



## Letter to the Editor: Mesenteric Lymphatic Vessel Density Is Associated with Disease Behavior and Postoperative Recurrence in Crohn's Disease

Lindsay K. Dickerson<sup>1</sup>  · Simon De Freitas<sup>2</sup> · Marcos E. Pozo<sup>2</sup> · Bashar Safar<sup>2</sup>

Received: 6 September 2018 / Accepted: 20 September 2018 / Published online: 1 October 2018  
© 2018 The Society for Surgery of the Alimentary Tract

We read with interest the article by Li et al. in the *Journal of Gastrointestinal Surgery* that reports an association between increased mesenteric lymphatic vessel density in Crohn's resection specimens and postoperative disease recurrence.<sup>1</sup> One year after the index resection, 11 of 53 patients had clinical recurrence of disease. D2-40 immunohistochemical staining of mesenteric adipose tissue revealed that these patients had increased mesenteric lymphatic vessel density of the proximal mesenteric margin at the time of resection compared to patients with latent disease (6.2% vs 3.3%,  $p < 0.001$ ). Mesenteric lymphatic density was greatest in those who recurred with a stricturing (10.6%) or penetrating (7.3%) form of the disease. Lymphatic density was also found to correlate with granulomatous disease, fat wrapping, and bowel wall thickness. These novel findings are accompanied by the limitations of small sample size, lack of blinding in pathological examinations, ill-defined clinical endpoints, and retrospective methodology. Despite these drawbacks, we would like to commend the authors for an engaging study that adds significantly to the growing body of data on the pathobiologic role of the mesentery in Crohn's disease.

In an aggressive approach advocated by Crohn himself, surgeons historically resected bowel segments widely, with the intention of removing all histologically detectable disease.<sup>2</sup> Nonetheless, there were disease recurrences and

many patients were left worse off with a debilitating short gut. In a landmark 1980 study by John Cameron's group at Johns Hopkins, the presence of microscopic disease at the resection margin was rebutted as cause for recurrence, thereby heralding the era of a conservative surgical approach to Crohn's disease.<sup>3</sup> This principle is reflected in today's approach to bowel resection whereby the mesentery is retained by flush division with the intestine.

The proof-of-concept work by Li's group comes in the wake of a captivating report by Coffey et al. that showed reduced surgical recurrence of Crohn's disease in patients who underwent mesocolic resections. In this study, ileocolic resections inclusive of the mesentery ( $n = 34$ ) were compared to a historic cohort of conventional ileocolic resection ( $n = 30$ ), with results exhibiting a marked reduction in cumulative reoperation rates (40% vs 2.9%,  $p = 0.003$ ) over a mean follow-up period of 70 months.<sup>4</sup> Since mesenteric and mucosal abnormalities develop in tandem, the surgeons used the mesentery transition point as the landmark for intestinal division in the mesocolic resection cohort, thereby reducing the otherwise troublesome bleeding typically encountered in acutely inflamed mesentery.

As we near two decades of targeted immunotherapy for Crohn's disease, there is little evidence to suggest that surgical interventions and iterative operations for recurrence are reducing.<sup>5</sup> Indeed, the converse may be true.<sup>6</sup> Recent findings attest to a need for urgent reevaluation of how we resect diseased bowel in the setting of Crohn's. Extensive mesenteric resections will increase the morbidity of the operation and potentially compromise the gut, taking us back to square one. Change in practice will require data on the safety and efficacy of mesenteric resection, followed by prospective, comparative studies. We eagerly look forward to the results of three clinical trials currently underway on this subject (NCT03172143, NCT02631967, and NCT02542904).

---

✉ Lindsay K. Dickerson  
ldickerson@jhmi.edu

<sup>1</sup> Johns Hopkins Medical Institutions, Johns Hopkins University School of Medicine, 550 N Broadway 508, Baltimore, MD 21205, USA

<sup>2</sup> Division of Colorectal Surgery, Department of Surgery, Johns Hopkins Medical Institutions, Baltimore, MD, USA

**Authors' Contributions** LKD and SDF conceived of and composed this letter to the editor, and acquired and synthesized contributing references. MEP and BS revised the intellectual content of the manuscript. All authors gave final approval of the version to be published.

### Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

### References

1. Li Y, Ge Y, Gong J, Zhu W, Cao L, Guo Z, Gu L, Li J. Mesenteric lymphatic vessel density is associated with disease behavior and postoperative recurrence in Crohn's disease. *Journal of Gastrointestinal Surgery* 2018; 1–8.
2. Krause U, Ejerblad S, Bergman L. Crohn's disease: a long-term study of the clinical course in 186 patients. *Scand J Gastroenterol* 1985; 20(4):516–24.
3. Pennington L, Hamilton SR, Bayless TM, Cameron JL. Surgical management of Crohn's disease. Influence of disease at margin of resection. *Ann Surg* 1980; 192(3):311–8.
4. Coffey JC, Kiernan MG, Sahebally SM, Jarrar A, Burke J, Kiely P, Shen B, Waldron D, Peirce C, Moloney M, Skelly M, Tibbitts P, Hidayat H, Faul PN, Healy V, O'Leary PD, Walsh LG, Dockery P, O'Connell RP, Martin ST, Shanahan F, Fiocchi C, Dunne CP. Inclusion of the mesentery in ileocolonic resection for Crohn's disease is associated with reduced surgical recurrence. *Journal of Crohn's Colitis* 2018; 1–12.
5. Geltzeiler CB, Hart KD, Lu KC, Deveney KE, Herzig DO, Tsikitis VL. Trends in the Surgical Management of Crohn's Disease. *Journal of Gastrointestinal Surgery* 2015; 19(10):1862–68.
6. Maguire LH, Alavi K, Sudan R, Wise PE, Kaiser AM, Bordeianou L. Surgical Considerations in the Treatment of Small Bowel Crohn's Disease. *Journal of Gastrointestinal Surgery* 2017; 21(2):398–411.