Received: 30 April 2026 | Revised: 30 April 2026 | Accepted: 8 May 2026

DOI: 10.1111/codi.70495

POSITION STATEMENT

# ACPGBI position statement on the role of standard high-quality right hemicolectomy and complete mesocolic excision in right-sided colon cancer

J. D. Mason[1] | J. S. Khan[2,3] | S. Ahmed[4] | P. Coyne[5] | J. W. Read[6] | J. Bundred[7] | S. J. A. Buczacki[1,7] | A. Harikrishnan[8] | C. Cunningham[1,7] | on behalf of the Association of Coloproctology of Great Britain & Ireland (ACPGBI)

[1]Department of Colorectal Surgery, Oxford University Hospitals NHS Foundation Trust, Churchill Hospital, Oxford, UK

[2]Department of Colorectal Surgery, Portsmouth Hospitals University NHS Trust, Queen Alexandra Hospital, Portsmouth, UK

[3]Faculty of Science and Health, University of Portsmouth, Portsmouth, UK

[4]Department of Colorectal Surgery, Liverpool University Hospitals NHS Foundation Trust, Royal Liverpool University Hospital, Liverpool, UK

[5]Department of Colorectal Surgery, Newcastle upon Tyne Hospitals NHS Foundation Trust, Royal Victoria Infirmary, Newcastle upon Tyne, UK

[6]Department of Colorectal Surgery, Royal Surrey NHS Foundation Trust, Royal Surrey County Hospital, Guildford, UK

[7]Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK

[8]Department of Colorectal Surgery, Sheffield Teaching Hospitals NHS Foundation Trust, Northern General Hospital, Sheffield, UK

**Correspondence**
C. Cunningham, Department of Colorectal Surgery, Oxford University Hospitals NHS Foundation Trust, Churchill Hospital, Oxford OX3 7LE, UK.
Email: chriscunningham@nhs.net

## Abstract

**Background:** Complete mesocolic excision (CME) has been proposed as a refinement of oncological surgery for right-sided colon cancer, aiming to improve specimen quality, lymph node yield and oncological outcomes. However, its routine adoption remains controversial due to uncertainty regarding oncological benefit and concerns relating to technical complexity, training and service delivery. This position statement from the Association of Coloproctology of Great Britain and Ireland (ACPGBI) examines the contemporary evidence surrounding CME and its role within modern management of right-sided colon cancer.

**Methods:** This position statement was produced by the authors who represent a range of views on CME surgery. It synthesises contemporary evidence from large cohort studies, recent randomised control trials and international guidelines to evaluate the role of CME compared with standard high-quality right hemicolectomy.

**Results:** CME is consistently associated with higher lymph node yields and improved specimen metrics, but studies demonstrating a definitive survival advantage remain limited. Randomised evidence does not support routine CME for all patients, although potential benefit exists in selected high-risk groups. Recent evidence suggests that surgical plane quality, rather than the extent of lymphadenectomy, may be the principal determinant of oncological outcomes. CME is technically demanding and may carry increased procedural risks, particularly related to central vascular dissection, although these may be mitigated through structured training and optimised perioperative planning.

**Conclusion:** Routine use of CME for all right-sided colon cancers is not supported by current evidence. Standard high-quality right hemicolectomy should remain the default approach for most patients. Selective use of CME may be appropriate in physiologically fit patients with high-risk or anatomically complex disease, delivered within experienced units with appropriate training, audit and quality assurance frameworks. Future progress will depend on standardisation of surgical technique, objective assessment of specimen quality and biologically tailored treatment strategies.

