Expressions of p16INK4a, p27kip1 and p21WAF1 in differentiating primary adenocarcinoma of endometrium from adenocarcinoma of endocervix

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The distinction between an endocervical adenocarcinoma (ECA) and an endometrial adenocarcinoma (EMA) can be problematic on small biopsies or when there is tumor in both endocervical and endometrial specimens or when the tumor has extended into the lower uterine segment. The judgment is difficult to be based on histomorphology alone because these tumors can have similar histologic appearance.

We investigated the value of p16INK4a, p21WAF1 and p27kip1 immunohistochemistry for distinguishing ECA and an EMA. We immunostained tissue sections of archival samples from 2005 to 2008 from HUSM and HSB. The immunochemical staining scores were correlated with their clinicopathologic parameters.

There were 40 ECA and 92 EMA cases examined. We observed significant higher expressions of p16INK4a and p27kip1 ([p <0.001] (80% versus 25%) and [p=0.001] (43% versus 15%)) in ECA than in EMA. ECA could be differentiated from EMA based on the combination expressions of p16INK4a and p 27kip1. p21WAF1 expression did not differentiate these two carcinomas (70% versus 78%, p=0.312). There were significant association seen between negative p16INK4a expression and low histologic grade in EMA (p=0.014). In ECA, p21WAF1 expression shows significant association with corpus infiltration (p=0.043) while negative p27kip1 expression with lymph node invasion (p=0.030). Multivariate analysis however shows no association between lymph node invasion and p27kip1 expression adjusted by race, histologic grade, vascular invasion, p21WAF1 expression and extension into the uterine corpus.

In conclusions, combination of p16INK4a and p27kip1 expression is helpful in differentiating ECA from EMA. In small biopsy, the expression of p21WAF1 may help in assessing the presence of corpus infiltration. P27kip1 expression is helpful in predicting presence of lymph node invasion.