CONTROVERSY FOR LEFT TRANSVERSE COLON CANCER; (Segmental / Subtotal colectomy)

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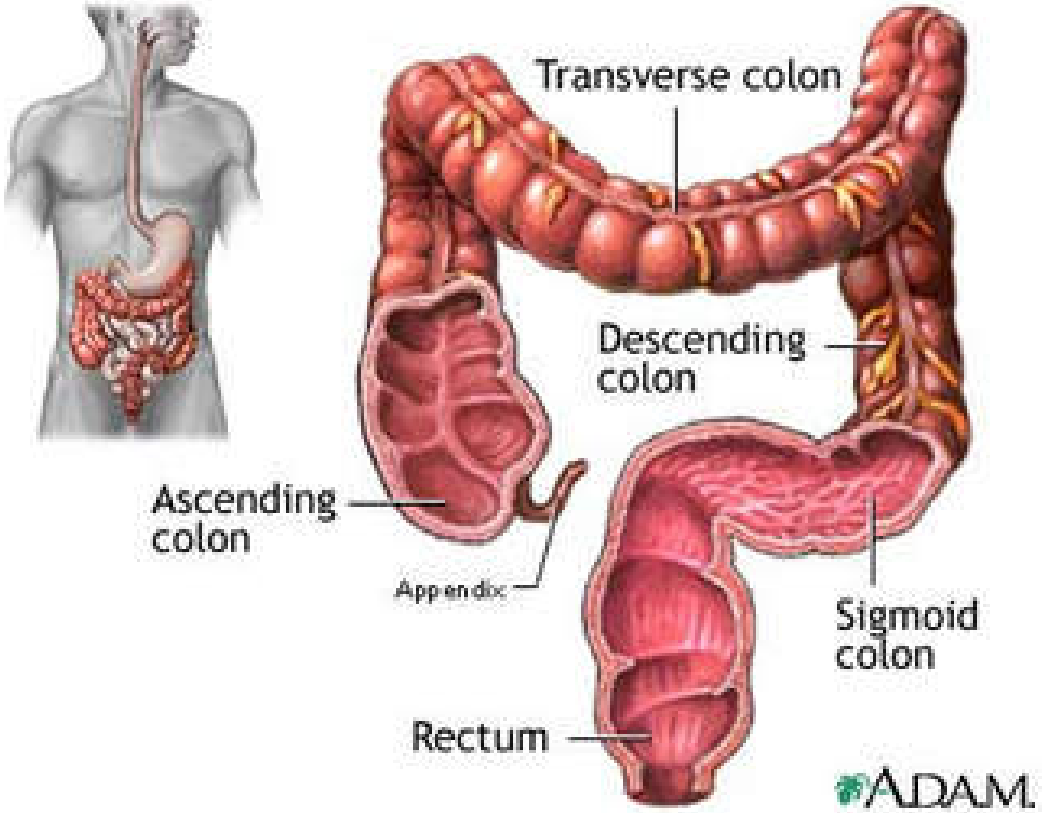
Disclosure

None to be declared



Transverse colon cancer

Transverse colon cancer is a relatively uncommon occurrence, accounting for approximately 10% of all colon cancers.

[Wray CM, Ziogas A, Hinojosa MW et al (2009)]

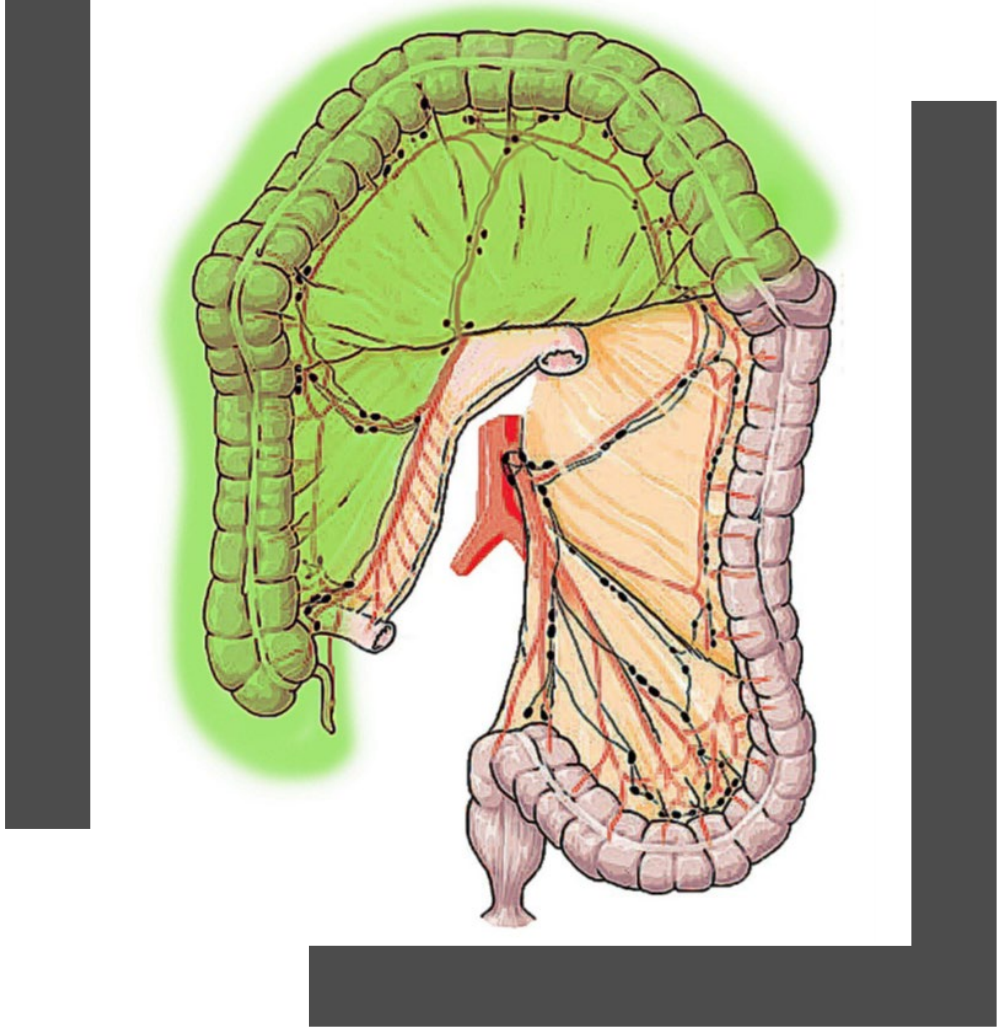
Transverse colon cancer

- surgical approach is frequently based on a surgeon's preference.
- Due to potential vascular insufficiency, the extent of lymphadenectomy around the middle colic artery, mobilization of both flexures and proximity to upper abdominal organs, a transverse colectomy is often considered a technically challenging procedure.

Transverse colon cancer

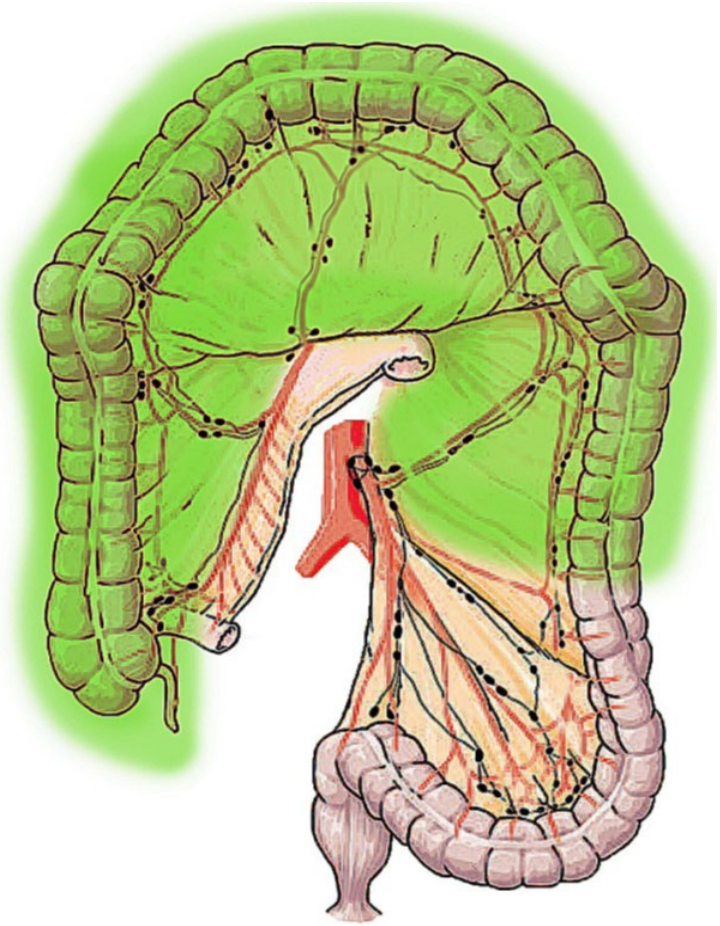
- This contributed to the belief that a transverse colectomy is possibly not as safe as an extended right or left colectomy.
- Transverse colon cancer is often excluded from previous large trials due to its low incidence and the even lower proportion of transverse colectomies. Therefore, the optimal surgical procedure for a tumor in this location is not established.

