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Background: There are three main procedures widely used for the surgical management of colonic Crohn's disease (CCD). European Crohn's and Colitis Organization (ECCO) guidelines recommend panproctocolectomy (PP) as the first line treatment in extensive disease. However, it comes with a significant morbidity and there is no research simultaneously comparing its recurrence risk against segmental resection (SR) or subtotal colectomy (STC). Aim: to compare the three techniques to determine the most effective surgical option in the management of CCD.

Methods: A systematic review and network meta-analysis (NMA) was undertaken as per PRISMA-NMA guidelines. Primary outcomes assessed included overall and surgical recurrence rates. Secondary endpoints included morbidity and time to recurrence analysis.

Results: A total of 12 studies and over 1,200 patients are included. 384 underwent SR, 545 STC and 298 PP. Surgical recurrence rates were 14.53% for PP, 30.82% for ST and 40.96% for SR. At NMA, PP had a lower surgical recurrence rate [odds ratio (OR) 0.22, 95% credible interval (CrI): 0.09, 0.53] and overall recurrence rates as compared to SR (OR 0.14, 95% CrI: 0.05, 0.38). There was no difference in overall or surgical recurrence between STC

[OR 0.87, CrI (0.39, 1.93); OR 0.63 (0.35, 1.15)] and SR. Overall morbidity was similar between all the techniques. There was no difference in permanent or end stoma formation between SR and STC (OR 0.97, CrI: 0.67, 1.42). **Conclusions:** PP for the management of CCD carries the lowest risk of surgical and overall recurrences compared to SR and STC. However, it must be weighed against the morbidity of end stoma formation. SR could be considered over STC in patients that are stoma averse as recurrence rates are similar.

Keywords: Colonic Crohn's disease (CCD); morbidity; network meta-analysis (NMA); recurrence; surgical management

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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