



**My Approach to a Laparoscopic D3 Lymphadenectomy
for Right Sided Colon Cancer
- Indications, Technique & Pitfalls -**

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COLOSOS 2024, Toronto, 10/26-27,2024

A low-angle photograph of a modern, multi-story brick and glass building, likely a hospital or university building. The building has a grid-like facade with large windows. The sky is blue with some light clouds. The text is overlaid on a semi-transparent horizontal band across the middle of the image.

COI Disclosure

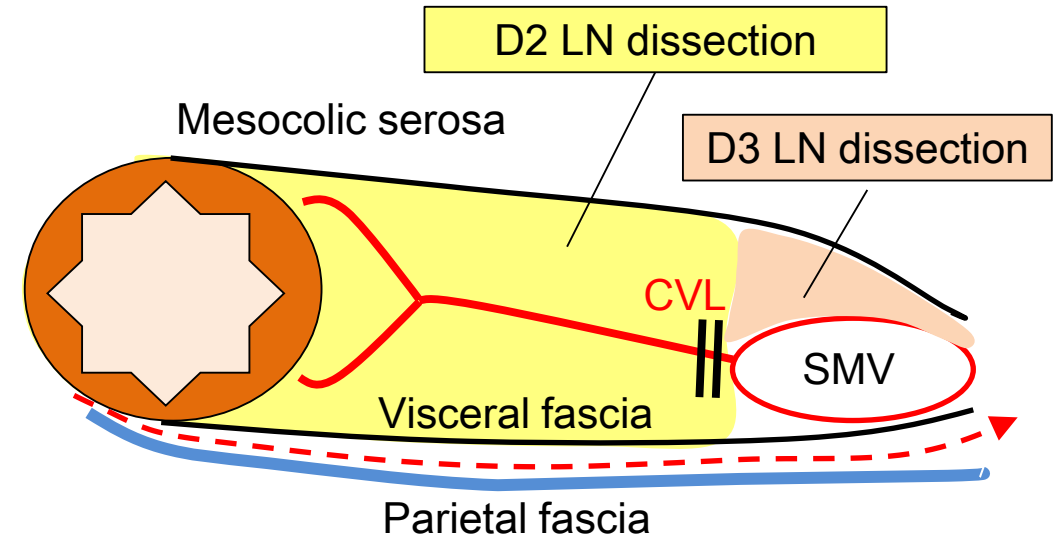
Medtronic – Lecture fee (completed)

Johnson and Johnson – Consultation fee (completed)

THE UNIVERSITY OF TEXAS
MD Anderson
Cancer Center

Oncologic Principles of Colon Cancer Surgery

- Embryonic anatomical plane dissection (CME)
- Vascular-oriented LN dissection (D3 / CVL – central radicality)
- Enblock specimen with intact margin (radial margin)

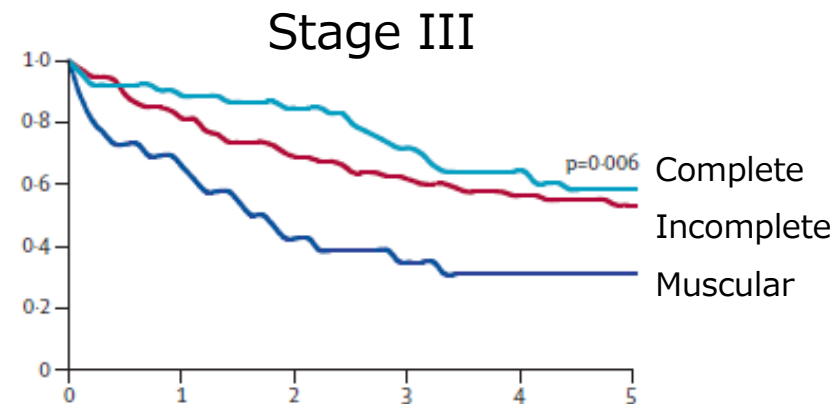
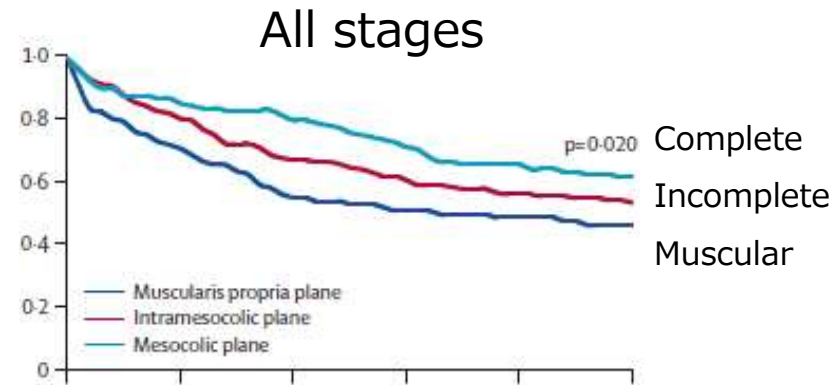
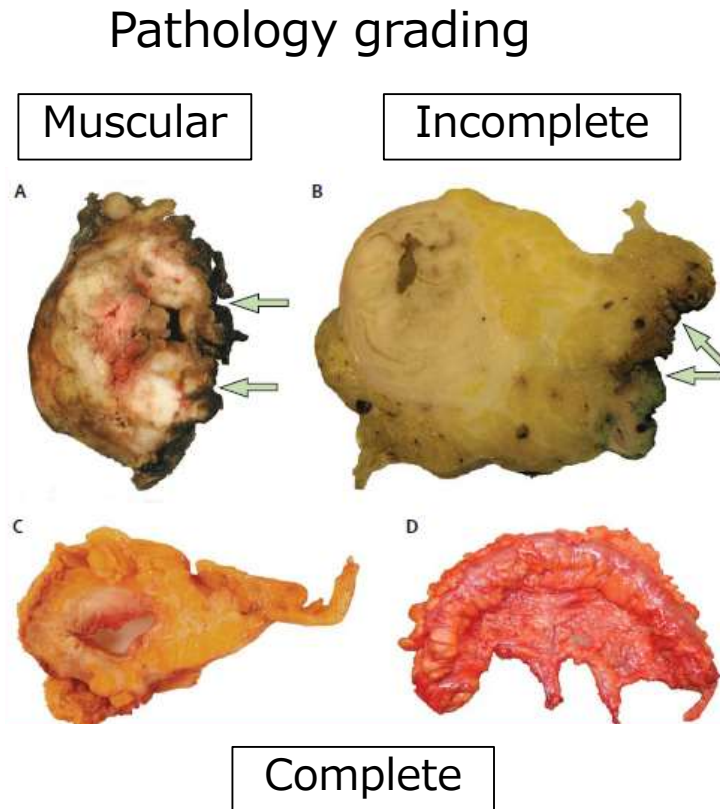


Quality of CME impacts outcomes

Pathology grading of colon cancer surgical resection and its association with survival: a retrospective observational study

Nicholas P West, Eva J A Morris, Olorunda Rotimi, Alison Cairns, Paul J Finan, Philip Quirke

- 1997-2002, Leeds
- Standard colectomy
- Observational study (n=399)

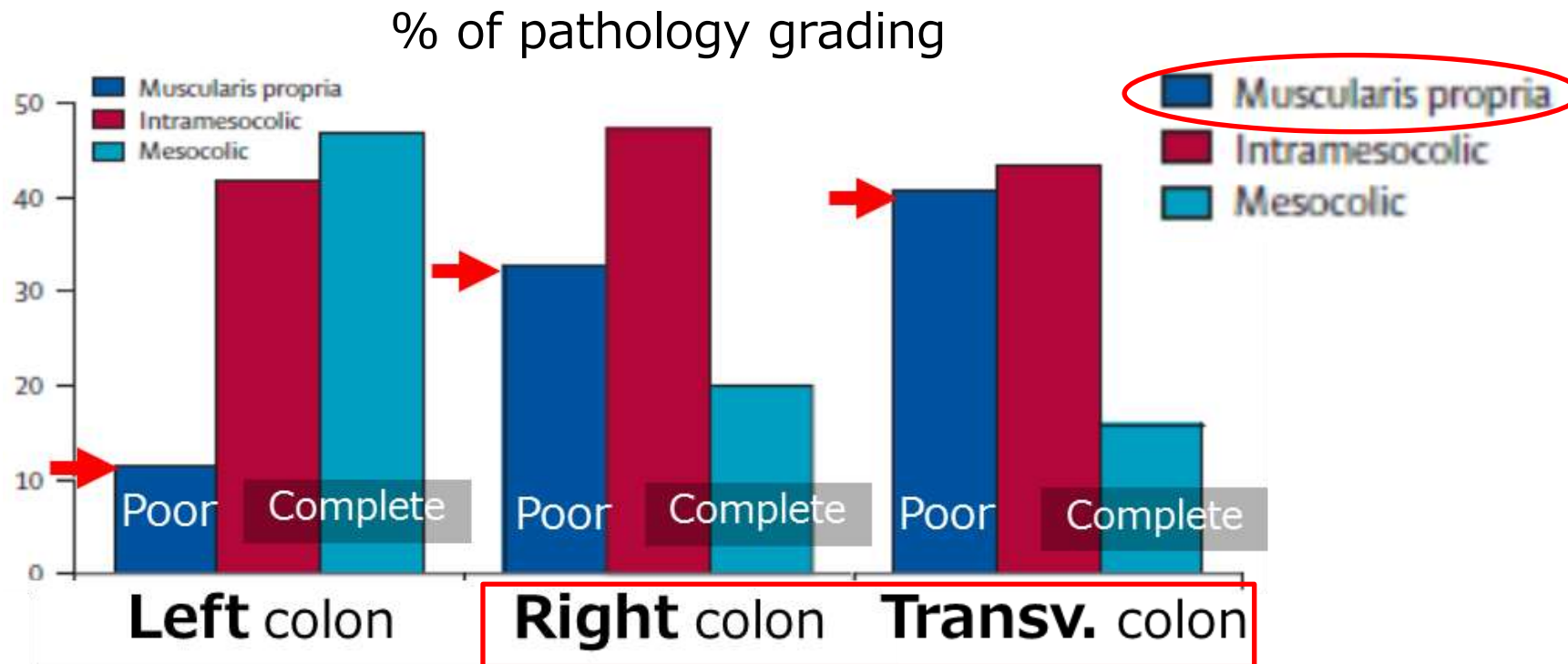


Poorer CME Quality in Right Colectomy

Pathology grading of colon cancer surgical resection and its association with survival: a retrospective observational study

