Controversies in Ileocecal Crohn's Disease Plus technical tips in the treatment of small bowel Crohn's disease

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Surgery in Crohn's Disease

- 80% require at least one surgery
- 40% multiple surgeries for CD in their lifetime
- Most recurrences occur within 3 years
- No real change in rates since introduction of biologics

Lewis RT, Maron DJ. Efficacy and complications of surgery for Crohn's disease. *Gastroenterol Hepatol [N Y]* 2010;6:587–96.

Chardavoyne R, Flint GW, Pollack S, Wise L. Factors affecting recurrence following resection for Crohn's disease. *Dis Colon Rectum* 1986;29:495–502.

Burke JP, Velupillai Y, O'Connell PR, Coffey JC. National trends in intestinal resection for Crohn's disease in the post-biologic era. *Int J Colorectal Dis* 2013;28:1401–6.

Wolters FL, Russel MG, Stockbrügger RW. Systematic review: has disease outcome in Crohn's disease changed during the last four decades? *Aliment Pharmacol Ther* 2004;20:483–96.

Surgery in Crohn’s Disease

- Minimal changes in surgical technique
- No longer routinely bypass
- Conservative resection
- Mesentery is thick and hemostasis is difficult
- Inflammation may lead to adherence to other structures

#1

Should surgery be the first line of therapy?

Surgery in Crohn's Disease

- Should surgery be first line therapy for ileocecal Crohn's Dis before biologics or advanced medical treatment?
- Surgery first
  - ✓ technically easier
  - ✓ patients are healthier
  - ✓ fewer complications

Laparoscopic ileocaecal resection versus infliximab for terminal ileitis in Crohn's disease: a randomised controlled, open-label, multicentre trial

*Cyriel Y Ponsioen, E Joline de Groof, Emma J Eshuis, Tjibbe J Gardenbroek, Patrick M M Bossuyt, Ailsa Hart, Janindra Warusavitarne, Christianne J Buskens, Ad A van Bodegraven, Menno A Brink, Esther C J Consten, Bart A van Wagensveld, Marno C M Rijk, Rogier M P H Crolla, Casper G Noomen, Alexander P J Houdijk, Rosalie C Mallant, Maarten Boom, Willem A Marsman, Hein B Stockmann, Bregje Mol, A Jeroen de Groof, Pieter C Stokkers, Geert R D'Haens, Willem A Bemelman, on behalf of the LIR!C study group**

	Remission
Surgery	**42/53 (79%)**
Infliximab	**38/45 (84%)**

- F/U 7-18 mos
- 32% of those randomized to infliximab stopped during 1st yr due to intolerance or no effect

thelancet.com/gastrohep Vol 2 November 2017

#2

Is the mesentery important?

The Role of the Mesentery in Crohn's Disease: The Contributions of Nerves, Vessels, Lymphatics, and Fat to the Pathogenesis and Disease Course

Yi Li, MD, PhD,[*,†] *Weiming Zhu, MD,*[*] *Lugen Zuo, MD,*[*] *and Bo Shen, MD*[†]

- The mesentery is abnormal and plays a more active role than we have appreciated in the past

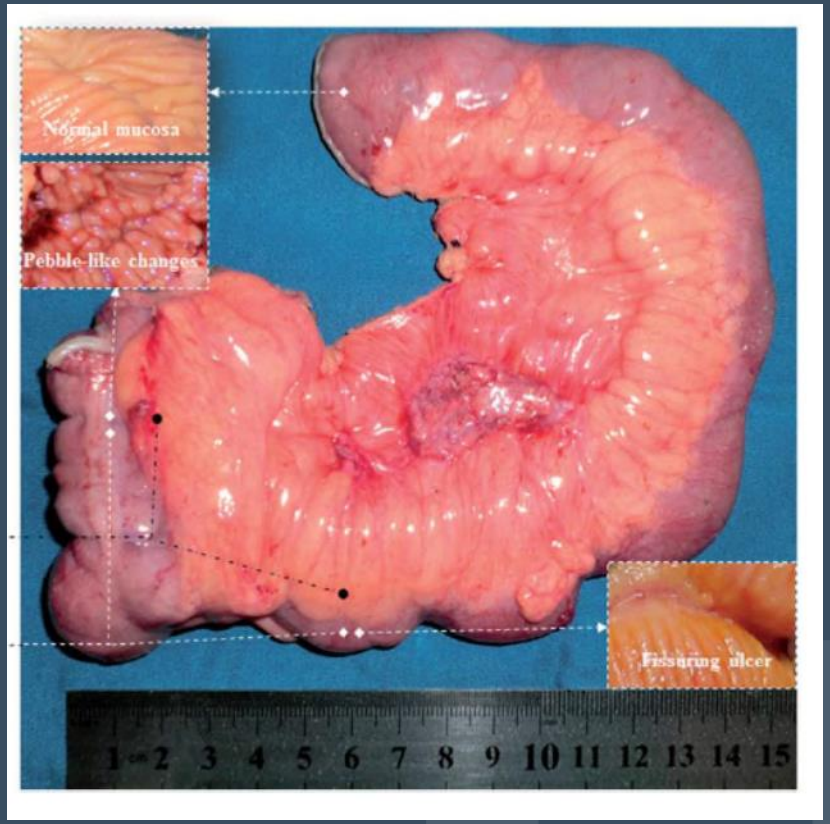
(Inflamm Bowel Dis 2016;22:1483–1495)

Surgery in Crohn's Disease

Fat wrapping

- Abnormal adipocytes
- Proinflammatory mediators
- Dysfunction from hypoxia and bacterial infiltration
- Increased fat mass assc w/
  - ✓ high disease activity
  - ✓ disease relapse
  - ✓ disease related hospitalization