Extended Right Hemicolectomy

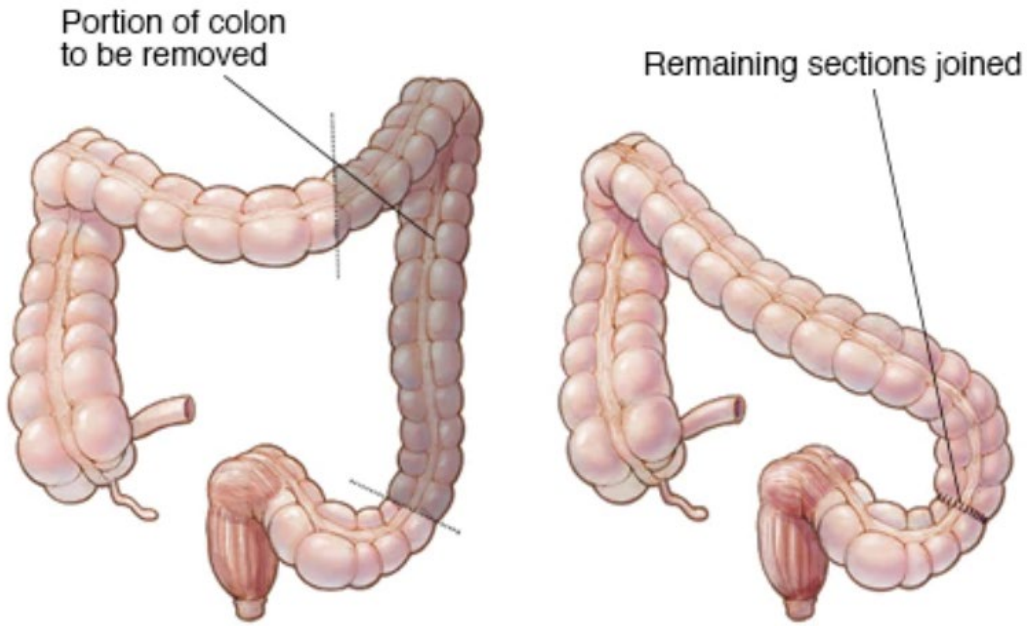


Resection of the right and transverse colon up to the splenic flexure along with regional lymph nodes. The ileocolic, the right colic (if present), the middle colic and the left colic vessels are ligated at their origins.

Subtotal Colectomy



Resection of the colon up to the junction between the descending colon and the sigmoid colon. STC includes the ligation of the ileocolic, right colic, middle colic and left colic pedicles.

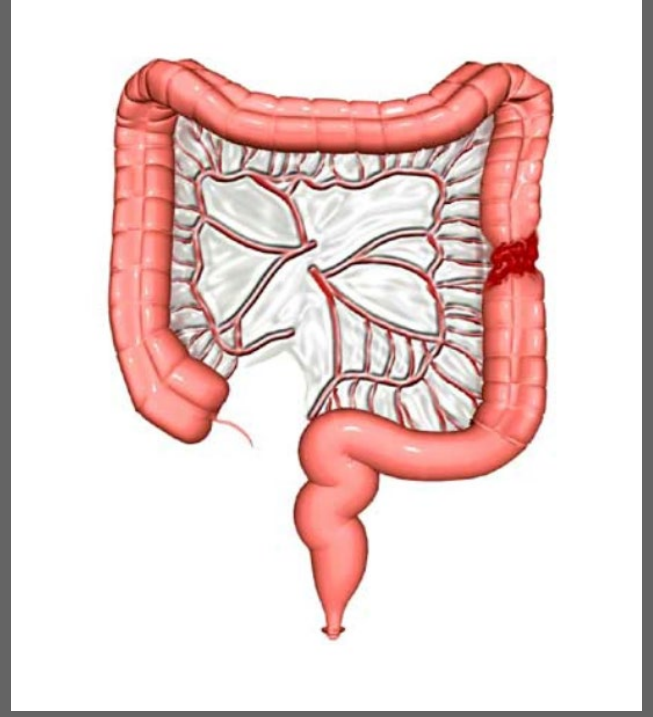


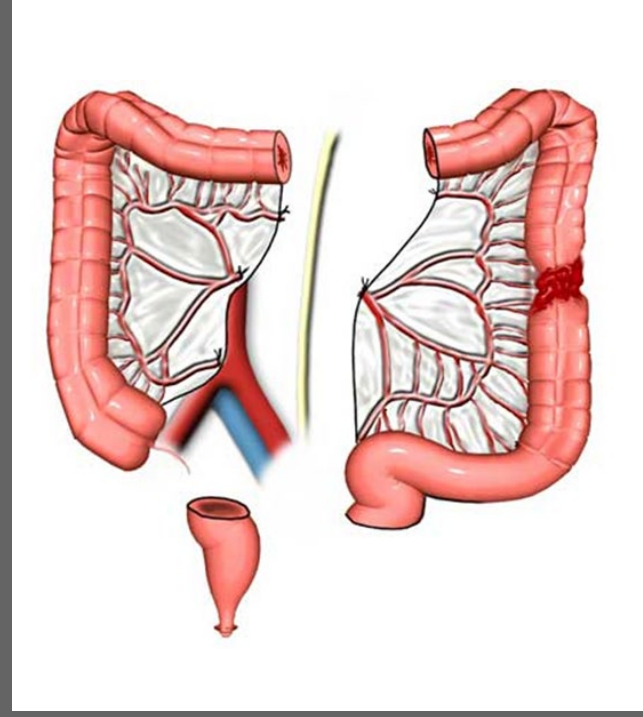
Left Hemicolectomy

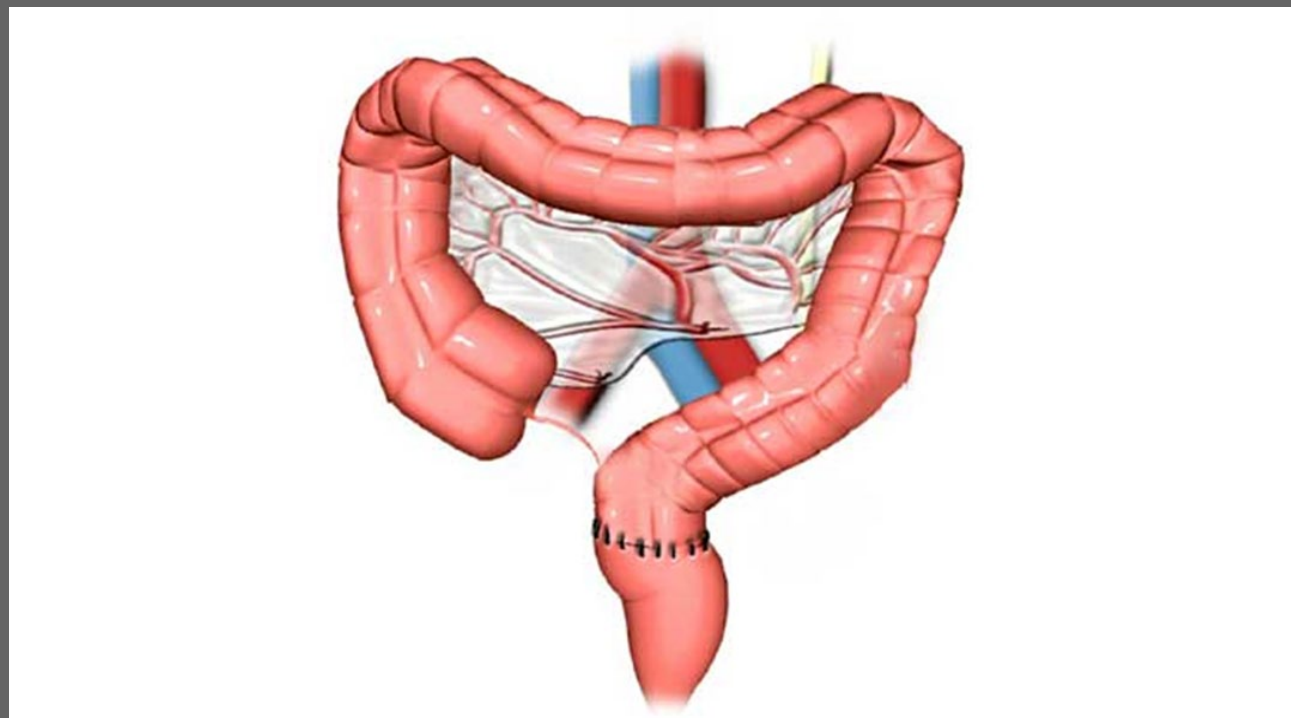
Resection of the colonic segment located between the distal transverse colon and the sigmoid colon

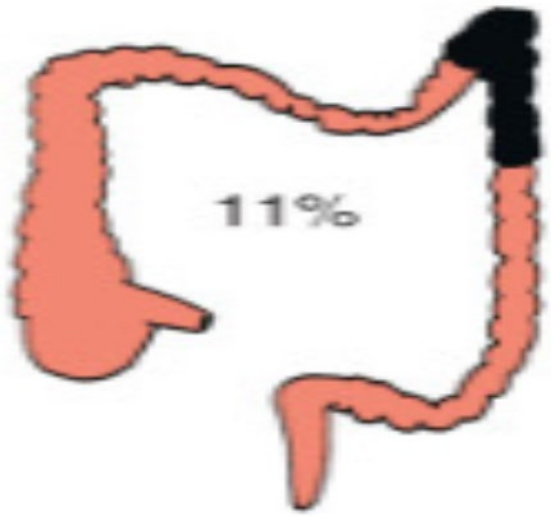
Extended Left Hemicolectomy

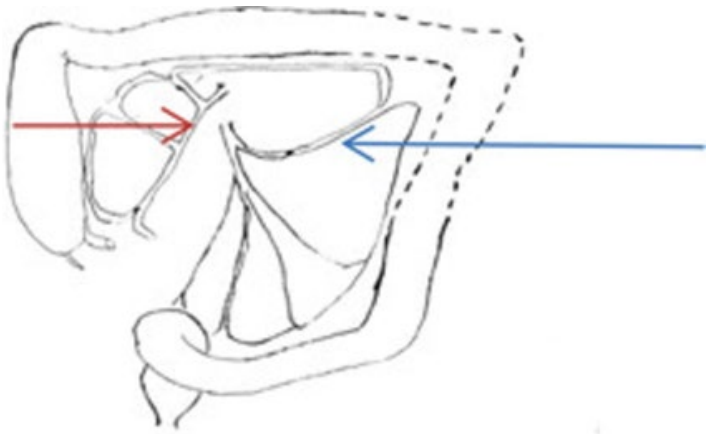
Resection of colonic segment between the left third of the transverse colon and the colorectal junction. The inferior mesenteric vessels and the left branch of the middle colic vessels are ligated at their origins, with regional lymphadenectomy.











Segmental Splenic Flexure Resection

Resection of the colonic segment located between the distal transverse colon and the first descending segment of the colon.