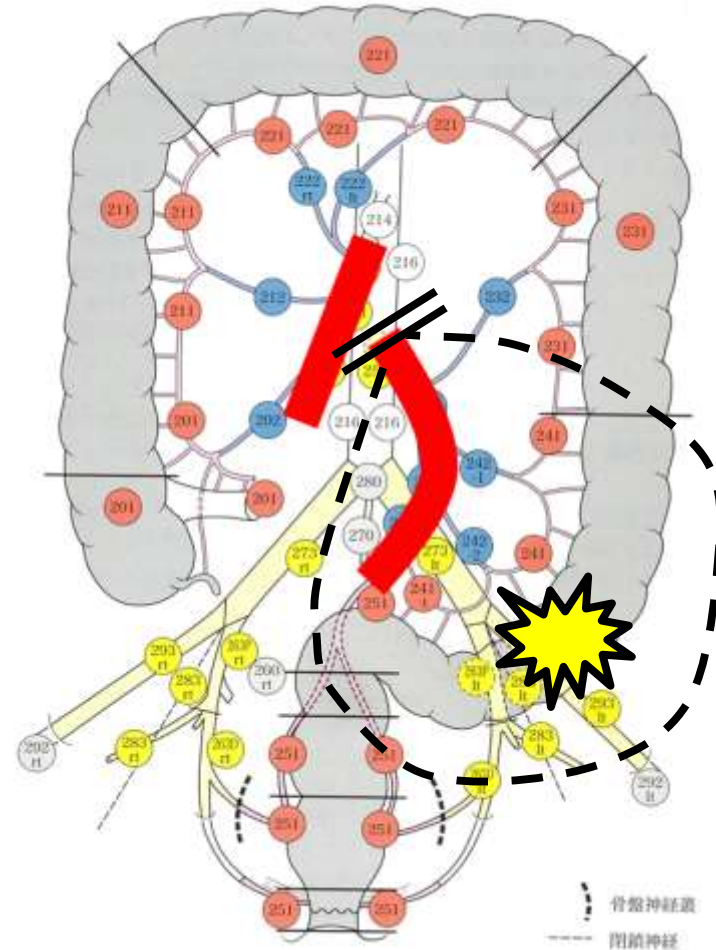
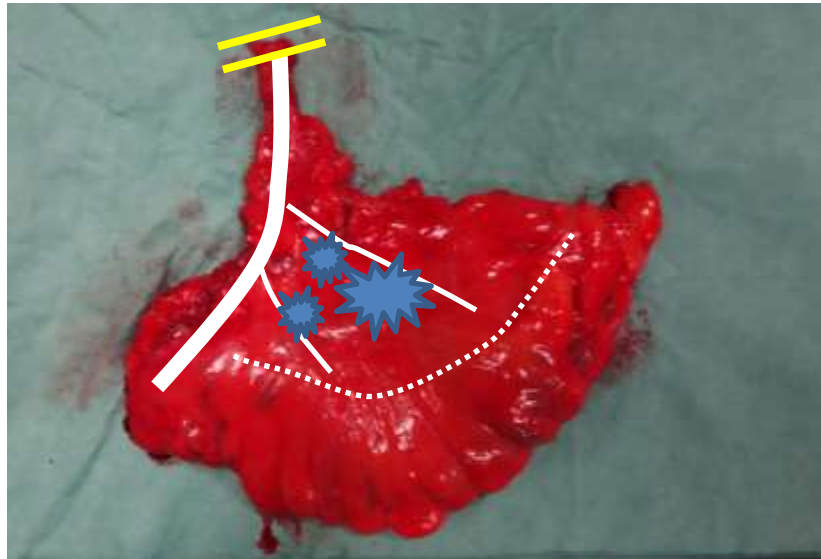
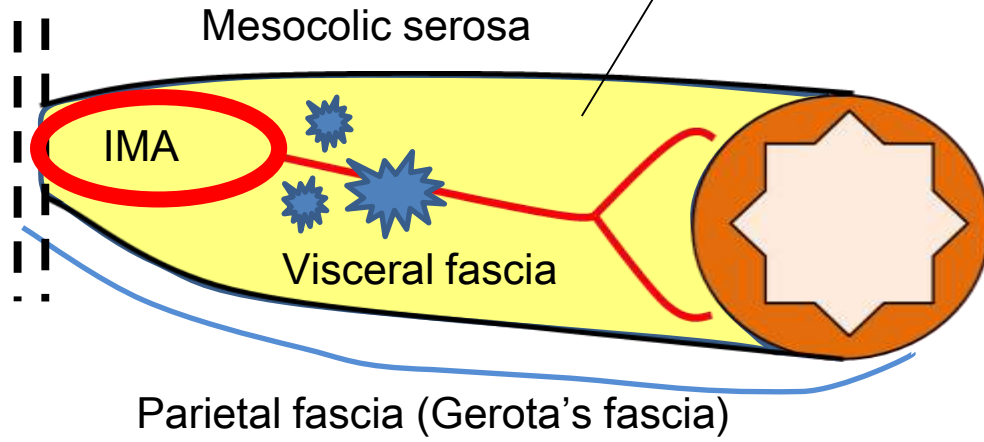
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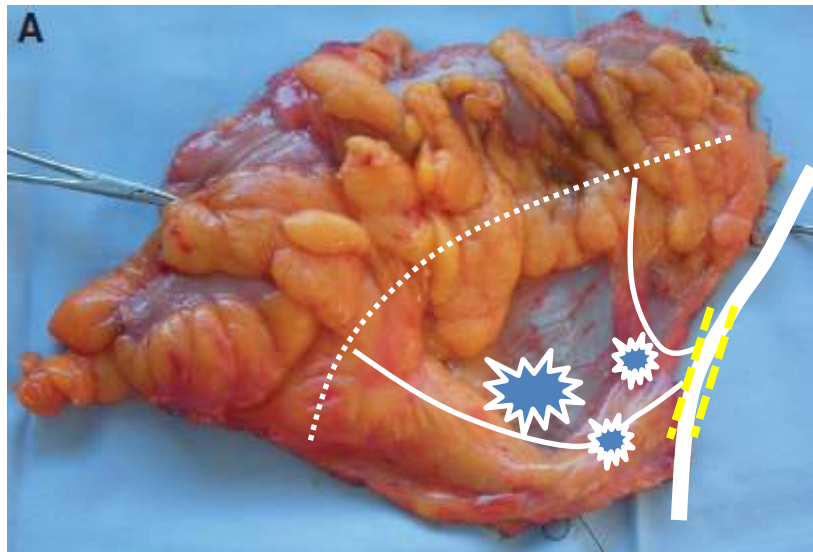
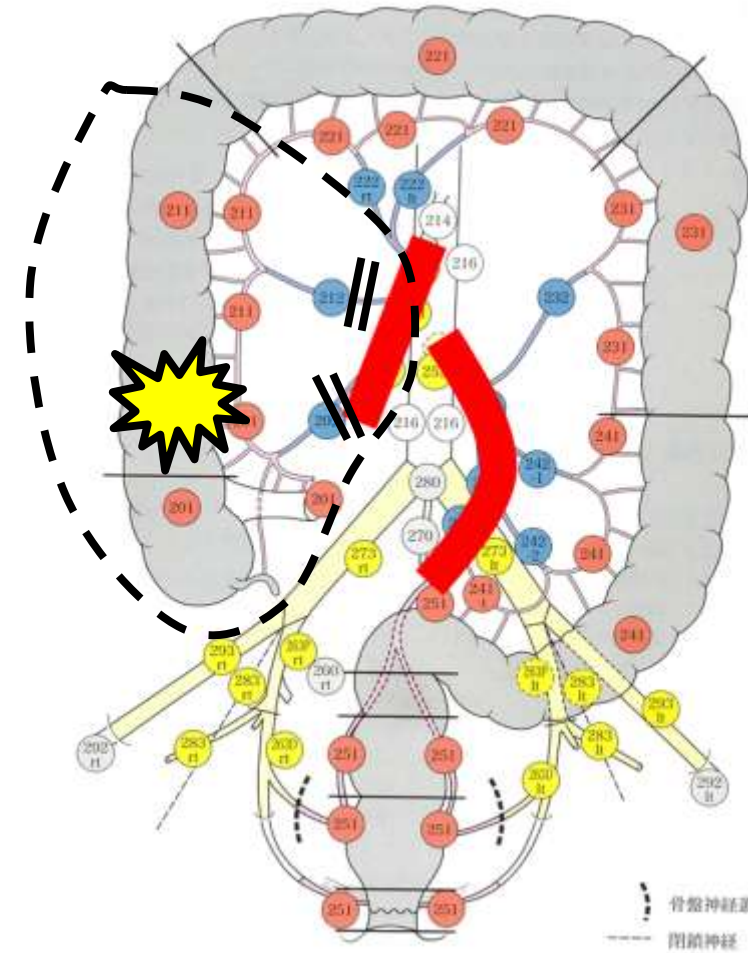
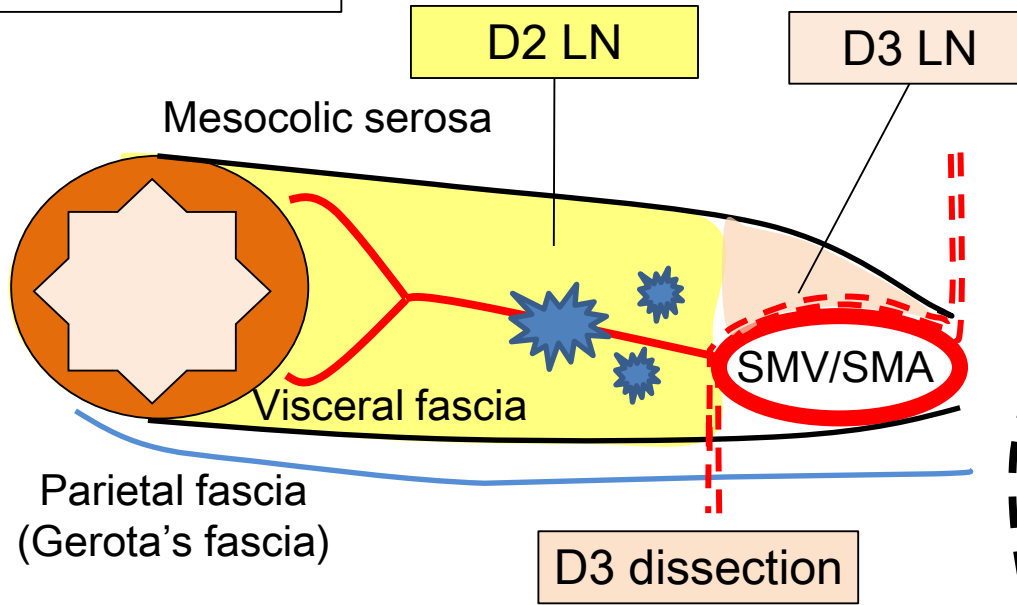