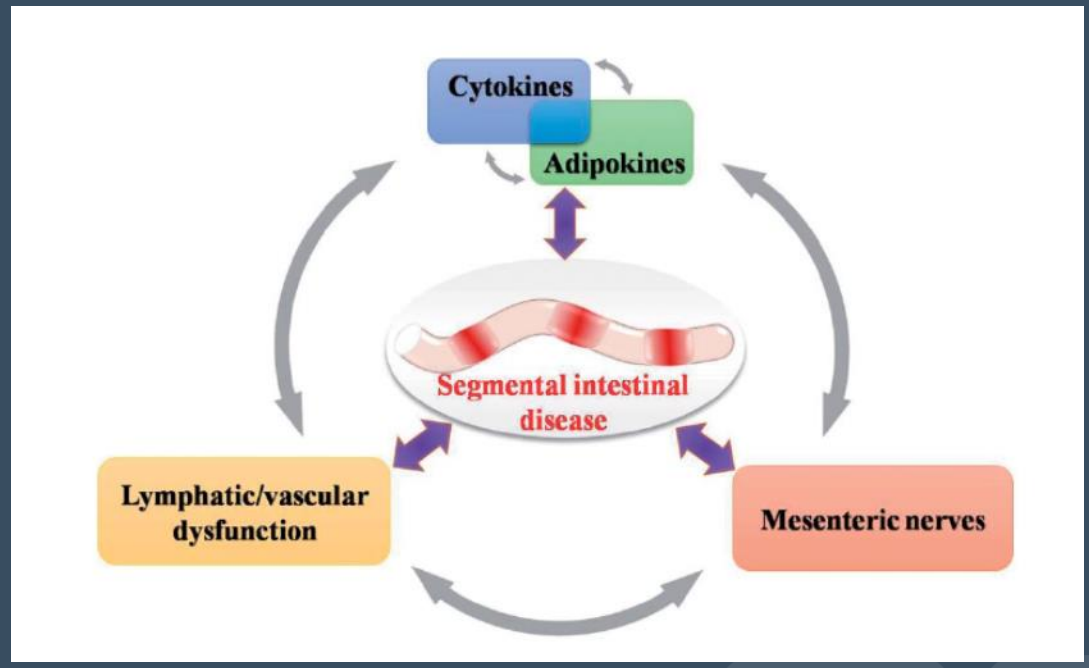
(*Inflamm Bowel Dis 2016;22:1483–1495*)



Surgery in Crohn's Disease

Other abnormalities

- Angiogenesis
- Abnormal blood flow
- Loss of autonomic nerves
- Increased lymphatic vessels

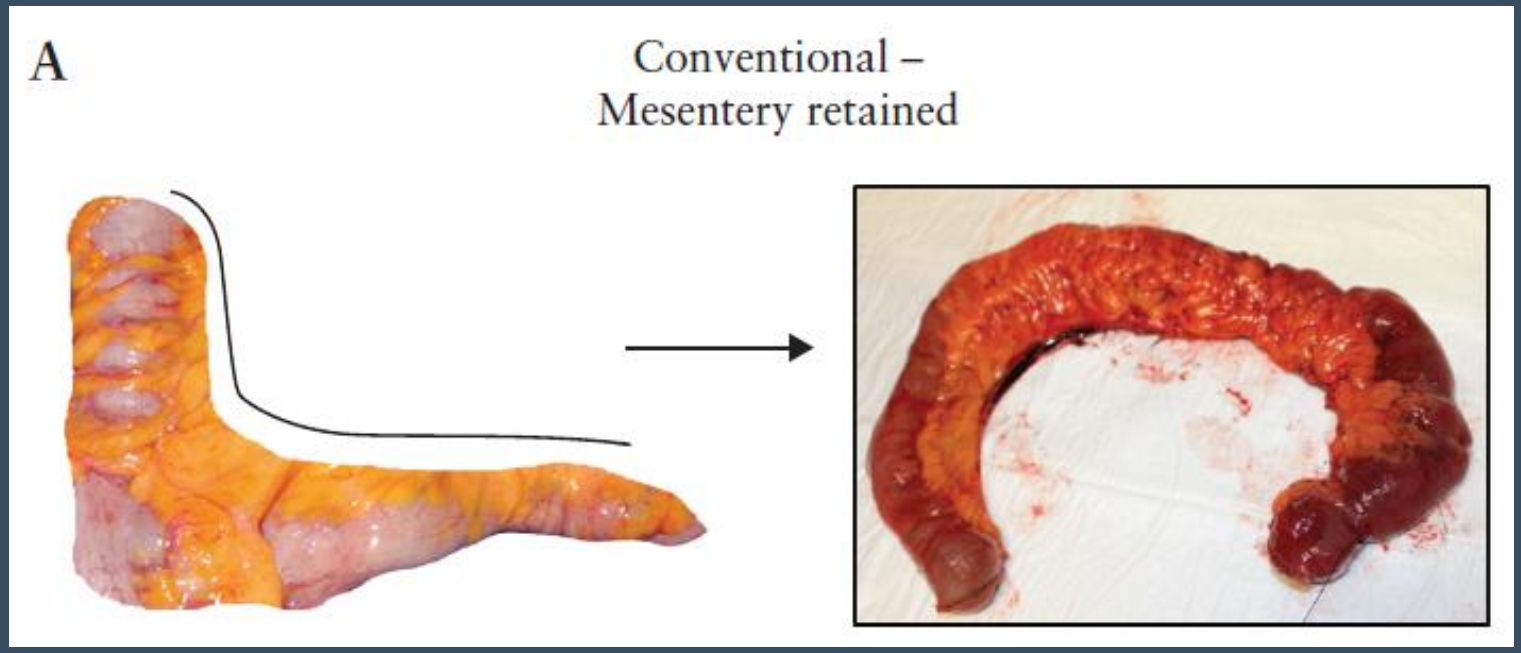


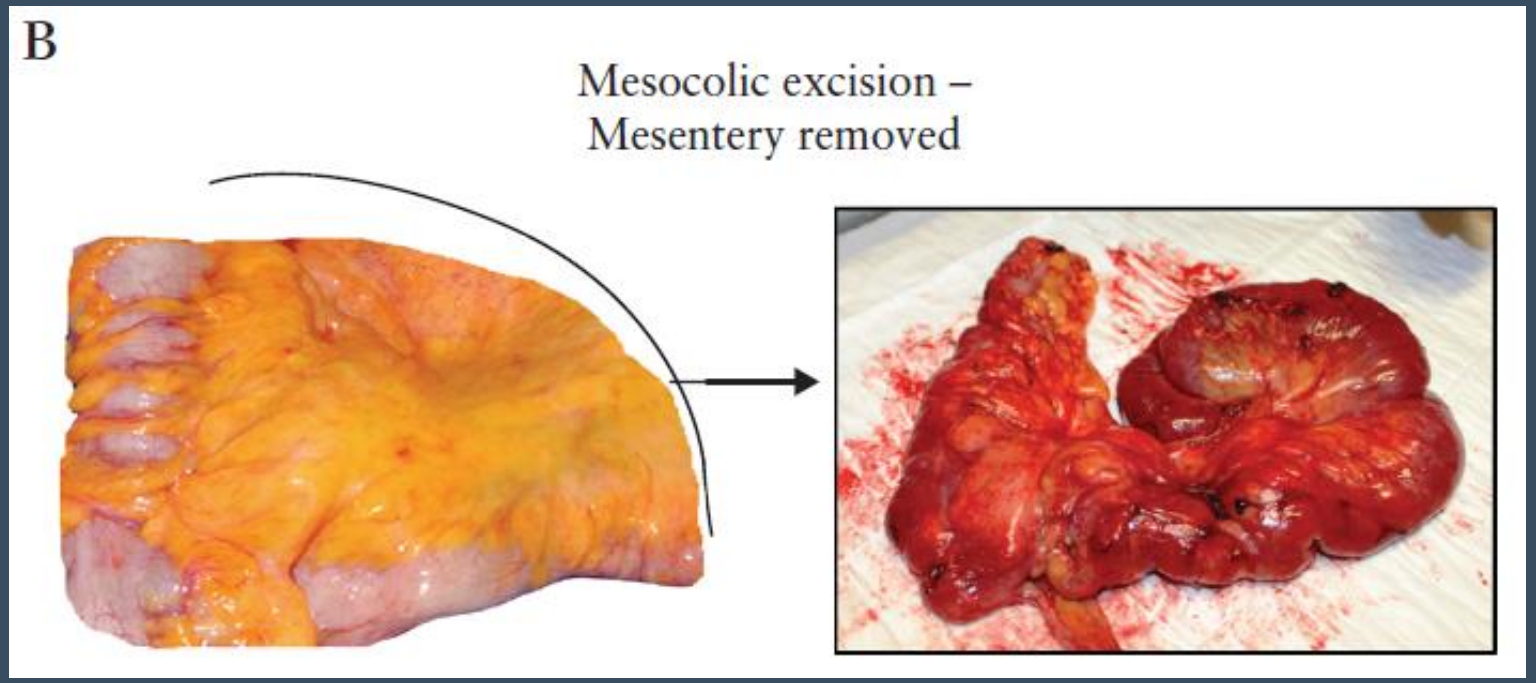
(Inflamm Bowel Dis 2016;22:1483–1495)