Treatment of Midtransverse Colon Cancer

World J Surg
https://doi.org/10.1007/s00268-018-4582-1

World Journal of Surgery

CrossMark

ORIGINAL SCIENTIFIC REPORT

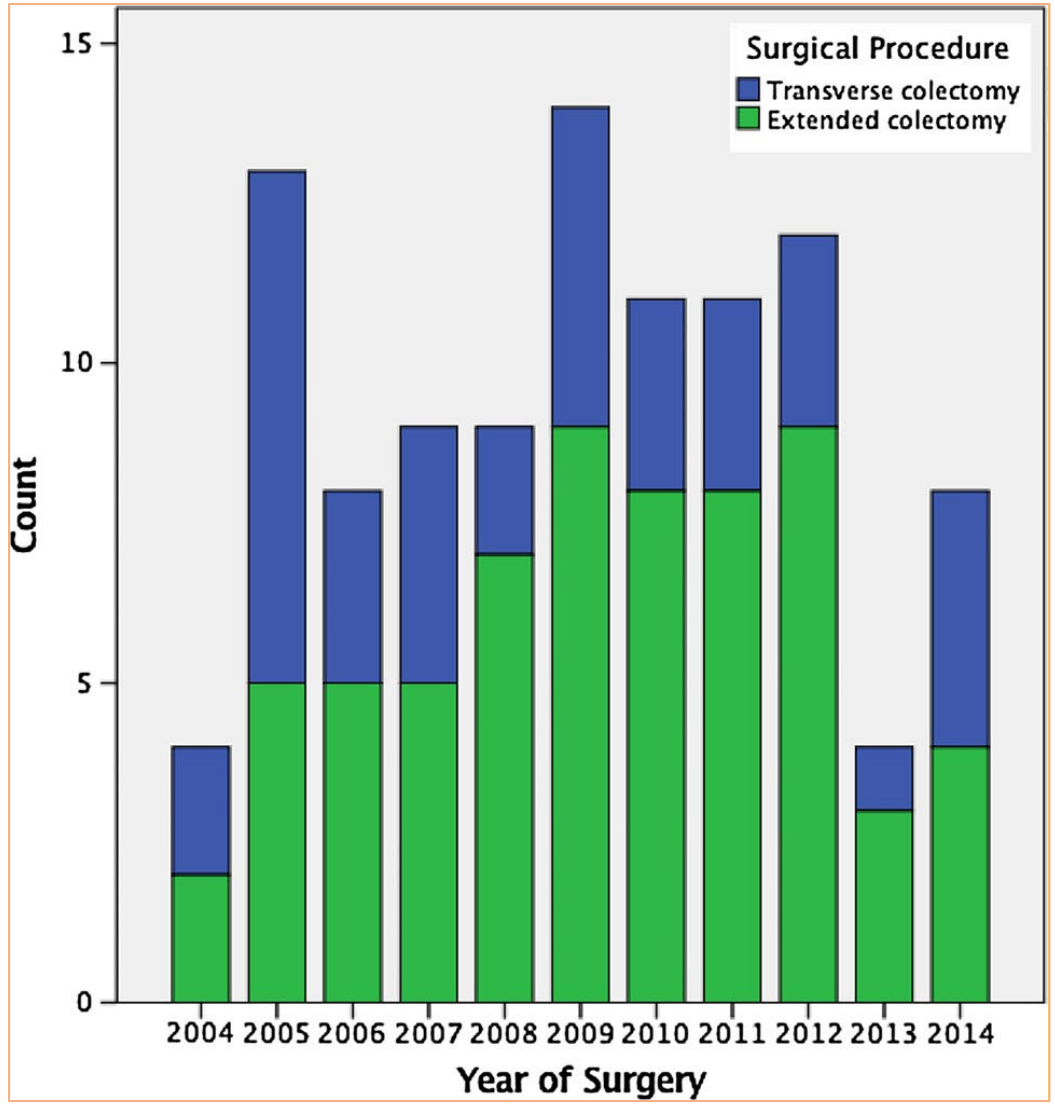
A Transverse Colectomy is as Safe as an Extended Right or Left Colectomy for Mid-Transverse Colon Cancer

[1] Department of General and Gastrointestinal Surgery, Massachusetts General Hospital, Harvard Medical School, 15 Parkman Street, Boston, MA 02114, USA

Published online: 19 March 2018

The primary outcome measures were 5-year overall (OS) and disease-free survival (DFS). Secondary outcomes were histopathological differences and postoperative morbidity.

	N (%)
Age (years)	68.62 (±14.19)
ASA-score	2.36 (±0.52)
Gender	
Female	50 (48.5%)
Male	53 (51.5%)
Surgical characteristics	
Approach	
Open	66 (64.1%)
Laparoscopic	37 (35.9%)
Procedure	
Transverse colectomy	38 (36.9%)
Extended right	48 (46.6%)
Extended left	17 (16.5%)
Pathological characteristics	
AJCC-stage	
I	32 (31.1%)
II	50 (48.5%)
III	21 (20.4%)
Tumor grade	
Poor	14 (13.6%)
Well/moderate	81 (78.6%)
Not tested	8 (7.8%)
Follow-up duration (months)	48.6 (19.5–73.5)



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ORIGINAL SCIENTIFIC REPORT

A Transverse Colectomy is as Safe as an Extended Right or Left Colectomy for Mid-Transverse Colon Cancer

- EC : worse short-term outcomes.
  TC : harvested fewer LNs
  5-year overall (OS) and disease-free survival (DFS) was comparable between the groups.
- **Conclusion:** The study underlines the oncological safety of a transverse colectomy for mid-transverse colon cancer. Although TC tumors were associated with poorer histopathological features, survival rates were comparable.

Splenic Flexure;
Left Transverse Colon Cancer:

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nature research

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Treatment of splenic flexure colon cancer: a comparison of three different surgical procedures: Experience of a high volume cancer center

Received: 22 October 2018
Accepted: 11 July 2019
Published online: 29 July 2019

Daniela Rega[1], Ugo Pace[1], Dario Scala[1], Paolo Chiodini[2], Vincenza Granata[3], Andrea Fares Bucci[1], Biagio Pecori[4] & Paolo Delrio[1]

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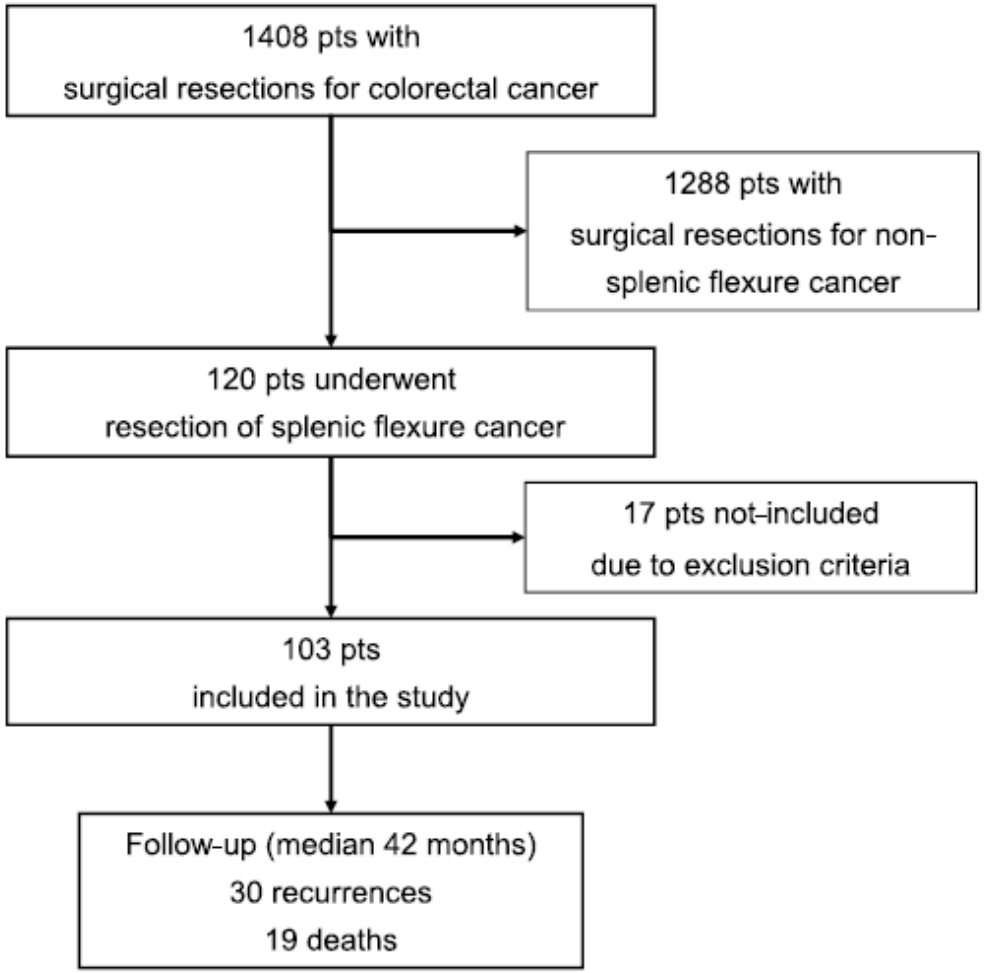

Figure 1. Flowchart of the study.

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	ERH (n = 22)	ELH (n = 24)	SSFR (n = 57)	p-value
Age, year, mean (SD)	65 (7.5)	63.8 (10.9)	67 (10.5)	0.380
Male gender, n (%)	13 (59.1)	13 (54.2)	34 (59.7)	0.897
ASA Score, n (%)				0.462
1	1 (4.6)	0 (0.0)	0 (0.0)	
2	7 (31.8)	9 (37.5)	23 (40.4)	
3	14 (63.6)	15 (62.5)	32 (56.1)	
4	0 (0.0)	0 (0.0)	2 (3.5)	
5	0 (0.0)	0 (0.0)	0 (0.0)	
Substenotic lesion, n (%)	6 (27.3)	3 (12.5)	23 (40.4)	0.043

Table 1. Characteristics at baseline.