Left colon

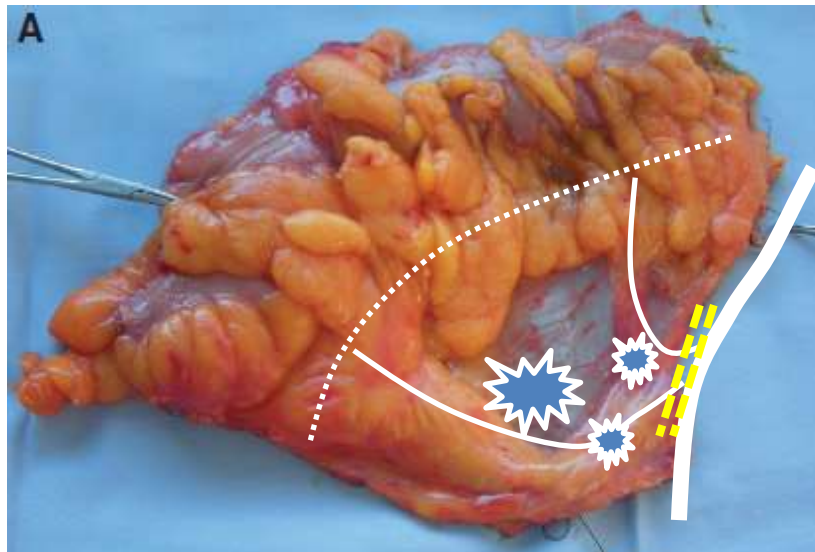
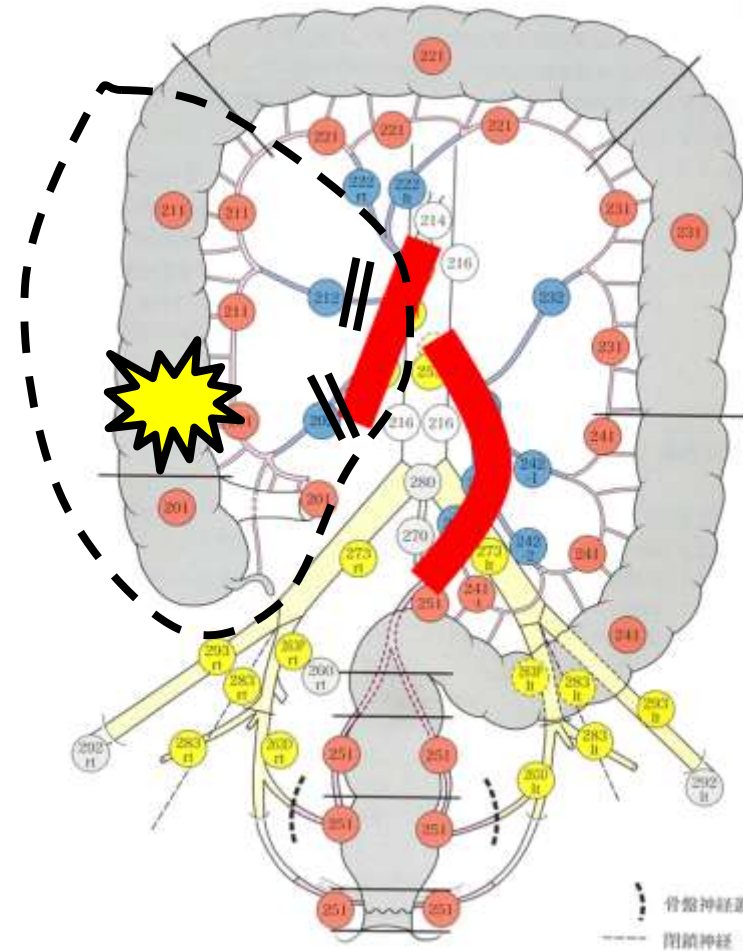
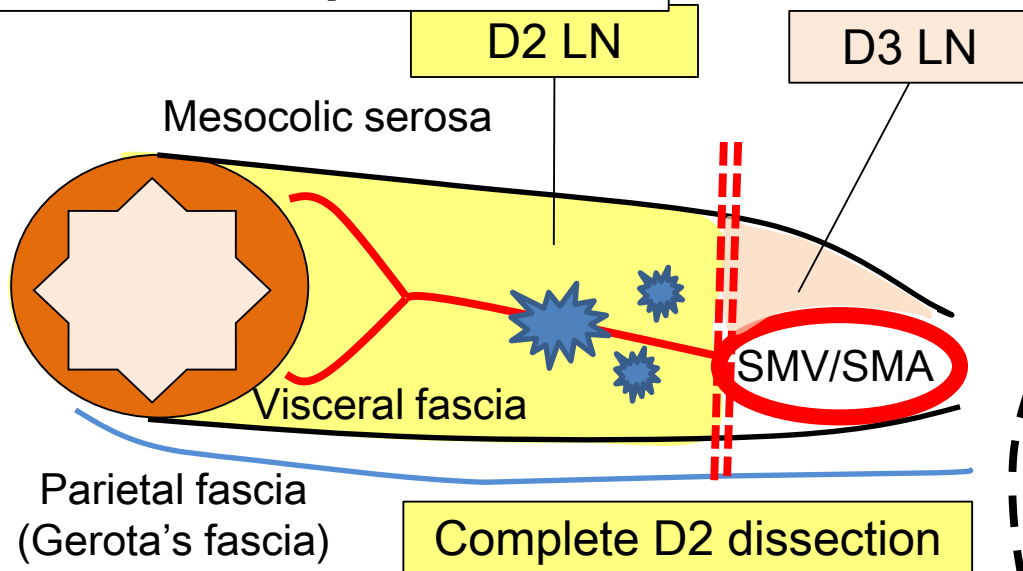
Enblock D3 dissection



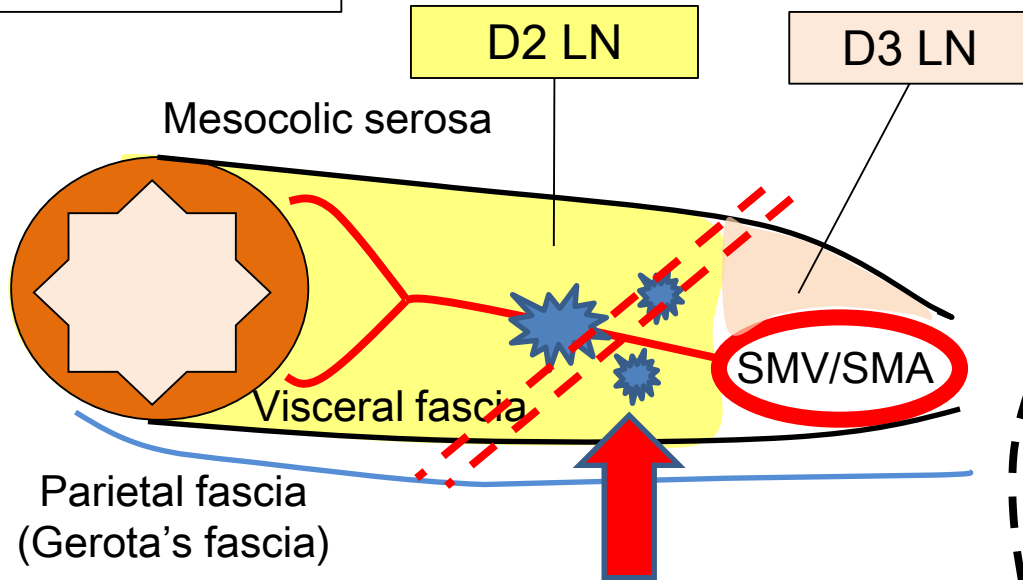
Right colon D3



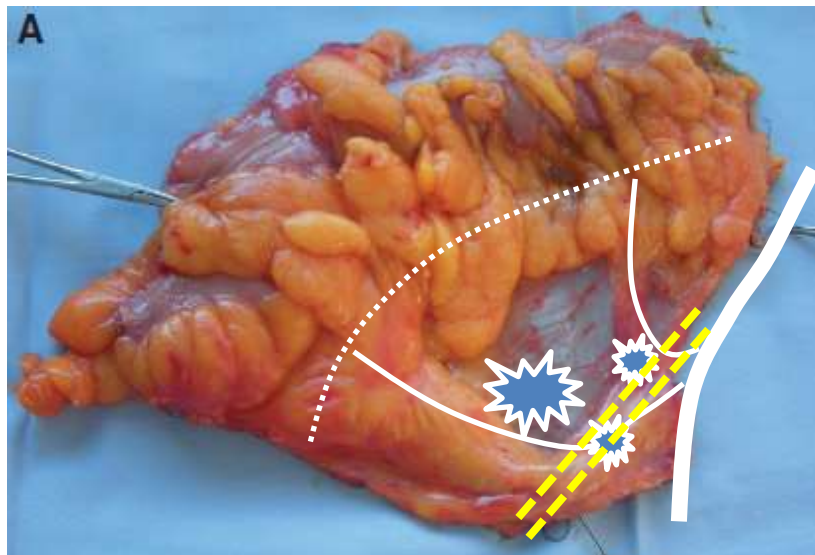
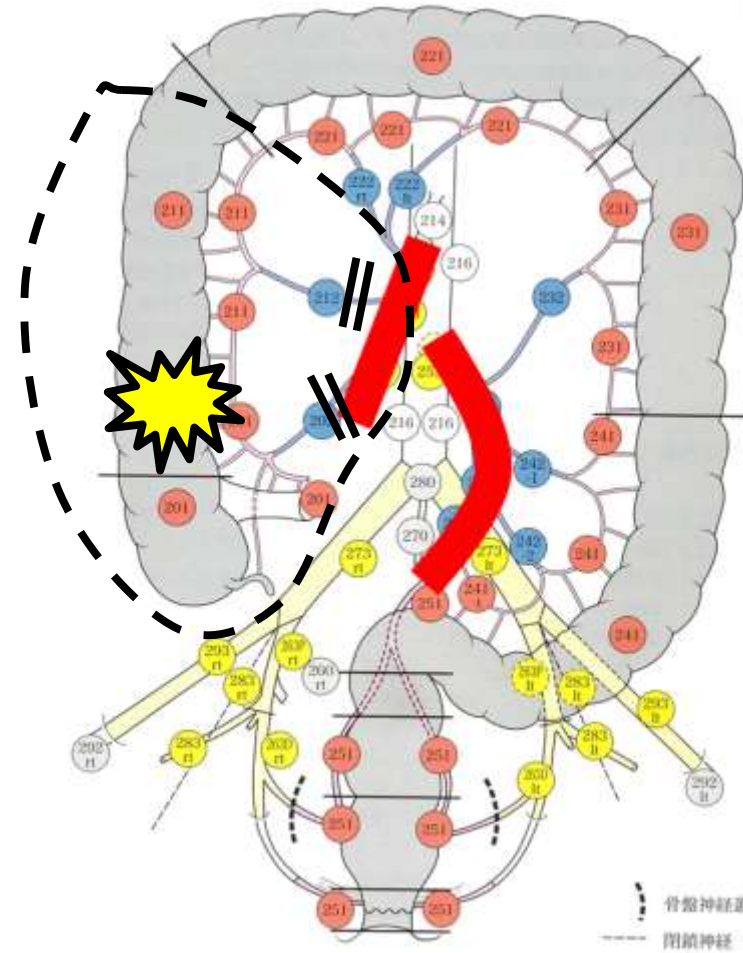
Right colon Complete D2



Right colon D<2



Impaired mesocolic fascia!

