CASE STUDY

Primary Lymphoepithelioma-Like Carcinoma of Lung

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ABSTRACT

A 57-year-old Caucasian woman presented with nonproductive cough. Computed tomography revealed a peripheral solid mass in the upper lobe of the left lung. She underwent thoracotomy and upper lobectomy. Histology of the excised tumor demonstrated lymphoepithelioma-like carcinoma of the lung, with no associated Epstein-Barr virus activity. Being a rare entity and mostly seen in Asians, very few cases have been described previously.

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INTRODUCTION

Primary lymphoepithelioma-like carcinoma of the lung is a very rare entity that has only recently been included as a separate subtype under variants of large-cell carcinoma in the World Health Organization's histologic classification of lung tumors.[1] Originally described in the nasopharynx as lymphoepithelioma, this carcinoma has also been found in multiple organs, including the salivary gland, thymus, cervix, and skin.[2] Primary lymphoepithelioma of the lung is an undifferentiated carcinoma with prominent lymphoid stroma and ultrastructural features of squamous cell carcinoma.[2] A review of the literature indicates that this tumor has been reported in 21 Asians and only 8 Caucasians.

CASE REPORT

A 57-year-old Caucasian female presented with a 3-month history of dry irritating cough without any constitutional symptoms. She had been a chronic smoker until recently. Physical examination was negative. Chest radiography and computed tomography (CT) revealed a peripheral circumscribed solid lung lesion in the upper lobe of the left lung, with no evidence of mediastinal lymphadenopathy (Figure l). Bronchoscopy was normal. CT-guided fine-needle aspiration cytology demonstrated atypical epithelial cells suggestive of malignancy. A technetium-99m bone scan revealed no evidence of bony metastasis. CT scans of the head, abdomen, and pelvis were reported to be normal. In view of the possibility of a primary lung tumor, a left posterolateral thoracotomy was undertaken. Exploration revealed a peripheral 2 × 2-cm grey-white solid tumor mass in the upper lobe of the left lung. The lymph nodes in the hilum were grossly normal. A left upper lobectomy was performed. A complete nasopharyngeal examination including a CT scan was carried out to exclude the possibility of primary nasopharyngeal lymphoepithelioma. The patient recovered well and was discharged on the 8th postoperative day. She was asymptomatic with no evidence of recurrence or metastasis 11 months after surgery.

Histology showed the tumor was composed of irregular islets formed by cohesive aggregates of polygonal cells having moderate amounts of pale-staining cytoplasm and large vesicular nuclei, and showing moderate pleo-

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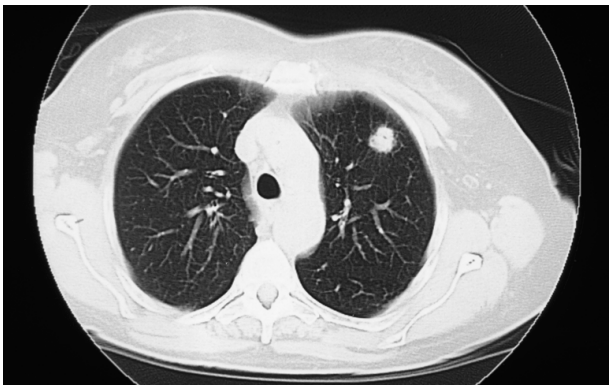

Figure 1. Computed tomography scan of the chest showing a peripheral heterogenous mass in the left lung.

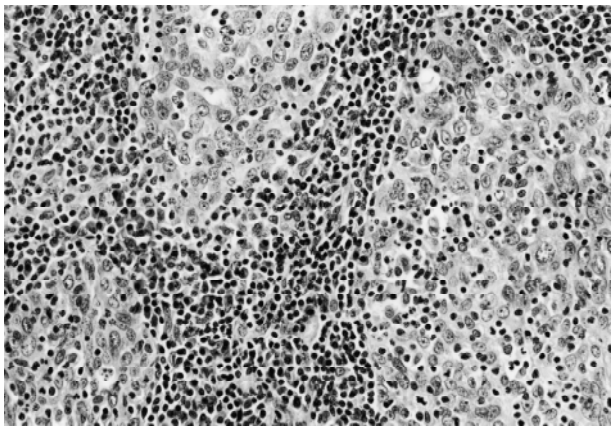

Figure 2. Photomicrograph of the tumor showing islets of epithelial-appearing cells separated by stroma rich in lymphocytes and plasma cells. Lymphocytes also extend into the tumor aggregates (hematoxylin and eosin stain, original magnification ×200).

