Aspects of Stem cells and Epithelial Mesenchymal Transition in the diagnosis and biological behavior of selected tumors in Sudan

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As pathologists we use immunohistochemistry to identify certain markers that help us to decide if the tissue is normal, hyperplastic or neoplastic. If neoplastic is it benign or malignant? If malignant what is the degree of differentiation and whether it is likely to metastasize or not?

In this presentation I discuss the importance of molecular biology for the pathologist engaged in rendering histopathology services and performing research. In particular, the presentation addresses cancer and its differential diagnosis using modern immunohistochemical technology. I looked for some gene products that help in confirming a cancer, its type, degree of differentiation and whether it is expressing genes that are associated with a metastasizing potential. The other important area to be discussed is the phenomenon of Epithelial Mesenchymal Transition (EMT) in which the tumor has both epithelial as well as mesenchymal tissue even in the H&E stained routine sections. The reverse of this is Mesenchymal Epithelial Transition (MET). This will also be bewildering to the practicing pathologist and he needs to use immunohistochemical markers for certain genes in order to make the proper diagnosis. The gene products I looked for are CD44, OCT4, P63 and Cadherins. As examples we tested esophageal squamous cell carcinomas with different degrees of differentiation and a rare carcinoma variant known as basaloid squamous cell carcinoma. We showed for the first time that the squamous and basaloid components are of different histogenesis. Details will be given in the presentation

Epithelial mesenchymal transition and mesenchymal epithelial transition and their significance in the biology of tumours will be presented. We used EMA, Cytokeratin 20, Vimentin, S-100 protein, CD 44, E-Cadherin to study the tumours.