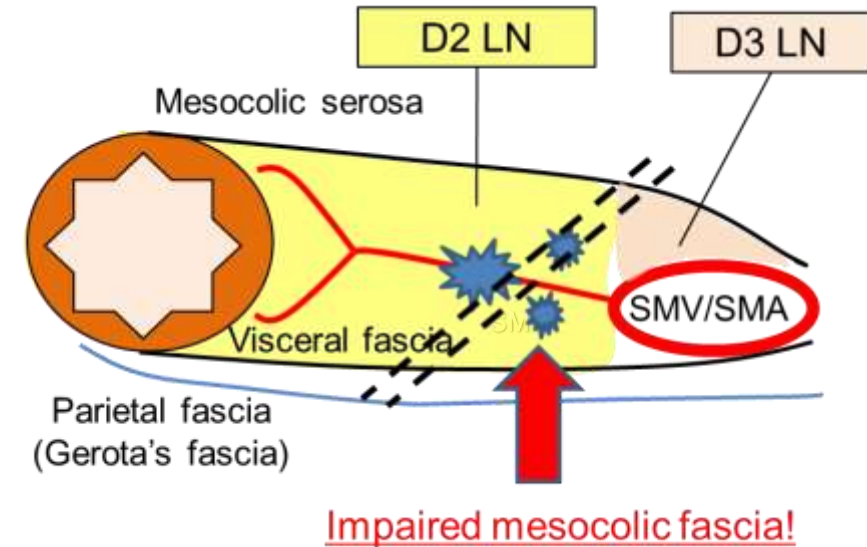


Randomized Trials of D2 vs D3

- COLD Trial (Russia, n=92)
 - Good quality CME is higher in D3 (92 % vs 76%)

CME Quality	D2 (N=38)	D3 (N=48)	P
Good	29 (76 %)	44 (92 %)	0.048
Satisfactory	9 (24 %)	3 (6 %)	
Unsatisfactory	0	1 (2 %)	

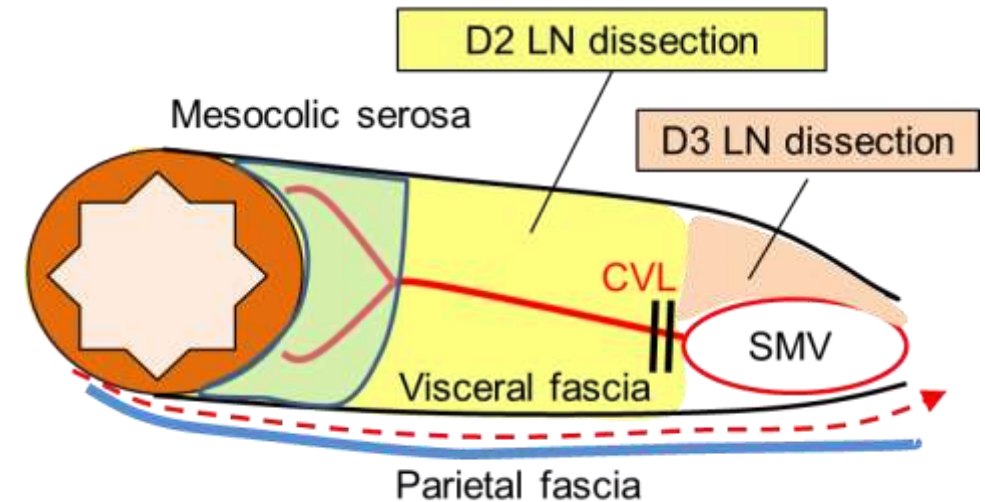
D3 with exposure of SMV likely ensures complete CME



High prevalence of LN metastasis in D2/3 area

- stage II-III right colon cancer, 2004-13, CIH (n=586)
- Prospective LN mapping in surgical specimen

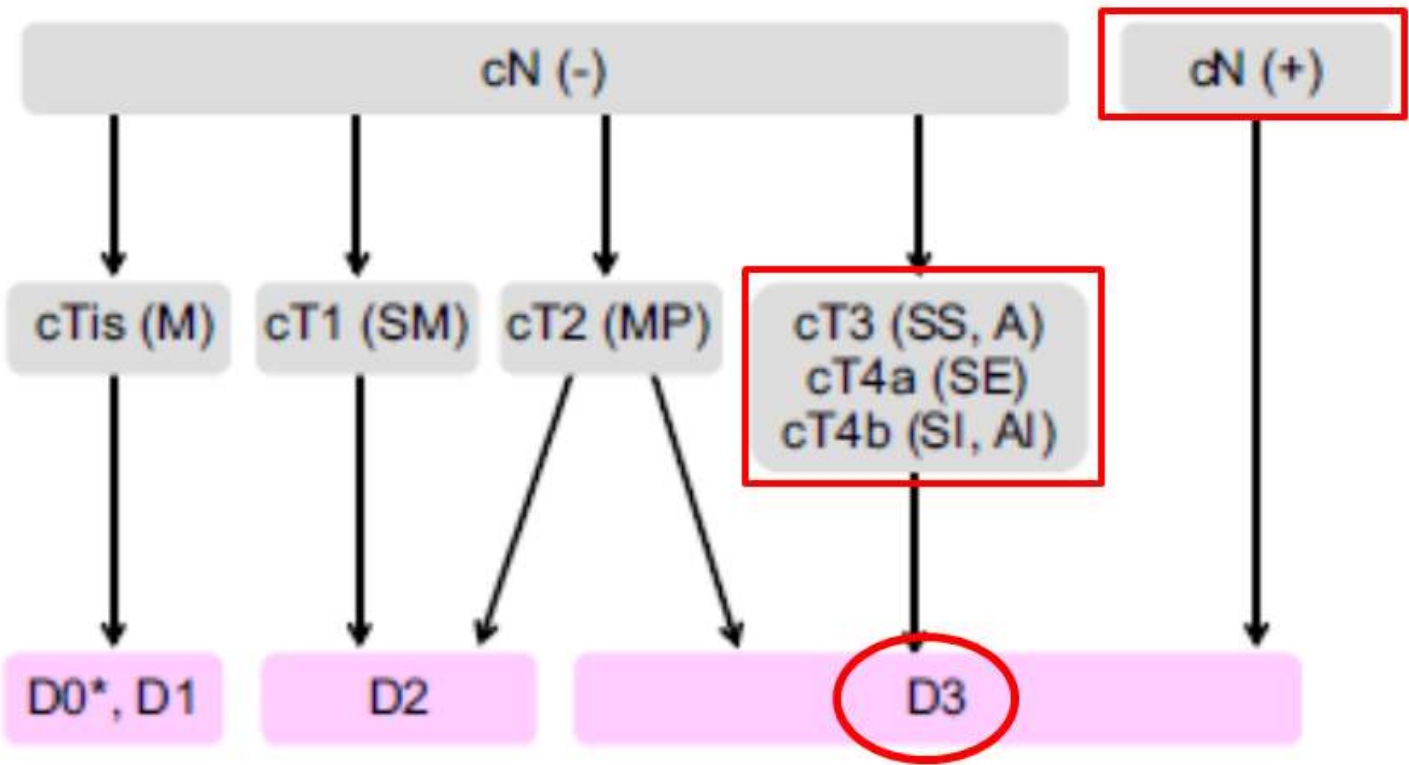
	D1 area	D2 area	D3 area
Stage II/III	32 %	13 %	2.8 %
Stage III	67 %	27 %	6.1 %



- LN mets in D2/3 area: 16 % in stage II/III, 33 % in stage III
- Complete D2 up to SMV is needed

Toshiaki Watanabe · Michio Itabashi · Yasuhiro Shimada · Shinji Tanaka · Yoshinori Ito · Yoichi Ajioka · Tetsuya Hamaguchi · Ichinosuke Hyodo · Masahiro Igarashi · Hideyuki Ishida · Soichiro Ishihara · Megumi Ishiguro · Yukihide Kanemitsu · Norihiro Kokudo · Kei Muro · Atsushi Ochiai · Masahiko Oguchi · Yasuo Ohkura · Yutaka Saito · Yoshiharu Sakai · Hideki Ueno · Takayuki Yoshino · Narikazu Boku · Takahiro Fujimori · Nobuo Koinuma · Takayuki Morita · Genichi Nishimura · Yuh Sakata · Keiichi Takahashi · Osamu Tsuruta · Toshiharu Yamaguchi · Masahiro Yoshida · Naohiko Yamaguchi · Kenjiro Kotake · Kenichi Sugihara · Japanese Society for Cancer of the Colon and Rectum

Indication for D3 in the Japanese Guidelines



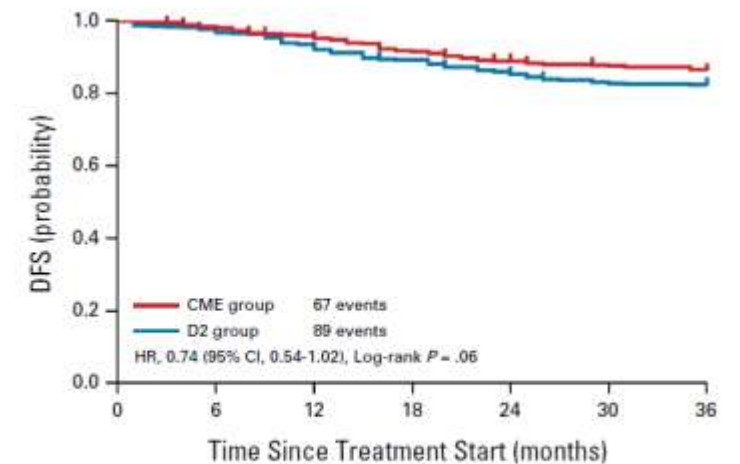
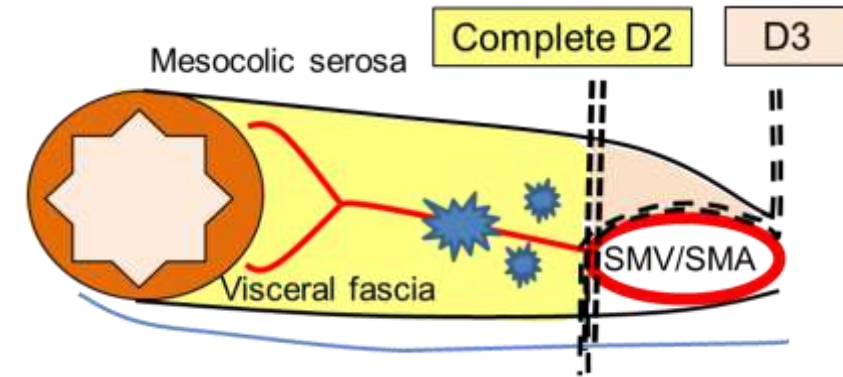
D3 is indicated
for T3-4 or N+

