



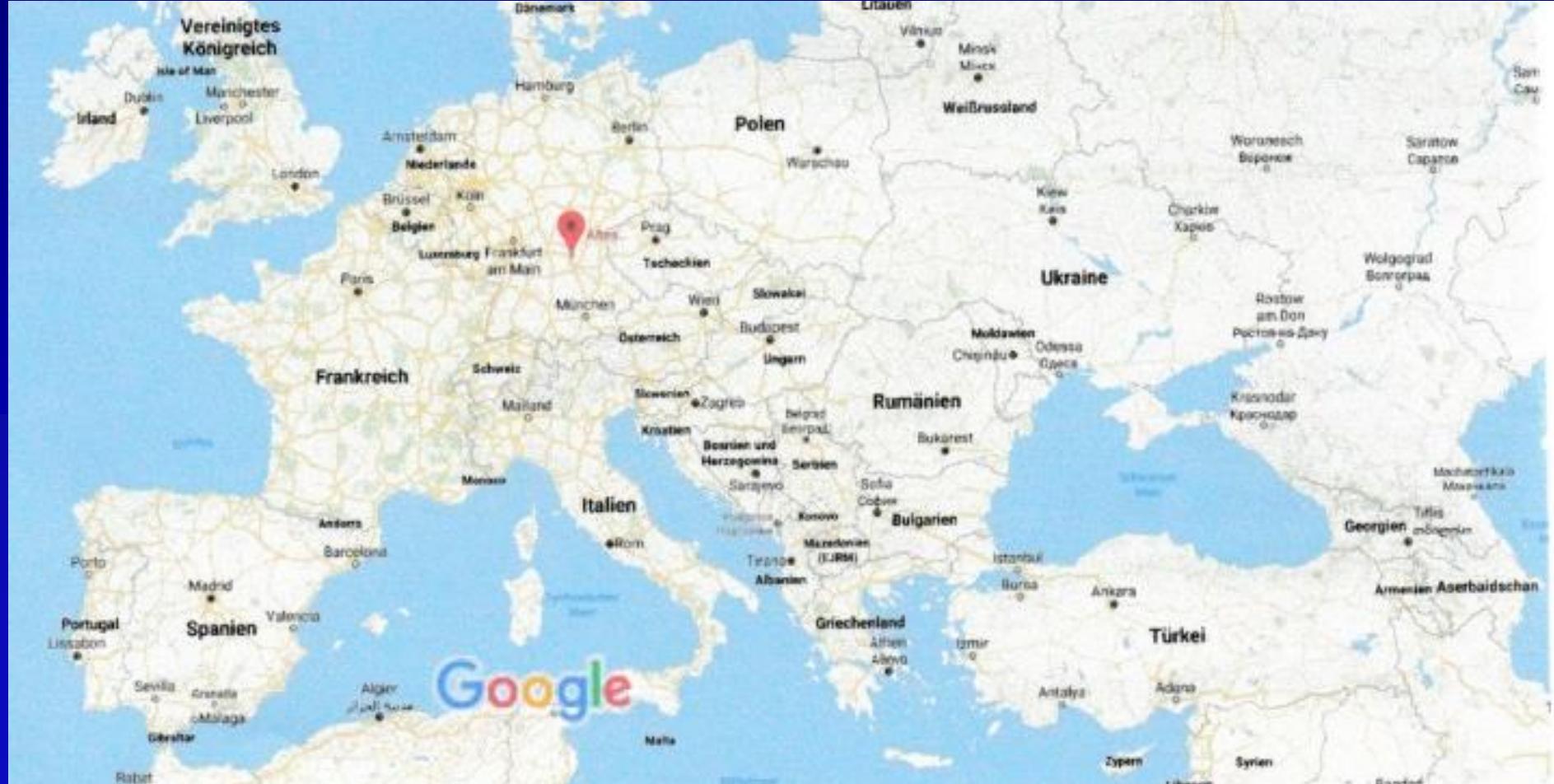
How to operate on Colon Cancer



Werner Hohenberger

Chirurgische Universitätsklinik Erlangen

University Hospital Erlangen/Germany



Erlangen

Siemens

Adidas

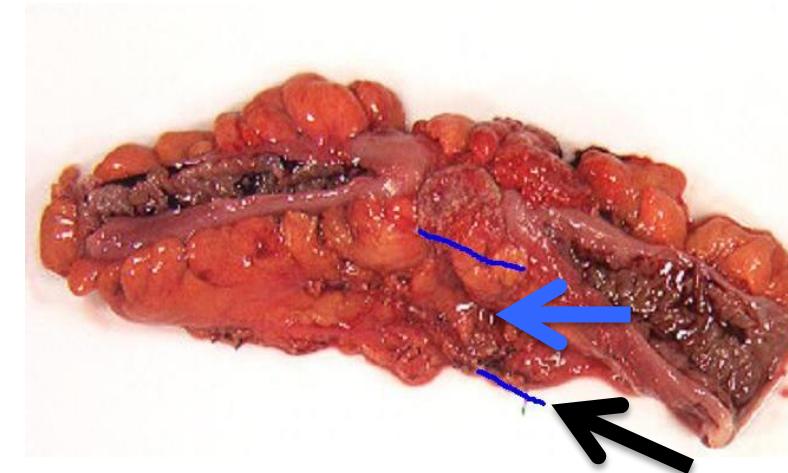
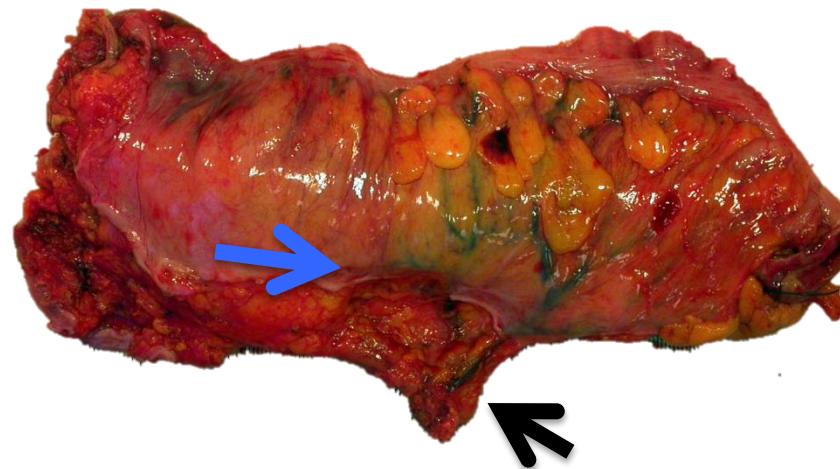
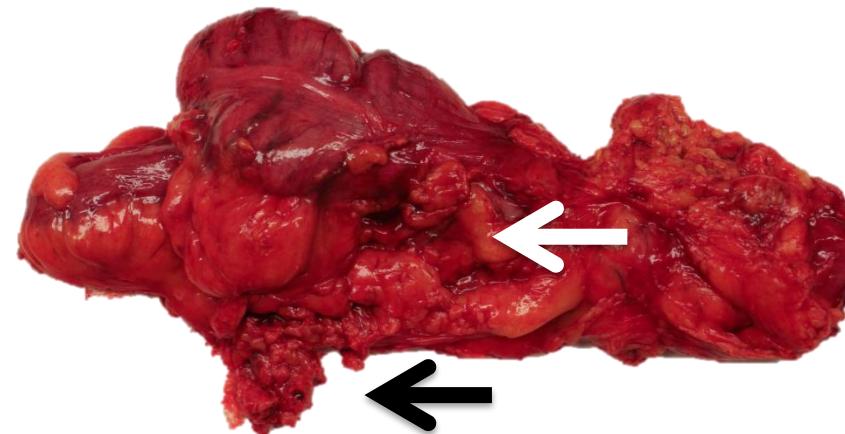
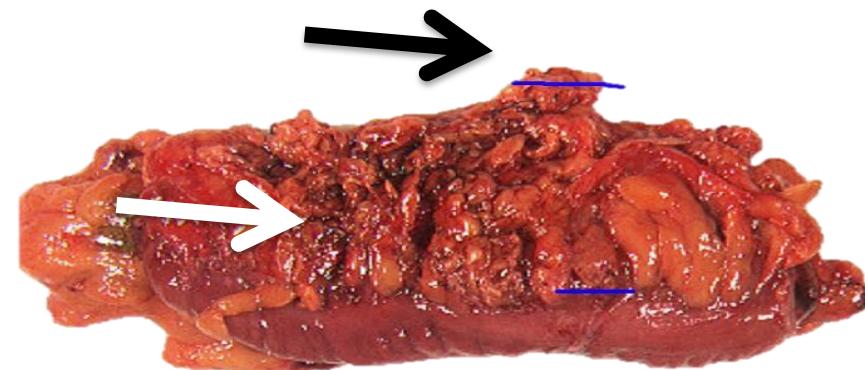
Puma

University

Surgery for Colon Cancer

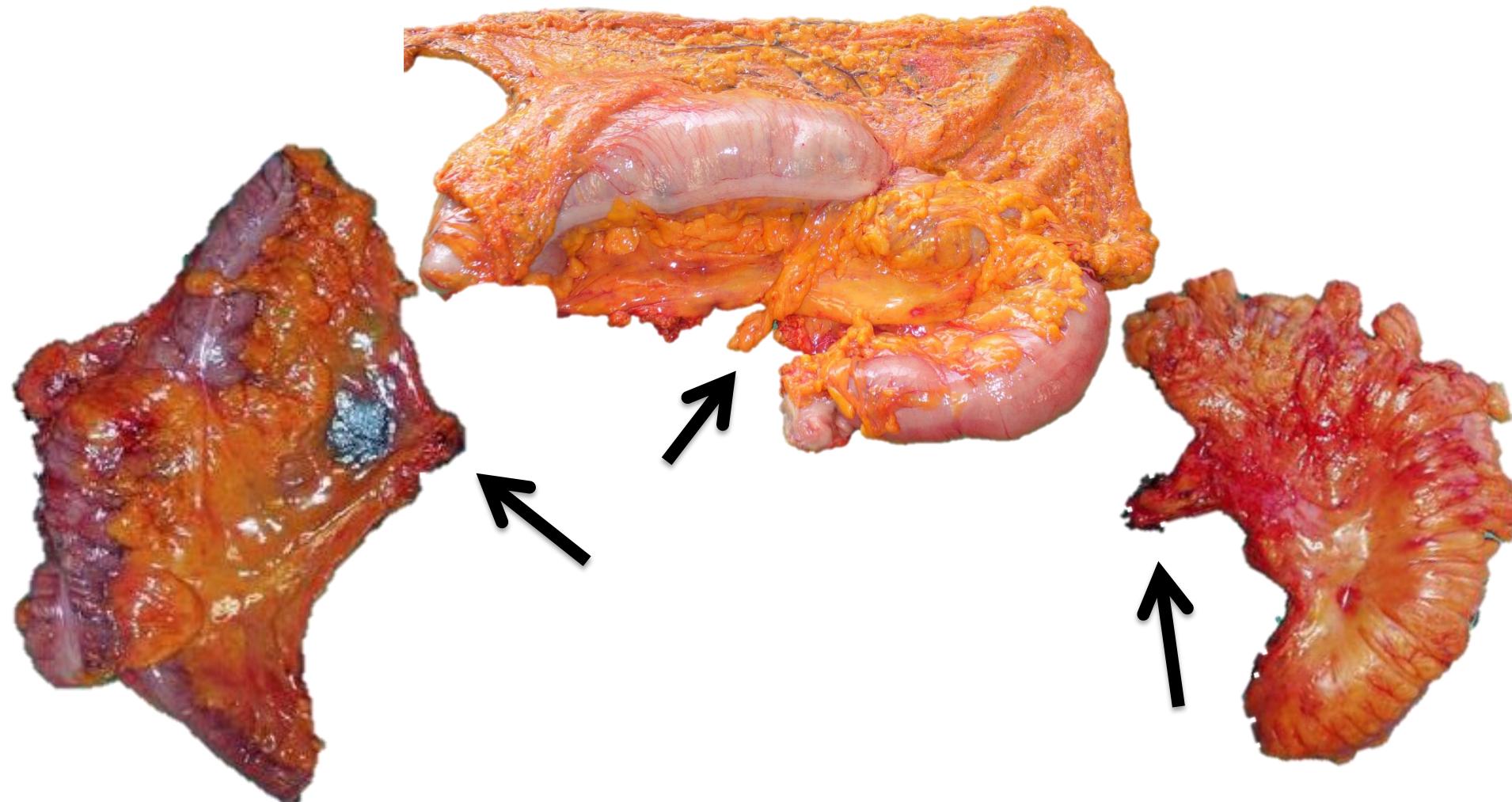
- *Easy to operate – a resident's procedure*
- *Compared to rectal cancer surgery*
less spectacular
lower reimbursement
- *Consultants's self-assessment, frequently:*
nowhere better, no change needed

Variability of Colon Cancer Specimens



Prof. Ph. Quirke/Leeds

Variability of Colon Cancer Specimens



Prof. Ph. Quirke/Leeds

Colon Cancer Survival Stage III 5-years survival

Middle Franconia (n=1513) 54 %

German Study Group (n=9329) 59 % right c.
 58 % left c.

Erlangen 79,5 %
(1995–2005, n=204)

Japan (n=2808) 81,9 %

USA („high volume centers“) 44,0 %

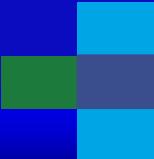
Editorial

Colonic surgery for cancer: a new paradigm

*While these advances were being made in rectal
cancer surgery for colonic cancer has
been left untouched.*

Najib Haboubi, Colorectal Disease 2003, 11; 333-334, 2009

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Standardised Surgery for Colonic Cancer: Complete mesocolic excision (CME) and central ligation – Technical notes and outcome

Hohenberger W. ,Matzel K.E. , Merkel S. , Papadopoulos T. , Weber K.