Inclusion of the Mesentery in Ileocolic Resection for Crohn's Disease is Associated With Reduced Surgical Recurrence

Calvin J. Coffey,[a,b,c*] Miranda G. Kiernan,[b,c*] Shaheel M. Sahebally,[a,b,c*] Awad Jarrar,[d] John P. Burke,[e,f] Patrick A. Kiely,[b,c,g] Bo Shen,[d,h] David Waldron,[a] Colin Peirce,[a] Manus Moloney,[i] Maeve Skelly,[i] Paul Tibbitts,[a,b] Hena Hidayat,[a] Peter N. Faul,[j] Vourneen Healy,[j] Peter D. O`Leary,[a] Leon G. Walsh,[a,b,c] Peter Dockery,[k] Ronan P. O`Connell,[e,f] Sean T. Martin,[e] Fergus Shanahan,[l] Claudio Fiocchi,[h,m] Colum P. Dunne[b,c]

Journal of Crohn's and Colitis, 2018, 1–12
doi:10.1093/ecco-jcc/jjx187

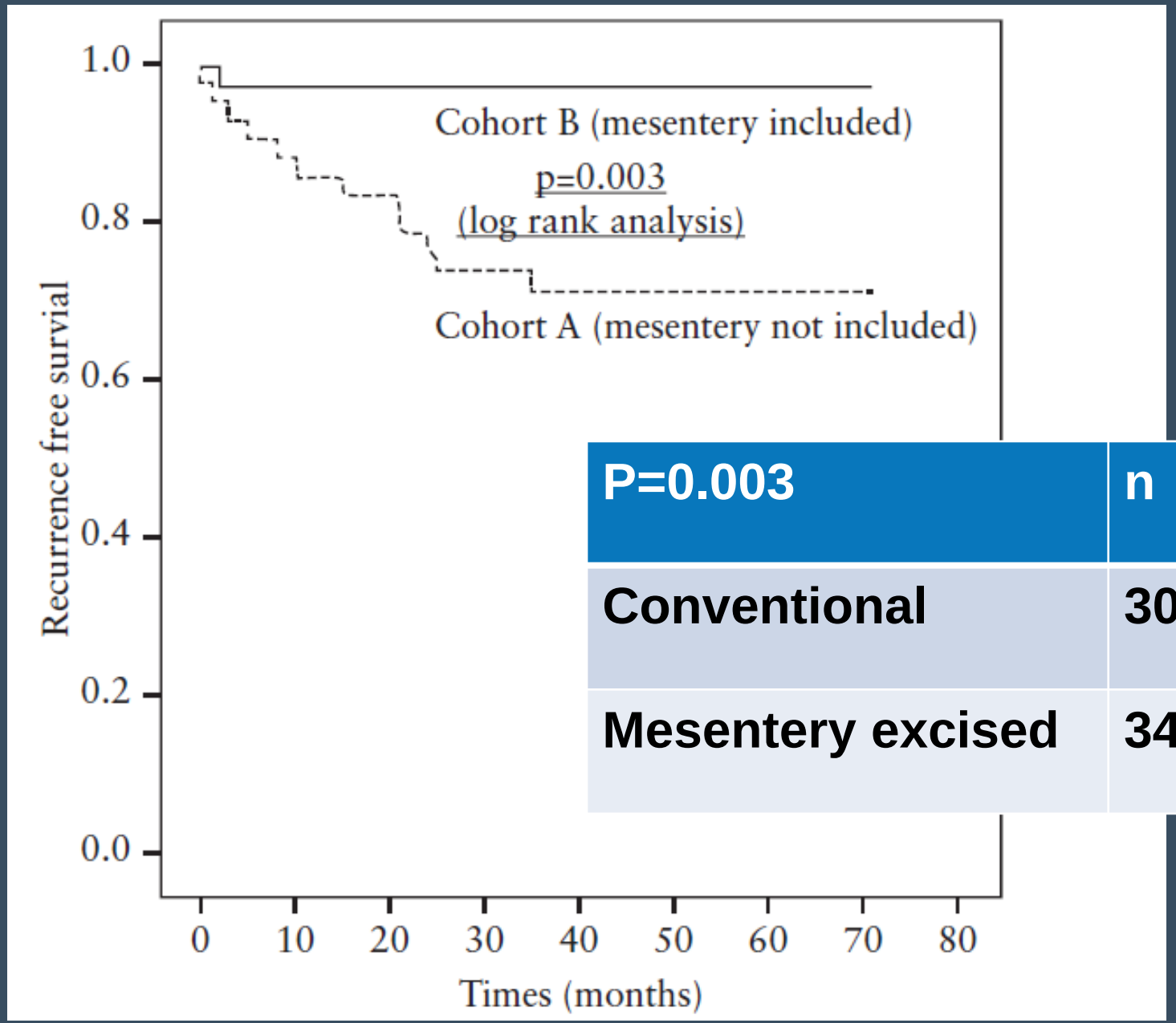




Two cohorts

- A=30
- Jan 04-April 10
- Consecutive ICR
- F/U 70 mos +/- 48

- B=34
- After Aug 2010
- Consecutive ICR
- F/U 51 mos +/- 21



P=0.003	n	reop
Conventional	30	40%
Mesentery excised	34	2.9%

Table 3. Multivariable analysis of association between known factors of surgical recurrence and development of recurrence requiring surgical intervention.

