Clinicopathological Characterization of the Micropapillary Variant of Bladder Cancer

Introduction and Objective: Micropapillary urothelial carcinoma (mpUC) of the bladder is a relatively uncommon but diagnostically important histological variant of urothelial carcinoma that portends an aggressive disease course. To date there have been few reports on mpUC and its molecular profile has not been established. The aims of this study were to analyze its clinicopathological features and molecular profile, and compare them with those of conventional urothelial carcinoma (cUC).
Materials and Methods: Data were collected on 494 consecutive patients with urothelial carcinoma of the bladder surgically treated between 2006 and 2010. Of them, 14 mpUC cases (2.8%) were analyzed and compared with cUC cases. We assessed the expression of MUC1, CA125, MTA, survivin, CEP-55, SOX2, E-cadherin, vimentin, and HLA class I by immunohistochemistry.
Results: Each of the 14 mpUC cases had a micropapillary component that ranged from 5 to 100% of the tumor, and was characterized by a higher frequency of an infiltrative pattern and lymphovascular invasion, and a higher depth of invasion than in cUC. Immunohistochemical staining for MUC1, CA125, MTA, survivin, CEP-55, and SOX2 expression was positive in 85.7%, 42.9%, 50.0%, 78.5%, 50.0% and 69.2% of the mpUC cases, respectively. In the cases of cUC, their expression was seen in 31.6%, 5.3%, 47.4%, 47.4%, 42.1% and 42.1% of the cases, respectively. Strongly positive immunostaining for MUC1 was observed in almost 100% of the mpUC cells, whereas it was stained in only 25% of the cUC cells. Similarly, anti-MTA1 antibodies were robustly stained in most of the mpUC cells, but only in 50% of the cUC cells in the positive cases.
Conclusion: MUC1, CA125 and survivin are more frequently expressed in mpUC than in cUC. MUC1 and MTA are more strongly and highly expressed in mpUC than in cUC. These results suggest that mpUC is more aggressive and has greater metastatic potential than cUC.