**KEYWORDS**
complete mesocolic excision, lymph node yield, lymphadenectomy, right-sided colon cancer, standard mesocolic excision

Right-sided colon cancer is consistently associated with inferior survival when compared with left-sided disease [1, 2]. Complete mesocolic excision (CME) has emerged over the past two decades as a proposed refinement of oncological surgery for right-sided colon cancer. Advocates argue that CME delivers superior specimen quality, improved lymph node harvest and more accurate staging, with the potential for improved oncological outcomes in selected patients [3, 4]. Others caution that these benefits are not consistently supported by high-level evidence, and that the risks, training burden and service implications of routine CME may outweigh potential gains for most patients. This position statement seeks to contextualise CME within contemporary practice, drawing together the existing evidence base, European guidance and real-world MDT experience, to define a balanced and pragmatic approach to its use.

CME was originally described by Hohenburger et al. [3], which at its core includes sharp dissection along embryological planes to preserve mesocolic integrity and enable en bloc resection with proximal ligation of mesocolic vascular pedicles to ensure a complete lymphovascular resection. Therefore, CME should be understood not as a single operation but as a set of surgical principles that incorporates precise mesocolic excision with intact fascial dissection, alongside central vascular ligation (CVL) and central (D3) lymphadenectomy, and is the definition adopted for this position statement. CVL refers specifically to ligation of feeding vessels at their origin, whereas D3 lymphadenectomy describes removal of lymph node stations along the superior mesenteric vessels. These principles are inconsistently applied across studies, with varying terminology and variable definitions of CME with and without the inclusion of CVL and/or D3 lymphadenectomy [5, 6]. This heterogeneity limits comparison between studies and undermines the ability to draw reliable conclusions regarding oncological benefit.

The principles of CME can be applied through open, laparoscopic or robotic approaches, and it is the quality of execution rather than the access modality that determines specimen integrity [7]. It is important to distinguish CME from a poorly standardised right hemicolectomy on the one hand, and from high-quality standard (D2) mesocolic excision performed in correct planes on the other. Failure to make this distinction risks conflating technical ambition with oncological necessity. Several systematic reviews and meta-analyses of early studies investigating CME reported associations between D3 lymphadenectomy and improved disease-free and overall survival compared with conventional right hemicolectomy, without an increase in overall morbidity [8–10]. However, these pooled data from predominantly observational studies and analyses are limited by heterogeneity in the definition of CME, variation in comparator/control group surgery and centre-level expertise effects. As such, while these studies reinforce the intrinsic appeal of CME, they do not establish a definitive causal survival advantage.

The principal biological rationale for CME lies in lymphatic clearance and staging accuracy. CME reliably produces larger mesocolic specimens and higher lymph node yields, including nodes adjacent to the superior mesenteric vessels that may be missed with more limited dissection [8–10]. Earlier observational work suggested that higher lymph node counts were associated with improved survival, though this association has long been recognised as vulnerable to stage migration and confounding by surgeon and pathologist factors [11, 12]. While improved nodal harvest may enhance staging accuracy, lymph node count alone should not be regarded as a surrogate for oncological benefit. The recent study by Bundred et al (2025) challenges this dogma, reporting that higher lymph node yields in colonic resection specimens may reflect tumour biology and immunological response rather than any therapeutic benefit as there is no consistent survival advantage with increasing node counts beyond traditionally recommended minimum lymph node yields [13]. These data support adequate staging with a minimum harvest of ≥9 lymph nodes, beyond which more extensive lymphadenectomy is unlikely to confer additional oncological benefit. This is particularly relevant in early caecal cancers, polyp cancers, elderly patients and those with significant comorbidity or frailty, where routine escalation to CME would represent overtreatment.