- **103 patients treated with surgery for splenic flexure cancer were included in the study:**
  - ✓ **22 (21.4%) extended right hemicolectomy,**
  - ✓ **24 (23.3%) extended left hemicolectomy,**
  - ✓ **57 (55.3%) segmental splenic flexure resection.**
  - ✓ **No differences were found among three groups in the baseline characteristics.**

Results

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	ERH (n = 22)	ELH (n = 24)	SSFR (n = 57)	p-value
Operative time, mean (SD)	121′ (58.6′)	109′ (50.8′)	105.3′ (49.6′)	0.484
Laparoscopic approach, n (%)	3 (13.6)	5 (20.8)	10 (17.5)	0.833
Multiorgan Resection, n (%)	1 (4.6)	2 (8.3)	8 (14.0)	0.486
Hospitalization (day), mean (SD)	7.9 (3.7)	8 (3.2)	6.9 (3.1)	0.249
Clavien Score, n (%)				0.851
1–2	20 (90.9)	23 (95.8)	53 (93.0)	
3	2 (9.1)	1 (4.2)	3 (5.3)	
4	0 (0.0)	0 (0.0)	0 (0.0)	
5	0 (0.0)	0 (0.0)	1 (1.8)	

Table 2. Surgery and post-surgery characteristics.

	ERH (n = 22)	ELH (n = 24)	SSFR (n = 57)	p-value
Lymphnodes harvested, mean (SD)	28.9 (13)	23.3 (13.9)	21.5 (9.6)	0.040
number ≥12, n (%)	21 (95.5)	20 (83.3)	50 (87.7)	0.463
T, n (%)				0.790
1	4 (18.2)	7 (29.2)	15 (26.3)	
2	7 (31.8)	3 (12.5)	10 (17.5)	
3	10 (45.5)	13 (54.2)	29 (50.9)	
4	1 (4.6)	1 (4.2)	3 (5.3)	
N, n (%)				0.754
0	16 (72.7)	15 (62.5)	38 (66.7)	
1	2 (9.1)	5 (20.8)	12 (21.1)	
2	4 (18.2)	4 (16.7)	7 (12.3)	
Stage, n (%)				0.891
I	9 (40.9)	10 (41.7)	23 (40.4)	
IIA	6 (27.3)	3 (12.5)	14 (24.6)	
IIC	1 (4.6)	1 (4.2)	1 (1.8)	
IIIA	1 (4.6)	0 (0.0)	1 (1.8)	
IIIB	3 (13.6)	8 (33.3)	12 (21.1)	
IIIC	2 (9.1)	2 (8.3)	6 (10.5)	
G3-V1-mucinosus type, n (%)	3 (13.6)	2 (8.3)	17 (29.8)	0.060

Table 3. Histophatologic Characteristics.

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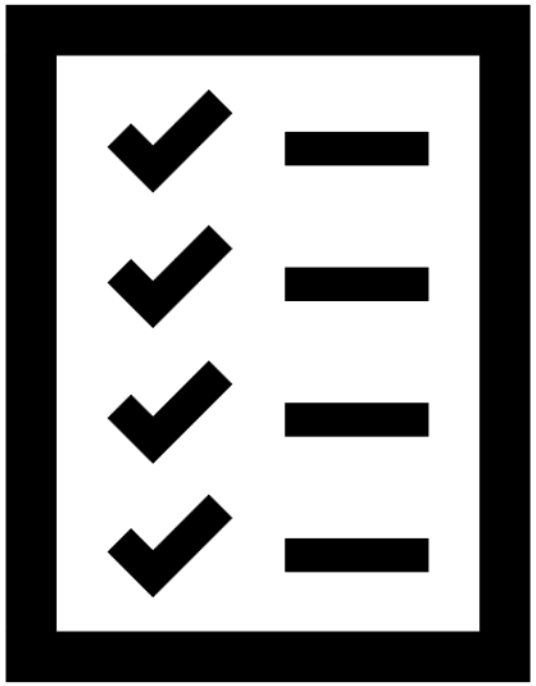

The results suggested that a segmental splenic flexure resection is oncologically adequate for splenic flexure carcinoma, the resection includes foremost the left colic and secondly the left branch of the middle colic lymphoadenectomy, guaranteeing the removal of the mostly involved lymphatic drainage of a splenic flexure cancer.

Results

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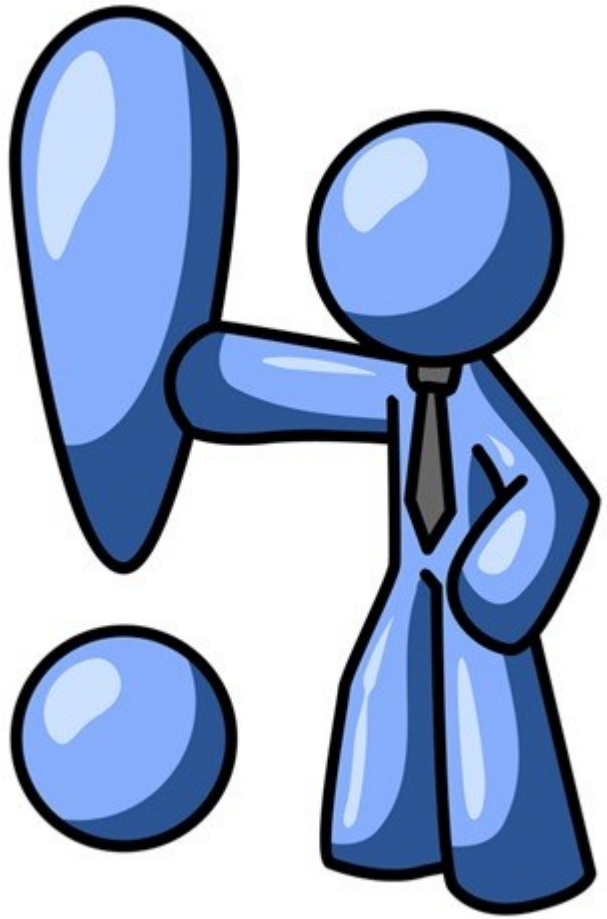

The study, provided valuable support for the oncological adequacy of a segmental resection of splenic flexure cancer.

conclusion

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ADVANCING SURGICAL CARE

COLORECTAL SURGERY

Ann R Coll Surg Engl 2016; **98**: 303–307
doi 10.1308/rcsann.2016.0112

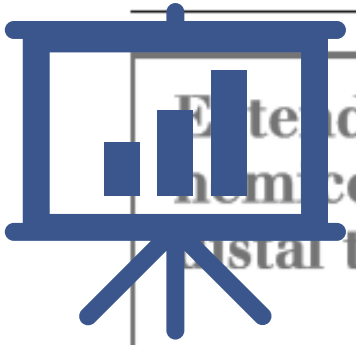
ght hemicolectomy and left my for colorectal cancers between the erse and proximal descending colon

r[2], R Parker[1], A
EU Rahman[3], R Sorge[4], T Alhammali
A Kelkar[1], R Agarwal[5], S El-Rabaa[1]

Kettering General Hospital NHS Foundation Trust, UK
West Hertfordshire Hospitals NHS Trust, UK
Northampton General Hospital NHS Trust, UK
University of Rome Tor Vergata, Italy

- **A retrospective review was performed over ten years. Data collected were patient demographics, type and duration of surgery, tumor site, postoperative complications and histology results.**

Results



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Extended right hemicolectomy and left hemicolectomy for colorectal cancers between the distal transverse and proximal descending colon

G Gravante[1], M Elshaer[2], R Parker[1], AC Mogekwu[1], B Drake[1], A Aboelkassem[1], EU Rahman[3], R Sorge[4], T Alhammali[1], K Gardiner[1], S Al-Hamali[1], M Rashed[1], A Kelkar[1], R Agarwal[5], S El-Rabaa[1]

- **Ninety-eight patients**

- Anastomotic leak rate was similar for both groups (ERH: 6.3%, LH: 5.9%). This was also the case for other postoperative complications, mortality (ERH: 1.6%, LH: 2.9%) and overall survival (ERH: 50.4 months, LH: 51.8 months).

- All but one patient in the ERH cohort had clear surgical margins.

- Nodal evaluation for staging was adequate in 78.1% of ERH cases and 58.8% of LH cases.

Table 1 Clinical characteristics

	ERH (*n*=64)	LH (*n*=34)	*p*-value
Male sex	37 (57.8%)	19 (55.9%)	1.000
Mean age in years	70.3 (SD: 10.7)	70.0 (SD: 10.1)	0.528
Emergency	27 (42.2%)	9 (26.5%)	0.115
Approach			**0.002**
Open	60 (93.8%)	25 (73.5%)	
Laparoscopic	4 (6.3%)	7 (20.6%)	
Laparoscopic converted to open	0 (0%)	2 (5.9%)	
ASA grade			0.563
1	5 (7.8%)	6 (17.6%)	
2	42 (65.6%)	18 (52.9%)	
3	16 (25.0%)	9 (26.5%)	
4	1 (1.6%)	1 (2.9%)	
Mean operative time in minutes	133 (SD: 50)	158 (SD: 41)	**0.039**
Protective stoma	0	0	–
Perioperative morbidity	14 (21.9%)	5 (14.7%)	0.784
Perioperative mortality	1 (1.6%)	1 (2.9%)	0.206
Mean overall survival (range) in months	50.4 (2.0–111.2)	51.8 (3.1–135.6)	0.156

ERH = extended right hemicolectomy; LH = left hemicolectomy; SD = standard deviation; ASA = American Society of Anesthesiologists

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G Gravante[1], M Elshaer[2], R Parker[1], AC Mogekwu[1], B Drake[1], A Aboelkassem[1], EU Rahman[3], R Sorge[4], T Alhammali[1], K Gardiner[1], S Al-Hamali[1], M Rashed[1], A Kelkar[1], R Agarwal[5], S El-Rabaa[1]

Table 2 Postoperative complications

30-day morbidity	ERH (*n*=64)	LH (*n*=34)	*p*-value
Anastomotic leak	4 (6.3%)	2 (5.9%)	1.000
Chest infection	4 (6.3%)	2 (5.9%)	1.000
Atrial fibrillation	3 (4.7%)	2 (5.9%)	0.653
Postoperative ileus	3 (4.7%)	0 (0%)	0.549
Acute coronary syndrome	1 (1.6%)	1 (2.9%)	0.539
Heart failure	0 (0%)	1 (2.9%)	0.319
Acute renal failure	1 (1.6%)	0 (0%)	1.000
Clostridium difficile colitis	1 (1.6%)	1 (2.9%)	0.539
Wound infection	1 (1.6%)	0 (0%)	1.000

ERH = extended right hemicolectomy; LH = left hemicolectomy

Conclusion

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- **ERH is an established procedure for tumors located between the distal transverse and proximal descending colon, both for emergency and elective colorectal cancer resections. In our series, ERH and LH produced similar results with regard to early postoperative outcomes and late cancer specific outcomes, and either could be used for such tumors.**

Review Article

What is the best surgical option for the resection of transverse colon cancer?

