Hum Pathol. 2003 Nov;34(11):1155-62.

Expression of calretinin and other mesothelioma-related markers in thymic carcinoma and thymoma.

Pan CC, Chen PC, Chou TY, Chiang H.

Department of Pathology, National Yang-Ming University and Veterans General Hospital, Taipei, Taiwan.

Thymic carcinoma and thymoma are primary neoplasms of the anterior mediastinum that can involve the lung and pleura in advanced stages or, in rare instances, occur as primary pleural tumors. Thus these tumors may be encountered in thoracic and pleural biopsy specimens. Recognizing the immunohistochemical patterns of calretinin and other mesothelioma-related markers in thymic carcinoma and thymoma may be helpful in avoiding confusion with malignant mesothelioma and pulmonary carcinoma, both of which are major differential diagnoses in this location. Accordingly, in the present study we examined the expression of calretinin, mesothelin, cytokeratin (CK) 5/6, thrombomodulin, HBME-1, Wilms' tumor-1 (WT-1), Ber-EP4, MOC-31, BG-8, B72.3, carcinoembryonic antigen (CEA), CD15, thyroid transcription factor-1 (TTF-1), p63, and CD5 in 22 thymic carcinomas and 35 thymomas, and compared the results with those of malignant mesothelioma and pulmonary adenocarcinoma. Around 1/3 of thymic carcinomas were positive for calretinin and/or mesothelin. Both thymic carcinomas and thymomas were frequently positive for CK 5/6. Immunoreactivity for HBME-1 was seen in 4 thymic carcinomas and 10 thymomas. Except for 1 thymic carcinoma being positive for WT-1, all other thymic carcinomas and thymomas were negative for WT-1 and thrombomodulin. None of the thymic carcinomas and thymomas expressed TTF-1. More than 70% of the thymic carcinomas were positive for Ber-EP4, BG-8, and CD15. The positive rates of MOC-31, B72.3, and CEA in thymic carcinomas were in the middle between those in mesothelioma and pulmonary adenocarcinoma. All thymic epithelial tumors revealed nuclear immunoreactivity for p63. Nine thymic carcinomas (41%) expressed CD5. We found that a panel of positive p63, negative thrombomodulin, WT-1, and TTF-1 is most discriminatory for thymic epithelial tumors. Other mesothelial (calretinin and mesothelin) and epithelial (Ber-EP4, BG-8, and CD15) markers are less contributory in discerning thymic epithelial tumors due to their overlapping expression with malignant mesothelioma and pulmonary adenocarcinoma. Given the complexity of the staining patterns among the different entities, proper immunohistochemical stainings should be selected and interpreted with caution, and correlated with clinicopathologic findings in the differential diagnoses of thoracic biopsy specimens.