Proponents of CME also point to reduced local recurrence rates and improvements in disease-free and overall survival, especially in younger patients and in anatomically complex tumours of the hepatic flexure or transverse colon [3, 7, 14]. However, interpretation is limited by non-randomised design and the possibility that improved outcomes reflect broader improvements in surgical standardisation rather than the incremental benefit of central lymphadenectomy alone. More recent cohort studies also question these proposed improvements. The multicentre German RESECTAT cohort study included data on 1004 patients and did not detect an overall survival advantage for CME over non-CME surgery despite superior specimen metrics. There was, however, an overall survival benefit in stage III patients, although the authors state that this subgroup analysis is insufficient to support routine adoption of CME [15]. The recently published study by Haug et al. [16] evaluated oncological outcomes pre- and post-implementation of laparoscopic-CME surgery for both right- and left-sided colonic cancers. In this study of over 1900 patients with 5-year follow-up data, laparoscopic-CME was associated with a significantly lower risk of recurrence without an increase in postoperative morbidity. However, there was no significant difference in disease-free or overall survival. Furthermore, in contrast to previous studies, CME was not associated with a significant increase

in lymph node yield yet still observed reduced recurrence rates. This suggests that any oncological advantage may relate more to plane-of-surgery quality, reinforcing the distinction between technical precision and overall lymphadenectomy yields as drivers of outcome.

The publication of the RELARC trial represents a pivotal moment in the evaluation of CME [17]. This multicentre randomised study, recruited from high-volume expert centres, compared laparoscopic CME with standard D2 dissection for right-sided colon cancer and demonstrated no significant difference in three-year disease-free or overall survival between the two approaches in the overall cohort. CME was associated with a higher lymph node yield but also with an increased risk of intraoperative vascular injury. Importantly, subgroup analyses suggested a potential disease-free survival benefit in stage III patients, particularly those with N2 disease. While these findings must be interpreted cautiously, as the study was not specifically powered to investigate this subgroup, they reinforce the concept that any oncological advantage of CME is likely confined to selected high-risk subgroups. It can be argued that RELARC reinforces the distinction between surgical quality and surgical extent. High-quality D2 mesocolic excision delivered excellent oncological outcomes for most patients, challenging the assumption that more radical lymphadenectomy necessarily translates into improved survival. Further data are awaited from the Italian phase III randomised CoME-in trial of CME versus standard right hemicolectomy, which has so far reported superior specimen quality but is yet to report survival data [18].

The increasing interest in neoadjuvant chemotherapy for colon cancer adds further complexity. Selection criteria for neoadjuvant therapy overlap substantially with those proposed for CME, as both strategies target biologically aggressive disease. However, the reliability of disease staging by CT has limitations, with poor prediction of individual T stage, N stage and extramural vascular invasion, although broad classification into clinical T3–4 status is more favourable [19]. These limitations mean that some patients may be over-staged and risk over-treatment with both neoadjuvant treatment and CME. In some patients, effective neoadjuvant treatment may reduce the potential benefit of extended lymphadenectomy, while in others, response to chemotherapy may help identify those most likely to benefit from more extensive surgery. The evolving role of immunotherapy in mismatch repair-deficient cancers will further influence this balance. At present, CME and neoadjuvant chemotherapy should be regarded as complementary but independent strategies, which should be considered within MDT discussion.

It is imperative to weigh any potential benefits against the risks and consequences of CME. Several studies have highlighted specific complications associated with more extensive central dissection, including significant vascular injury and chyle leak [17, 20]. While reported morbidity in expert centres is comparable with standard right hemicolectomy [18], real-world outcomes may be less favourable. These risks underscore the importance of structured training, adequate case volume and team-based operating models when CME is undertaken. CME is technically demanding, with a steep learning curve for consultants and trainees alike. Encouragingly, data from the Danish experience demonstrate that following a structured training programme, CME can be delivered safely without a significant increase in major complication rates across multiple regional centres. This suggests that robust training and governance frameworks can mitigate some of the previously reported procedural risks [16]. A further consideration is the impact of CME on training opportunities, service resilience and workforce sustainability, particularly if expertise becomes concentrated among a small number of surgeons.