Concept of D3 Dissection

- Ensures complete D2 dissection
- Ensures complete mesocolic excision

- RELARC Trial (China, n=995)
 - Complete D2 vs. D3
 - Similar postop complications (20% vs 22%)
 - Rare (but higher) intraop vascular injury in D3 (3% vs 1%)
 - No differences in 3-yr DFS (81.9 % vs 86.1 %, p=.06)

Complete D2 seems oncologically appropriate

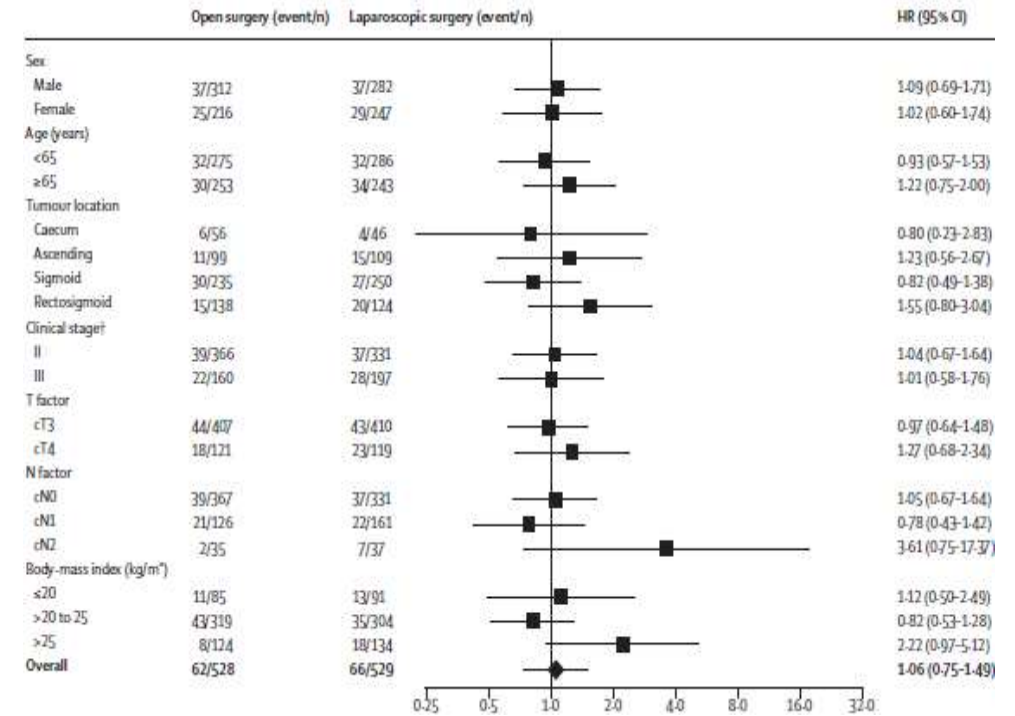
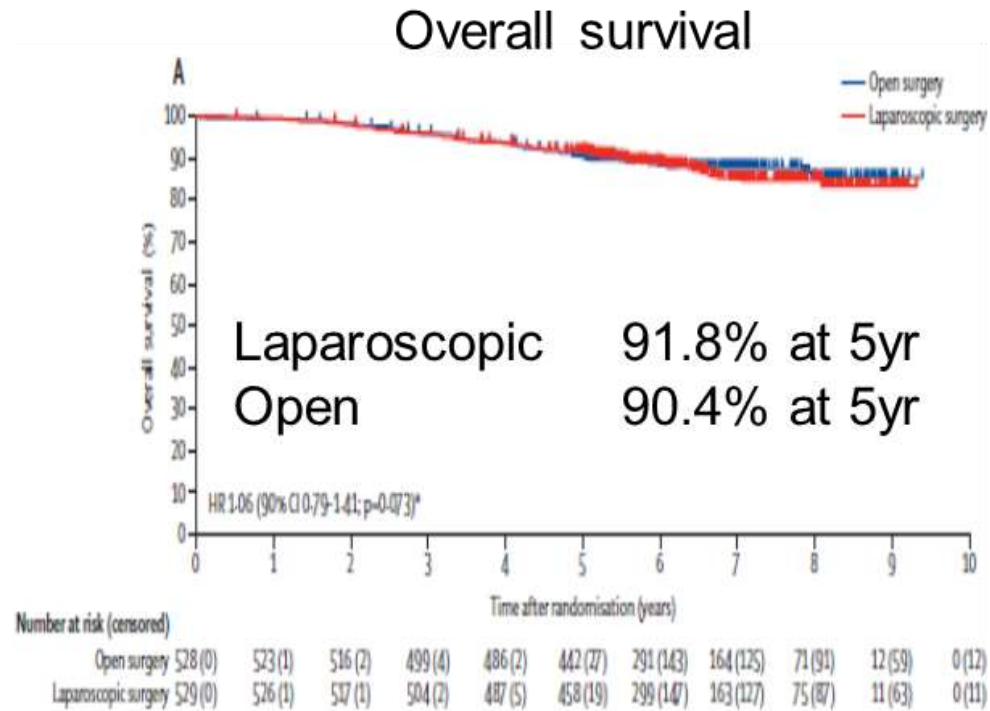


No. at risk (cumulative censored):	0	6	12	18	24	30	36
CME group	495 (0)	478 (7)	460 (11)	442 (12)	424 (17)	416 (19)	409 (19)
D2 group	500 (0)	478 (4)	450 (9)	433 (12)	412 (14)	399 (15)	396 (15)

Laparoscopic vs. Open D3 colectomy for Stage II-III colon cancer (JCOG 0404)

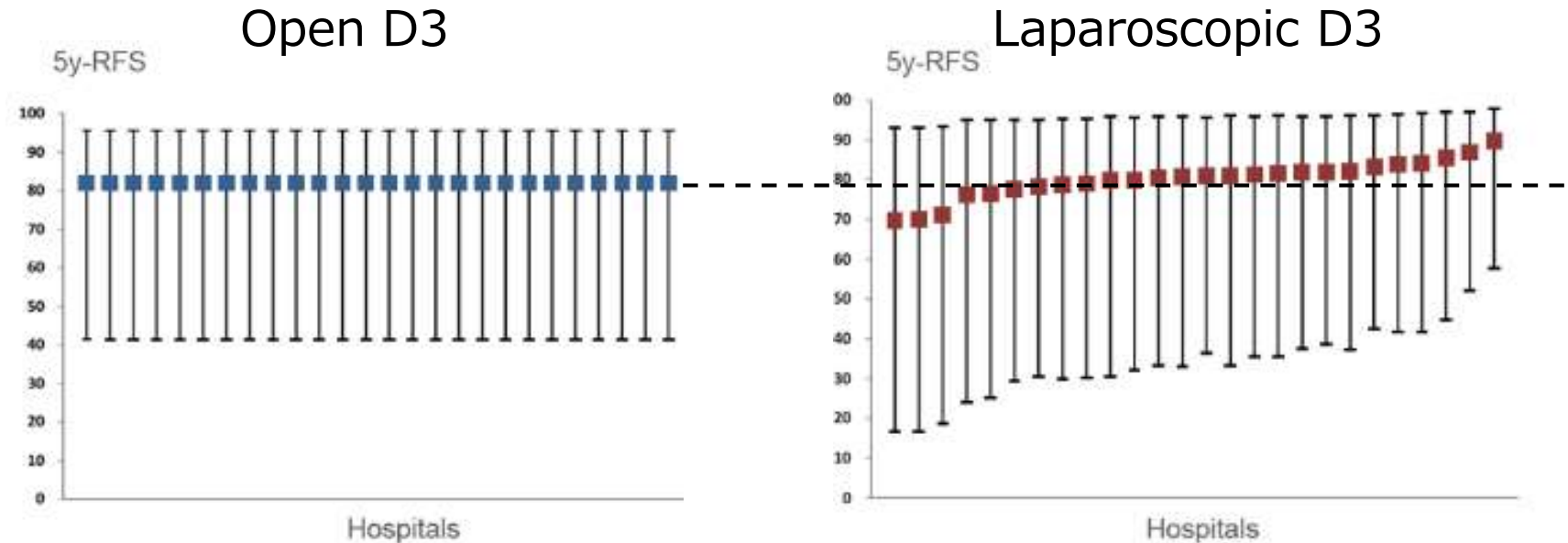
Survival outcomes following laparoscopic versus open D3 dissection for stage II or III colon cancer (JCOG0404): a phase 3, randomised controlled trial

Seigo Kitano, Masafumi Inomata, Junki Mizusawa, Hiroshi Katayama, Masahiko Watanabe, Seiichiro Yamamoto, Masaaki Ito, Shuji Saito, Shoichi Fujii, Fumio Konishi, Yoshihisa Saida, Hiroto Hasegawa, Tomonori Akagi, Kenichi Sugihara, Takashi Yamaguchi, Tadahiko Masaki, Yosuke Fukunaga, Kohei Murata, Masazumi Okajima, Yoshihiro Moriya, Yasuhiro Shimada



Technical Skill Impacts Survival in Colon Cancer!

Significant Institutional variation in RFS *only in MIS*



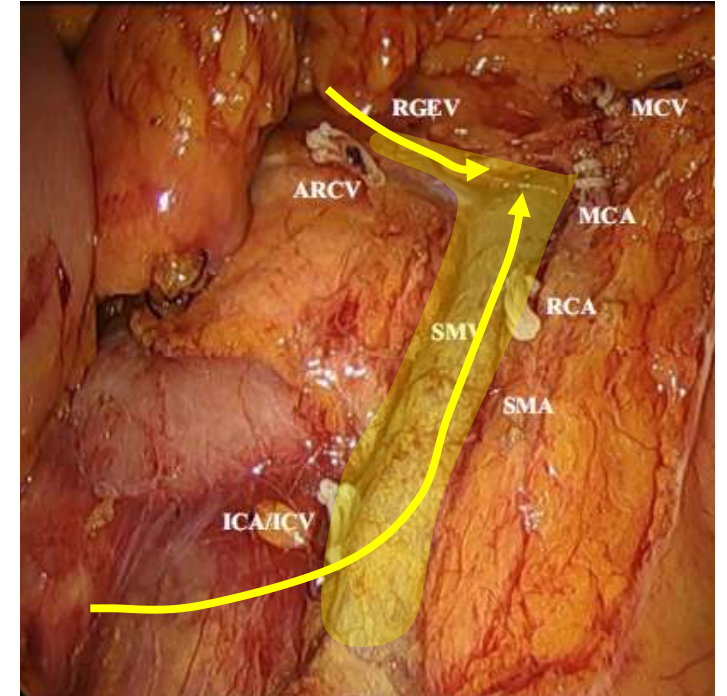
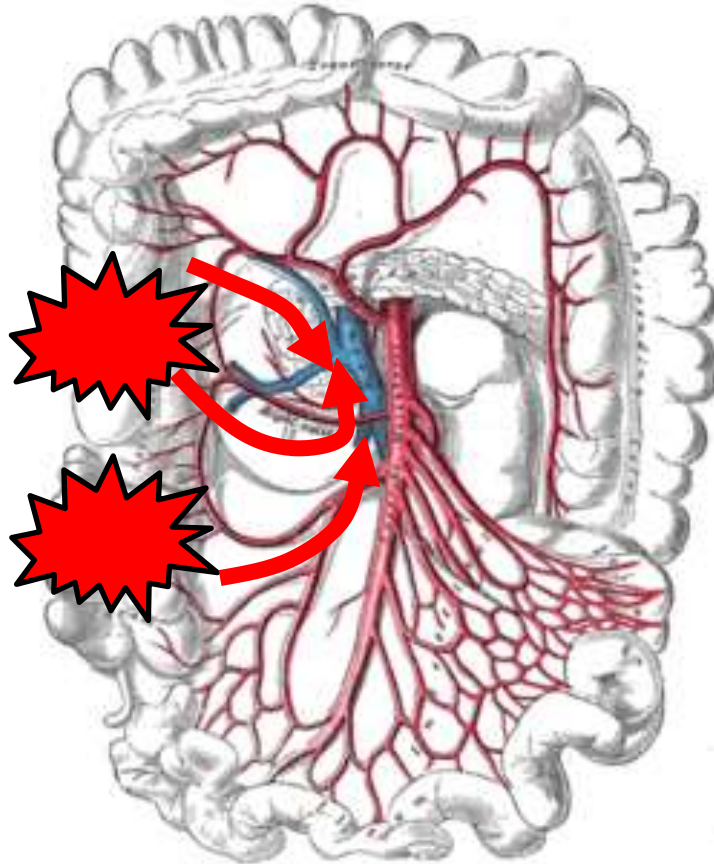
Common Pitfalls

