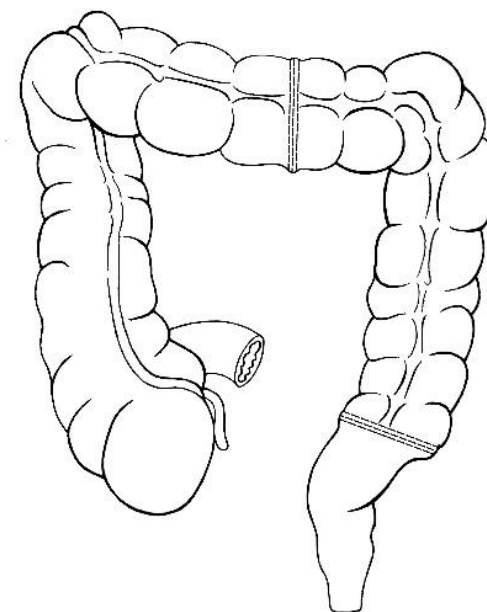
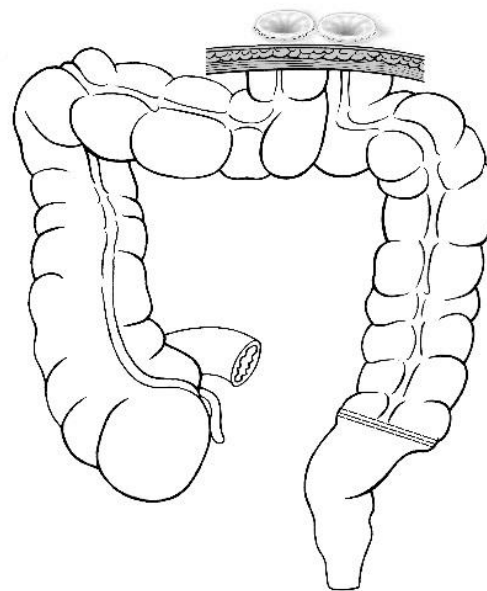
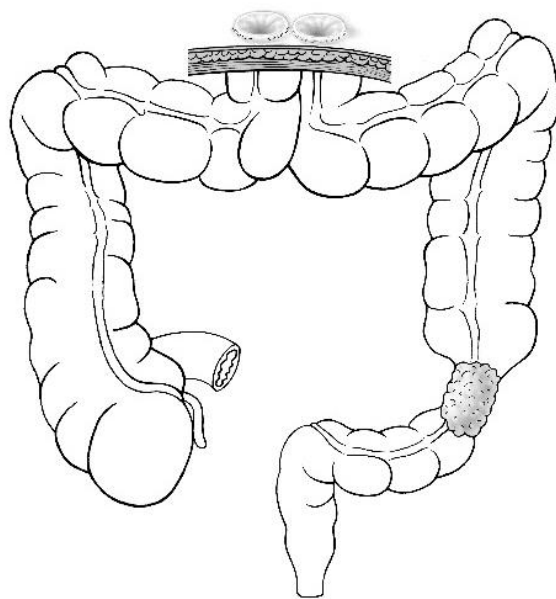
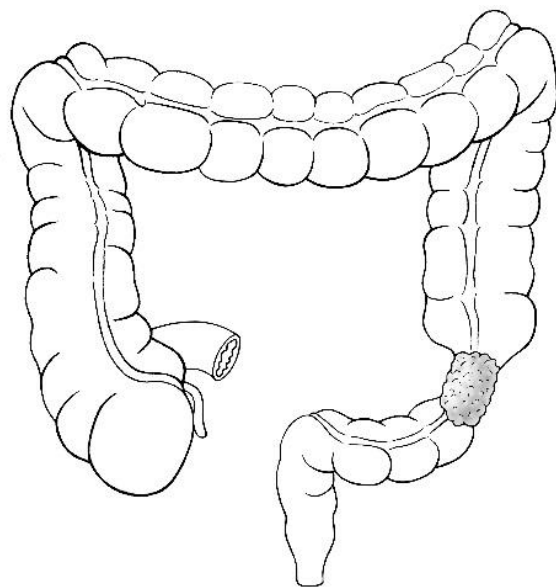
Comparison of survival and perioperative outcome of the colonic stent and the transanal decompression tube placement and emergency surgery for left-sided obstructive colorectal cancer: a retrospective multi-center observational study "The CODOMO study"

Shungo Endo¹ • K. Kumamoto¹ • T. Enomoto² • K. Koizumi³ • H. Kato⁴ • Y. Saida²



- Technical success : =
- Clinical success : SEMS=Surg >TADT
- Complications : SEMS<Surg
- 3yrs relapse-free SV : SEMS=Surg>TADT