The adoption of CME in specialist centres should be within a framework of careful MDT-based selection. Tumour-related factors that may favour CME include locally advanced T3–4 disease, suspected nodal involvement, extramural vascular invasion, desmoplastic response, and tumours of the hepatic flexure or transverse colon where lymphatic drainage is more variable. Preoperative CT angiographic vascular mapping may facilitate safer dissection in the setting of variable mesenteric anatomy and proximity to the superior mesenteric vessels, and has been associated with reduced blood loss, shorter operating time and higher lymph node yield [21]. Patient-related factors are equally important: candidates should be physiologically fit, with particular caution in the elderly. CME is not recommended for frail or highly comorbid patients, nor for early low-risk lesions where the balance of benefit and risk is unfavourable. This selective approach is consistent with recent European consensus and guidelines, which acknowledge the improved specimen quality and lymph node yield associated with CME but highlight the heterogeneity of techniques and outcomes and the lack of definitive randomised evidence to support routine adoption [22, 23]. System and surgeon factors are also critical. CME should only be undertaken in units with appropriate case volume, training infrastructure and access to high-quality preoperative imaging. In common with other procedures of increased complexity, some centres have adopted two-surgeon models for CME to mitigate risk and increase opportunities for training and consolidation of practice. Prospective data collection incorporating expert pathological assessment of lymph node yield and mesocolic plane quality will be essential to inform future practice.

In summary, CME represents an evolution in surgical technique that emphasises anatomical precision and standardisation. However, current evidence does not support its routine use for all right-sided colon cancers. The same surgical principles should underpin high-quality standard right hemicolectomy, and the term *standard mesocolic excision* may be preferable as it acknowledges the critical importance of mesocolic excision performed in the correct embryological plane, with preservation of mesocolic integrity and adequate (D2) lymphadenectomy, but without routine CVL. Standard mesocolic excision should therefore be regarded as the default approach for most patients. Using these principles, a key future priority is the objective assessment of specimen quality, with greater emphasis on specimen metrics, such as mesocolic plane grading as markers of high-quality surgery. The development of structured quality assurance programmes for right hemicolectomy will be essential to standardise practice and drive improvement in outcomes. CME can

be considered selectively in fit patients with high-risk or anatomically complex disease, delivered by appropriately trained surgeons within MDT-led pathways and supported by robust audit. The future of colon cancer surgery lies in biologically informed, patient-tailored decision-making that integrates radical surgery, systemic therapy, imaging and pathology within resilient healthcare systems.

Key recommendations:

1. High-quality right hemicolectomy (*standard mesocolic excision*) for right-sided colon cancer as standard practice.
2. Selective use of CME in physiologically fit patients with high-risk features.
3. CME surgery is delivered within experienced units with adequate case volume and with structured training and audit.
4. Participation in ongoing prospective registries and randomised controlled trials.

## AUTHOR CONTRIBUTIONS

**J. S. Khan:** Writing – review and editing; methodology; validation; visualization; formal analysis. **P. Coyne:** Writing – review and editing; investigation; methodology. **S. J. A. Buczacki:** Investigation; methodology; writing – review and editing. **J. Bundred:** Investigation; methodology; writing – review and editing. **J. W. Read:** Writing – review and editing; methodology; investigation. **J. D. Mason:** Investigation; formal analysis; writing – original draft; methodology; writing – review and editing; data curation. **S. Ahmed:** Writing – review and editing; investigation; methodology. **C. Cunningham:** Conceptualization; investigation; writing – original draft; methodology; validation; visualization; writing – review and editing; formal analysis; project administration; supervision. **A. Harikrishnan:** Conceptualization; methodology; validation; visualization; writing – review and editing; investigation; project administration.