morphism, prominent nucleoli, and mitotic activity (Figure 2). There was no evidence of tumor differentiation in the form of glands or keratin pearl formation. Tumor aggregates were separated by a dense infiltrate of lymphocytes and plasma cells, which extended into the neoplastic islets (Figure 2). Immunocytochemistry revealed epithelial cells decorating with CAM 5.2 and cytokeratin 5/6, but these were negative for cytokeratins 7 and 20 (Figure 3). Despite the primary lung origin of this tumor, there was no positive staining for thyroid transcription factor-1. Staining with leukocyte common antigen highlighted the stromal lymphoid elements, and while these cells were also seen in the tumor islets, the tumor cells failed to stain. Epstein-Barr virus (EBV) could not be demonstrated in the tumor cells, stromal lymphocytes, or surrounding lung tissue, using anti-EBV latent membrane protein (DAKO no897, Clones CS 1-4).

DISCUSSION

Lymphoepithelioma-like carcinoma of lung is a rare tumor that occurs more commonly in Asians, particularly Chinese.[1–3] A review of the literature indicated that approximately 30 cases have been described so far.[4] The age of the patients varied from 8 to 78 years, with an

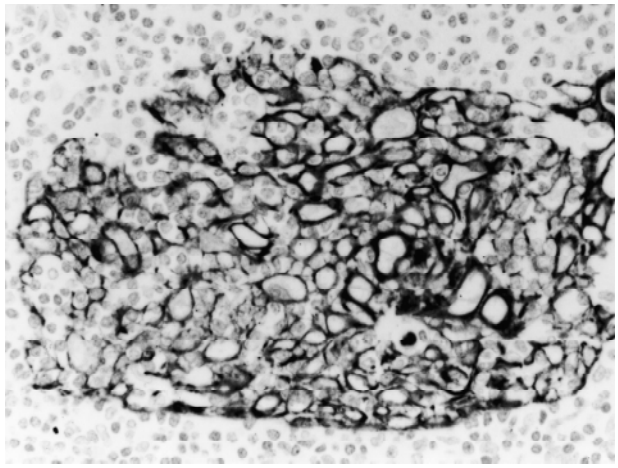

Figure 3. Photomicrograph showing the tumor cells with strong membranous staining by CAM 5.2. Surrounding lymphoid elements are not decorated by this epithelial marker (CAM 5.2 stain, original magnification ×200).

equal sex ratio.[3–5] There is an association with EBV, and interestingly, this association has been proven in almost all Asian patients, but it is uncommon in Caucasians. Numerous techniques have been used to demonstrate the virus, including in-situ hybridization for EBV-encoded small nuclear ribonucleic acids, demonstration of EBV-deoxyribonucleic acid in the tumor cells, and expression of latent membrane protein-1 by immunohistochemistry.[1,2,6]

While lymphoepithelioma-like carcinoma is rarely seen as a primary lung lesion in the non-Asian population, there are no distinguishing features to separate this tumor from a metastasis; therefore, a thorough evaluation of other primary sites such as the nasopharynx should be carried out. The incidence of metastasis to local lymph nodes is 25%; although hematogenous metastasis occurs seldom, the skeletal system is the preferred site.[4,7] From the limited data available, the behavior of lymphoepithelioma-like carcinoma of lung is highly variable but it is not an aggressive malignancy in the majority of cases.[3,6,7] This may be because it often appears as a peripheral coin lesion, and is diagnosed at an early stage. However, other factors inherent to the nature of the carcinoma may play a role in its relatively good prognosis. Lymphoepithelioma-like carcinoma must be considered in the differential diagnosis of primary lung tumors, particularly when extensive lymphocytic infiltrate is present. As the tumor does not stain with thyroid transcription factor-1 and cytokeratin-7, the possibility that it represents metastasis from a primary elsewhere needs to be excluded clinically. The role of adjuvant therapy is not clear; however, chemotherapy and radiotherapy have been employed with some success.[3,8]

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