Correlations of Oral Tongue Cancer Invasion with Matrix Metalloproteinases(MMPs) and Vascular Endothelial Growth Factor(VEGF) Expression

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Purpose : In oral tongue cancer, the degree of tumor invasion has a significant effect on the prognosis. We hypothesized that the destruction of extracelluar matrix and neovascularization are related to tumor infiltration mechanism. By studying the tissues of early stage oral tongue cancer patients, we are intending to clarify the invasion related factors.

Materials & Methods : To demonstrate the invasion process in early T-stage oral tongue cancer, the expressions of extracellular matrix destruction related molecules(MMP2, MMP9) and neovascularization related molecule(VEGF) were observed by immunohistochemical study. Also, staining of CD31 was done for quantification of neovascularization. We analyzed relationship between expression of each substances and tumor invasion depth, tumor free survival rates and cervical lymph node metastasis rate.

Results : The expression rates of MMP2, MMP9, VEGF in 38 early oral cancer patients were 52.6%, 78.9% 52.6%, respectively. Significant correlation was found between the VEGF expression and microvessel density showed by CD31 immunohistochemical staining (p<0.001). VEGF expressions were significantly related with tumor invasion depth (p= 0.002). The tumor free survival rate of those patients with VEGF-positive tumors was significantly poorer than in those with VEGF-negative tumors (p=0.019).

Conclusion : These results indicate that VEGF is a useful marker for predicting the tumor invasion in patients with early tongue cancer.

KEY WORDS : Tongue cancer · Tumor depth · VEGF · MMPs.