## CONFLICT OF INTEREST STATEMENT

None to declare.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

## ORCID

*J. D. Mason* https://orcid.org/0000-0002-4838-8724
*C. Cunningham* https://orcid.org/0000-0002-8636-6577

## REFERENCES

1. Hodges N, Mackenzie H, D'Souza N, Brown G, Miskovic D. Survival outcomes for right-versus left-sided colon cancer and rectal cancer in England: a propensity-score matched population-based cohort study. Eur J Surg Oncol. 2022;48(4):841–9. https://doi.org/10.1016/j.ejso.2021.10.007
2. Ulanja MB, Asafo-Agyei KO, Neelam V, Beutler BD, Antwi-Amoabeng D, Governor SB, et al. Survival trends for left and right sided colon cancer using population-based SEER database: a forty-five-year analysis from 1975 to 2019. Cancer Med. 2024;13(8):e7145. https://doi.org/10.1002/cam4.7145
3. Hohenberger W, Weber K, Matzel K, Papadopoulos T, Merkel S. Standardized surgery for colonic cancer: complete mesocolic excision and central ligation—technical notes and outcome. Color Dis. 2009;11(4):354–64. https://doi.org/10.1111/j.1463-1318.2008.01735.x
4. West NP, Hohenberger W, Weber K, Perrakis A, Finan PJ, Quirke P. Complete Mesocolic excision with central vascular ligation produces an Oncologically superior specimen compared with standard surgery for carcinoma of the colon. J Clin Oncol. 2010;28(2):272–8. https://doi.org/10.1200/JCO.2009.24.1448
5. Sica GS, Vinci D, Siragusa L, Sensi B, Guida AM, Bellato V, et al. Definition and reporting of lymphadenectomy and complete mesocolic excision for radical right colectomy: a systematic review. Surg Endosc. 2023;37(2):846–61. https://doi.org/10.1007/s00464-022-09548-5
6. Brown KGM, Ng K, Solomon MJ, Chapuis PH, Koh CE, Ahmadi N, et al. Complete mesocolic excision for colon cancer: current status and controversies. ANZ J Surg. 2024;94(3):309–19. https://doi.org/10.1111/ans.18741
7. Tejedor P, Francis N, Jayne D, Hohenberger W, Khan J, Tejedor P, et al. Consensus statements on complete mesocolic excision for right-sided colon cancer—technical steps and training implications. Surg Endosc. 2022;36(8):5595–601. https://doi.org/10.1007/s00464-021-08395-0
8. Díaz-Vico T, Fernández-Hevia M, Suárez-Sánchez A, García-Gutiérrez C, Mihic-Góngora L, Fernández-Martínez D, et al. Complete Mesocolic excision and D3 lymphadenectomy versus conventional colectomy for colon cancer: a systematic review and meta-analysis. Ann Surg Oncol. 2021;28(13):8823–37. https://doi.org/10.1245/s10434-021-10186-9
9. De Simoni O, Barina A, Sommariva A, Tonello M, Gruppo M, Mattara G, et al. Complete mesocolic excision versus conventional hemicolectomy in patients with right colon cancer: a systematic review and meta-analysis. Int J Color Dis. 2021;36(5):881–92. https://doi.org/10.1007/s00384-020-03797-3
10. De Lange G, Davies J, Toso C, Meurette G, Ris F, Meyer J. Complete mesocolic excision for right hemicolectomy: an updated systematic review and meta-analysis. Tech Coloproctol. 2023;27(11):979–93. https://doi.org/10.1007/s10151-023-02853-8
11. West NP, Morris EJ, Rotimi O, Cairns A, Finan PJ, Quirke P. Pathology grading of colon cancer surgical resection and its association with survival: a retrospective observational study. Lancet Oncol. 2008;9(9):857–65. https://doi.org/10.1016/S1470-2045(08)70181-5
12. Evans MD, Barton K, Rees A, Stamatakis JD, Karandikar SS. The impact of surgeon and pathologist on lymph node retrieval in colorectal cancer and its impact on survival for patients with Dukes' stage B disease. Color Dis. 2008;10(2):157–64. https://doi.org/10.1111/j.1463-1318.2007.01225.x
13. Bundred J, Lal N, Chan DKH, Buczacki SJA. Lymph node yield as a surrogate marker for tumour biology and prognosis in colon cancer. Br J Cancer. 2025;132(7):643–51. https://doi.org/10.1038/s41416-025-02949-y
14. Bertelsen CA, Neuenschwander AU, Jansen JE, Wilhelmsen M, Kirkegaard-Klitbo A, Tenma JR, et al. Disease-free survival after complete mesocolic excision compared with conventional colon cancer surgery: a retrospective, population-based study. Lancet Oncol. 2015;16(2):161–8. https://doi.org/10.1016/S1470-2045(14)71168-4
15. Benz SR, Feder IS, Vollmer S, Tam Y, Reinacher-Schick A, Denz R, et al. Complete mesocolic excision for right colonic cancer: prospective multicentre study. Br J Surg. 2022;110(1):98–105. https://doi.org/10.1093/bjs/znac379