Aleix Martínez-Pérez[1#], Elisa Reitano[2#], Paschalis Gavriilidis[3], Pietro Genova[2], Paolo Moroni[2], Riccardo Memeo[4], Francesco Brunetti[2], Nicola de'Angelis[2]

Correspondence to: Nicola de'Angelis, MD, PhD. Unit of Digestive Surgery, Henri Mondor Hospital, AP-HP, University of Paris Est, UPEC, 51 Avenue du Maréchal de Lattre de Tassigny, 94010 Créteil, France. Email: nic.deangelis@yahoo.it.

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The aim was to describe the outcomes, limitations and advantages of TC, ERC, and STC for TCC in order to identify possible trends in the current literature suggesting which is the best treatment option in both elective and emergency settings.

Table 1 Summary of the relevant literature about short-term and long-term outcomes of colectomy for TCC

1st author and year, study period, number of patients	Country	Surgical indications	Study design	Surgical procedure (n)	Surgical approach	cTNM[a] (n)	>12 LN harvested (%)	R0 resections (%)	Complication rate (%)	Anastomotic leakage (%)	Mortality (%)	Survival outcomes
Studies on different procedures for TCC resection												
Leijssen *et al.* 2018, 2004–2014, n=103	USA	Mid-TCC	PSM case-control	TC =38 *vs.* EC =65 (ERC =48 + ELC =17)	Open and laparoscopy	I =32; II =50; III =21	TC =84.2; EC =92.3	TC =94.7; EC =98.5	Overall complic.: TC =43.8; EC =43.8;	TC =3.1; EC =3.1;	TC =3.1; EC =0;	5-year OS: TC =78.8%; EC =73.5%
									Major complic.: TC =6.3; EC =6.3;			5-year DFS: TC =87%; EC =90.1%
Matsuda *et al.* 2018, 2007–2017, n=72	Japan	Mid-TCC	Case-control	TC =34 *vs.* ERC =38	Laparoscopy	I =33; II =22; III =17	NA	100	TC =29.4; ERC =10.5; (P=0.014)	TC =5.9; ERC =0;	NA	5-year OS: TC =79.6%; ERC =90.3%
												5-year DFS: TC =95.7%; ERC =92.4%
Chong *et al.* 2016, 1995–2013, n=1,066	Korea	TCC	PSM case-control	TC =127 *vs.* EC =938 (ERC =750 + LC =189)	Open (n=649); laparoscopy (n=417)	I =180; II =493; III =393	NA	NA	TC =19.6; EC =26.7;	TC =0.8; EC =3.2;	TC =0; EC =0;	5-year OS: TC =84.3%; EC =86.6%
												5-year DFS: TC =89.8%; EC =85%
Guan *et al.* 2017, 2004–2013, n= 10,344	China	TCC	PSM case-control	TC =4,431 *vs.* EC =5,913	Open	I=2210; II=4575; III=3559	EC =80.3; TC =62	NA	NA	NA	NA	5-year CSS: TC =67.5%; EC =66.5%

Table 1 (*continued*)

Table 1 (*continued*)

1st author and year, study period, number of patients	Country	Surgical indications	Study design	Surgical procedure (n)	Surgical approach	cTNM[a] (n)	>12 LN harvested (%)	R0 resections (%)	Complication rate (%)	Anastomotic leakage (%)	Mortality (%)	Survival outcomes
Studies on different procedures for splenic flexure colon cancer resection												
de'Angelis *et al.* 2016, 2000–2013, n=68	France	SFC	Matched case-control	ERC =27 *vs.* LC =27	Laparoscopy	0=2; I=6; II=12; III=34	ERC =91.6; LC =82.5;	100	ERC =22.2; LC =29.6;	ERC =3.7; LC =0;	ERC =0; LC =0;	5-year OS: ERC =72.8% LC =75.1% 5-year DFS: ERC =67.1%; LC =67.7%
Gravante *et al.* 2016, 2003–2012, n=98	UK	SFC	Case-control	ERC =64 *vs.* LC =34	Open =85; laparoscopy =13	NA	ERC =78.1; LC =58.8; (P=0.044)	ERC =98.4; LC =100	ERC =21.9; LC =14.7;	ERC =6.3; LC =5.9	ERC =1.6; LC =2.9;	Mean OS: ERC =50.4 months; LC =51.8 months
Odermatt *et al.* 2014, 1996–2011, n=68	UK	SFC	Case-control study	ERC =38 *vs.* LC =30	Open =58; laparoscopy =10	I =9; II =27; III =32	ERC =44.7; LC =53.3	ERC =100; LC =90	NA	ERC =10.5; LC =3.3	ERC =7.9; LC =3.3;	5-year OS: ERC =49%; LC =60% 5-year DFS: ERC =41%; LC =54%
Nakashima *et al.* 2011, 2003–2010, n=55	Japan	SFC	Case-control study	ERC =1; LC =54	Open =33 *vs.* laparoscopy =22	NA	NA	Open =91; LAP =100	Open =36; LAP =6 (P=0.0095)	Open =0; LAP =0	Open =0; LAP =0;	NA
Manceau *et al.* 2018, 2000–2016, n=65	France	SFC	Case Series	STC =65	Open	I =7; II =39; III =9; IV =10	94	100	NA	NA	NA	NA
Studies on different approaches for TCC resection												
Ozben *et al.* 2018, 2014–2017, n=29	Turkey	TCC	Case series	ERC =12; ELC =10; STC =6; total colectomy =1	Robotic	NA	NA	100	24.1	0.0	0.0	NA
de'Angelis *et al.* 2015, 2013–2014, n=44	France	TCC	Matched case-control	LAP-TC =22 *vs.* Robotic-TC =22	LAP robotic	I =2; II =36; III =6	LTC =95.5; RTC =90.9	100	LAP-TC =9.1; Rob-TC =13.6	LAP-TC =4.5; Rob-TC =4.5	0.0	NA

[a], tumors classifications according to the AJCC TNM system. TCC, transverse colon cancer; LN, lymph node; PSM, propensity score matched; TC, transverse colectomy; EC, extended colectomy; ERC, extended right colectomy; ELC, extended left colectomy; OS, overall survival; DFS, disease-free survival; NA, not available or nor applicable; SFC, splenic flexure cancer; LC, left colectomy; LAP, laparoscopic; STC, subtotal colectomy; AJCC, American Joint Committee on Cancer.

Resection of Splenic Flexure Colon Cancer

Review Article

What is the best surgical option for the resection of transverse colon cancer?

Aleix Martínez-Pérez[1#], Elisa Reitano[2#], Paschalis Gavriilidis[3], Pietro Genova[2], Paolo Moroni[2], Riccardo Memeo[4], Francesco Brunetti[2], Nicola de'Angelis[2]

The only systematic review and meta-analysis conducted so far considered 12 retrospective studies, including 569 SFC patients, and compared LC vs. ERC; pooled data analysis showed no significant procedure-related differences for the oncologic quality of the resection and postoperative outcomes.

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Review Article

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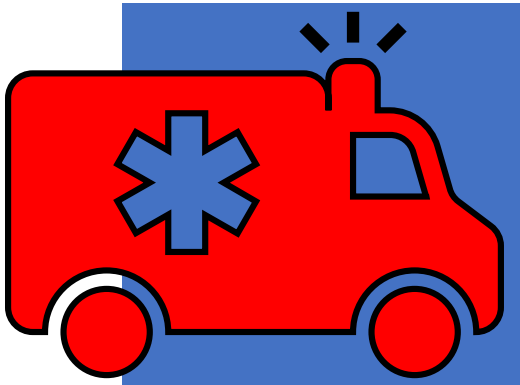
The authors stated that further studied are needed to elucidate which is the optimal extent of SFC surgical resection. Indeed, some authors argue for a more aggressive treatment in case of SFC, such as STC, to achieve a more accurate lymph node resection.

Manceau et al. reported data on elective STC with ileo-sigmoid anastomosis in the treatment of transverse colon and SFCs, describing the procedure as a safe and associated with a good quality of life.

Review Article

What is the best surgical option for the resection of transverse colon cancer?

Aleix Martínez-Pérez[1#], Elisa Reitano[2#], Paschalis Gavriilidis[3], Pietro Genova[2], Paolo Moroni[2], Riccardo Memeo[4], Francesco Brunetti[2], Nicola de'Angelis[2]



Resection in Emergency Settings

The management of the TCC in emergency depends on its exact localization, on the patient's general conditions, and on the surgeon's experience. In general, emergencies for TCC require an extensive resection that is more likely performed by open surgery. In case of colonic occlusion associated to TCC, with or without perforation, a right colectomy or ERC the most performed procedures. The choice of a primary anastomosis largely depends on the patient's clinical status.

