

Tumor budding in colorectal carcinoma- difficulties in graduation and some solutions

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Abstract:

Introduction: Infiltration of tumor cells into the peritumoral tissue is one of the most outstanding features of malignancy and, in small tumors/early tumor stages probably of eminent prognostic relevance. In colorectal carcinomas (CRCs), the graduation of the invasive potential is difficult and shows high interobserver variability, leading to several-not very convincing-attempts of standardization as a result of mixing different morphological and biochemical modes of invasion. We analysed different morphological patterns of invasion in CRCs in respect of morphogenous features and biological

consequences: The expression of proliferation markers, cell adhesion molecules adherens, and regulators catenins, and invadopodia-associated markers like matrix metalloproteinases Vinculin and the perinfiltrative tumorstroma.

Materials & Methods: Twenty hot spots of tumor buds in 20 cases of CRCs (400 POIs) were analysed in FFPE, 5 Ym IHC; analysis of E-Cadherin, N-Cadherin with MoAbs I5626 M0735- DAKO North America, Carpinteria California); Ki-67, CD44 with MoAb (IS2541 M0753 DAKO Denmark Glostrup) Vinculin (PoAb E18720, Spring Bioscience, California).

Results: Tumor budding (TB) in CRCs is part of the much more complex phenomenon of epithelial-mesenchymal transformation (EMT/TEM). Morphologically tumor buds were classified in four different types: monocellular and oligocellular, trabecular, tubular, irregular and sheetlike. They show different IHC results: E-Cadherin expression and membranous β -catenin are lost in and diminished in ; it is well-expressed in N-Cadherin and nuclear β -catenin are increased in and Vinculin and CD 44, markers of invadopodia, apparently do not play a significant role in tumor budding. Ki-67, a marker of mitotic ability is highly diminished in and low in .

Conclusion: TB is not a simple phenomenon of tumor-cell propagation but the result of a complete change of intracellular organizations with shift of cadherins and catenins; these changes apparently block the mitotic activity of invading cells. Invasion by TB is in strict contrast to proliferation. Development of new therapies should keep in mind, that one can either block proliferation or propagation of malignant tumors.

Biography :

Peter Stoemmer has completed his PhD from University Erlangen Nuremberg, Germany and Post-doctoral studies in Yale, News Haven, USA. He is the Director of Pathologie Hermanstrasse. Augsburg Germany. He has published more than 225 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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