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RP 29

Association of pathological prognostic factors with tumour budding in invasive breast carcinoma, no special type

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Introduction: Tumour budding (TBd) is defined as isolated single cells or small cell clusters scattered in the stroma at the invasive tumour margin and is considered part of epithelial-mesenchymal transition (EMT). Although it is a well-studied prognostic factor in colorectal carcinoma (CRC), its significance in breast carcinoma is not established yet.

Objectives: To see the prevalence of TBd in invasive breast carcinoma-no special type (IBC-NST) and to determine the association of TBd with pathological prognostic factors of IBC-NST.

Methodology: 351 mastectomy and wide local excision specimens of IBC-NST were studied. The cases following neoadjuvant therapy and tumours where the assessment of TBd was difficult were excluded. TBd was assessed in hotspots at the advancing edge of the tumour using the x20 objective suggested by the International Tumour Budding Consensus Conference guidelines for CRC. TBd was categorized into low (<5TBd/0.785mm²), intermediate (5-9TBd/0.785mm²) and high budding (>10TBd/0.785mm²) based on the number of buds per hot-spot. Association between TBd and prognostic factors was analysed with a Chi-square test and logistic regression.

Results: 72.5% of tumours had TBd. The mean TBd observed was 7.56/0.785mm². The percentage of tumours having high, intermediate and low TBd were 38.4%, 15.5% and 46.1%, respectively. High TBd was significantly associated with tumour size (p<0.001), lymphovascular invasion (p<0.001), perineural invasion (p<0.001), lymph node status (p<0.001), number of lymph nodes (p<0.001), T stage (p<0.001) and N stage (p<0.001) in univariate analysis. On binominal logistic regression, tumour budding showed an association with positive lymph nodes (p<0.001). There was no significant association with age, tumour grade, DCIS, tumour infiltrating lymphocytes and biomarker-defined subtypes.

Discussion and conclusion: As high TBd showed an association with lymph node metastasis, assessment of TBd as a prognostic marker is justifiable.

Keywords: tumour budding, breast carcinoma, x20 objective

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