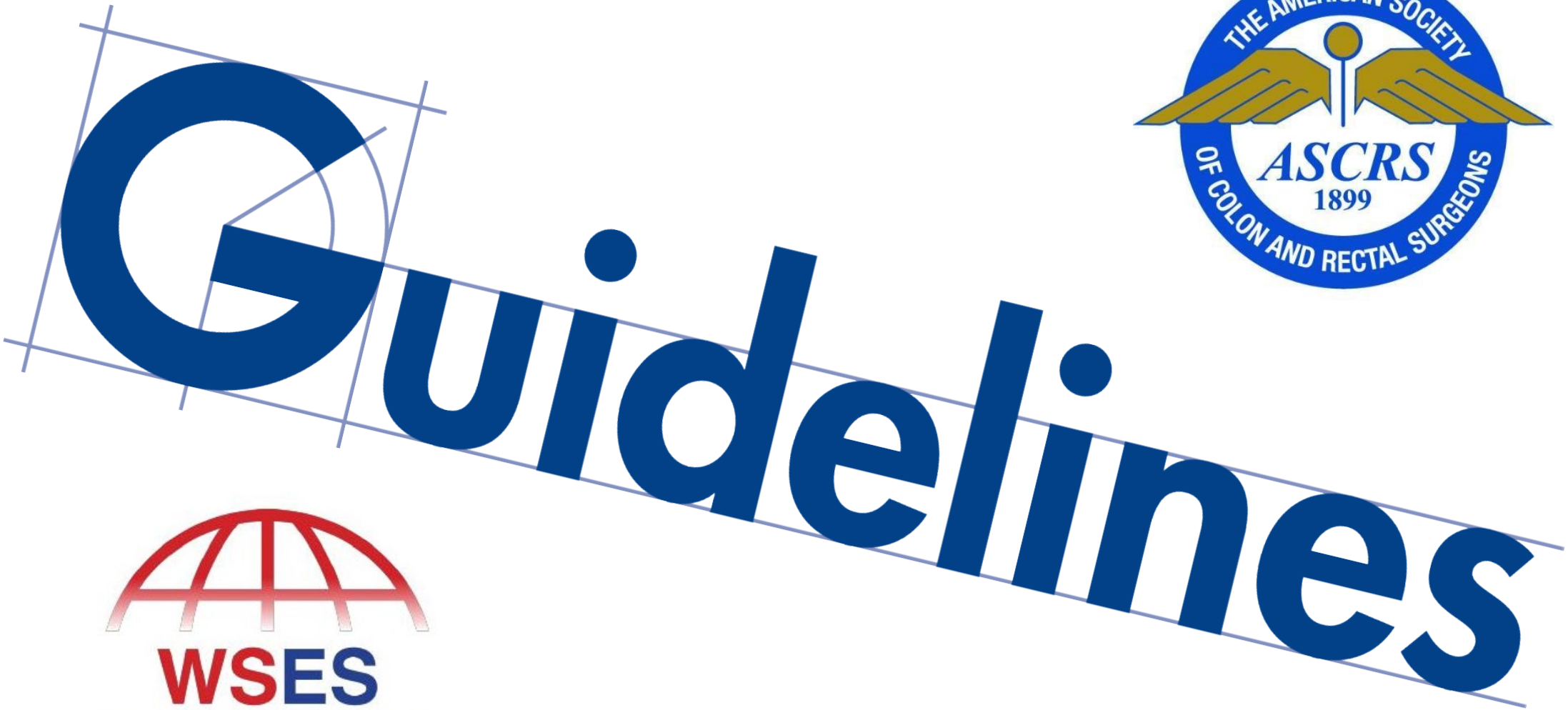
Review Article

What is the best surgical option for the resection of transverse colon cancer?

Aleix Martínez-Pérez[1#], Elisa Reitano[2#], Paschalis Gavriilidis[3], Pietro Genova[2], Paolo Moroni[2], Riccardo Memeo[4], Francesco Brunetti[2], Nicola de'Angelis[2]

Conclusion

Current literature on TCC resection is still limited. Less aggressive surgical procedures, such as TC, may to be preferred for early-stage cancers, whereas ERC and STC should be considered for advanced stages or at emergency presentations. Whether the oncologic principle of surgery is met, no procedure-related differences are reported in the available retrospective, mainly small-sized, studies


Guidelines

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CLINICAL PRACTICE GUIDELINES

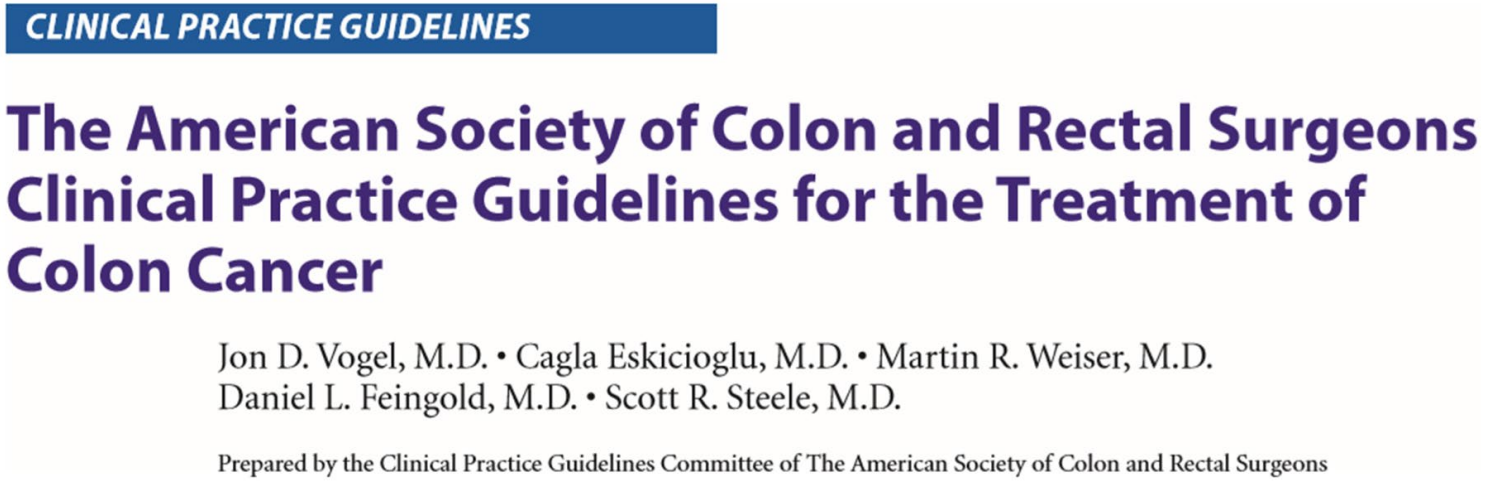
The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Treatment of Colon Cancer

Jon D. Vogel, M.D. • Cagla Eskicioglu, M.D. • Martin R. Weiser, M.D.
Daniel L. Feingold, M.D. • Scott R. Steele, M.D.

Prepared by the Clinical Practice Guidelines Committee of The American Society of Colon and Rectal Surgeons

Dis Colon Rectum 2017; 60: 999–1017
DOI: 10.1097/DCR.0000000000000926

Methodology



CLINICAL PRACTICE GUIDELINES

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In brief, a total of 16,925 unique journal titles were identified. Initial review of the search results resulted in exclusion of 11,204 titles based on either irrelevance of the title or the journal. Secondary review resulted in exclusion of 5,480 titles considered irrelevant or outdated. A tertiary review of the remaining 241 titles included assessment of the abstract or full-length article. This led to exclusion of an additional 30 titles for which similar but higher-level evidence was available. The remaining 211 titles were considered for grading of the recommendations.

CLINICAL PRACTICE GUIDELINES

The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Treatment of Colon Cancer

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Recommendatio

TABLE 1. The GRADE system: grading recommendations

	Description	*Benefit vs risk and burdens*	*Methodological quality of supporting evidence*	*Implications*
1A	Strong recommendation, High-quality evidence	Benefits clearly outweigh risk and burdens or vice versa	RCTs without important limitations or overwhelming evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1B	Strong recommendation, Moderate-quality evidence	Benefits clearly outweigh risk and burdens or vice versa	RCTs with important limitations (inconsistent results, methodological flaws, indirect, or imprecise) or exceptionally strong evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1C	Strong recommendation, Low- or very-low-quality evidence	Benefits clearly outweigh risk and burdens or vice versa	Observational studies or case series	Strong recommendation but may change when higher-quality evidence becomes available
2A	Weak recommendation, High-quality evidence	Benefits closely balanced with risks and burdens	RCTs without important limitations or overwhelming evidence from observational studies	Weak recommendation, best action may differ depending on circumstances or patients' or societal values
2B	Weak recommendations, Moderate-quality evidence	Benefits closely balanced with risks and burdens	RCTs with important limitations (inconsistent results, methodological flaws, indirect, or imprecise) or exceptionally strong evidence from observational studies	Weak recommendation, best action may differ depending on circumstances or patients' or societal values
2C	Weak recommendation, Low- or very-low-quality evidence	Uncertainty in the estimates of benefits, risks, and burden; benefits, risk and burden may be closely balanced	Observational studies or case series	Very weak recommendations, other alternatives may be equally reasonable

GRADE = Grades of Recommendation, Assessment, Development, and Evaluation; RCT = randomized controlled trial.

Adapted from Guyatt G, Gutermen D, Baumann MH, et al. Grading strength of recommendations and quality of evidence in clinical guidelines: report from an American College of Chest Physicians Task Force. *Chest*. 2006;129:174–181.[6] Used with permission.

Staging Of Colon Cancer

TABLE 2. TNM classification and AJCC 8th edition Staging of Colon Cancer

T Category	Definition of primary tumor (T) T Criteria
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma in situ, intramucosal adenocarcinoma (involvement of lamina propria, no extension through the muscularis mucosae)
T1	Tumor invades submucosa
T2	Tumor invades muscularis propria
T3	Tumor invades through the muscularis propria into the pericolonic tissue
T4a	Tumor penetrates to the surface of the visceral peritoneum (serosa)
T4b	Tumor invades and/or is adherent to other organs or structures
	Regional lymph node staging (N)
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	1 to 3 regional lymph nodes are positive (tumor in lymph nodes measuring ≥0.2mm), or any number of tumor deposits are present and all identifiable lymph nodes are negative
N1a	1 regional lymph node is positive
N1b	2–3 regional lymph nodes are positive
N1c	No regional lymph nodes are positive, but there are tumor deposits in subserosa, mesentery, or nonperitonealized pericolic or perirectal tissues without regional nodal metastases
N2a	4 or more regional lymph nodes are positive
N2b	7 or more regional lymph nodes are positive
	Distant metastasis staging (M)
M0	No distant metastasis
M1a	Metastasis confined to 1 organ or site is identified without peritoneal metastasis
M1b	Metastasis confined to 2 or more organs or sites is identified without peritoneal metastasis
M1c	Metastasis to the peritoneal surface is identified alone or with other site or organ metastases

Surgical treatment of the primary tumor

1. A thorough surgical exploration should be performed and the findings documented in the operative report. Grade of Recommendation: Strong recommendation based on low- or very-low-quality evidence, 1C.
2. The extent of resection of the colon should correspond to the lymphovascular drainage of the site of the colon cancer. Grade of Recommendation: Strong recommendation based on high-quality evidence, 1B.
3. Routine performance of extended lymphadenectomy is not recommended. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B.