Henle's gastrocolic trunk

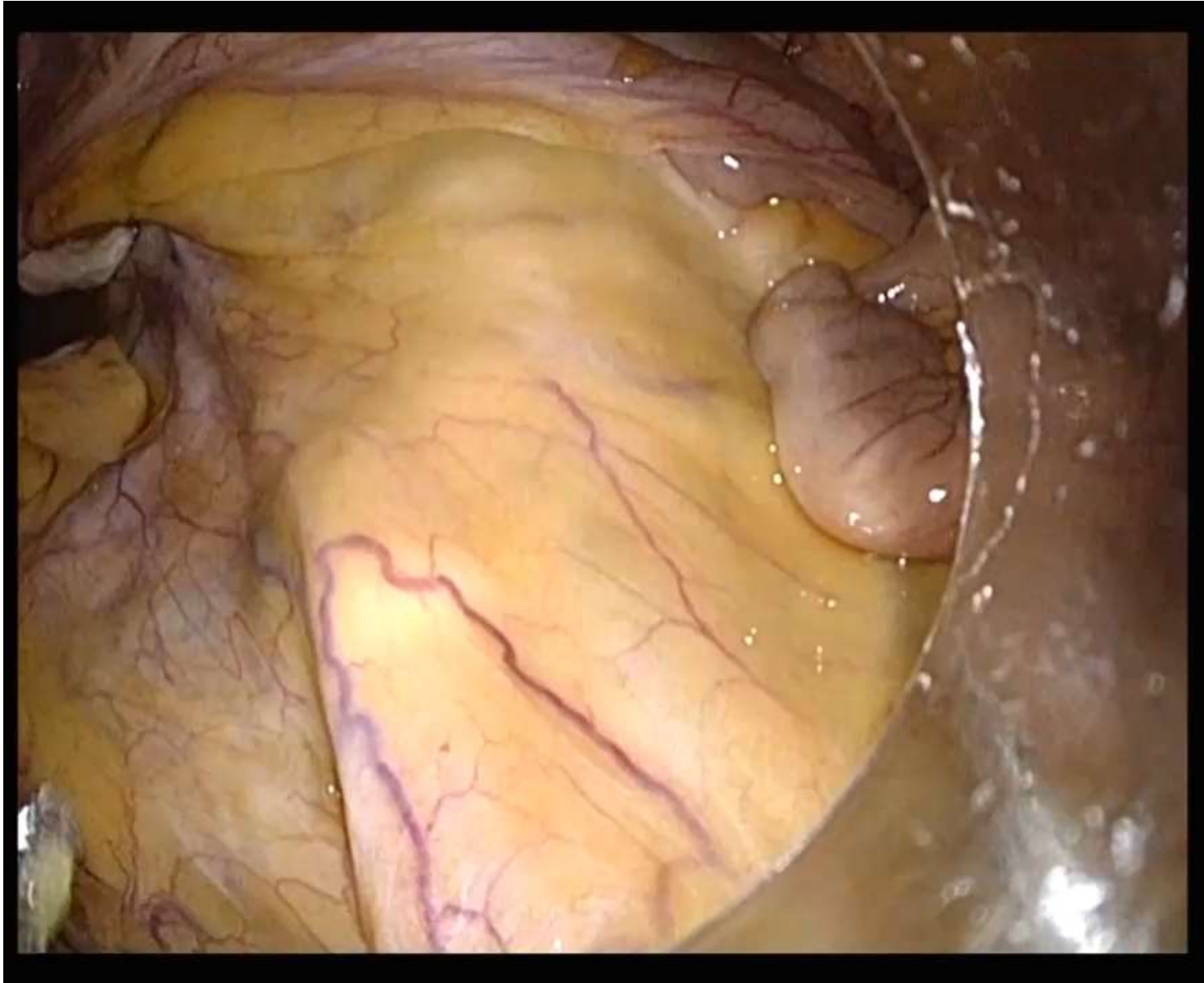
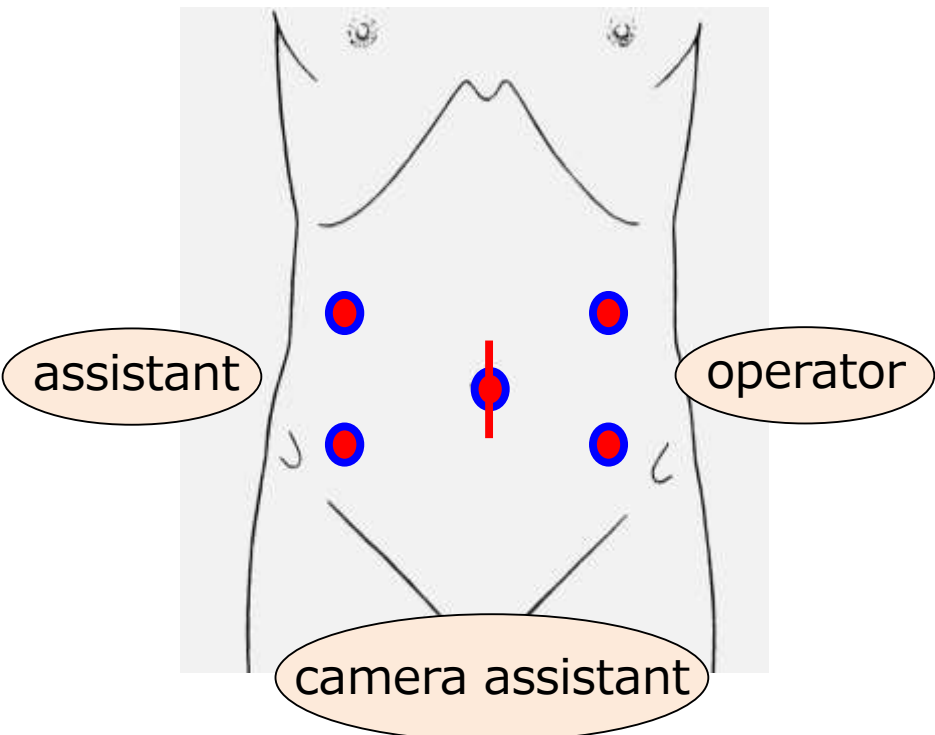
副右結腸静脈根部にて①

Ascending Colon

- Lymphatic Flow → SMV
- SMV-oriented dissection
- Mesocolic root: SMV

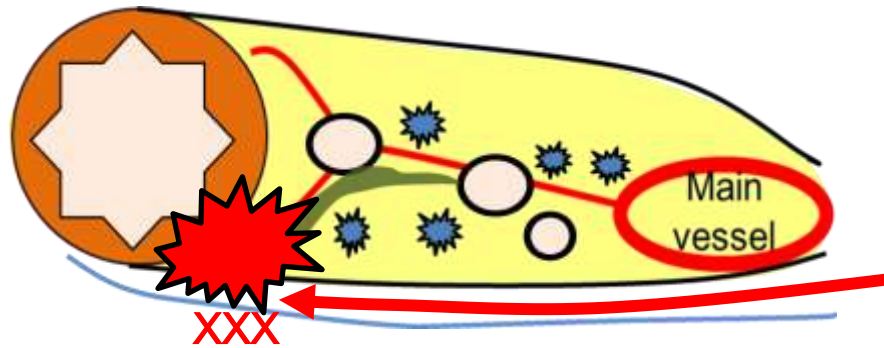


Laparoscopic D3 Right Colectomy



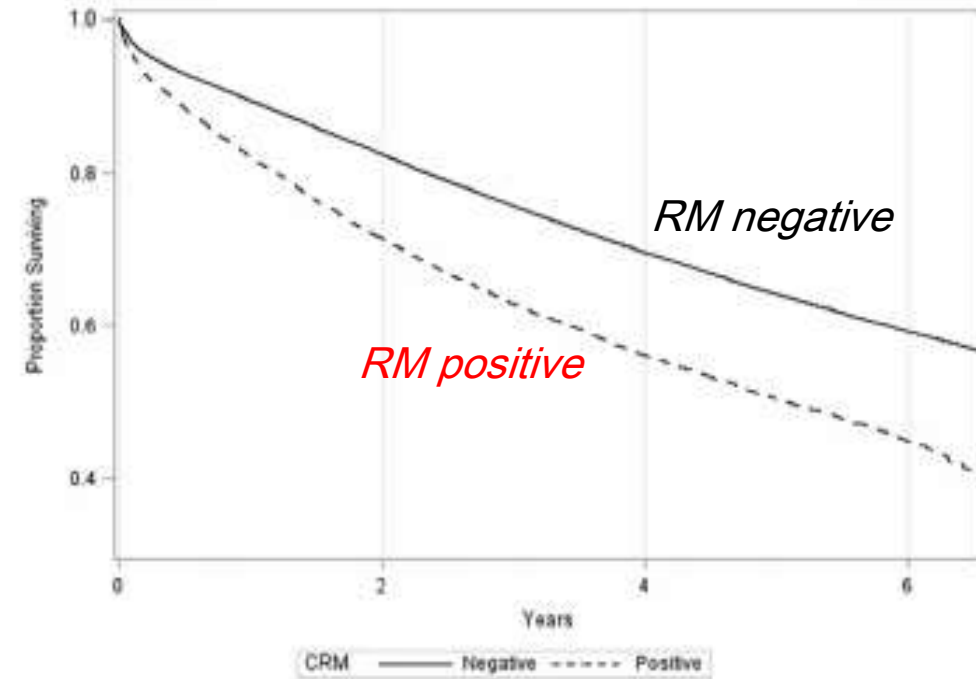
Radial Margin Impacts Outcomes in Colon Cancer