Variable	Univariable analysis [*p*-value]	Multivariable analysis [*p*-value]
Gender	1.000	
Smoking at time of surgery	0.015	0.010
Age at diagnosis	0.934	
Disease phenotype	0.029	0.048
Disease location	0.469	
Age at surgery	0.788	
Non-mesenteric resection	0.004	0.007
Duration of disease	0.584	
Duration of follow-up	0.363	

Table 4. Multivariable analysis of association between clinico-histopathological features and development of recurrence requiring surgical intervention.

Variable	HR	95% CI	*P*-value
Non-stricturing/non-penetrating phenotype	0.764	0.241–2.428	0.649
Penetrating phenotype	2.729	0.772–9.649	0.119
Fat wrapping	4.722	1.713–13.017	0.003

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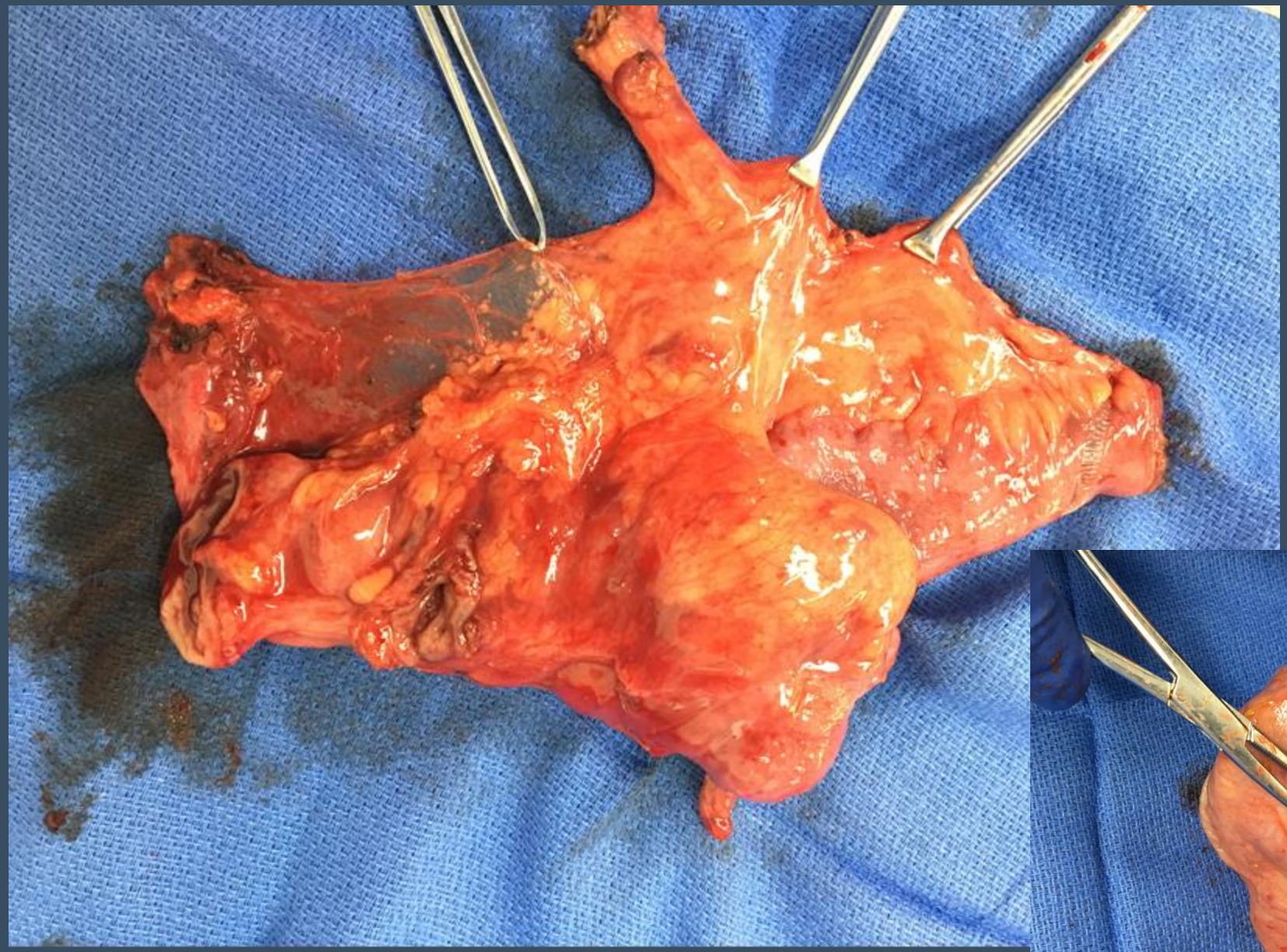
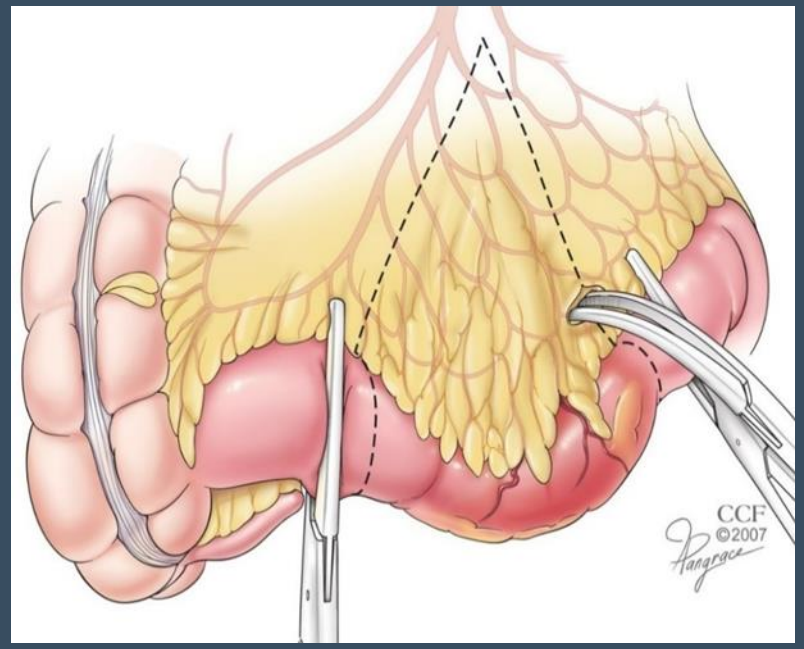