Surgical treatment of the primary tumor

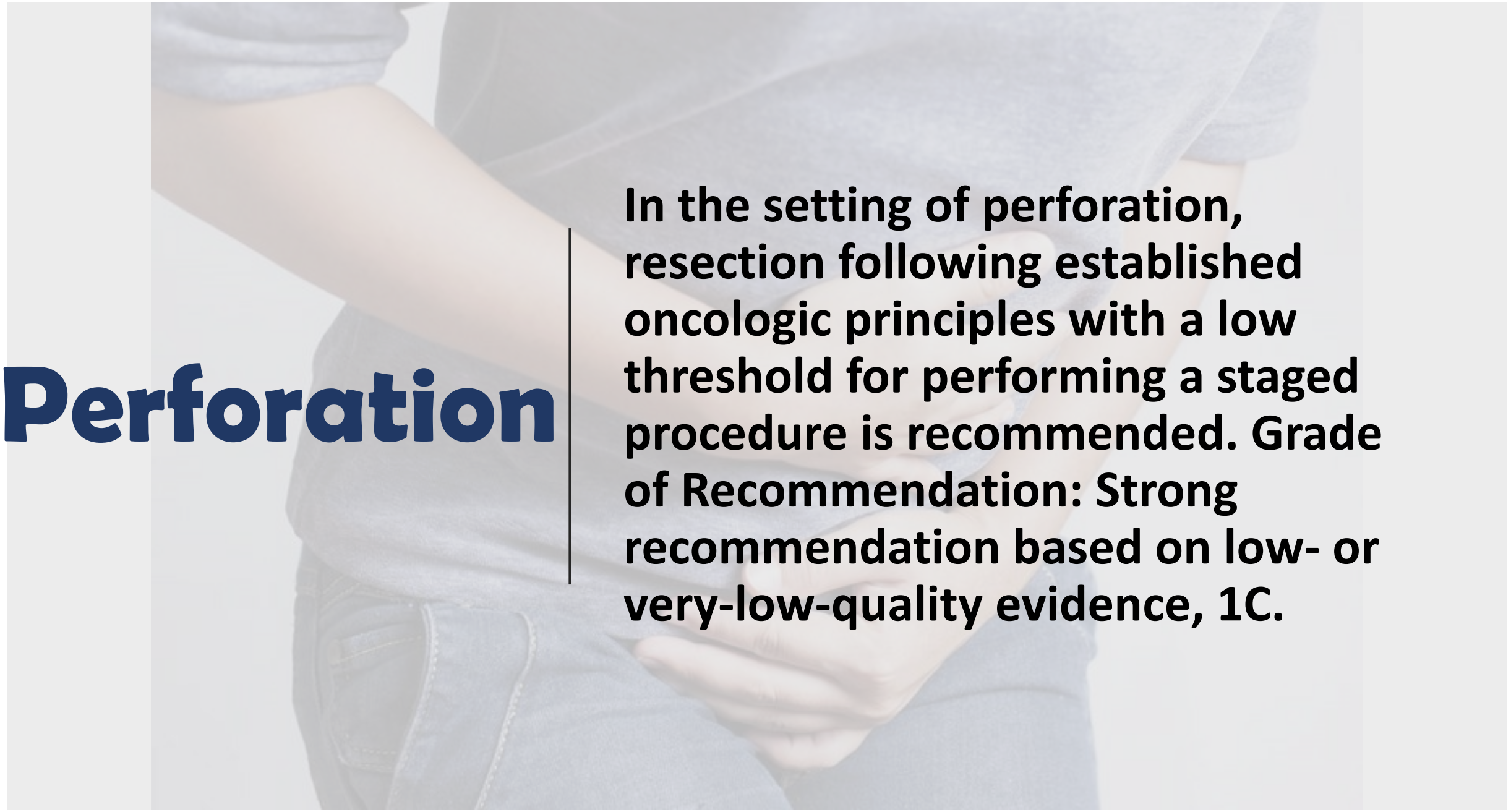
4. Resection of adherent or grossly involved adjacent organs should be en bloc. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B.
5. Synchronous colon cancers may be treated by 2 separate resections or subtotal colectomy. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B.
6. Sentinel lymph node mapping for colon cancer does not replace standard lymphadenectomy. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B.

Tumor Related Emergencies

1. Bleeding .
2. Perforation.
3. Obstruction.

Bleeding

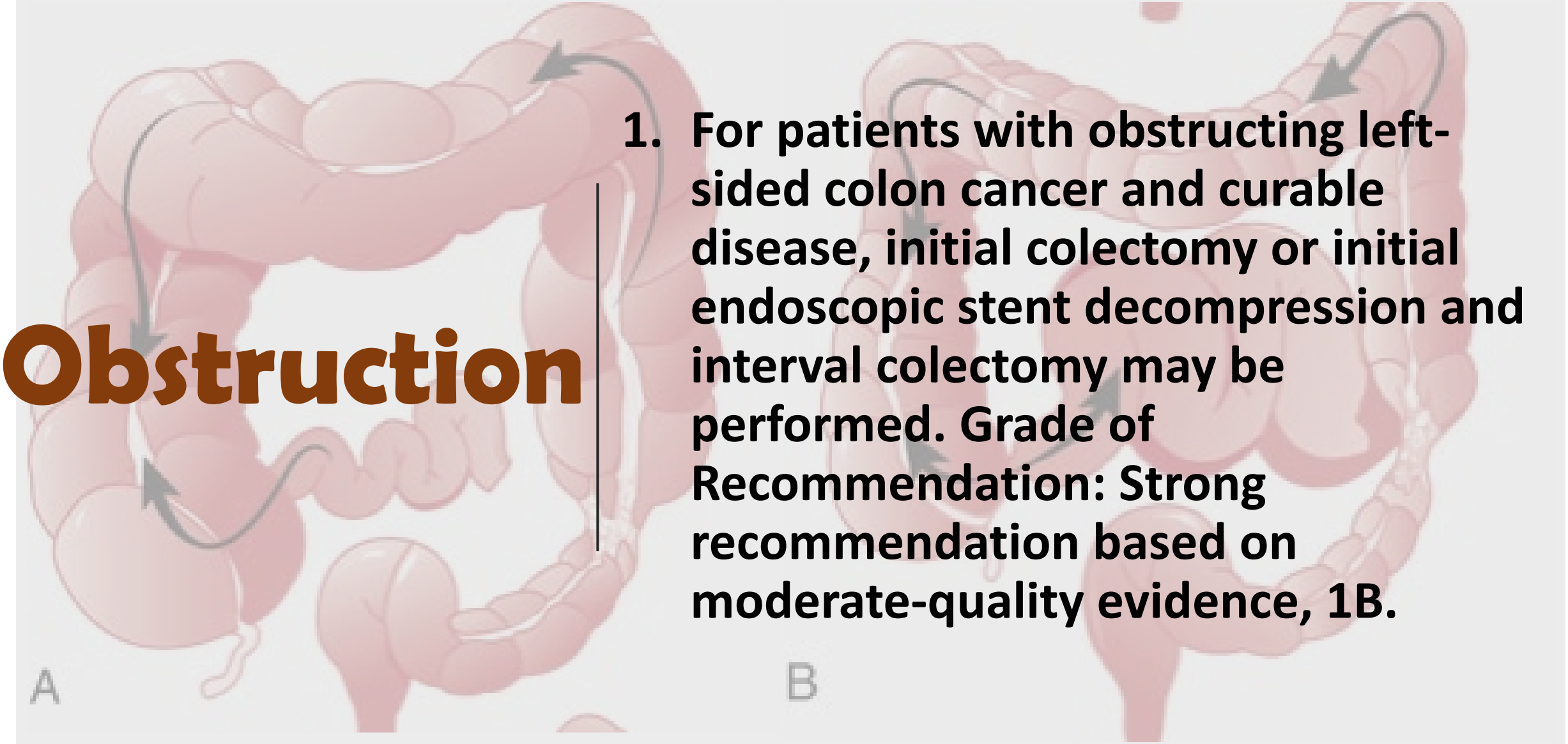
The initial management includes attempts to control the bleeding with nonsurgical approaches. In general, when surgery is required, an oncologic resection should be performed. Grade of Recommendation: Strong recommendation based on low- or very-low-quality evidence, 1C.