- NCD (US), 2010-15, N=170,022
- 11.6% RM positive (≤ 1 mm)
- Independent prognostic factor



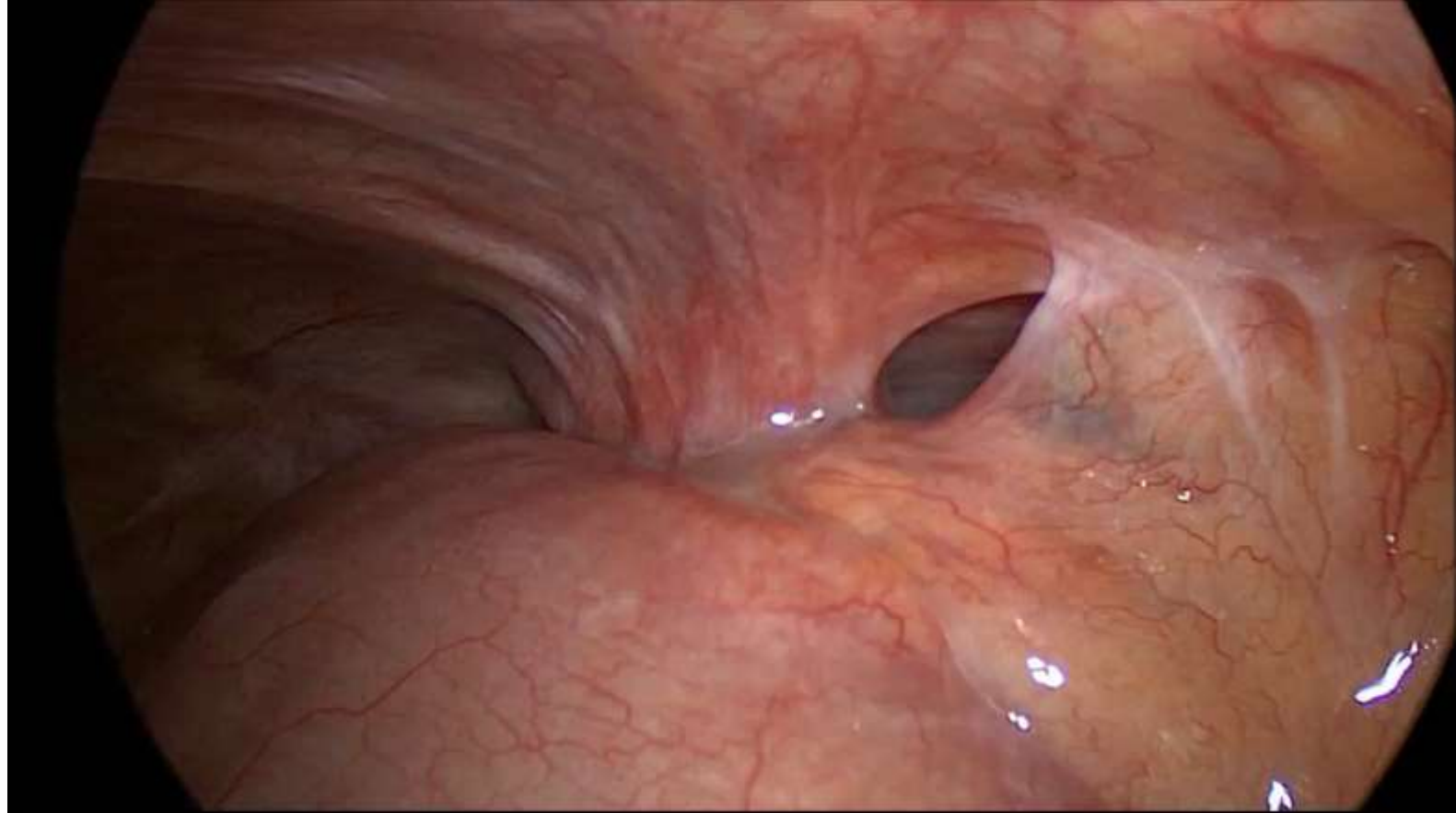
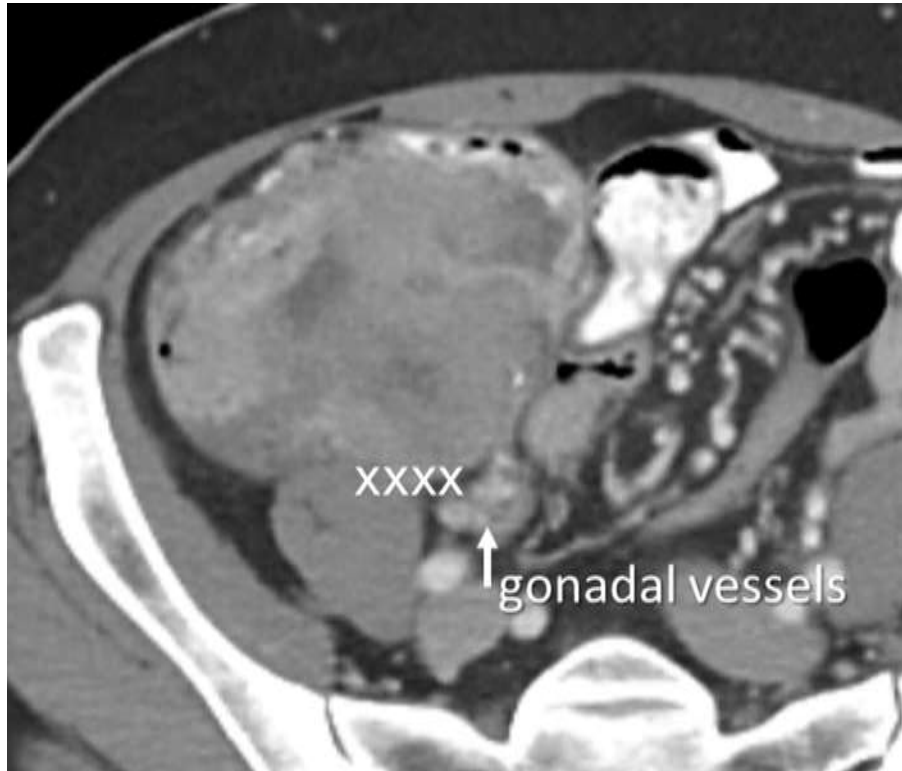
Regular CME → RM +

Overall survival



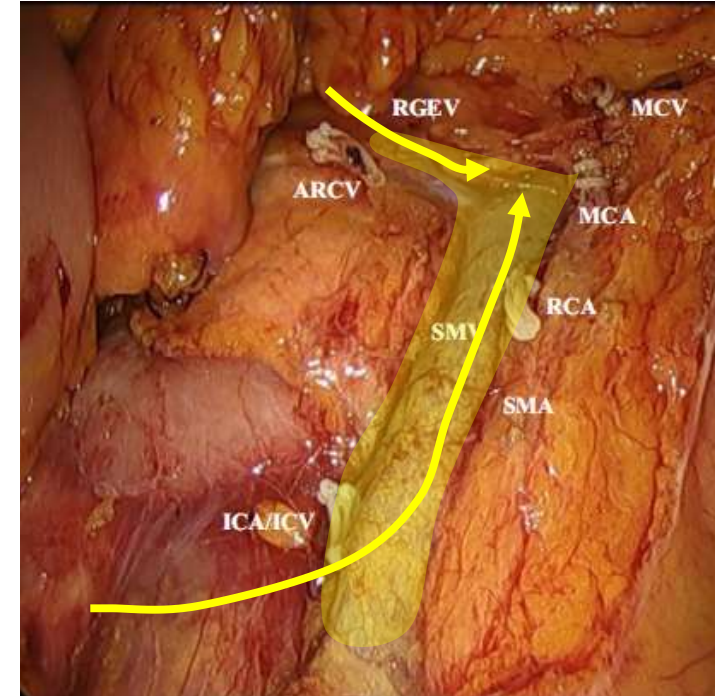
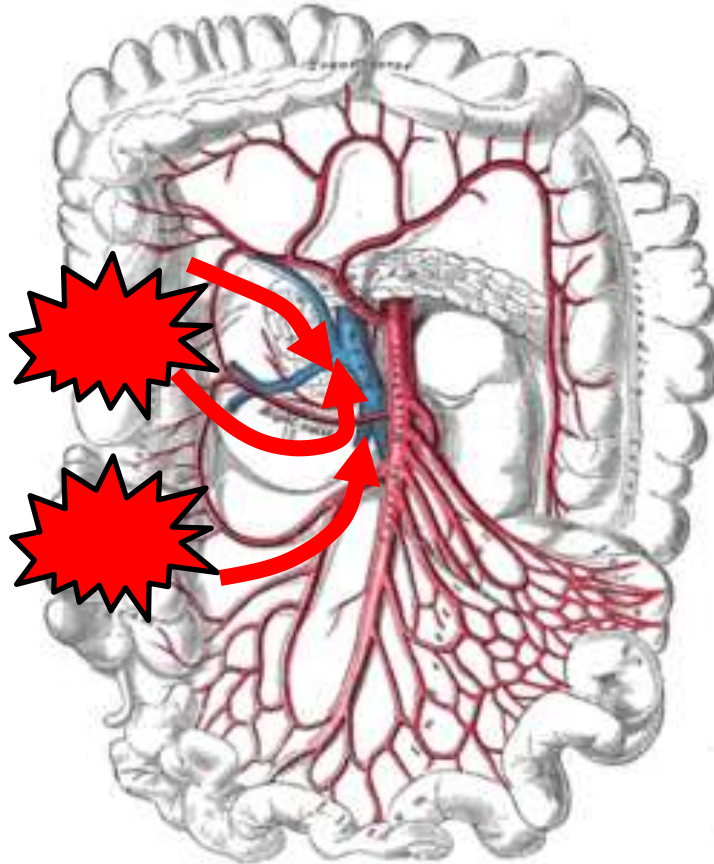
Goffredo, *J Surg Onc* 2020
Healy, *Ann Surg* 2020

- Cecum – Ascending Colon: half-embedded in retroperitoneum
- **Extra-mesocolic retroperitoneal excision** as needed