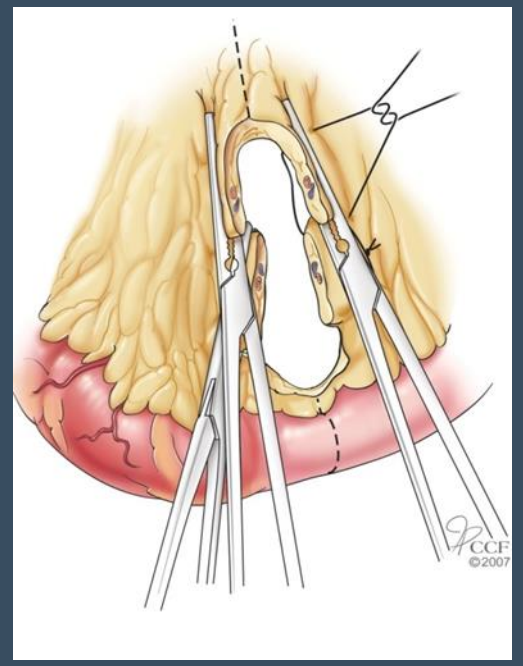
Surgery in Crohn's Disease

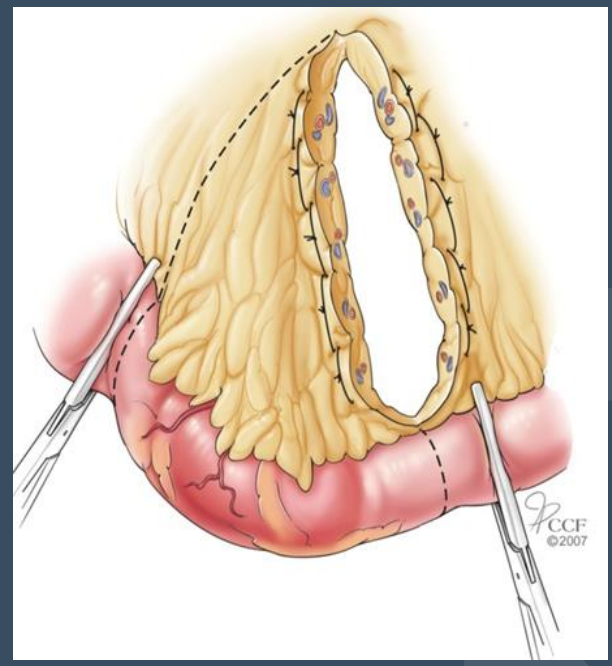
Managing the mesentery

Mesentery: thickened and edematous

- Clamp, cut and tie may **NOT** be adequate
- Overlapping clamps with suture ligatures







#3

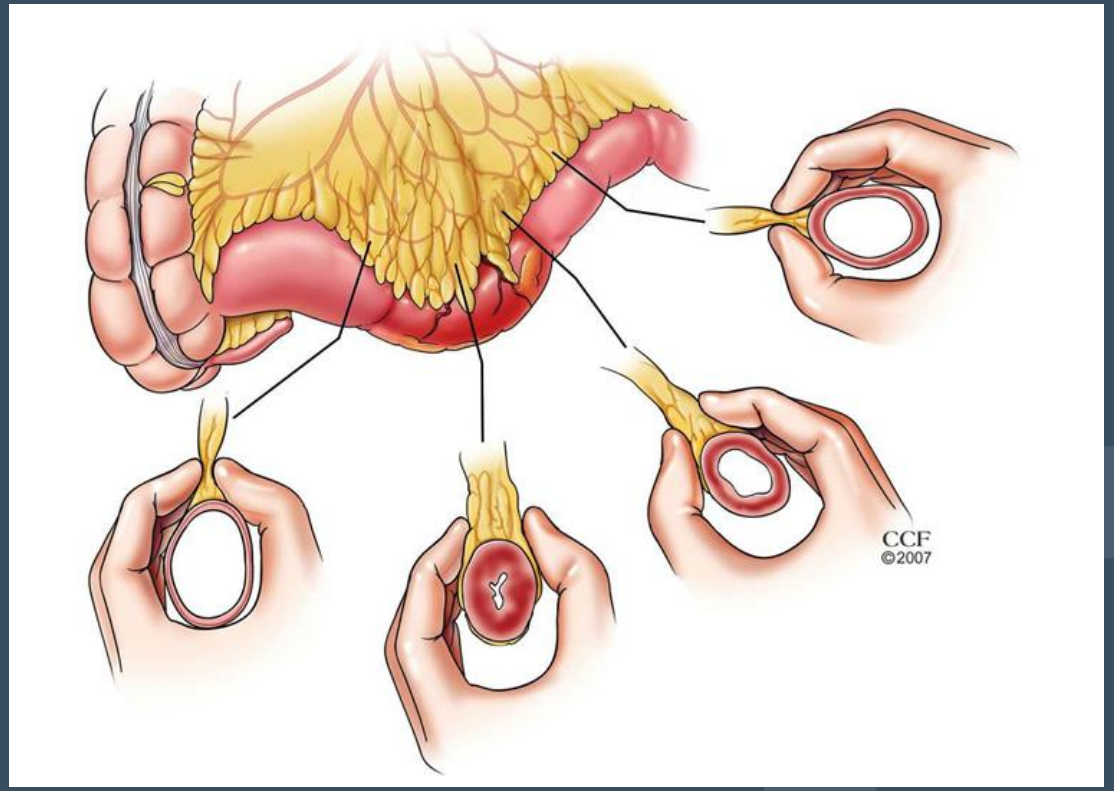
What about the resection margin?

Surgery in Crohn's Disease

Resection margins SB Crohn's ds

- 152 randomized prospective trial
- 2 cm vs 12 cm margin
- F/U 56 mos (median)

Fazio 1996



Surgery in Crohn's Disease

Resection margins SB Crohn's ds

- Extended resection margins confer no advantage to patients in reducing cumulative recurrence rates
- Resect only diseased **bowel—may leave residual microscopic disease at margins**
- Small aphthous ulcers may be left behind

Fazio 1996

Short- and medium-term outcomes following primary ileocaecal resection for Crohn's disease in two specialist centres

A. de Buck van Overstraeten[1], E. J. Eshuis[4], S. Vermeire[2], G. Van Assche[2], M. Ferrante[2], G. R. D'Haens[4], C. Y. Ponsioen[4], A. Belmans[3], C. J. Buskens[5], A. M. Wolthuis[1], W. A. Bemelman[5] and A. D'Hoore[1]

Departments of [1]Abdominal Surgery and [2]Gastroenterology and Hepatology, University Hospitals Leuven, KU Leuven, and [3]KU Leuven–University of Leuven and Universiteit Hasselt, I-Biostat, Leuven, Belgium, and Departments of [4]Gastroenterology and [5]General Surgery, Academic Medical Centre, Amsterdam, The Netherlands

