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Understanding Tumor Budding: A Key Prognostic Indicator in Carcinoma

Dear Editor,

I have read the original article entitled "Prevalence of Tumor Budding and its Significance for Predicting Lymph Node Metastasis in Carcinomas at Tertiary Care Centre" by Poudel A et. al in Vol 6, (2) (2023) in your esteemed journal [1].

I want to commend the authors for pointing out the prevalence of tumor budding in a variety of tumor types and for highlighting its significance as a poor prognostic indicator that is strongly linked to lymph node metastases.

Tumor budding is the presence of single cells or groups of fewer than five cells in the stroma, typically at the invasive front. It has been documented as a helpful prognostic marker for several carcinomas, including gastrointestinal, breast, and head and neck cancers [1]. Thirty four of the 37 surgically removed carcinoma specimens examined in this study displayed tumor budding, indicating a high frequency of tumor budding across the different carcinoma types. The number of tumor buds across ten high power fields was used as a parameter by the authors to categorize tumor budding into two grades. They observed that all of the tumor budding instances displayed high grade tumor budding [1].

It is critical to grade tumor budding because high grade tumor budding has been linked to increased TNM staging, lymph node metastases, and a markedly decreased 5-year survival rate [2]. Therefore, it is recommended that routine Hematoxylin and Eosin staining, supplemented by cytokeratin, be used as a standard procedure in histopathological reporting to grade tumor buds in any cancer. In gastrointestinal tract and breast cancer, the authors observed a statistically significant correlation between tumor budding and lymph node metastases across resected specimens from different organs [1]. This could be because a subset of these cells co-express cytokeratin and vimentin, confirming the epithelial-mesenchymal transition (EMT) phenotype of these tumor buds. This characteristic enables the tumor cells to separate from the main tumor and spread through the extracellular matrix, infiltrate lymphatics and blood arteries, and cause both distant and local lymph node metastases [2]. Upon applying double staining for anticytokeratin and antilymphatic antibodies, Ohtsuki et al. found that a number of tumor buds near a tumor's invasive border are actually present in small lymphatic spaces [3]. This indicates that lymphovascular space invasion and tumor budding are strongly correlated. The authors, however, attributed the lack of significant correlation between tumor budding and lymphovascular invasion to the limited sample size [1].

Although the International Tumor Budding Consensus Conference (ITBCC) issued the first guidelines for reporting tumor budding in 2017, the American Joint Committee on Cancer (AJCC) 8th edition and the College of American Pathologists for Colorectal Carcinoma reporting have now included it as an optional reporting field with a recommendation to report in all stage I and stage II cases due to its growing recognition as a reliable prognostic marker [2, 4].

The proven predictive significance of tumor budding can be extremely important when making treatment decisions. Its primary function will be to detect tumor budding following a small biopsy, which will have therapeutic value by anticipating lymph node metastases and so identifying patients who require adjuvant therapy and extensive surgical excision [1].

Thus, by emphasizing the prognostic importance of tumor budding and its strong correlation with lymph node metastasis, this article significantly contributes to a more comprehensive understanding of cancer progression and the development of potential therapeutic interventions. At last I would like to again applaud the authors for shedding light on such crucial aspect of cancer pathology, providing valuable knowledge to both researchers and clinicians.

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Declarations

The author declares that he has no conflict of interest.

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