Colorectal Dis 2009, 11: 354-365

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Colorectal Disease – twenty years on

Neill Mortensen, Editor in Chief

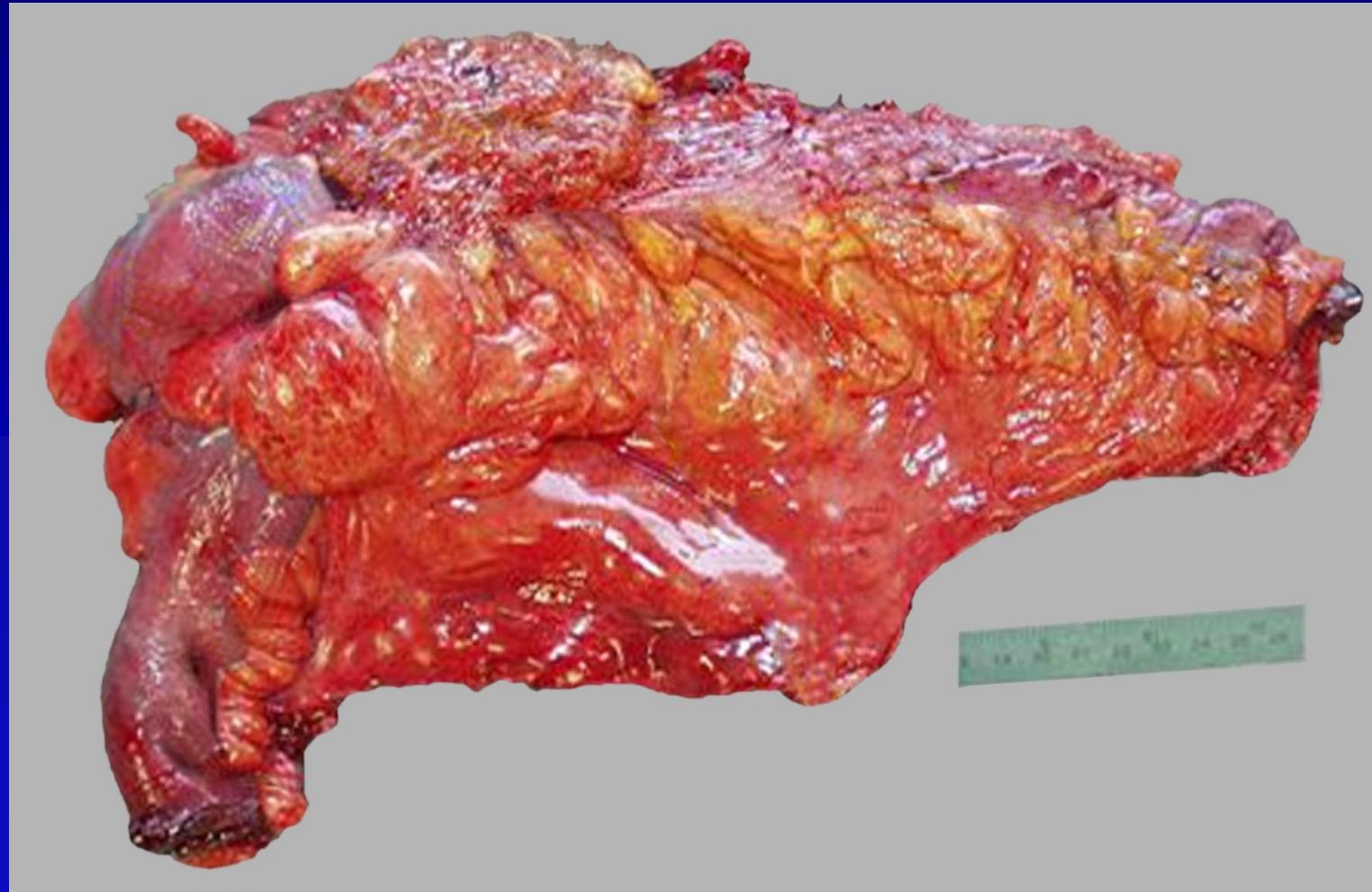
John Nicholls, Editor in Chief 1999–2014

*„You will be interested to hear that during the journal's life
the most cited paper has been
'Standardized surgery for colonic cancer:
complete mesocolic excision and central ligation – technical notes and outcome'*

Hohenberger et al., 2009;11: 354-365)

Colon Cancer Surgery

Quality of Specimen Retrieval

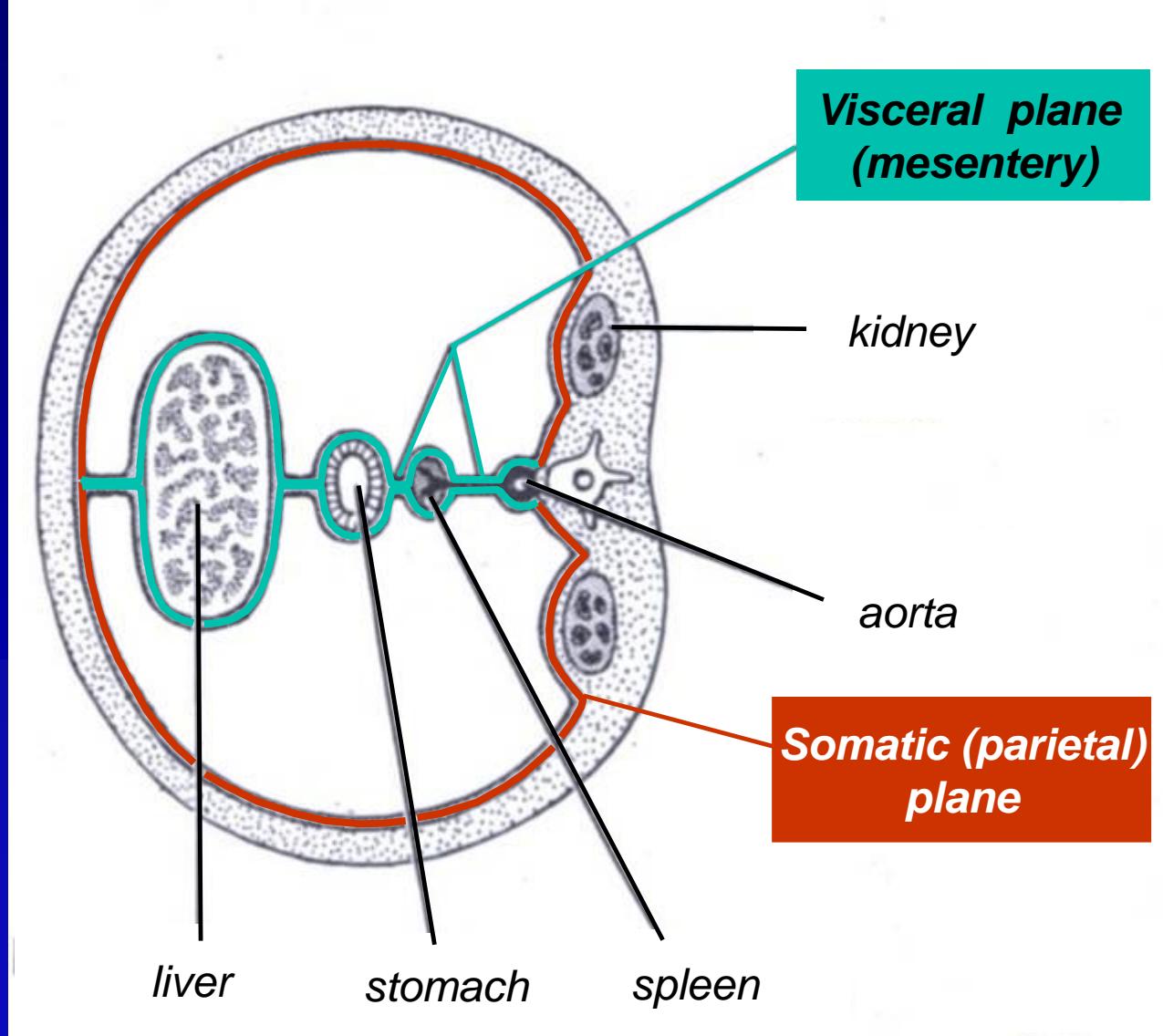


Surgery for Colon Cancer

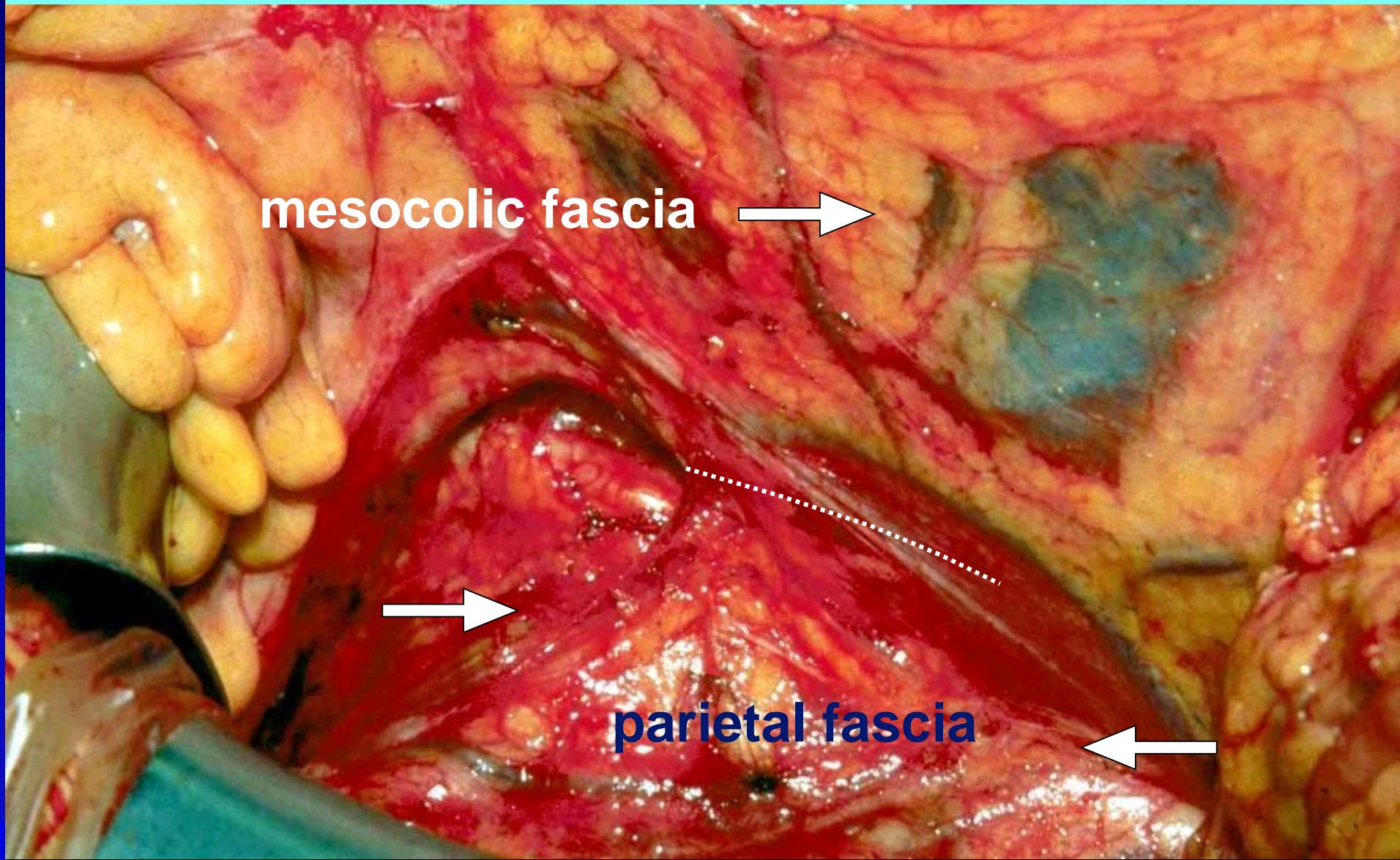
Complete Mesocolic Excision (CME)

Principles

- *Preservation of the mesocolic plane by sharp dissection off the parietal plane (turning embryology back)*
- *and*
- *Regional and central lymphnode dissection with central tie of supplying arteries*



*Concept of Two Continuously Running Fasciae
The Mesenteric Fascia and the Parietal Fascia*