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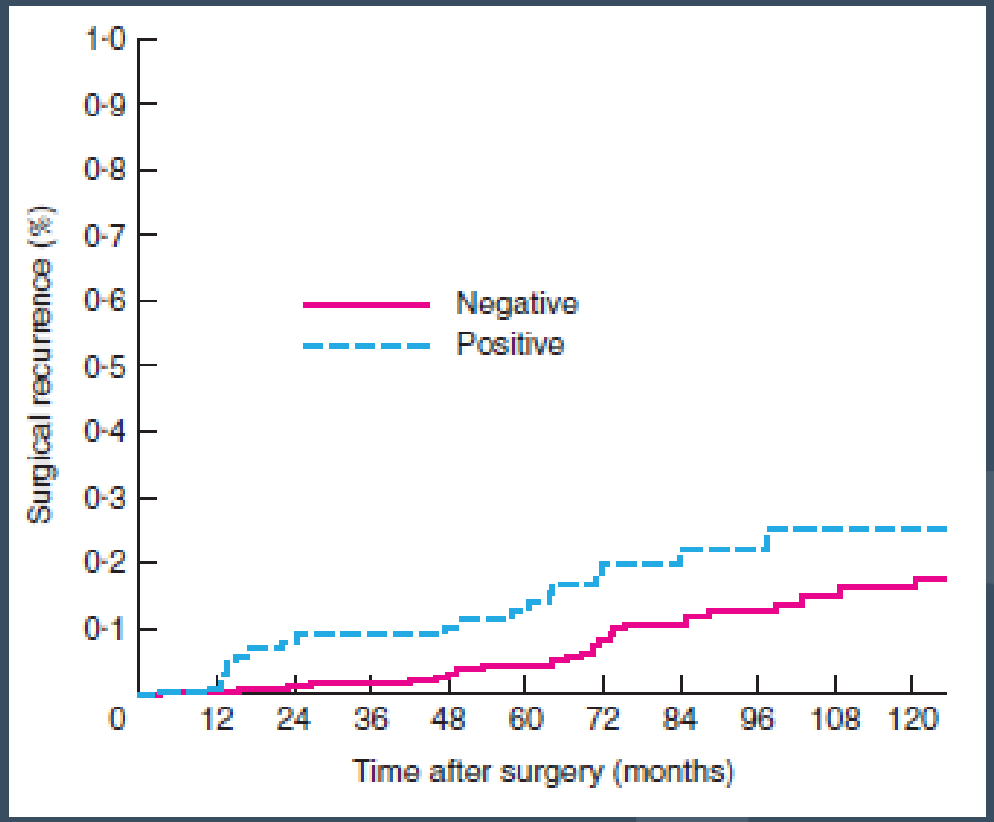
Resection margins SB Crohn's ds

- 1998-2013
- Retrospective in 2 academic institutions
- + margin independent risk factor for clinical recurrence (p<0.001)

BJS 2017; **104**: 1713–1722



#4

Does the anastomotic technique matter?

Surgery in Crohn's Disease

Anastomotic technique

- Side to side, hand sewn end to end, end to side
- Recurrence typically just upstream
- ECCO guidelines support side to side (due to meta analysis showing decreased leak rate)—but other studies did not reach that conclusion

Dis Colon Rectum. 2009 May;52(5):919-27. doi: 10.1007/DCR.0b013e3181a4fa58.

Recurrence of Crohn's disease after ileocolic resection is not affected by anastomotic type: results of a multicenter, randomized, controlled trial.

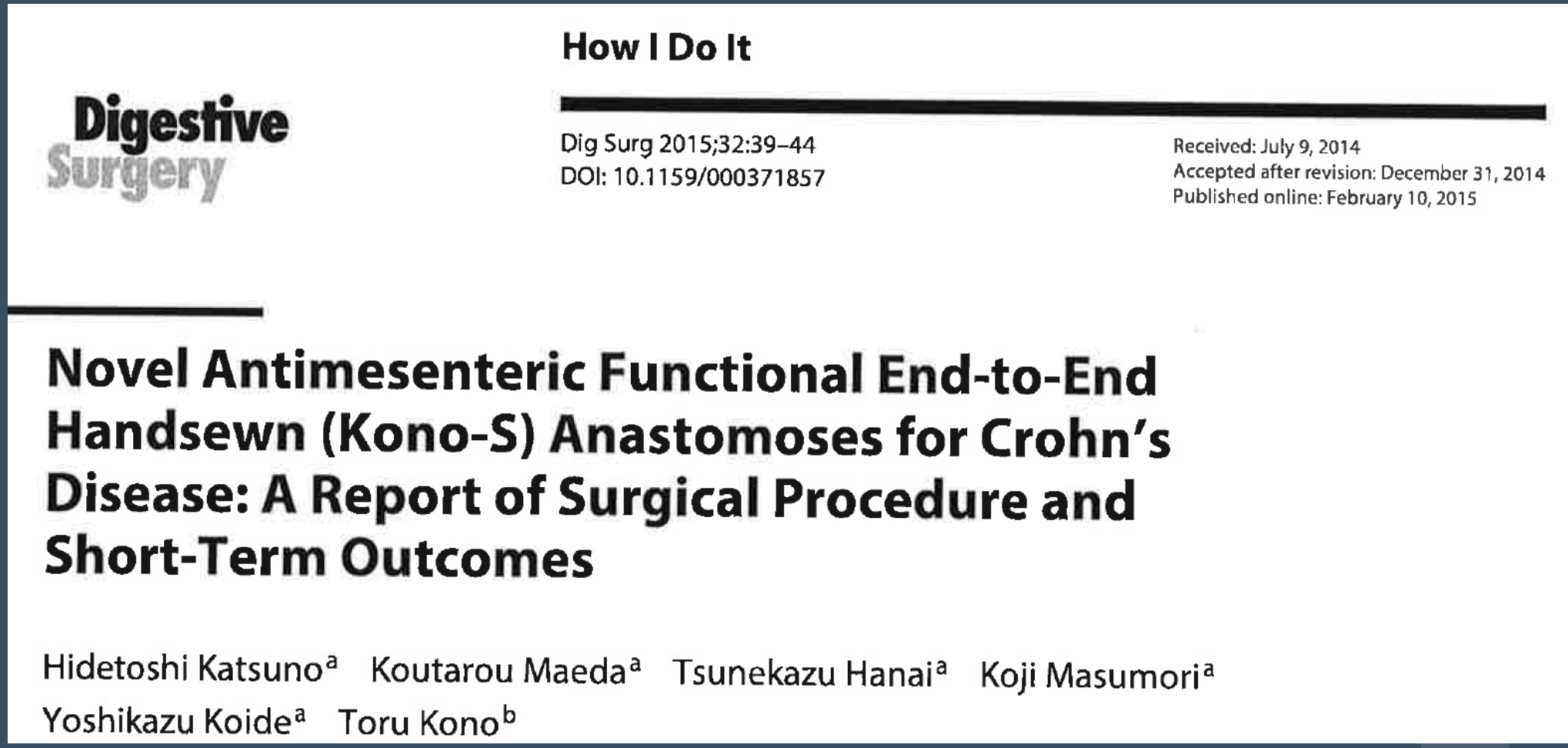
McLeod RS[1], Wolff BG, Ross S, Parkes R, McKenzie M; Investigators of the CAST Trial.

