Cytokeratin-negative small cell lung carcinoma

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Abstract

Cytokeratins (CK) are good markers of epithelial tumors, and most of carcinomas including small cell lung carcinoma (SCLC) expresses CK. Herein reported is a case of SCLC without CK expression.

Case Report

A 67-year-old man presented with cough and sputum. Imaging modalities revealed a large mass (10 cm in diameter) in the right upper lobe of the lung (Figure 1). Lung carcinoma was suspected, but repeated transbronchial lung biopsies and sputum cytologies failed to reveal carcinoma cells. Therefore, CT-guided needed biopsy was performed. The biopsy showed medullary small epithelioid malignant cells with scant cytoplasm, hyperchromatic nuclei and inconspicuous nucleoli (Figure 2). Mitotic figures and necrotic areas were scattered. The histological diagnosis was SCLC. An immunohistochemical study was performed with the use of Dako Envision method, as previously described.1,2 The tumor cells were positive for synaptophysin (Figure 3A), PDGFRA (Figure 3B) and Ki-67 (labeling=80%) (Figure 3C). However, they were negative for panCK (AE1/3, CAM5.2, WSS, MNF116), CK 34BE12, CK5/6, CK7, CK8, CK14, CK18, CK19, CK20, EMA, p63, p53, CEA, CA19-9, CD45, CD3, CD20, CD45RO, CD79α, CD138, κ-chain, λ-chain, vimentin, desmin, smooth muscle actin, S100 protein, HMB45, CD34, myoglobin, neuron-specific enolase, CD56 (NCAM), chromogranin, KIT (CD117), MIC-2 (CD99), TTF-1, CDX2, calretinin, D2-40, and bcl-2. Although CK was negative, the author diagnosed the tumor as SCLC because histology was compatible with SCLC and also because synaptophysin and PDGFRA were positive. The patient is now treated with cisplatin-based chemotherapy.

The present case of SCLC indicates that SCLC can be negative for CK.3,4 Differential diagnosis was sarcoma. As a whole, the current case seems not to be sarcoma because of lack of vimentin immunoreactivity. Lipogenic, myogenic, and neurogenic sarcomas were unlikely because their immunohistochemical markers were negative. Malignant lymphoma is also unlikely because of the lack of lymphocytic markers. Plasmacytoma is unlikely because of the lack of light chains and CD138. Malignant melanoma is unlikely because of the lack of S100 protein and HMB45. PNET/Ewing sarcoma is unlikely because the tumor cells were negative for MIC-2. Other kinds of sarcoma are also unlikely.

Differential diagnosis from pulmonary carcinomas is also important. The present case is...
different from large cell neuroendocrine carcinoma because of tumor cell size and histology. The present case is not poorly differentiated squamous cell carcinoma or adenocarcinoma. The present case is not sarcomatoid carcinomas of the lung. The present case is not malignant mesothelioma because the present case was negative for D2-40 and calretinin.

The author believes that the present case is CK-negative SCLC.

In conclusion, pulmonary SCLC can be negative for CK. In such a case, extensive differential diagnosis is required.

References