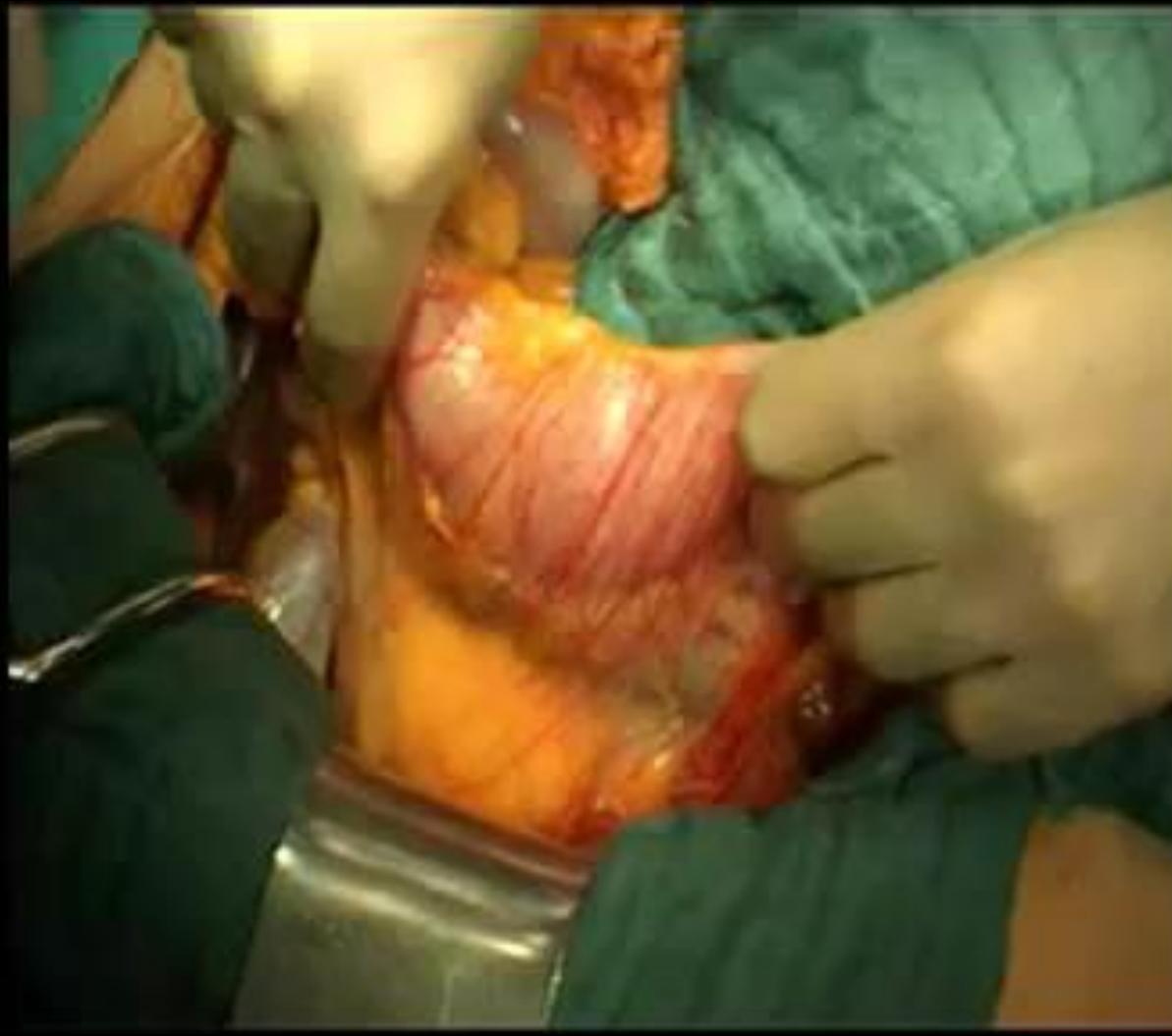


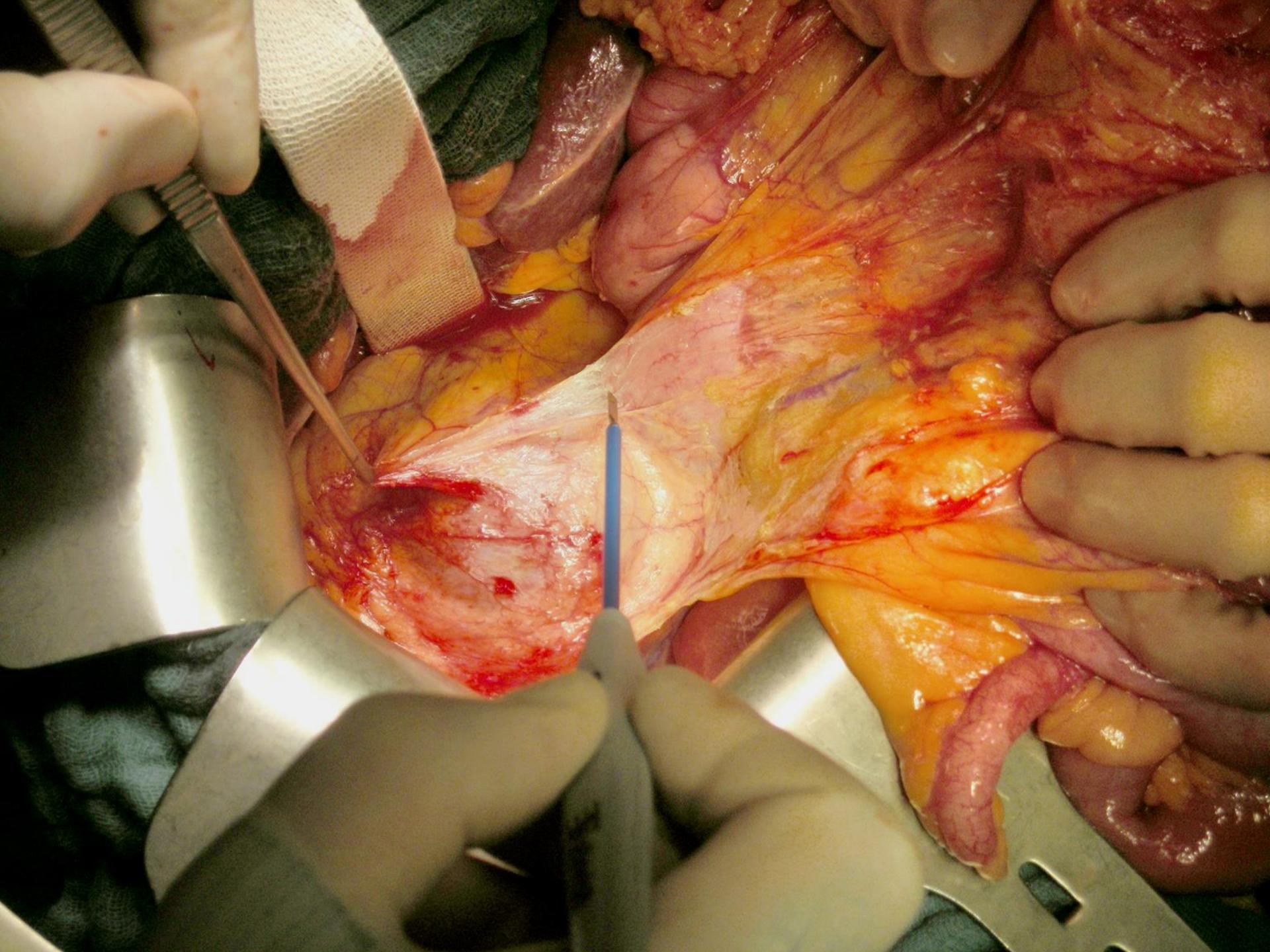
Microscopic anatomy

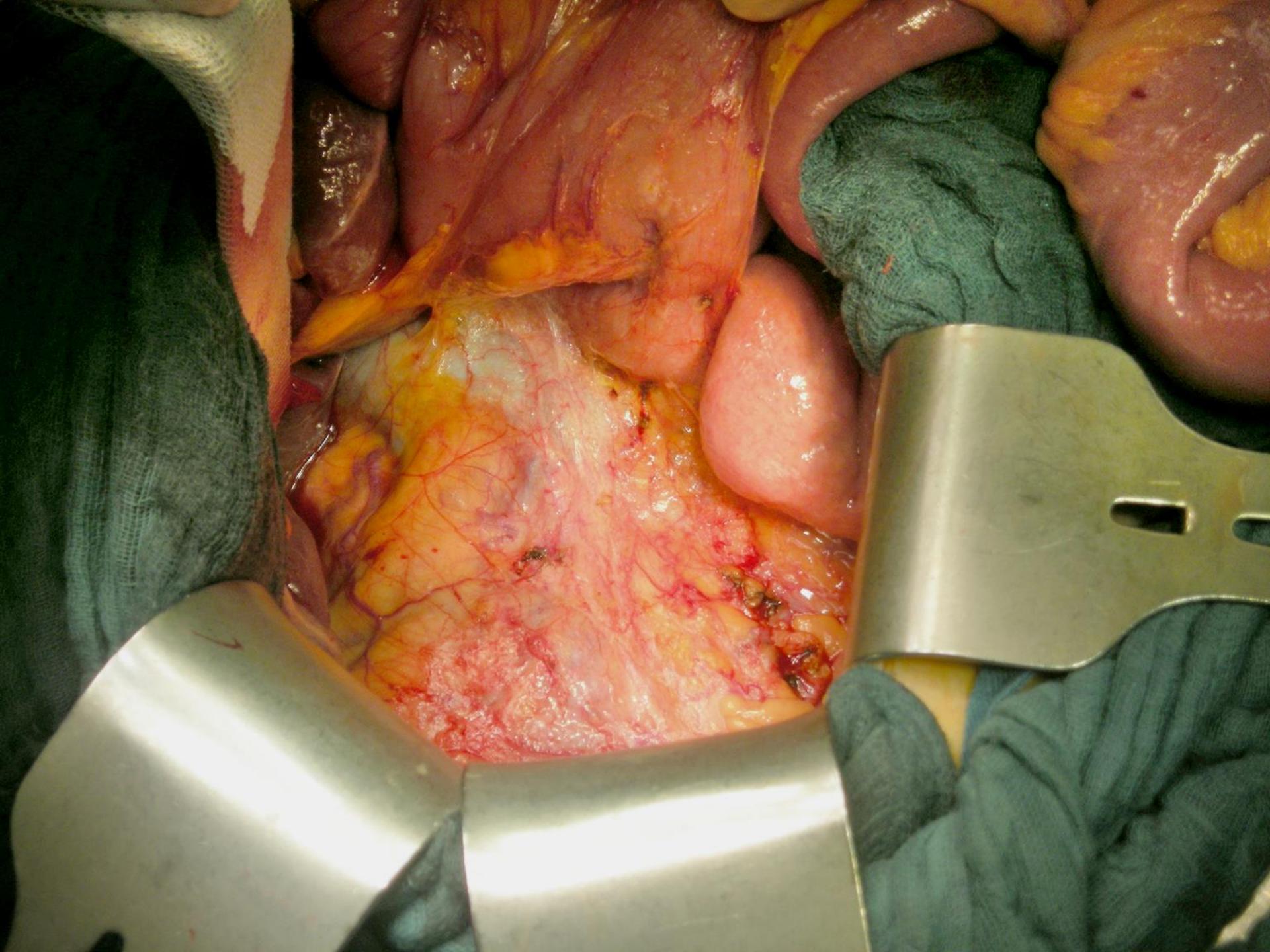
Mesentery

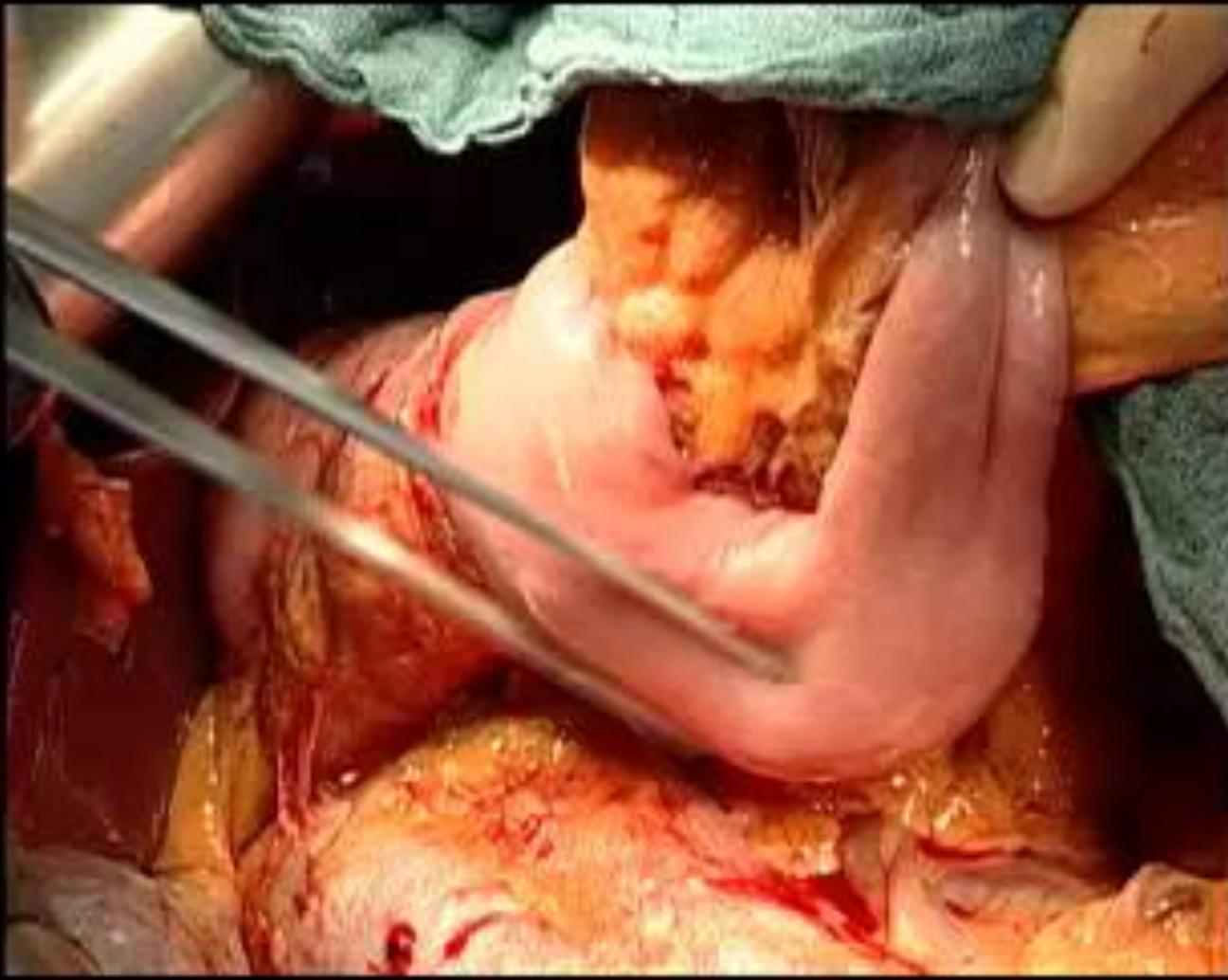


Similarity to mesorectum...