Anastomotic technique

- Randomized prospective end to end vs side to side
- N=139
- Colonoscopy at 12 mos
- Recurrence 42 end to end and 38 side to side (p=0.55)
- Post op maintenance tx only actor that lowered recurrence (p=0.021)

Surgery in Crohn's Disease

- Isolating the mesentery from the bowel



How I Do It

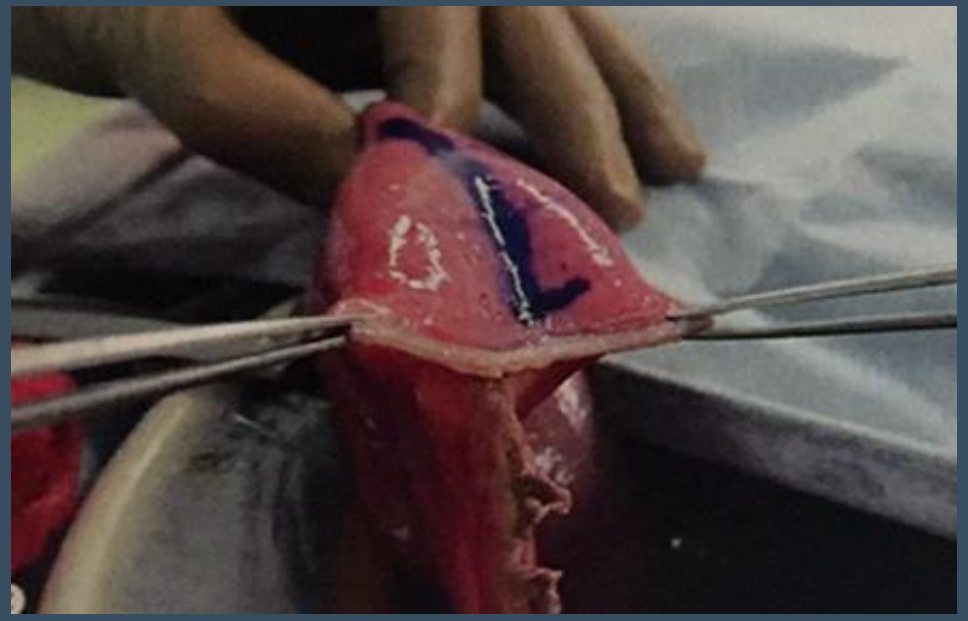
Digestive Surgery

Dig Surg 2015;32:39–44
DOI: 10.1159/000371857

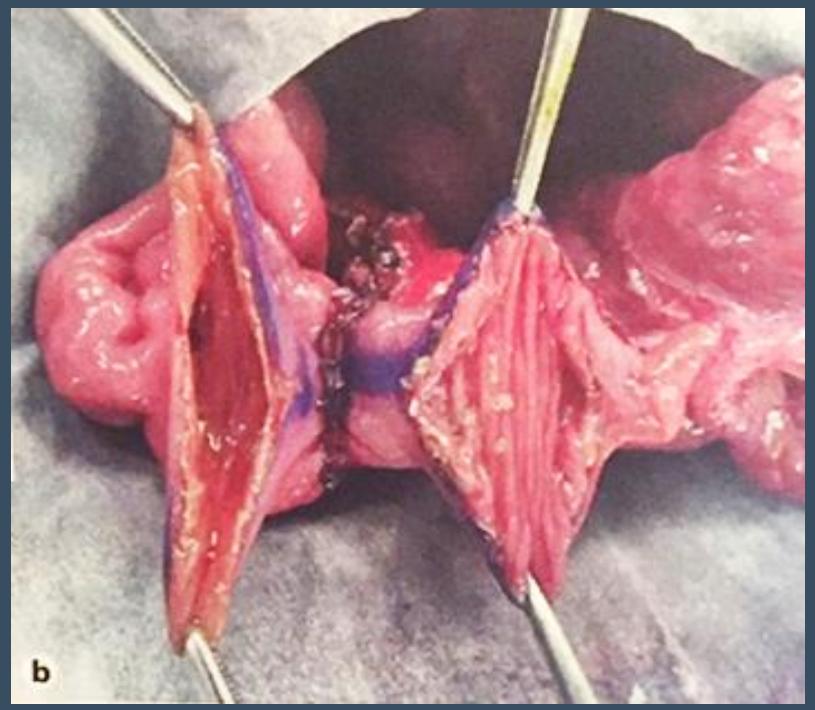
Received: July 9, 2014
Accepted after revision: December 31, 2014
Published online: February 10, 2015

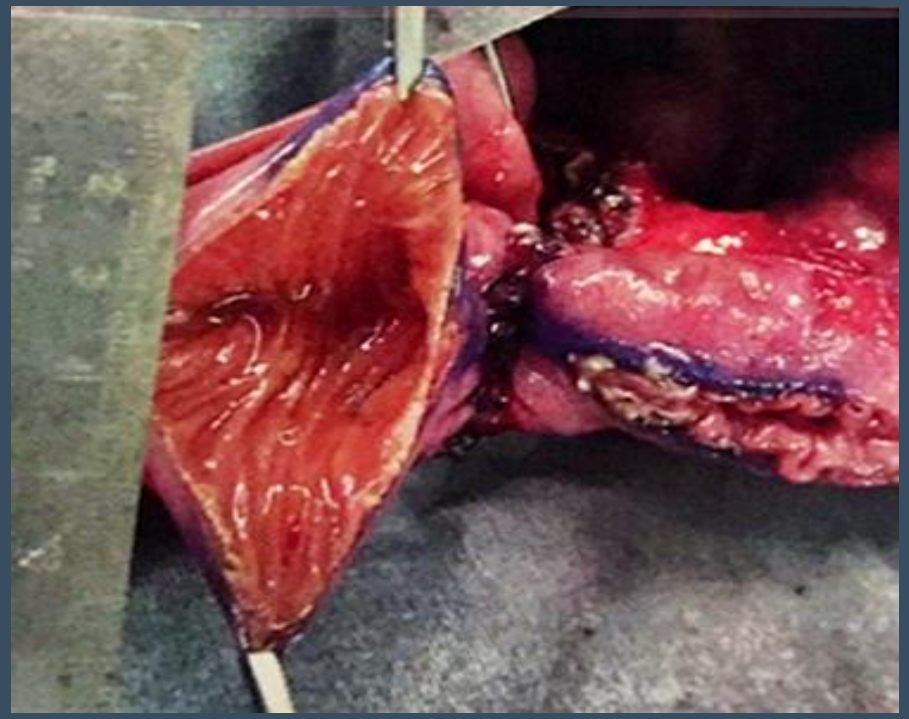
Novel Antimesenteric Functional End-to-End Handsewn (Kono-S) Anastomoses for Crohn's Disease: A Report of Surgical Procedure and Short-Term Outcomes

