

Epithelial-mesenchymal transition (EMT) during salivary gland tumorigenesis: expression of E-cadherin and c-Kit

Elen Alves de Sousa (AC Camargo Cancer Center, Brazil), Luiz Paulo Kowaski (AC Camargo Cancer Center, Brazil), Fernando Augusto Soares (AC Camargo Cancer Center, Brazil), Silvia Vanessa Lourenço (University of São Paulo, Brazil), Cláudia Malheiros Coutinho-Camillo (AC Camargo Cancer Center, Brazil)

BACKGROUND: Salivary gland tumors are a heterogeneous group of lesions. Pleomorphic adenoma (PA) is the most common benign tumor. In the malignant group, the most common tumors are mucoepidermoid carcinoma (MEC) and adenoid cystic carcinoma (ACC). The low incidence of salivary gland tumors added to the wide variety of lesions makes the diagnosis a challenging activity so, the identification of molecular markers is so important, particularly in this group of neoplasms. Epithelial-mesenchymal transition (EMT) process promotes differentiation in epithelial tissues suggesting an important role in the metastatic process: epithelial cells lose cell-cell adherence and acquire mesenchymal characteristics with migratory abilities. One of the first alterations during EMT is the loss of E-cadherin protein expression. E-cadherin is a cell-adhesion protein and its loss is associated with tumor progression and metastasis. Other important protein is c-Kit, a tyrosine kinase receptor, whose activation is associated with cell survival, migration, proliferation, and is involved in the regulation of known EMT inducers.

HYPOTHESIS: Is the EMT process associated with the development of salivary gland tumors? The aim of this study was to evaluate the expression of proteins associated with the EMT process in benign and malignant tumors of the salivary glands

METHODS: Using 15 mucoepidermoid carcinoma, 19 adenoid cystic carcinoma and 23 pleomorphic adenoma cases, we have analyzed the immuno-expression of E-cadherin and c-Kit. The results were semi-quantitatively analyzed, considering the pattern and intensity of staining.

RESULTS: E-cadherin expression was observed in ductform structures of pleomorphic adenoma. Weak expression was observed in myoepithelial cells whereas myxoid and chondroid areas are negative. In mucoepidermoid carcinoma and adenoid cystic carcinoma, strong E-cadherin expression was observed in epithelial cells, especially in tubular structures. c-Kit expression was observed in epithelial cells of pleomorphic adenoma. Strong expression was observed in epithelial cells of adenoid cystic carcinoma whereas in mucoepidermoid carcinoma positivity is rarely observed in the center of tumoral islands.