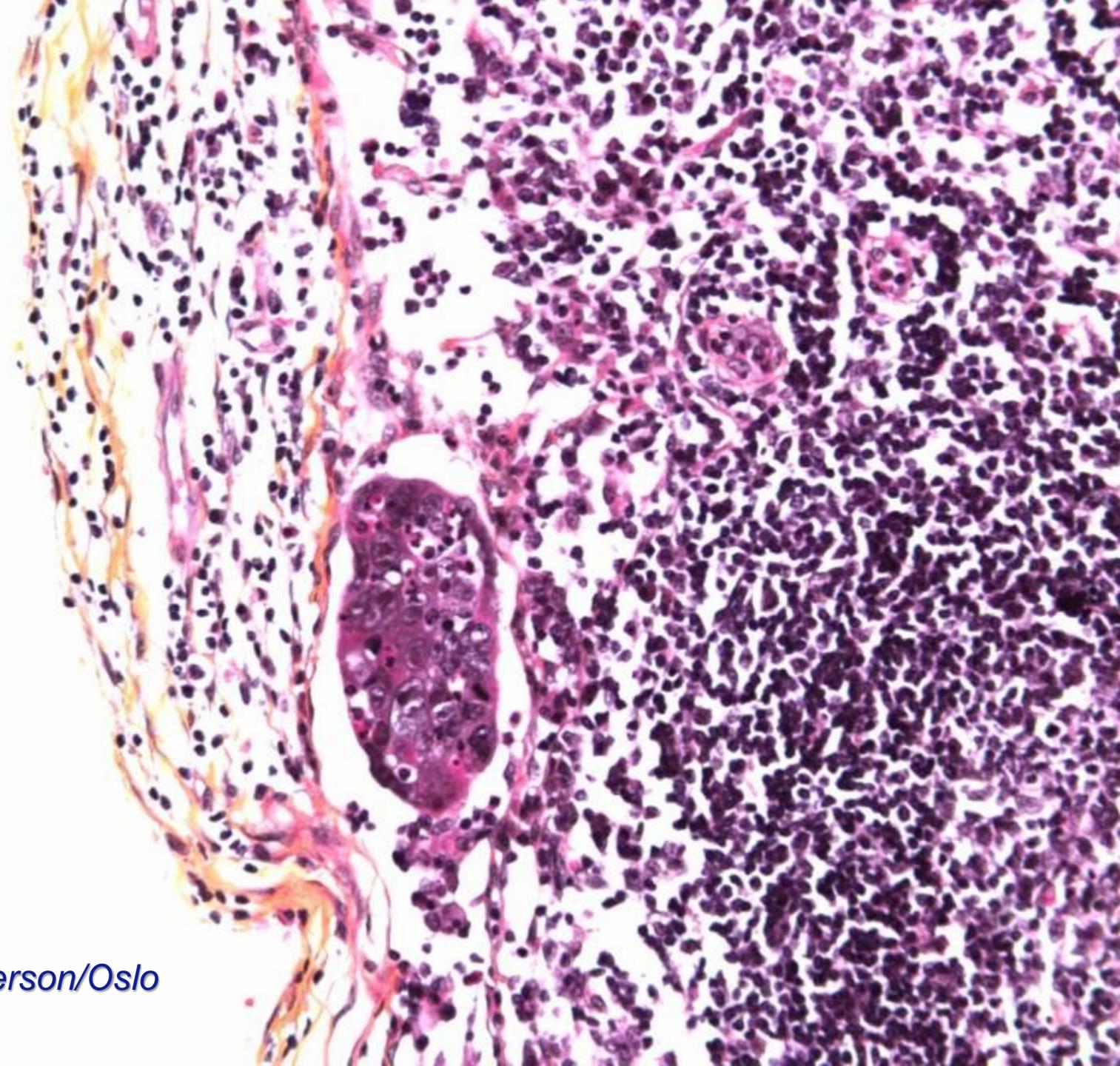






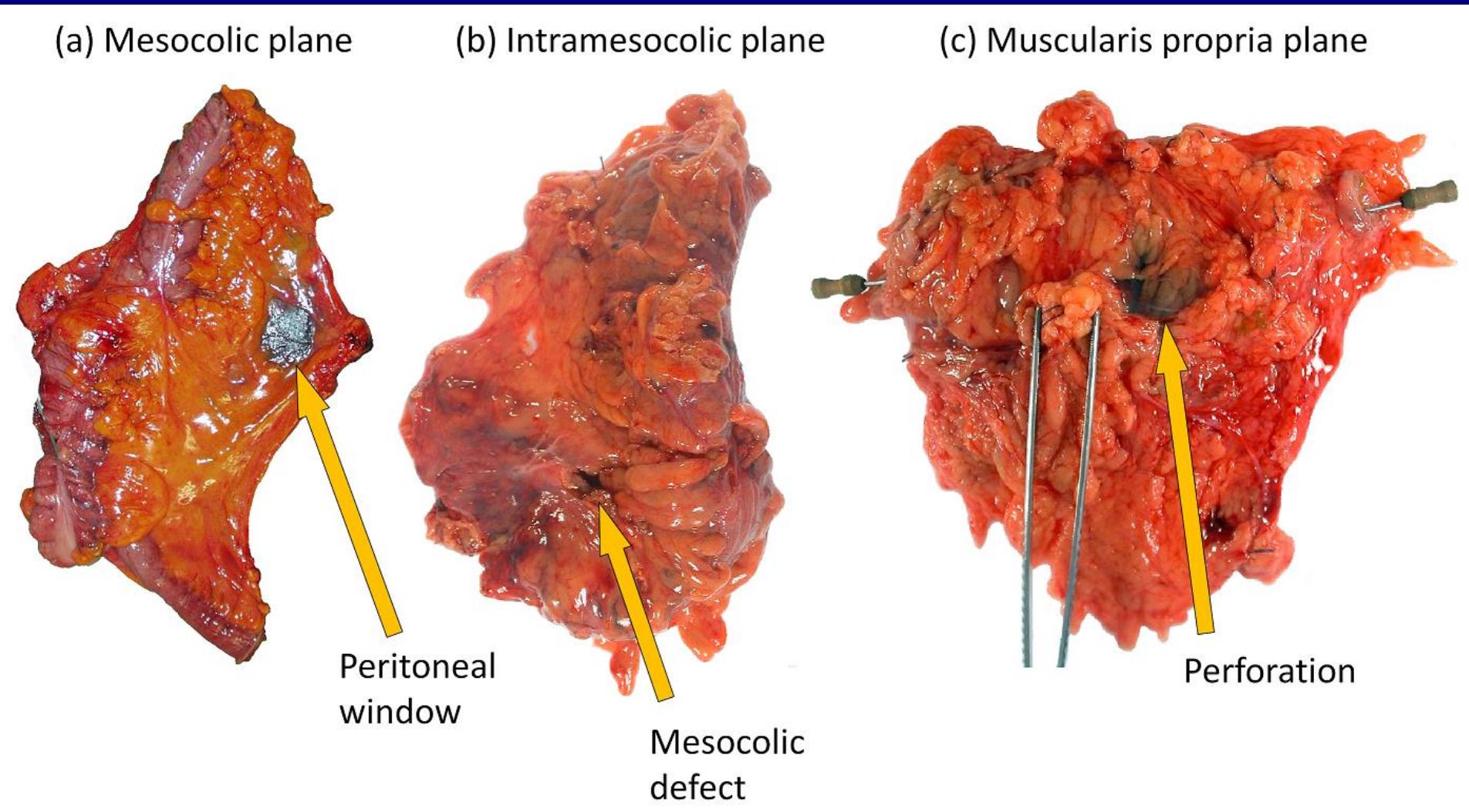
Courtesy

Prof. Solveig Anderson/Oslo



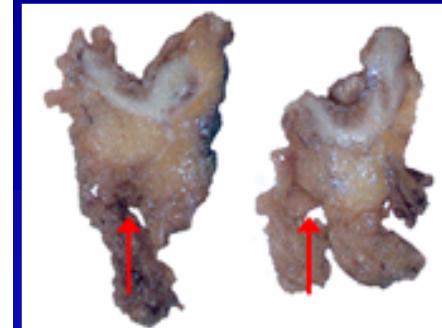
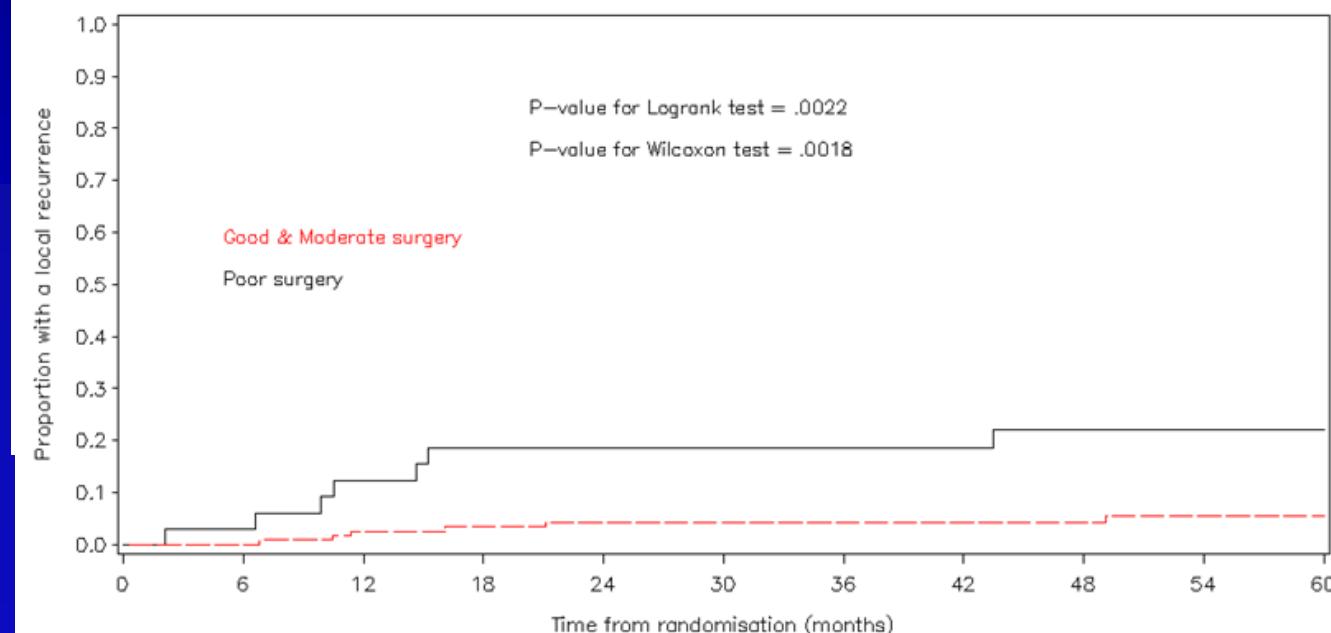
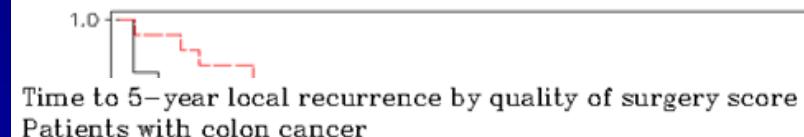
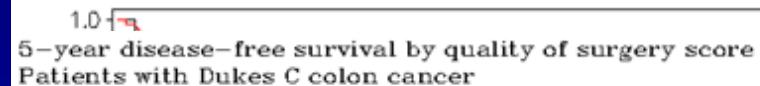
Phil Quirke and Nick West

Categorising Quality of Specimen Retrieval



MRC CLASICC trial

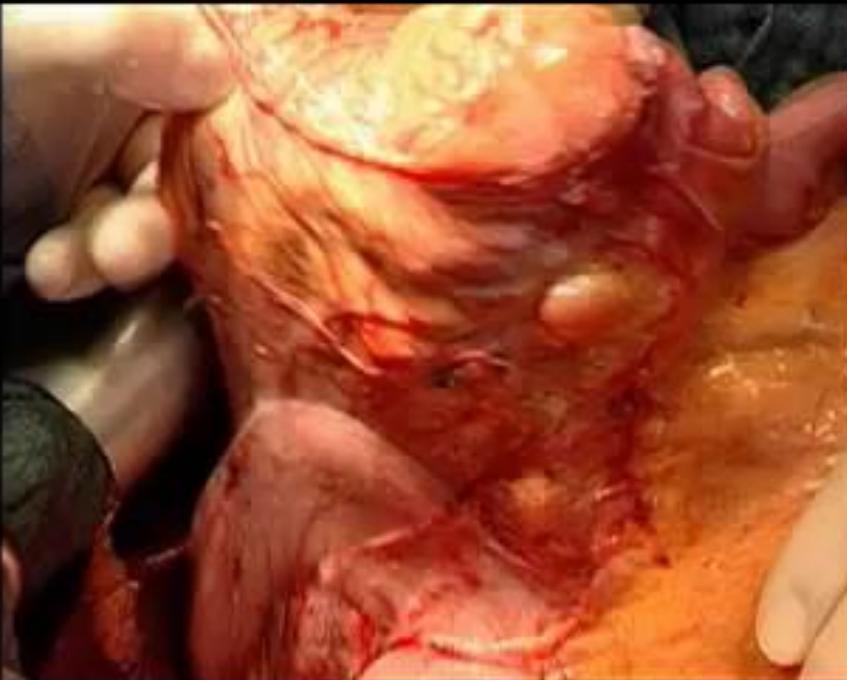
5-year disease-free survival by quality of surgery score
Patients with colon cancer

