

Tumor budding as a new histological parameter in the metastasis of colorectal cancer

Ustymowicz W.^{A-F}

Department of General Pathomorphology, Medical University of Białystok, Poland

A- Conception and study design; **B** - Collection of data; **C** - Data analysis; **D** - Writing the paper; **E**- Review article; **F** - Approval of the final version of the article; **G** - Other (please specify)

ABSTRACT

Introduction: The presence of tumor budding, i.e., single cancer cells or a nest of poorly differentiated cells at the front of tumor invasion appears to be a new histopathological indicator of increased aggressiveness of colorectal carcinoma.

Purpose: The aim of this work was a retrospective evaluation of the invasion front (tumor budding, vascular invasion, and lymphocytic infiltration) in postoperative biopsies of patients with colorectal carcinoma and analysis of the 5-year survival.

Materials and methods: The study was based on the material received after surgical treatment of 164 patients with colon cancer. Tissue was obtained directly following tumor resection, fixed in 10% formaldehyde and embedded in paraffin blocks using a routine method by melting with paraffin at a temperature of 56° C. These samples were then routinely stained with haematoxylin and eosin and underwent a histopathological evaluation, with particular attention being paid to the invasion front

of the tumor. The immunohistochemical expression of cytokeratin 20 was also evaluated using anti-human CK20 monoclonal antibody (clone Ks.20.8, Dako, Poland).

Results: Tumor budding was found in 124 out of 164 patients. Statistical analysis showed a correlation between the presence of tumor budding TB and depth of invasion (pT), lymph node metastasis, distant metastasis, lymphocytic infiltration, and vascular invasion. The cumulative five-year survival correlated with the lack of tumor budding and vascular invasion, as well as a decrease in lymphocytic infiltration.

Conclusion: The results suggest that budding, angioinvasion and lymphocytic infiltration can be considered as independent prognostic and predictive factors in colon cancer.

Keywords: Colon cancer, 5-year survival