301 patients, 27 institutions
Int J Colorectal Dis 2021



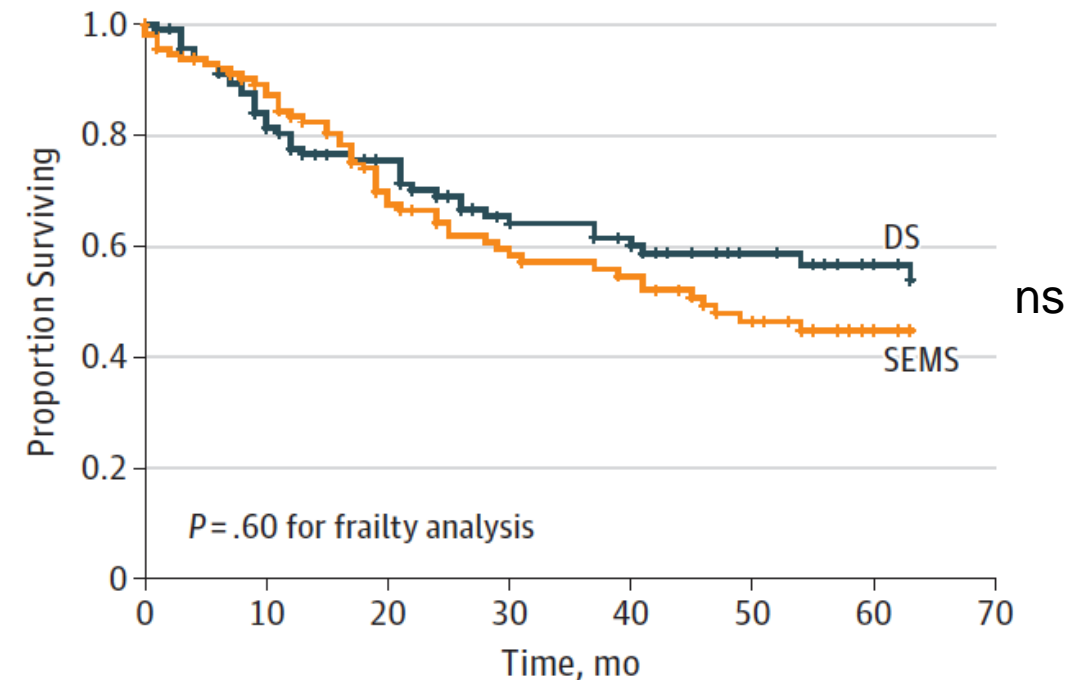
Comparison of Decompressing Stoma vs Stent as a Bridge to Surgery for Left-Sided Obstructive Colon Cancer

Joyce V. Veld, MD, MSc; Femke J. Amelung, MD, PhD; Wernard A. A. Borstlap, MD, PhD; Emo E. van Halsema, MD, PhD; Esther C. J. Consten, MD, PhD; Peter D. Siersema, MD, PhD; Frank ter Borg, MD, PhD; Edwin S. van der Zaag, MD, PhD; Johannes H. W. de Wilt, MD, PhD; Paul Fockens, MD, PhD; Wilhelmus A. Bemelman, MD, PhD; Jeanin E. van Hooft, MD, PhD, MBA; Pieter J. Tanis, MD, PhD; for the Dutch Snapshot Research Group

Decompressing stoma

- More primary anastomosis (86% vs 75%, $p=0.02$)
- Fewer major complications (5.8% vs 15.3%, $p=0.02$)
- More stoma reversals (58% vs 28%, $p<0.01$)

Disease-free survival



443 patients, propensity matching
30 months FU
JAMA Surg 2021

Left-sided

Goal : Return to intended oncological therapy

SEMS vs. emergency surgery

- if feasible high success rate, many short-term advantages
- more lap operations, less stoma
- caveat perforation (local recurrence), overall SV =

Decompressing stoma a valid alternative (no tube!)

Malignant Colonic Obstruction

- If septic : damage control
- SESM: caveat perforation (local recurrence ↑)
- *Palliative:* **SEMS possible** (caveat >6month survival)
- *Extra-colonic:* **SEMS \cong 50% successfull**
- *Right-sided:* **Resect > Bridge** (Stoma = SEMS)
- *Left-sided:* **if bridge then stoma, primary surgery in young, SEMS in selected cases**





European Society of
COLOPROCTOLOGY

Dublin 2022

17th Scientific Conference

21-23 September 2022, Dublin, Ireland



European Society of
COLOPROCTOLOGY

1st beyond EUROPE Masterclass