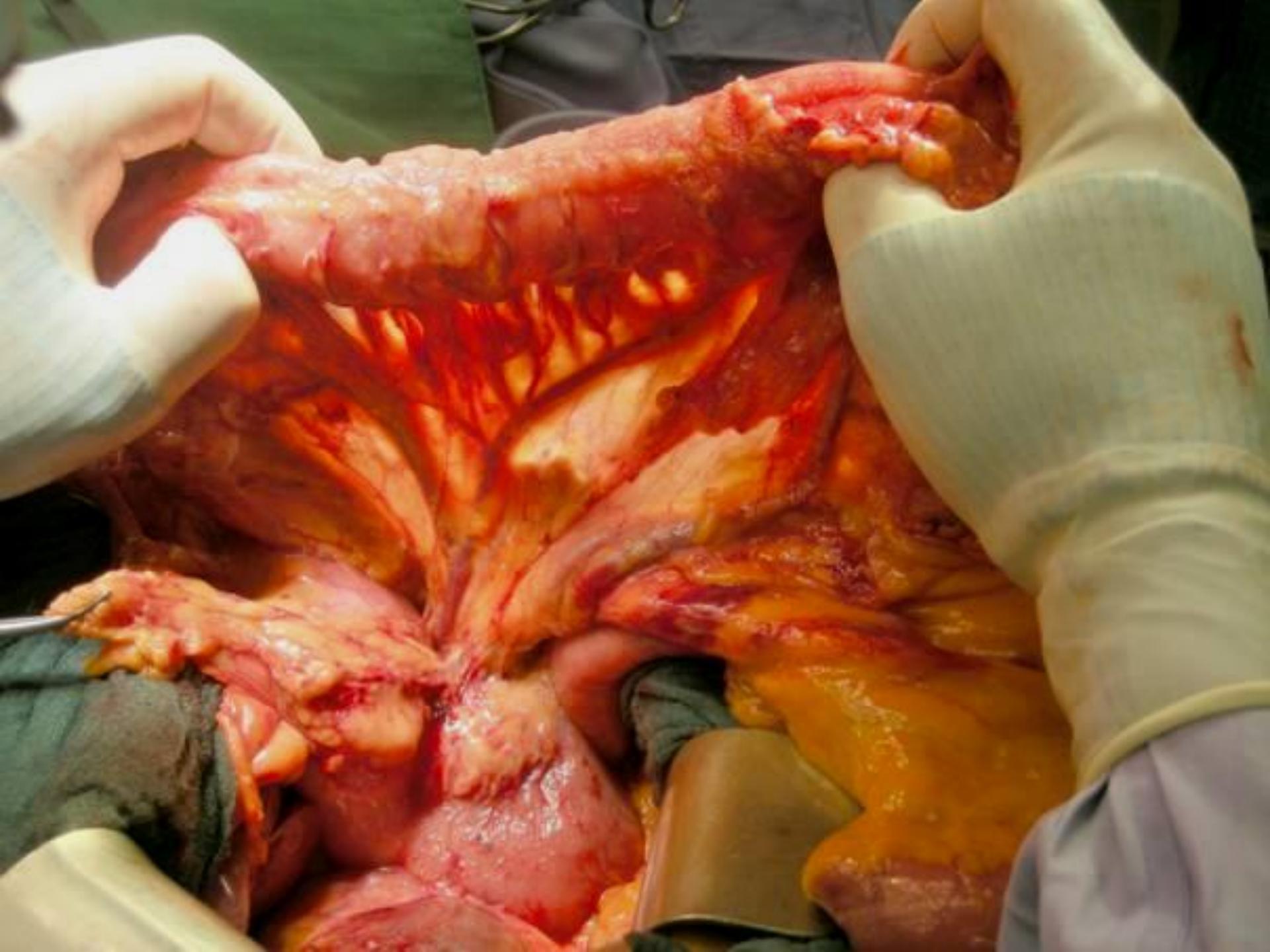


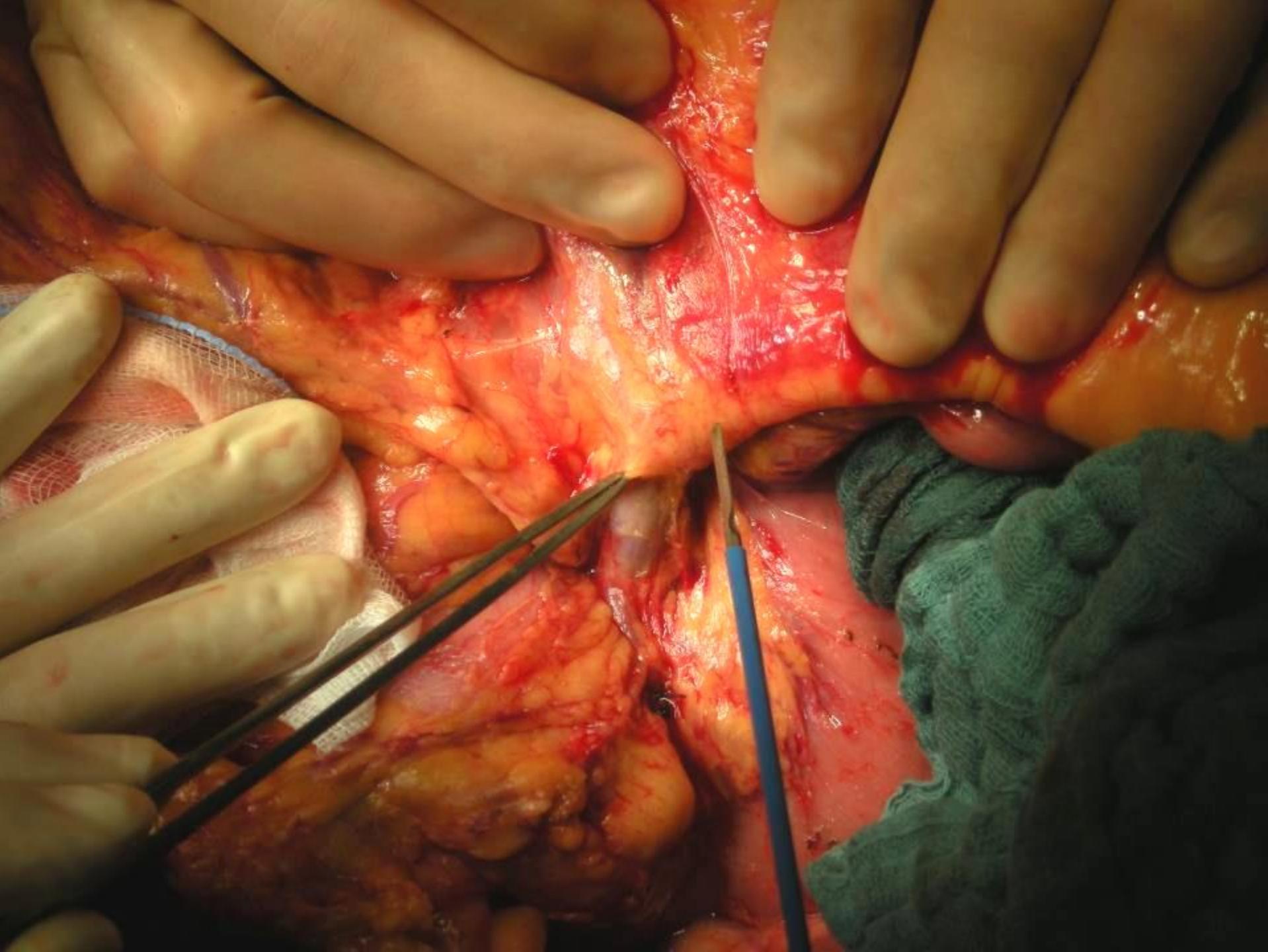
Lymph Node Dissection

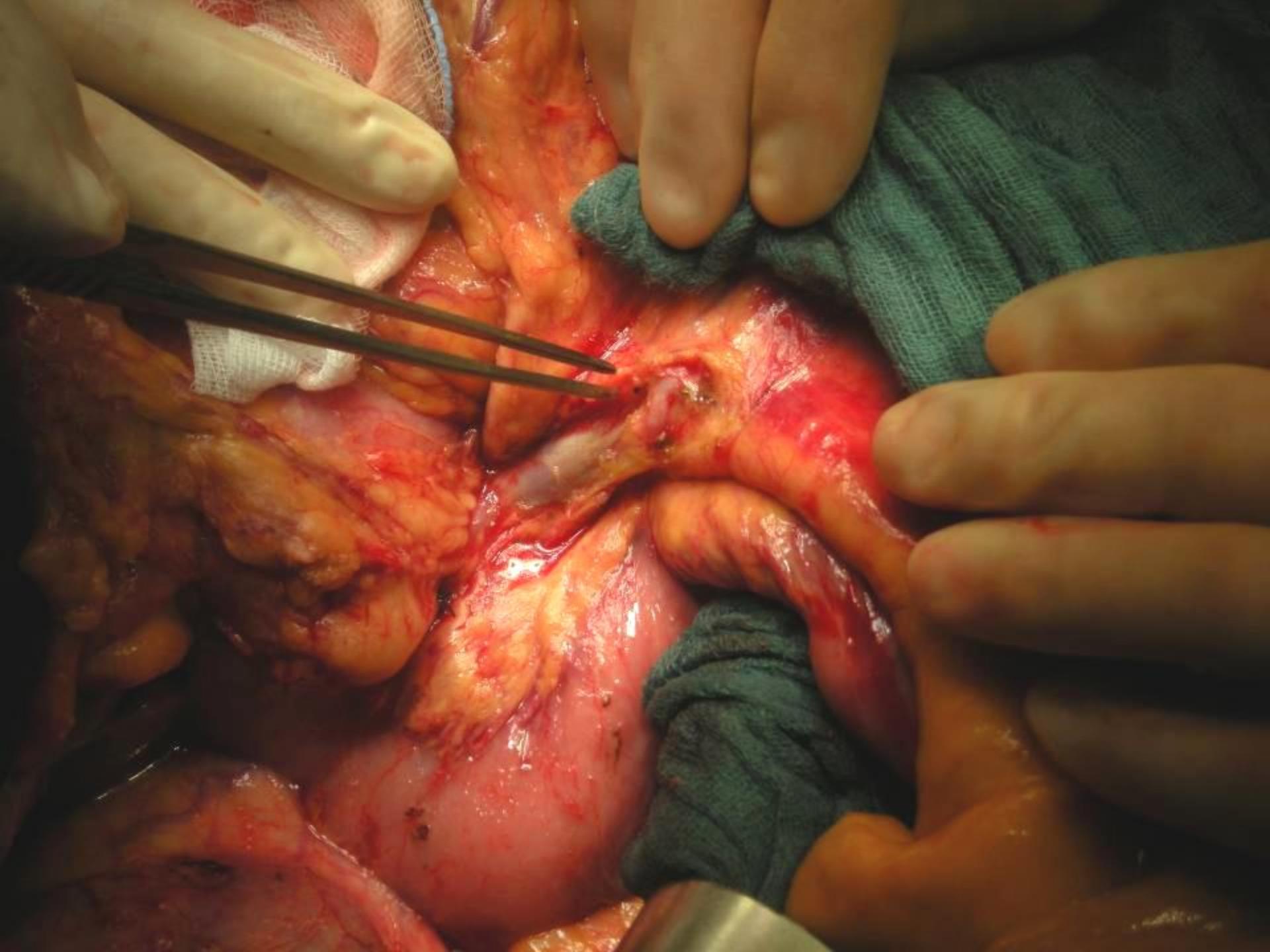
with central tie

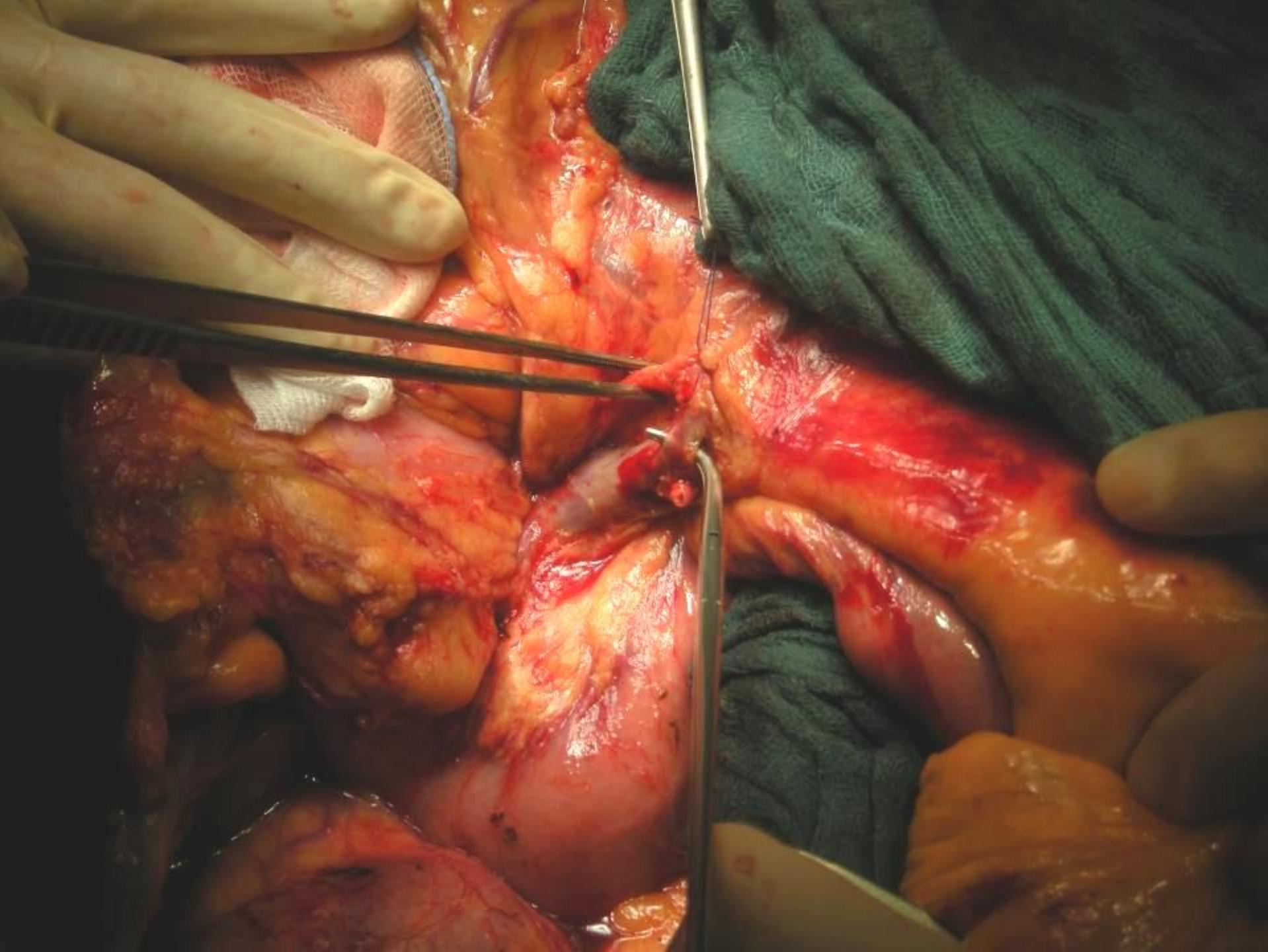
of the supplying arteries

