5 PROGNOSTIC SIGNIFICANCE OF TUMOUR BUDDING IN RECTAL CANCER BIOPSIES PRIOR TO NEOADJUVANT THERAPY

A C Rogers, D Gibbons, A M Hanly, J M P Hyland, P R O'Connell, D C Winter, K D Sheahan *Centre for Colorectal Disease, St Vincent's Hospital, Dublin 4, Ireland*

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Introduction Tumour budding is an increasingly important prognostic feature for pathologists to recognise. The phenomenon has been associated with a negative prognosis in rectal cancer when identified in surgical resection specimens.

Aims/Background The aim of this study was to correlate intratumoural budding (ITB) in pre-treatment rectal cancer biopsies with pathological response to neoadjuvant chemoradiotherapy (nCRT) and with long-term outcome.

Method Data from a prospectively maintained database was acquired for patients with locally advanced rectal cancer who underwent nCRT. Pre-treatment rectal biopsies were retrospectively reviewed for evidence of ITB. Multivariate logistic regression was used to identify factors contributing to cancer-specific death, expressed as hazard ratios (HRs) with 95 per cent confidence intervals (CIs).

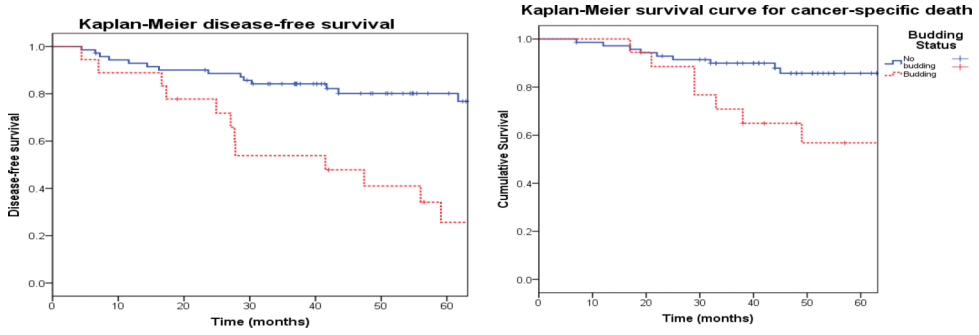

Figure 1 Kaplan-Meier survival curve relating to budding status in pre-treatment biopsy.

Results Of 185 patients with locally advanced rectal cancer, 89 patients met the eligibility criteria, of whom 18 (20.2%) exhibited budding in a pre-treatment tumour biopsy. ITB predicted a poor pathological response to nCRT (higher ypT stage, p=0.032; lymph node involvement, p=0.018; lymphovascular invasion, p=0.004; and residual poorly differentiated tumours, p<0.001). No patients with ITB exhibited a TRG 1 or complete pathological response, providing 100% specificity and positive predictive value for non-response to nCRT. ITB was associated with a lower disease-free 5-year survival rate (33.3% vs. 77.5%, p<0.001), cancer-specific 5-year survival rate (61.1% vs. 87.3%, p=0.021) and predicted cancer-specific death (HR 3.51, 95% CI 1.03 - 11.93, p=0.040). Patients with tumor budding in initial biopsy have a significantly lower five-year disease-free survival rate (33.33% vs. 77.46%, p=<0.001) and lower cancer-specific survival rate (61.11% vs. 87.32%, p=0.021).

Conclusion ITB at diagnosis of rectal cancer identifies those who will poorly respond to nCRT and those with a poor prognosis.