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Localized/Adjuvant Colorectal Cancer

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Lymph Node Correlations and Thresholds in Colorectal Cancer Specimens

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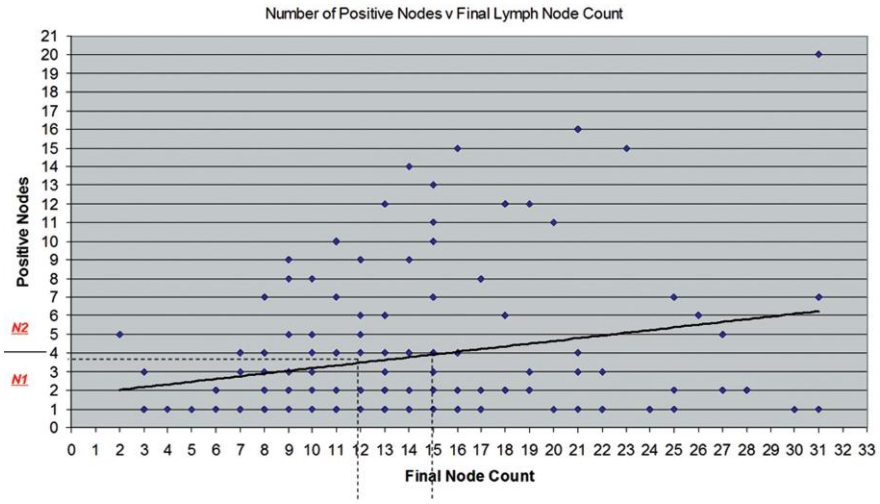
Background: Lymph node yield is a key factor in enabling the accurate determination of prognosis in colorectal cancer patients. The Royal College of Pathologists guidelines state a "minimum" recommended mean number of 12 lymph nodes. In this study of 391 patients, the authors aim to determine the optimal node counts in patients with colorectal cancer, examine for correlations between maximum tumor diameter and lymph node yield, and examine for correlations between lymph node yield and involved node numbers. Furthermore, the authors aim to examine the impact of specimen type on the harvested node numbers and assess whether the personal differences between surgeons and pathologists have significant influence on node yield.

Methods: This study was a retrospective audit carried out on 391 patients who underwent colorectal surgery. Original histopathology reports were recovered from archives and examined for the following core data items. Within the study there were 19 colorectal surgeons and 20 histopathologists (including registrars reporting as individuals in conjunction with consultants). The difference between stage pN1 and pN2 was defined by number of lymph nodes involved (as per guidelines), with pN1 = 1 to 3 nodes and pN2 = 4+ nodes. Maximum tumor diameter (mm) was measured on the luminal aspect of the bowel (thickness if ignored for this measurement).

Results: A moderate positive correlation between maximum tumor diameter and final lymph node yield was noted (Spearman's correlation coefficient = .328, P = .0001). There was significant variation shown by pathologists (Kruskal–Wallis test P = .001) and by differing specimen type (Kruskal–Wallis test P = .029) on the lymph node yield. This study has found that there is a potential threshold of which lymph node numbers should meet to enable confident differentiation between pN1 and pN2 stage tumors. This figure stands at 15, and the histopathologists' average lymph node yield within the department was 14.82, which falls just below this threshold. This could indicate a need for a slight increase in lymph node yields to enable increased differentiation of pN1 and pN2 malignancies (Figure 1).



Conclusions: We have shown that there is a departmental threshold for differentiating stages of tumor progression. Furthermore, an example second attempt highlighted that the threshold was significant. Our P values significant at the 95% confidence interval (and in some cases 99% confidence interval) have enabled demonstration of correlations between maximum tumor diameter (mm) and final lymph node yield and also lymph node yield and involved node counts. The study also presents evidence that there is variation in lymph node yield following different types of surgeries being conducted (specimen type) and also the cut-up performed by different pathologists. We suggest that further retrospective and prospective studies are required to validate this potential threshold and also to investigate the positive correlations.