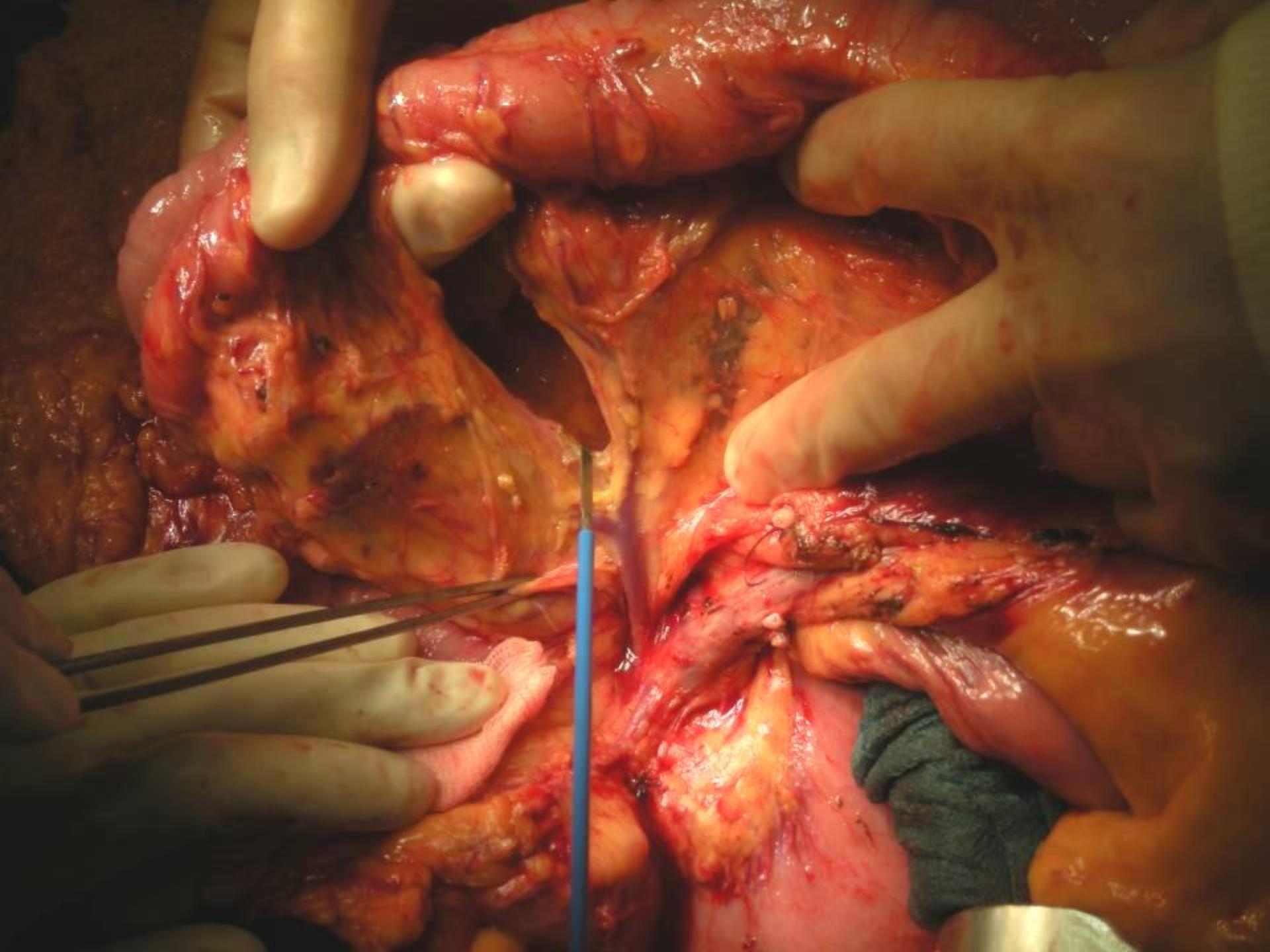


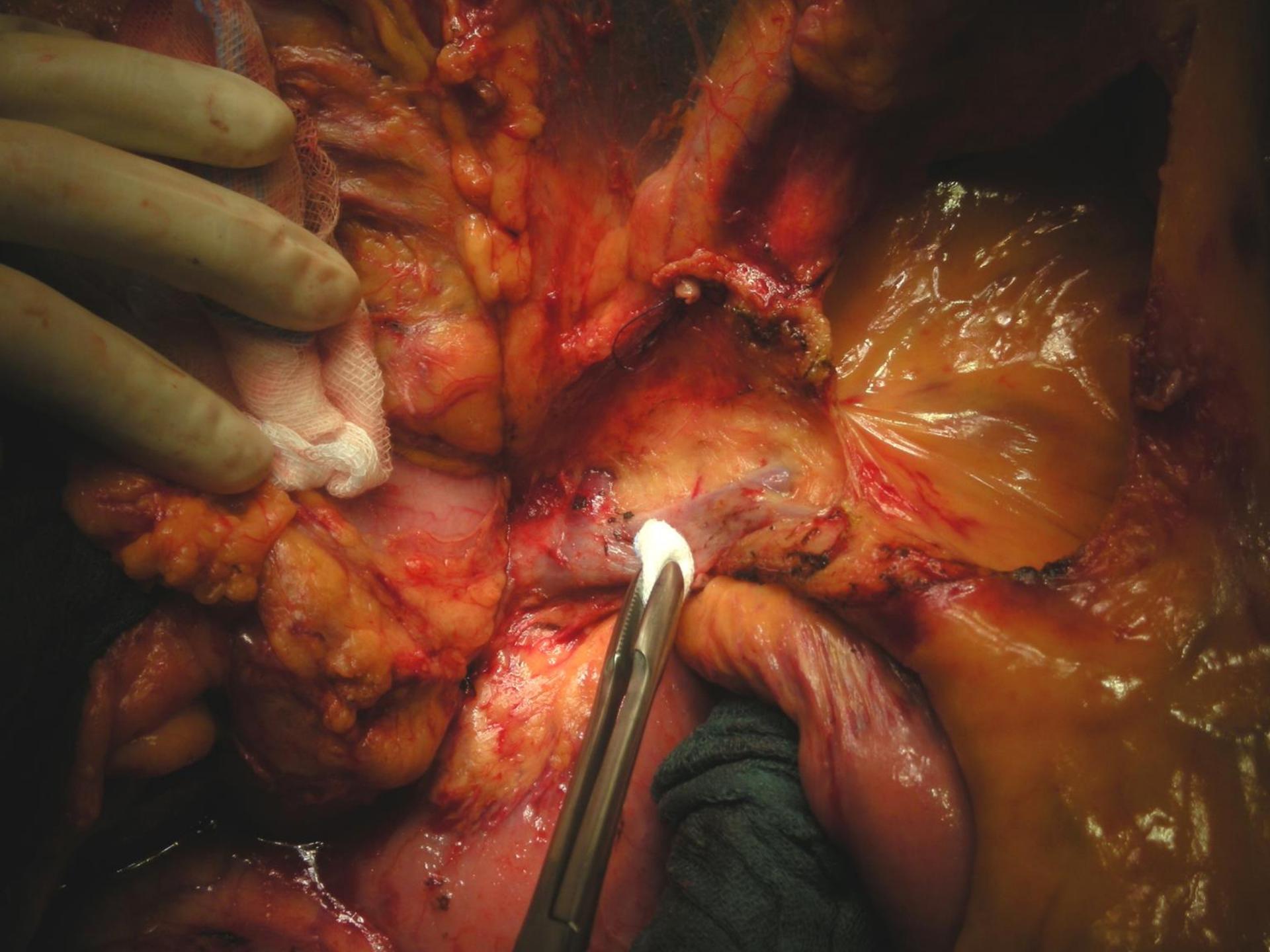






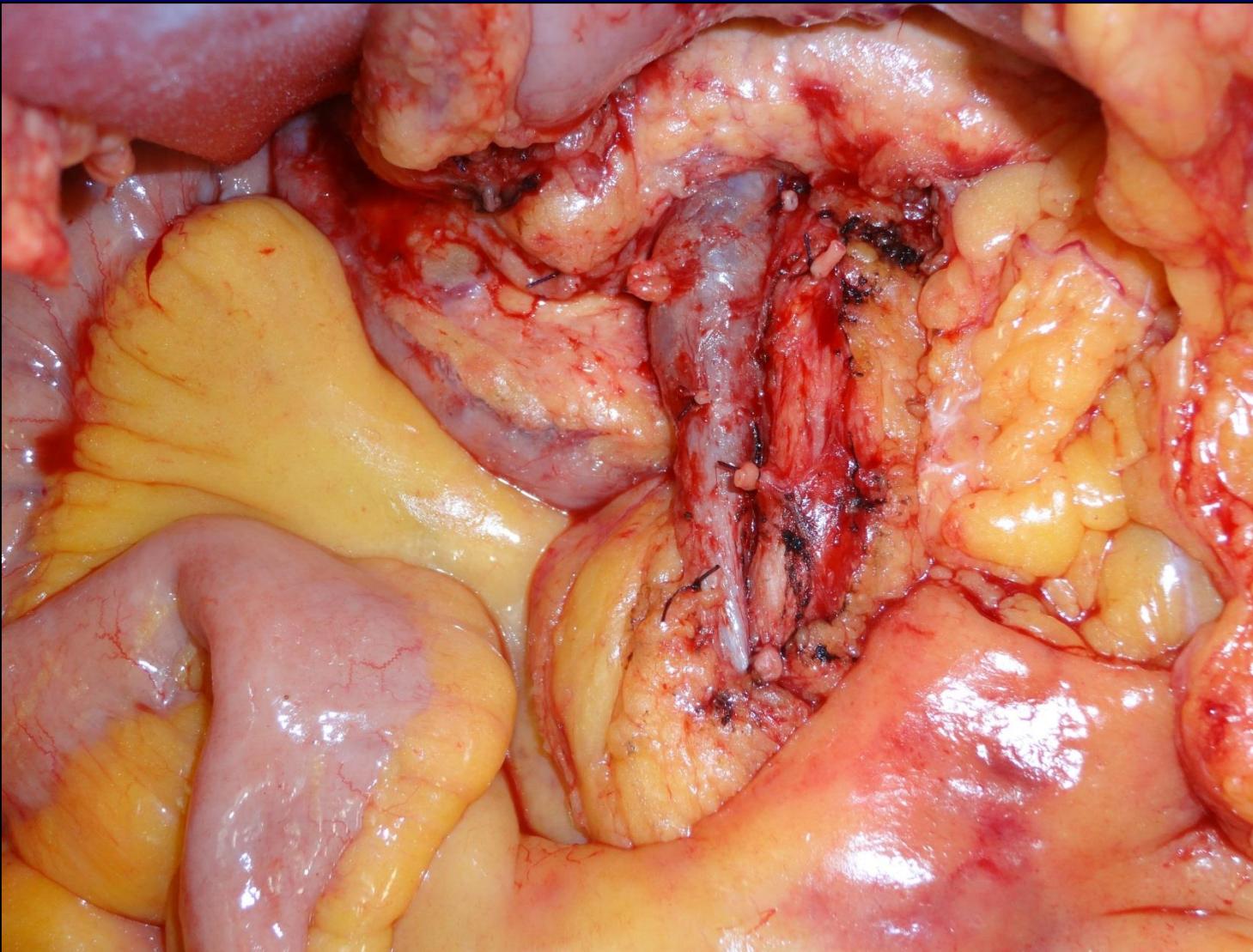






Cancer of the Ascending Colon

Optimized Lymph-Node Dissection

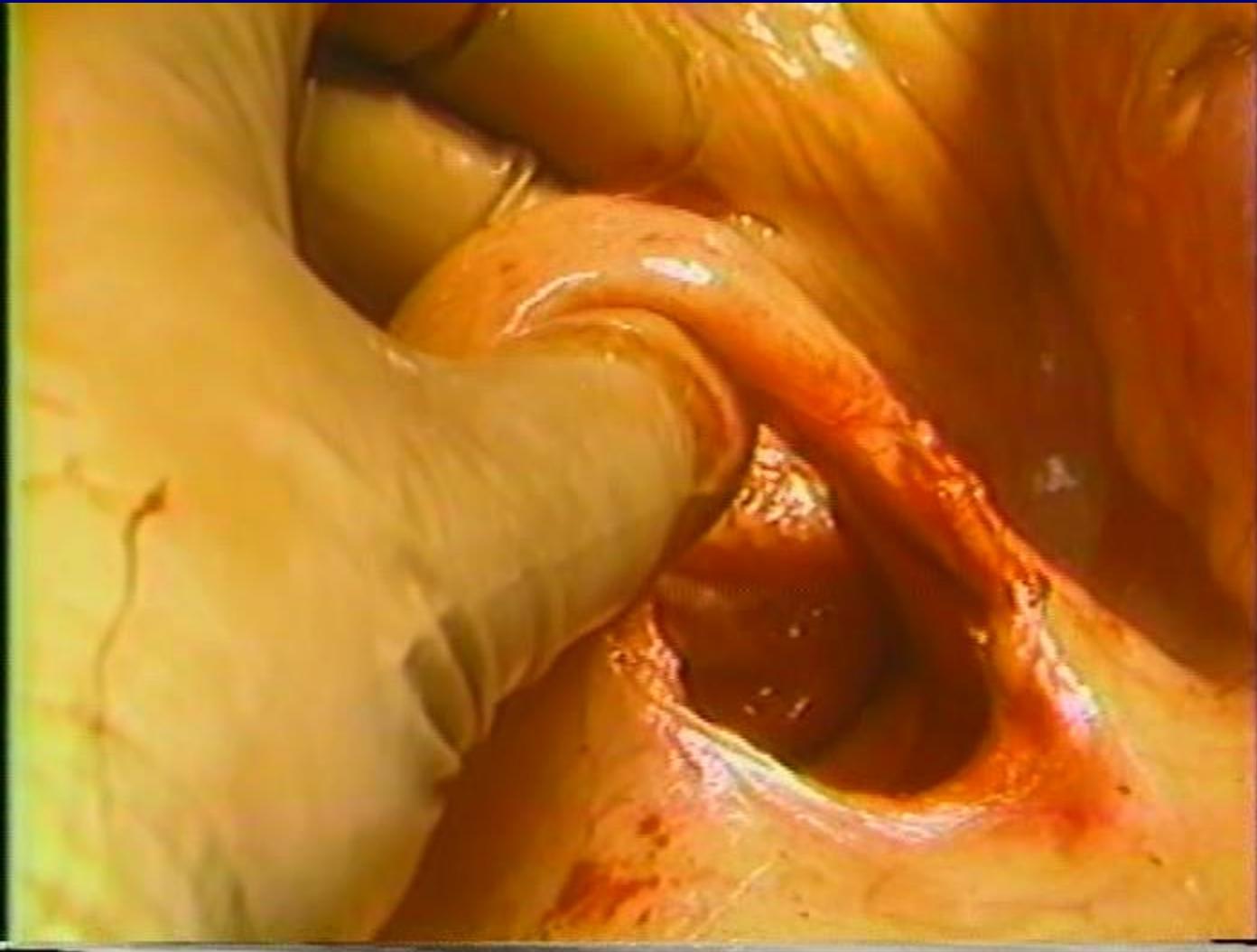