16. Haug T, Valentin JB, Ørntoft MW, Iversen LH, Johnsen SP, Kennedy R, et al. Five-year recurrence and postoperative complications after laparoscopic complete Mesocolic excision: a population-based, multicentred study. Color Dis. 2026;28(2):e70380. https://doi.org/10.1111/codi.70380
17. Lu J, Xing J, Zang L, Zhang C, Xu L, Zhang G, et al. Extent of lymphadenectomy for surgical Management of Right-Sided Colon Cancer: the Randomized Phase III RELARC Trial. J Clin Oncol. 2024;42(33):3957–66. https://doi.org/10.1200/JCO.24.00393
18. Degiuli M, Aguilar AHR, Solej M, Azzolina D, Marchiori G, Corcione F, et al. A randomized phase III trial of complete Mesocolic excision compared with conventional surgery for right colon cancer: interim analysis of a Nationwide Multicenter Study of the Italian Society of Surgical Oncology colorectal cancer network (CoME-in trial). Ann Surg Oncol. 2024;31(3):1671–80. https://doi.org/10.1245/s10434-023-14664-0
19. Platt JR, Elliott F, Handley K, Magill L, Quirke P, Seymour MT, et al. CT staging performance in an international trial of neoadjuvant chemotherapy for locally advanced colon cancer. Br J Radiol. 2025;98(1176):2175–83. https://doi.org/10.1093/bjr/tqaf217
20. Sun Y, Deng Y, Lin Y, Lin H, Huang Y, Jiang W, et al. Chylous ascites after complete mesocolic excision for right-sided colon cancer with D3 lymphadenectomy: a retrospective cohort-study. Color Dis. 2022;24(4):461–9. https://doi.org/10.1111/codi.16017
21. Chaouch MA, Hussain MI, Gouader A, Krimi B, Mazzotta A, Da Costa AC, et al. Preoperative CT-scan angiography reconstruction before right colectomy with complete mesocolon excision: a systematic review and meta-analysis. J Gastrointest Cancer. 2025;56(1):37. https://doi.org/10.1007/s12029-024-01162-z
22. Tzanis AA, Carrano FM, Perivoliotis K, Kumar SS, Christogiannis C, Mavridis D, et al. A systematic review, meta-analysis and GRADE assessment of the evidence on complete mesocolic excision for right-sided colon cancer with SAGES and ESCP participation. Surg Endosc. 2025;39(6):3466–73. https://doi.org/10.1007/s00464-025-11749-7
23. Antoniou SA, Carrano FM, Tzanis AA, Perivoliotis K, Kumar SS, Christogiannis C, et al. EAES rapid guideline: complete mesocolic excision for right-sided colon cancer—with SAGES and ESCP participation. Surg Endosc. 2025;39(6):3474–83. https://doi.org/10.1007/s00464-025-11782-6

**How to cite this article:** Mason JD, Khan JS, Ahmed S, Coyne P, Read JW, Bundred J, et al. ACPGBI position statement on the role of standard high-quality right hemicolectomy and complete mesocolic excision in right-sided colon cancer. Colorectal Dis. 2026;28:e70495. https://doi.org/10.1111/codi.70495