Perforation

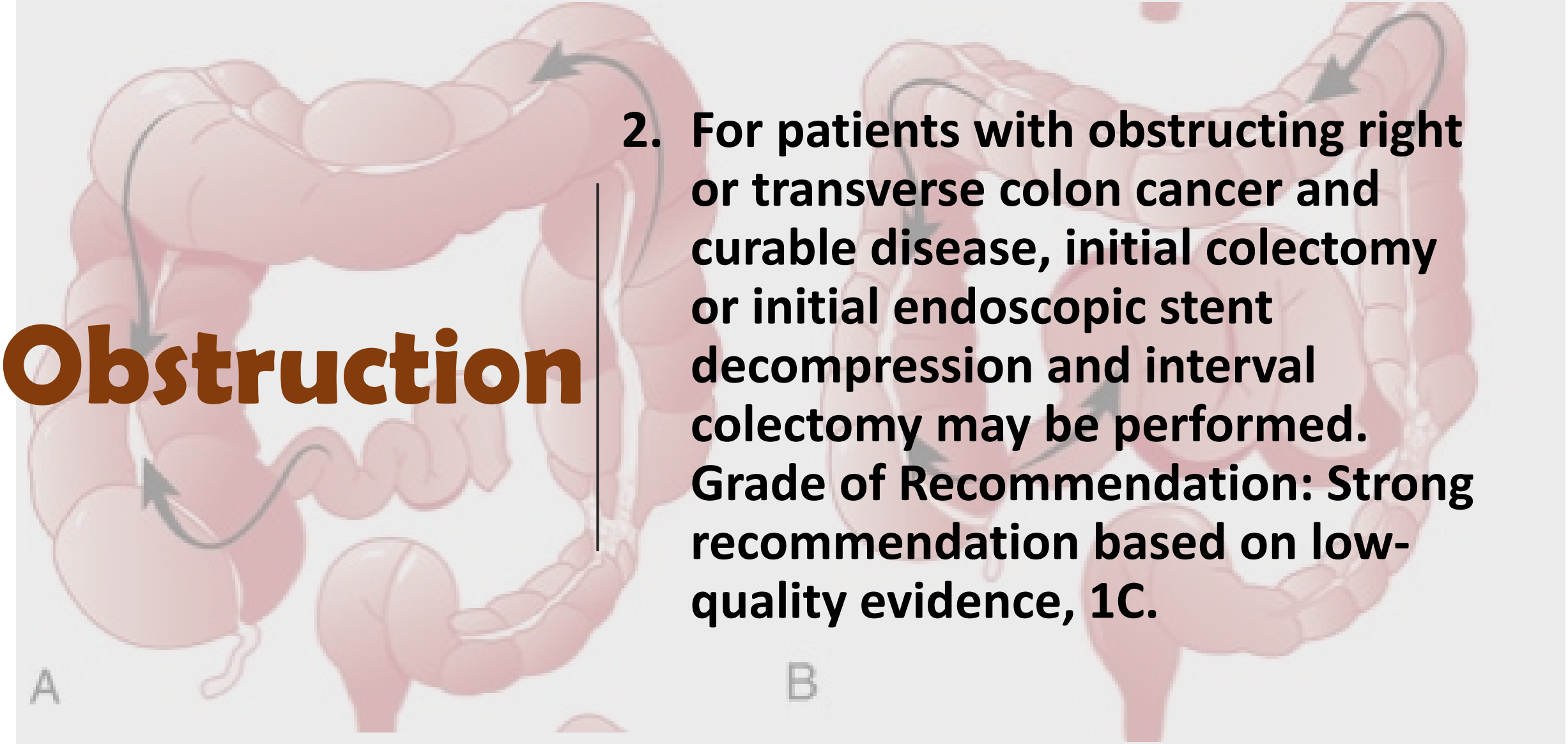
In the setting of perforation, resection following established oncologic principles with a low threshold for performing a staged procedure is recommended. Grade of Recommendation: Strong recommendation based on low- or very-low-quality evidence, 1C.

Obstruction



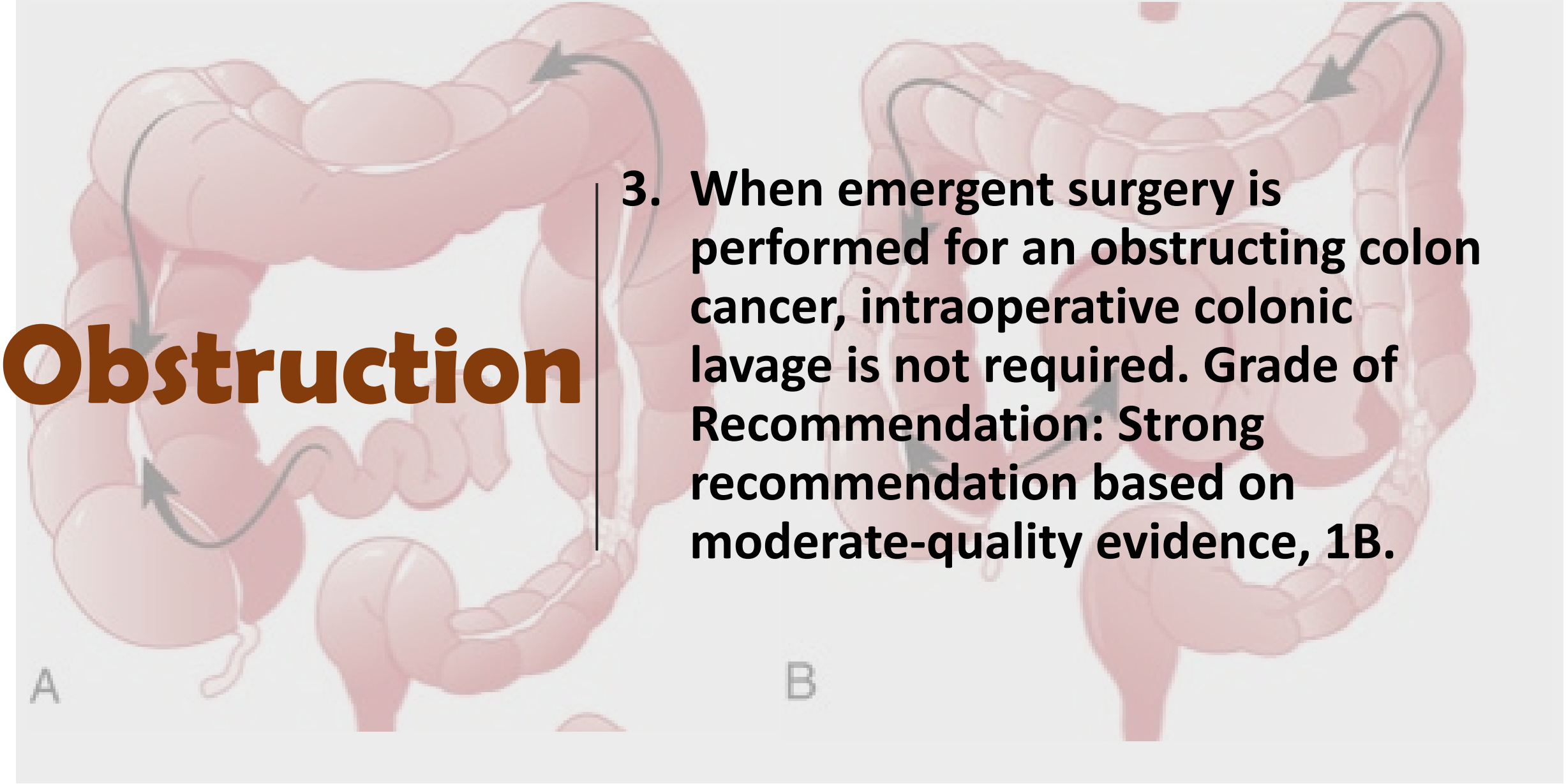
1. For patients with obstructing left-sided colon cancer and curable disease, initial colectomy or initial endoscopic stent decompression and interval colectomy may be performed. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B.

Obstruction



2. For patients with obstructing right or transverse colon cancer and curable disease, initial colectomy or initial endoscopic stent decompression and interval colectomy may be performed. Grade of Recommendation: Strong recommendation based on low-quality evidence, 1C.

Obstruction



3. When emergent surgery is performed for an obstructing colon cancer, intraoperative colonic lavage is not required. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B.

Pisano *et al. World Journal of Emergency Surgery* (2018) 13:36
https://doi.org/10.1186/s13017-018-0192-3

World Journal of Emergency Surgery

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2017 WSES guidelines on colon and rectal cancer emergencies: obstruction and perforation

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In absence of caecal tears/perforation, evidence of bowel ischemia or synchronous right colonic cancers, total colectomy should not be preferred to segmental colectomy, since it does not reduce morbidity and mortality and is associated with higher rates of impaired bowel function. (2B).

Pisano *et al. World Journal of Emergency Surgery* (2018) 13:36
https://doi.org/10.1186/s13017-018-0192-3

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Total colectomy with ileo-rectal anastomosis is an alternative procedure to avoid a stoma and to overcome the problems related to a distended unprepared colon. This operation has an absolute indication when obstruction has determined a right colonic ischemia, caecal tears or perforation, or when synchronous proximal malignant tumors are present.

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Major disadvantages of Total Colectomy:

1. **A technically challenging procedure.**
2. **Prolonged operative time.**
3. **Poor functional results, with many patients complaining of diarrhoea and possibly developing electrolyte disturbances.**

Pisano *et al. World Journal of Emergency Surgery* (2018) 13:36
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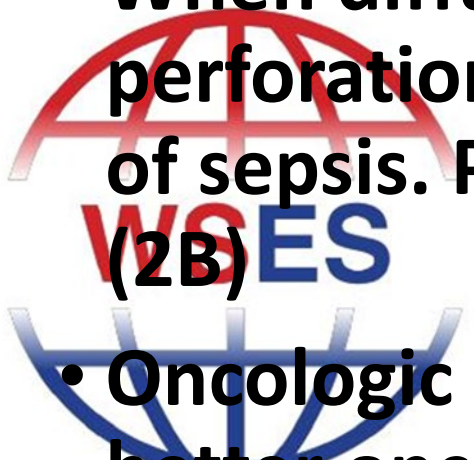
A single RCT, the SCOTIA (Subtotal Colectomy versus On-Table Irrigation and Anastomosis) trial was published [1995]; 91 patients from 12 different centres were randomised to total/subtotal colectomy (47 patients) versus segmental colectomy with on-table lavage (44 patients). The authors found no differences in terms of morbidity and mortality, but significantly worse functional results after Total Colectomy.



Pisano et al. World Journal of Emergency Surgery (2018) 13:36

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2017 WSES guidelines on colon and rectal cancer emergencies: obstruction and perforation

- **When diffuse peritonitis occurs in cancer-related colon perforation, the priority is the control of the sepsis source of sepsis. Prompt combined medical treatment is advised. (2B)**
- **Oncologic resection should be performed in order to obtain better oncologic outcomes.**

- **Perforation at the tumor site: formal resection with or without anastomosis, with or without stoma.**
- **Perforation proximal to tumor site (diastatic): simultaneous tumor resection and management of proximal perforation is indicated. Depending on the colonic wall conditions, a subtotal colectomy may be required. The surgeon should consider that only a small proportion of patients undergo reversal of terminal stoma.**

Pisano *et al. World Journal of Emergency Surgery* (2018) 13:36
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2017 WSES guidelines on colon and rectal cancer emergencies: obstruction and perforation

Conclusion

- Complete mesocolic excision is the way to achieve an optimal lymph node yield. Hence, the surgical strategy in terms of extension of colonic resection seems not to have an influence on the final stage classification and the survival.

Conclusion

- As in all colon cancer surgery a correct CME procedure, including a sharp dissection along embryological planes and achieving a specimen with intact mesocolic fasciae which envelope the lymphatic drainage of the tumor is mandatory.

Conclusion

- The R0 margin and a lymphoadenectomy with at least 12 harvested lymph nodes together with the surgical specimen, are the foundation of a correct surgical procedure, independently from the extension of the resection.


thank you for attention
any
questions ??????