Lymph Node Dissection

„High tie“

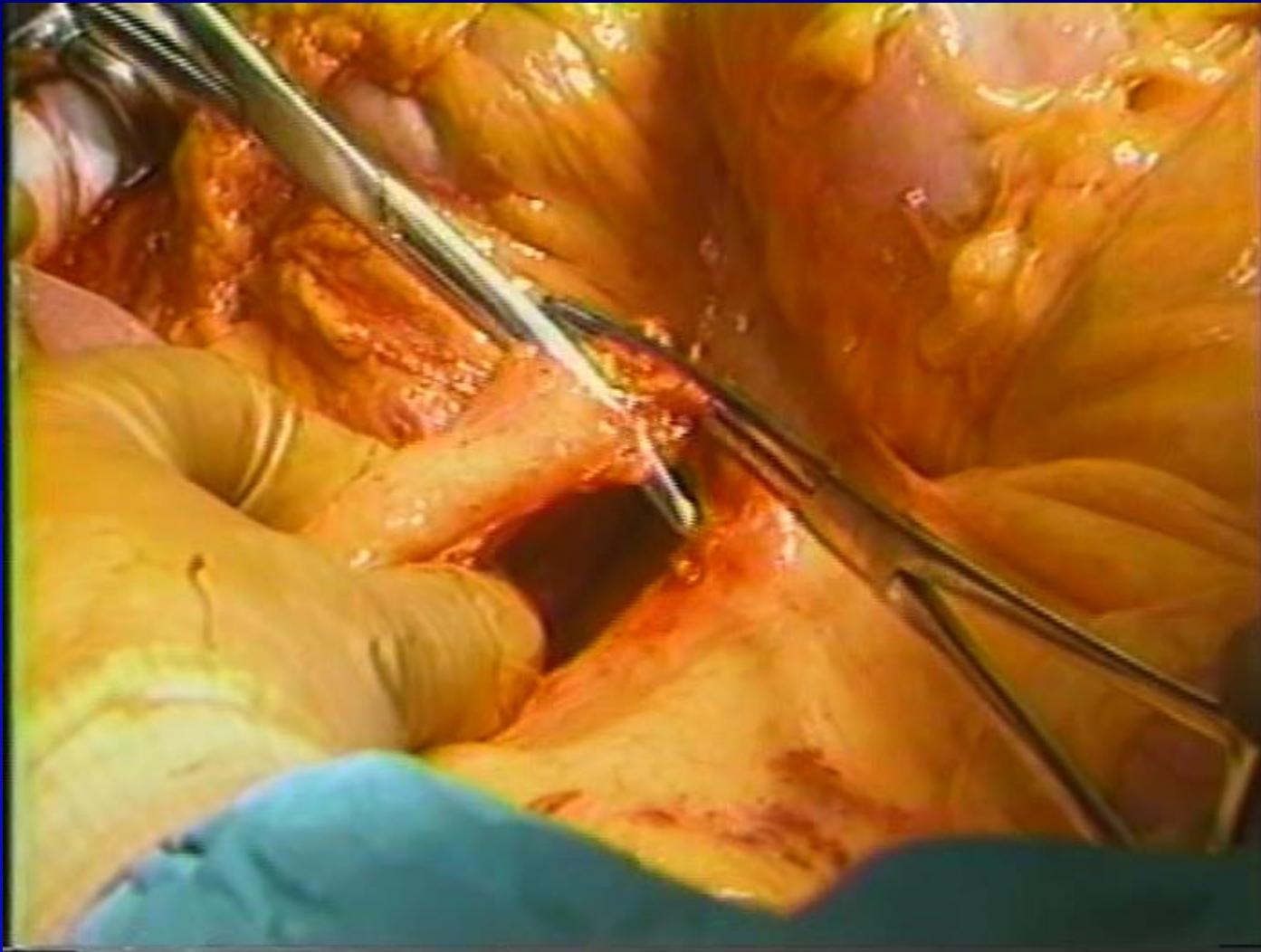
Richt hemicolecction for Cecal Cancer

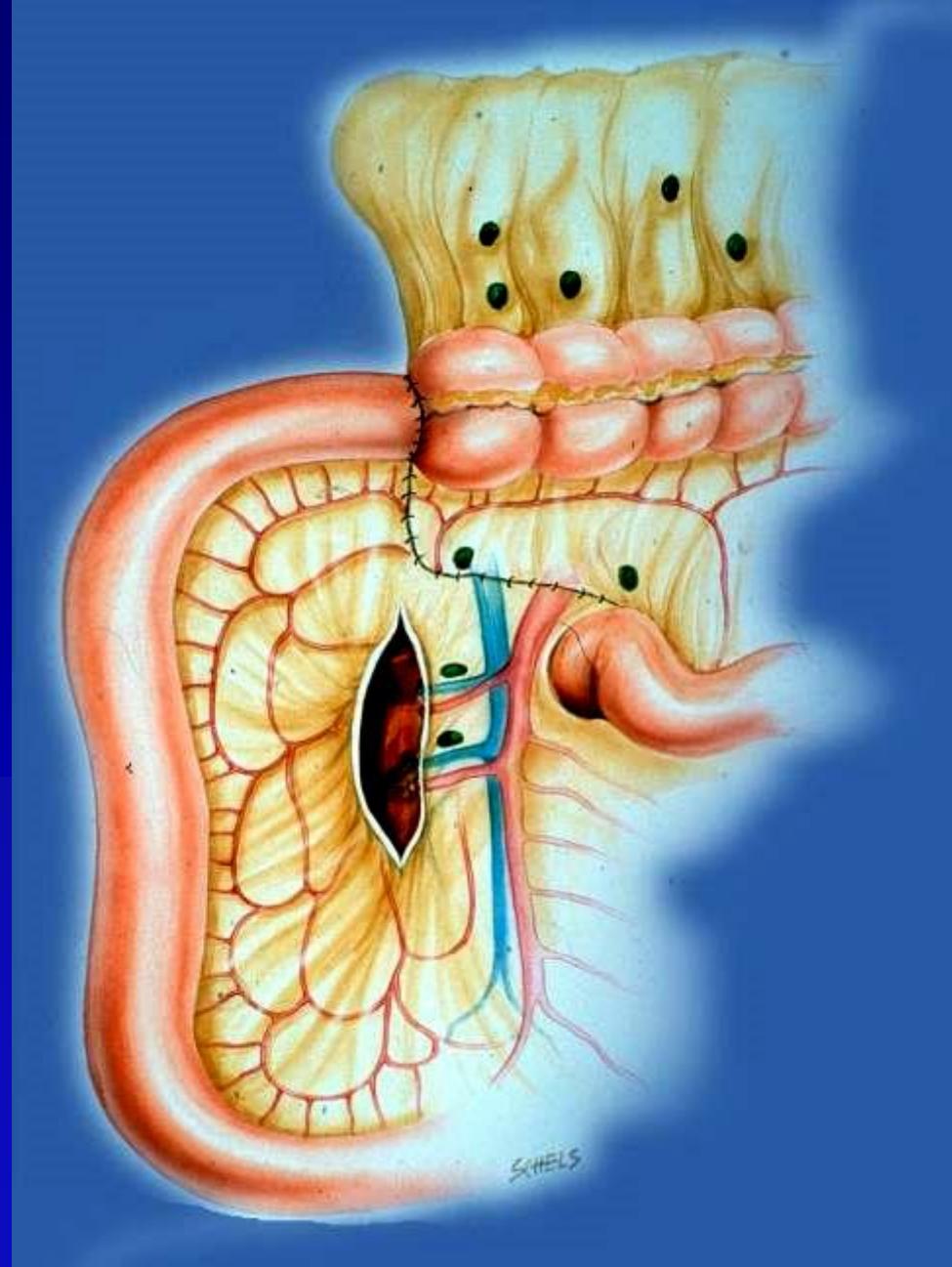
Incision of mesocolic plane to prepare ileocolic pedicle