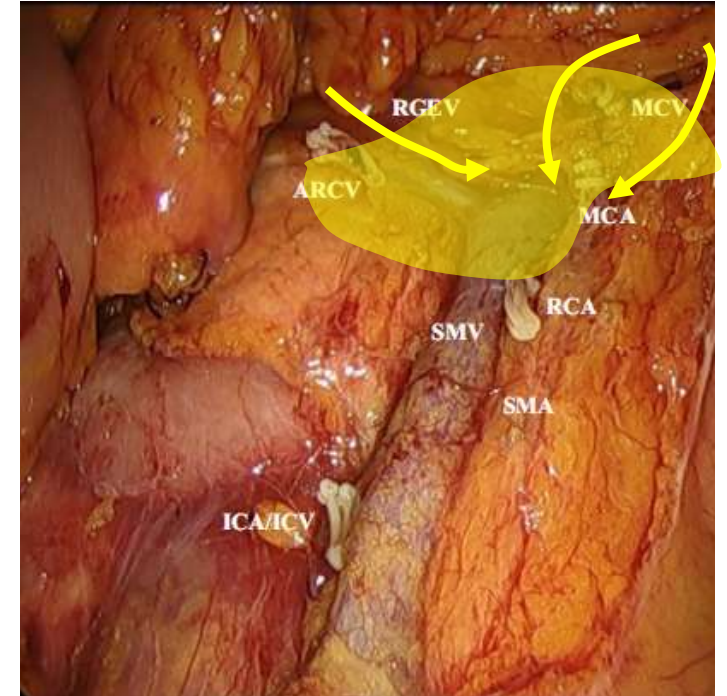
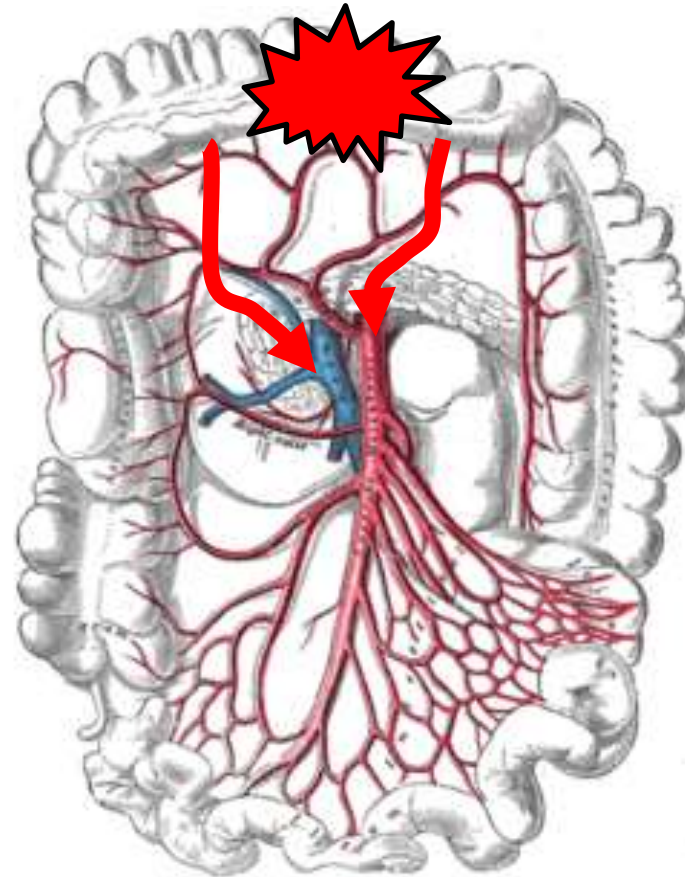
Ascending Colon

- Lymphatic Flow → SMV
- SMV-oriented dissection
- Mesocolic root: SMV

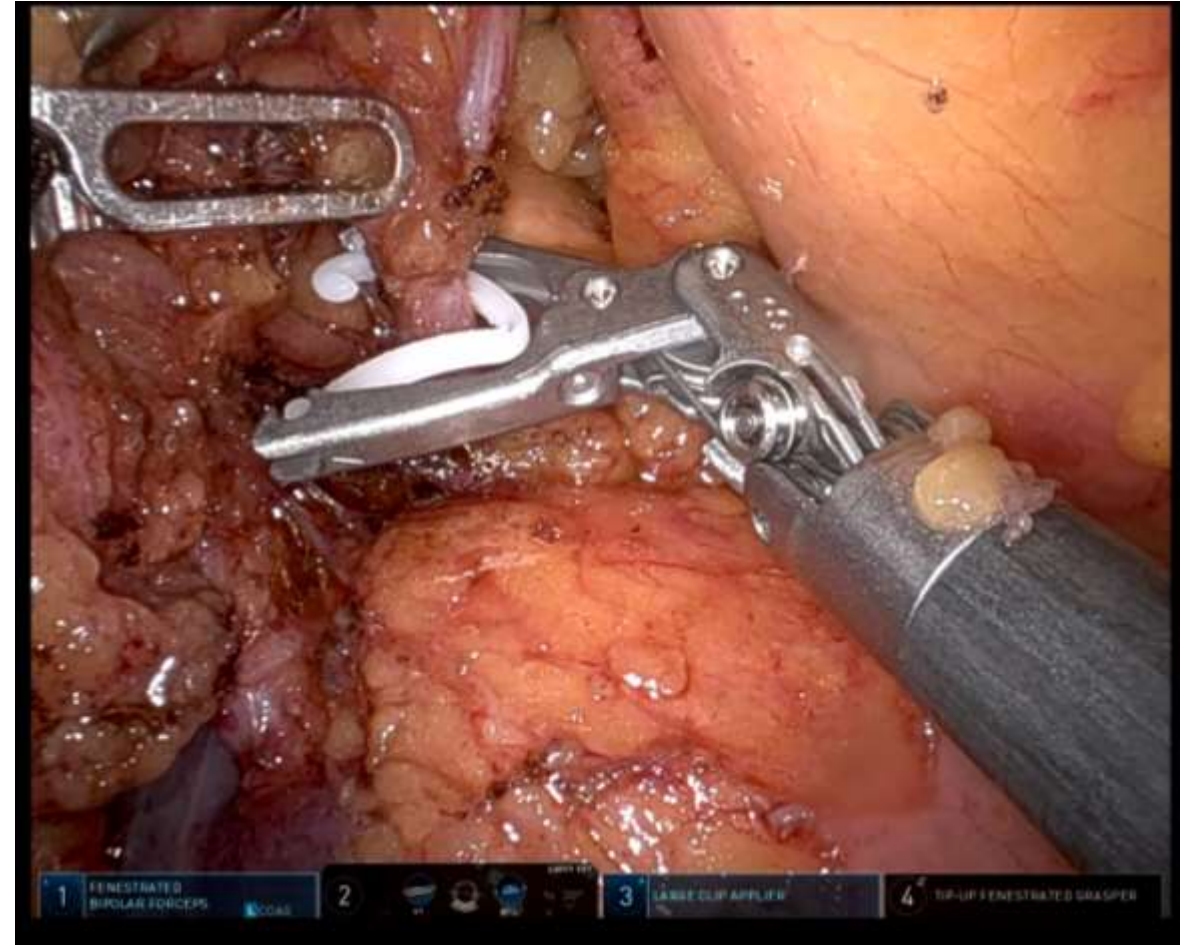
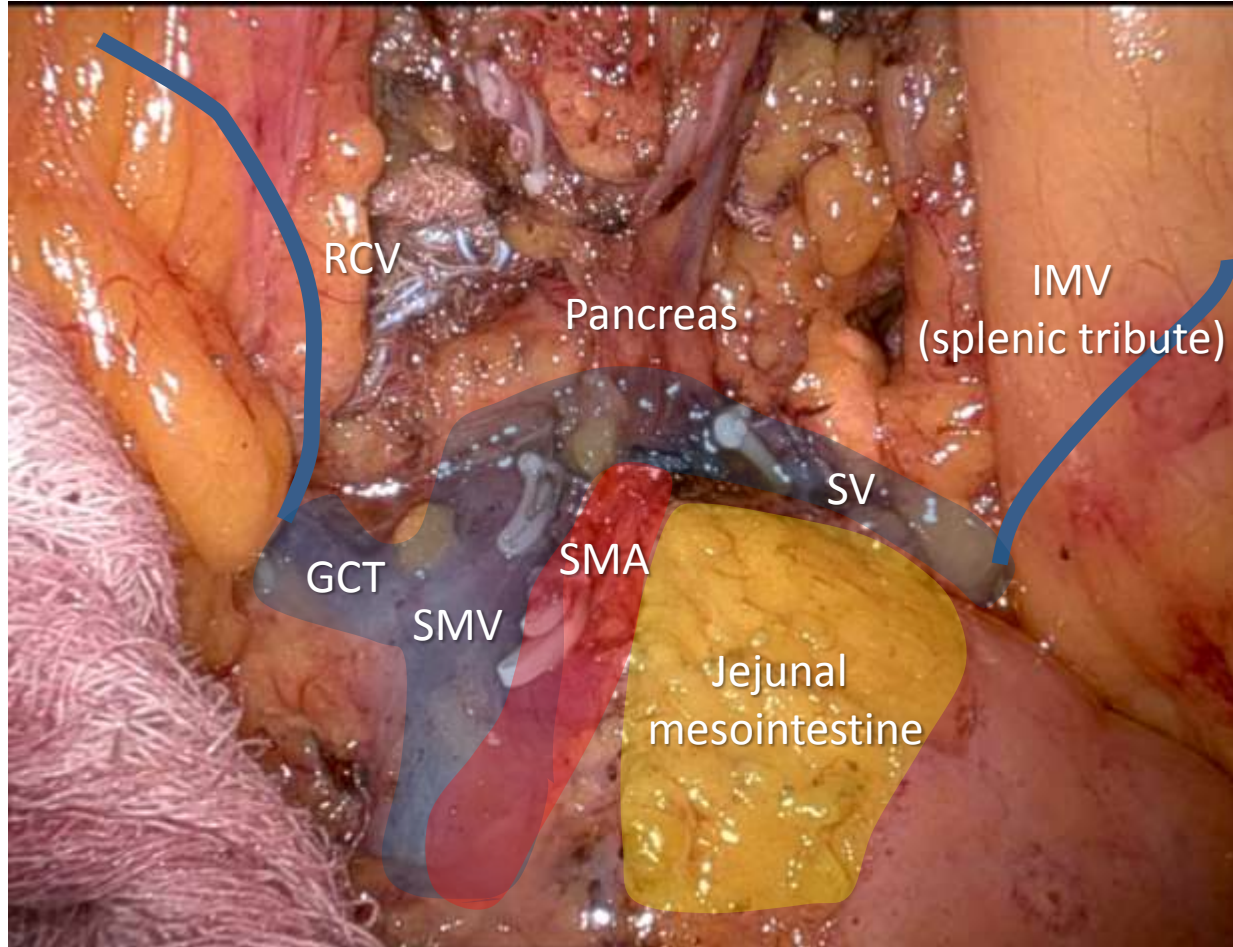


Transverse Colon

- Lymphatic flow MCA/V → SMA/V
- **Wide mesocolic root** incl SMA/V



Anatomy of **Transverse** Mesocolic Root



Conclusion: D3 for Right Colon Cancer

- Quality of surgery impacts survival
 - Embryonic anatomical plane dissection (completeness of CME)
 - Central radicality (D3 / CVL)
 - Radial margin
- Frequent LN mets in D2-3 area, particularly in stage III disease (33 %)
 - D3 dissection ensures complete D2 with intact CME

Thank you!

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