Immunohistochemical Study of Metastasis-Related Protein in Primary and Matched Metastatic Tumors of Renal Cell Carcinoma

Introduction and Objective: 1.To investigate whether there is association of the expression in metastasis-related protein between a primary and paired metastatic tumor. 2. To investigate whether there is association of the expression between proteins within the primary tumor or within the metastatic tumor.
Materials and Methods: Samples were obtained from 13 individuals (8 male and 5 female) who underwent nephrectomy from 1982 to 2002 at Nihon University Itabashi Hospital for renal cell carcinoma. After an average of 18 month, they died subsequently of cancer and we carried out autopsy for them. The stages of disease at initial surgery were one stage 1, one stage 2, 3 stage 3 and 7 stage 4. Immunohistochemical observation was performed by using LSAB (labeled steptavidin biotin) method. Primary antibodies used in this study were MMP (matrix metalloproteinase)-2, MT (membranous type) -MMP-1 and pS6. The level of expression was evaluated by semi-quantification of four grades from - to 3+. Each significance of association was analyzed by Spearman rank correlation.
Results: The association of expression concerning all proteins examined between a primary and paired metastatic tumor was observed (Fig.1). An association of expression was observed in pS6 and MMP2 within primary tumor (Fig.2). Also associations of expression were observed in MT1-MMP and pS6 and also in pS6 and MMP2 within metastatic tumor (Fig.2).
Conclusion: The degree of expression in three proteins examined in primary tumor reflects the degree of those of metastatic tumor. Both in the primary and metastatic tumor, an association of expression were observed in pS6 and MMP2.

Fig. 1 Associations of expression in proteins between a primary and paired metastatic tumor

	Correlation coefficient	p value
MMP2	0.782	**0.0009**
MT1-MMP	0.732	**0.0031**
pS6	0.732	**0.0032**

Fig. 2 Associations of expression in proteins within the primary and metastatic tumor

primary	Correlation coefficient	p value
MMP2/MT1-MMP	0.073	0.8161
MT1-MMP/pS6	0.473	0.1043
pS6/MMP2	0.732	**0.0032**
metastatic	Correlation coefficient	p value

MMP2/MT1-MMP	0.541	0.0553
MT1-MMP/pS6	0.556	**0.0473**
pS6/MMP2	0.675	**0.0095**