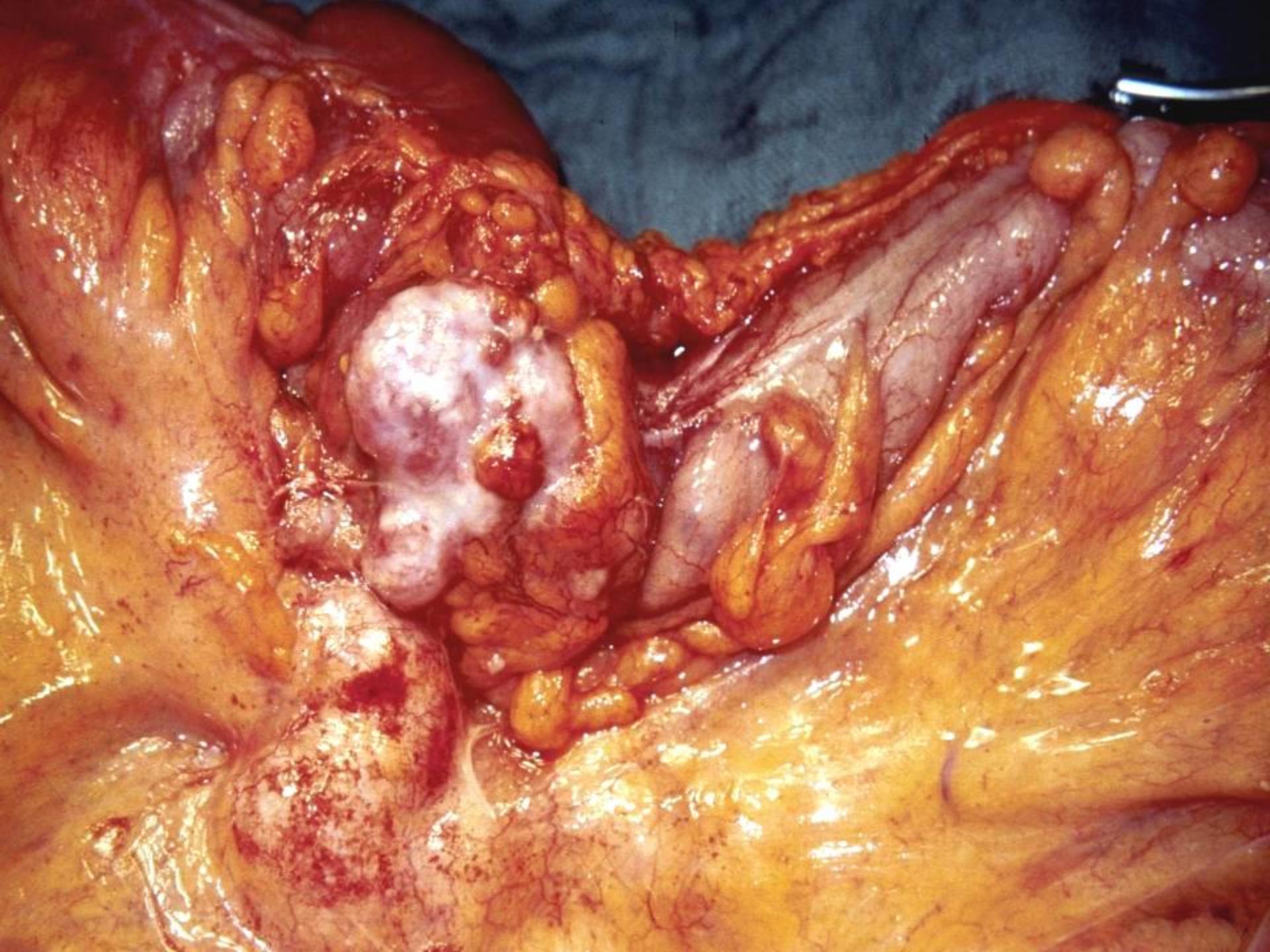
Richt hemicolecction for Cecal Cancer

Clamps closing ileocolic vessels; central stump appr. 5 cm





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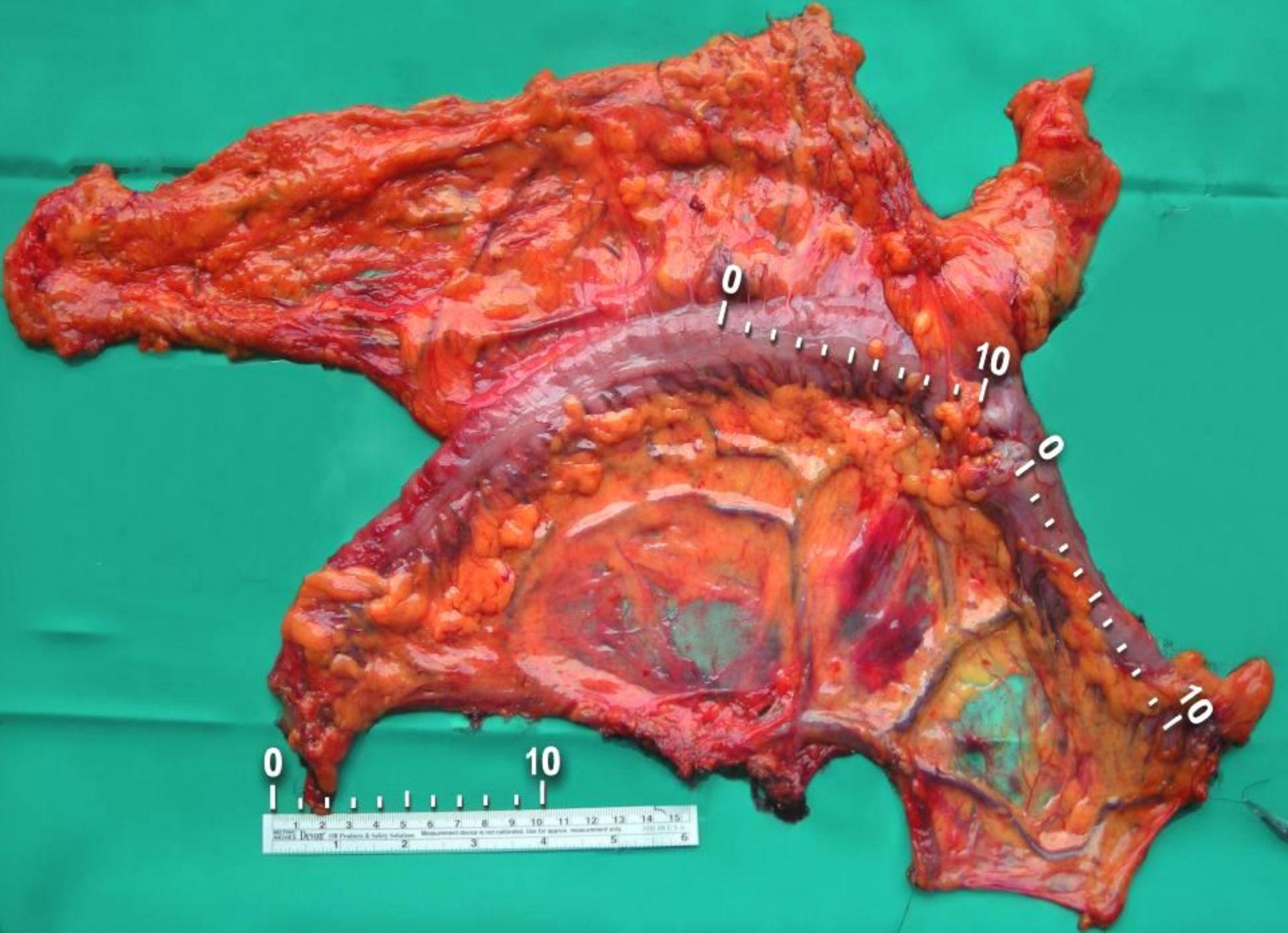
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Colon Cancer

Complete Mesocolic Excision (CME)

Excess of lymph node harvest

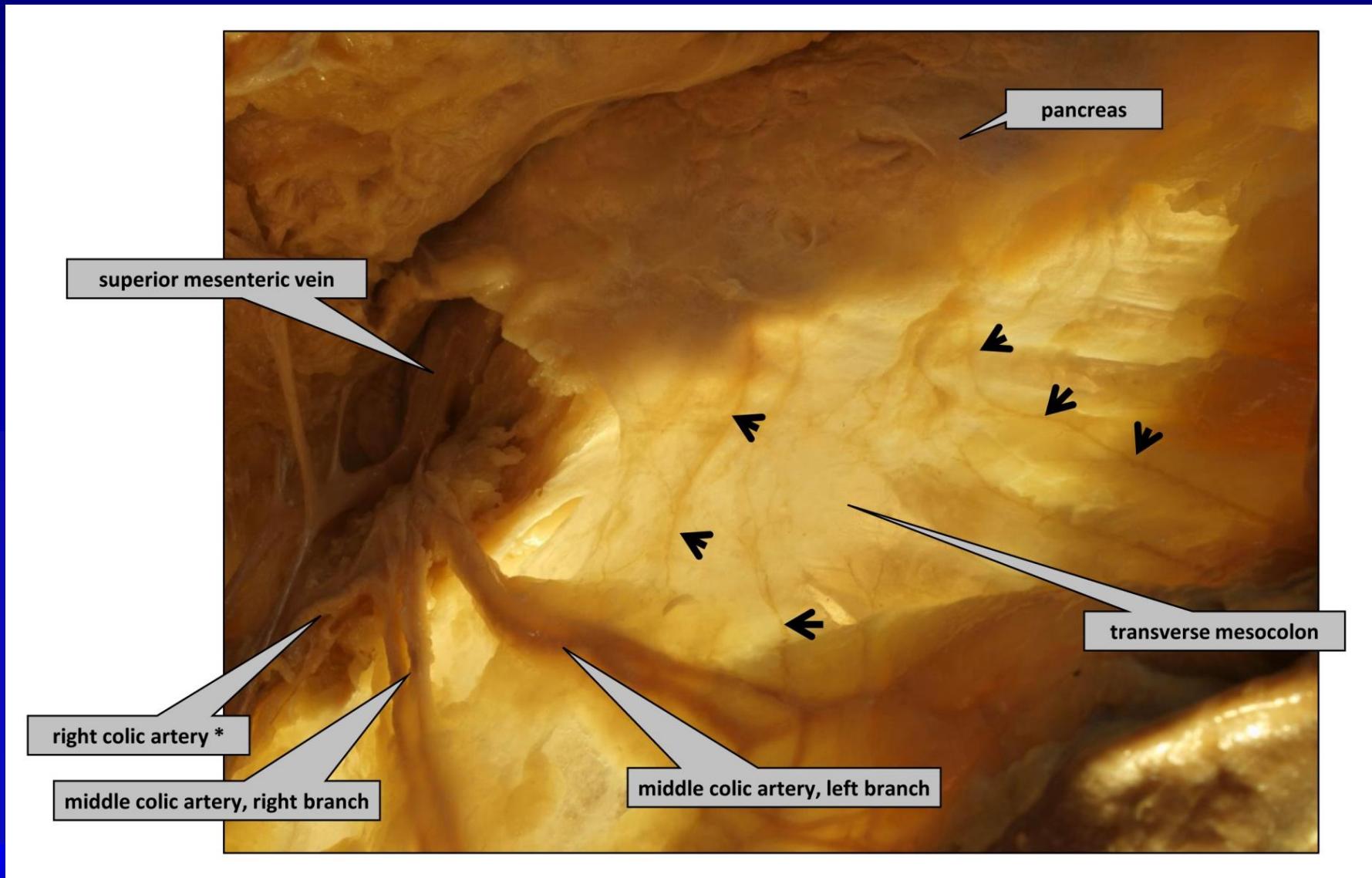
patients	number of lymphnodes / pos.	
	conventional	central segment
1	10 / 0	5 / 0
2	6 / 0	6 / 0
3	28 / 2	3 / 2
4	12 / 0	2 / 0
5	10 / 1	2 / 0
6	20 / 1	2 / 0
7	11 / 0	2 / 0
8	12 / 1	7 / 0
9	14 / 0	6 / 0
10	25 / 0	9 / 0
11	7 / 0	6 / 1

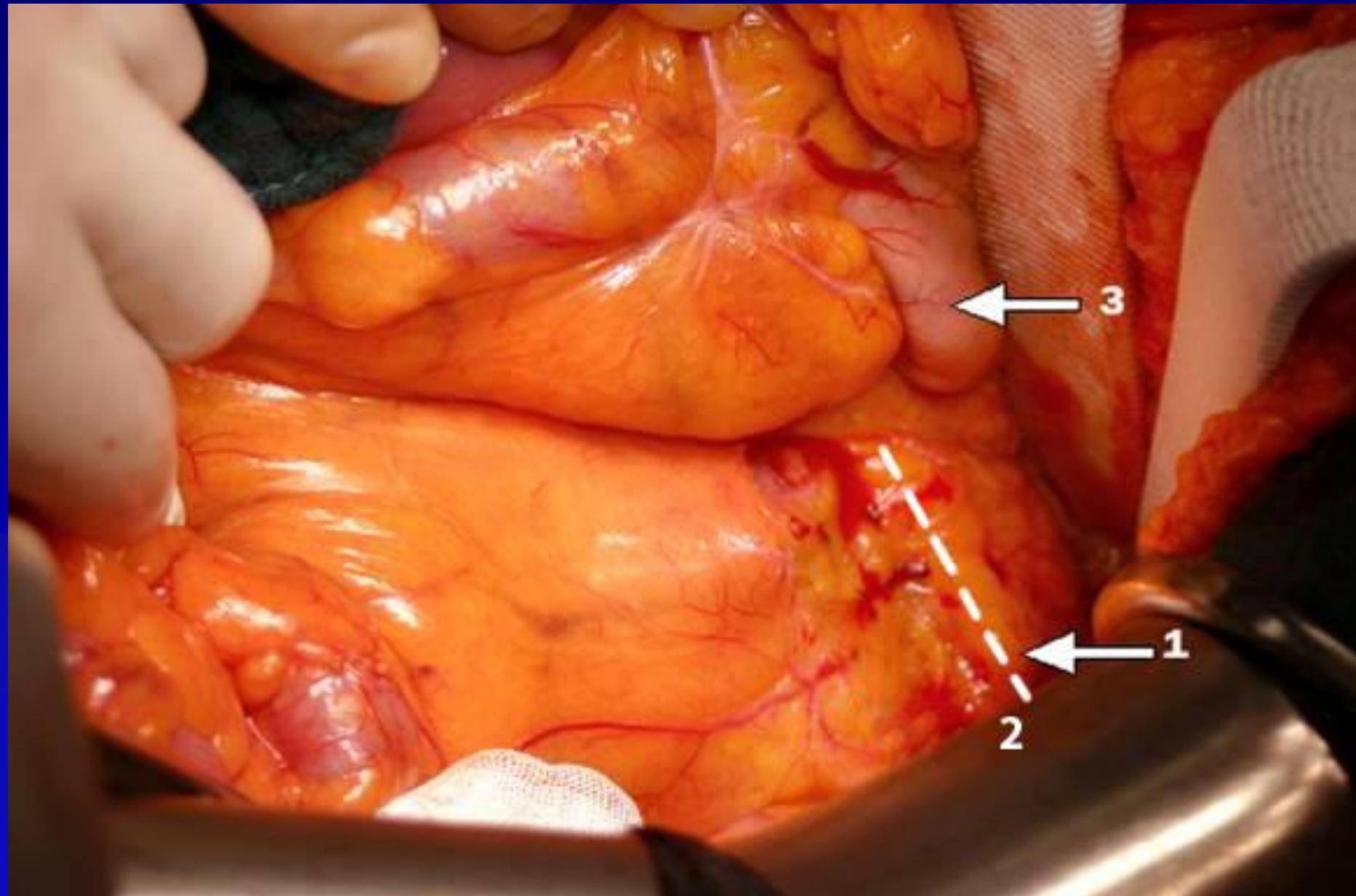


Transverse Colon Cancer Lymph Node Involvement

<i>Transverse colon</i>	<i>Stage III</i>	<i>gastro-epiploic</i>	<i>infra-pancr.</i>
<i>right p. and hepatic flexure (n=16)</i>	<i>n= 6</i>	<i>n=1</i>	<i>-</i>
<i>middle part</i>	<i>(n=26)</i>	<i>n=11</i>	<i>n=2</i>
<i>left p. and splenic flexure (n= 4)</i>	<i>n= 1</i>	<i>-</i>	<i>-</i>

*Small arteries from middle colic a.
to transverse pancreatic a. inside the pancreas*





Surgery for Colon Cancer

Complete Mesocolic Excision (CME)

Postoperative Complications

▶ <i>postop. morbidity</i>	133/633 (21.0 %)
▶ <i>anastomotic leak</i>	11/610 (1.8 %)
▶ <i>reoperations</i>	25/633 (3.9)
▶ <i>in hospital mortality</i>	21/633 (3.3 %)

Surgery for Colon Cancer

Complete Mesocolic Excision (CME)

Cancer related Survival

- Stage I 100 %
- II 91.3 % (88.5 – 93.9)
- III 79.5 % (73.8-85.2)

Chirurg, Univ.-Klinik Erlangen, 1995-2005, R0

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Is the benefit of adjuvant chemotherapy in colon cancer presently overestimated?

*L. Pahlman, W. Hohenberger, K. Matzel
K. Sugihara, P. Quirke, B. Glimelius*

Journal of Clinical Oncology, 34 (12). pp. 1297-1299.

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Colon Cancer Surgery

- Needs profound knowledge of embryology and anatomy
- Plane preservation during dissection is essential
- Is vessel oriented surgery with most central tie of supplying arteries