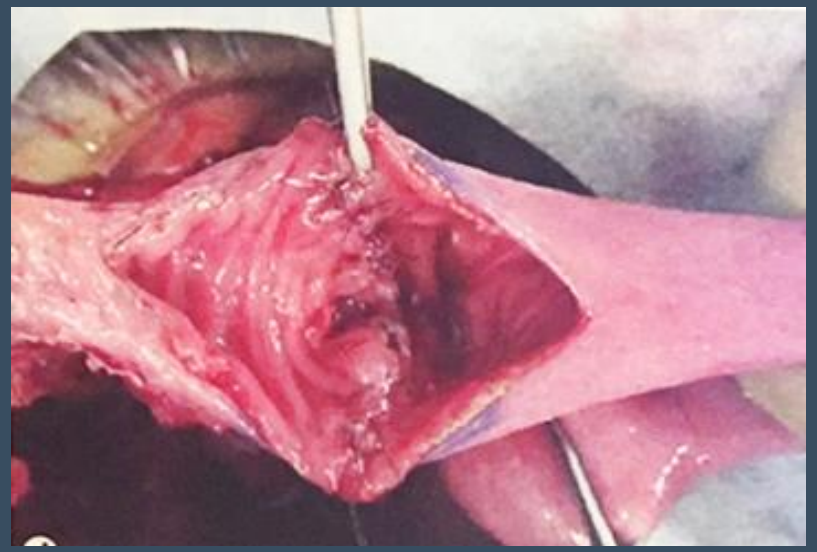
Hidetoshi Katsuno[a] Koutarou Maeda[a] Tsunekazu Hanai[a] Koji Masumori[a]
Yoshikazu Koide[a] Toru Kono[b]



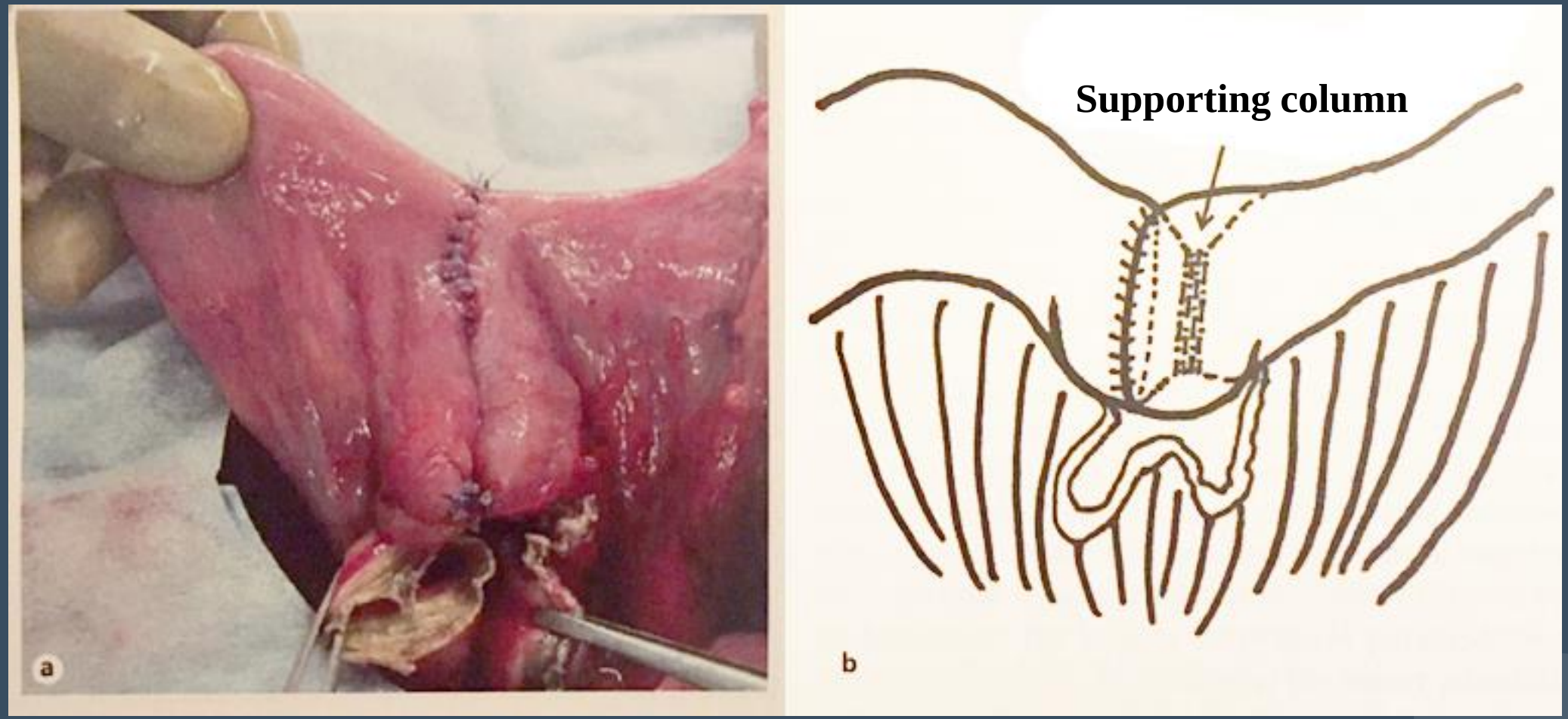
Resection of involved intestine and creation of the supporting column







Restoring bowel continuity with antimesenteric handsewn anastomosis above the supporting column



Completion of the Kono-S anastomosis

Novel Antimesenteric Functional End-to-End Handsewn (Kono-S) Anastomoses for Crohn's Disease: A Report of Surgical Procedure and Short-Term Outcomes

Hidetoshi Katsuno[a] Koutarou Maeda[a] Tsunekazu Hanai[a] Koji Masumori[a]
Yoshikazu Koide[a] Toru Kono[b]

- 30 consecutive patients
- 12/09 to 8/13
- No leaks
- *No surgical recurrence*

Table 1. Patient characteristics

Parameter	
Gender	
Male	22
Female	8
Age, years*	34 (23–48)
BMI, kg/m^2*	18.6 (14.5–26.4)
Active smoker, %	9 (30)
Follow-up duration, months	35 (4–57)
Duration of disease, years	9.5 (0.6-21)
Previous bowel operation, %	12 (40%)
Postoperative medication, infliximab or adalimumab, %	19 (63%)

Surgery in ileal Crohn’s Disease

- Should surgery be the first line of therapy?
- Is the mesentery important?
- What about the resection margin?
- Does the anastomotic technique matter?


Thank-you