An Unusual Presentation of Malignant Pleural Mesothelioma

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CASE REPORT

A 65-year-old man was admitted with progressive dyspnea on exertion and coughing for several months. He had a history of hypertension and smoking. There were no previous malignancies and he was never exposed to asbestos. Physical examination was remarkable only for some basal crepitations. He had a left ventricular ejection fraction of 41% to 45%. High-resolution computed tomography images of the lungs showed diffuse tenuous nodular opacities in both lungs and a large area of ground-glass opacities in the upper left lobe. In addition, there was septal thickening, increase in the peripheral vascular markings, and pleural effusion. There was no pleural thickening (Fig. 1). The radiological findings were interpreted as small airways disease with a differential diagnosis of respiratory bronchiolitis-associated interstitial lung disease or extrinsic allergic alveolitis and an additional component of congestive heart failure. There was no clinical improvement after treatment with diuretics and cessation of smoking, therefore biopsy of lung was performed by video-assisted thoracoscopic surgery. After the biopsy procedure, the patient's clinical condition deteriorated and he died. Postmortem examination was not performed.

Microscopic examination revealed a widespread infiltration of the alveolar parenchyma and pleura by a population of epithelioid cells with moderately irregular nuclei and conspicuous nucleoli surrounded by a moderate amount of cytoplasm. Islands of these cells were also found in the alveolar spaces along with alveolar macrophages. There was a prominent involvement of pulmonary lymphatics. Tumor infiltration was especially prolific around bronchovascular bundles and interlobular septa (Fig. 2). The neoplastic cells expressed pan-keratin, calretinin (cytoplasmic and nuclear), D2-40, and cytokeratin 5/6 markers (Fig. 2), and were negative for the markers carcinoembryonic antigen, MOC-31, thyroid transcription factor 1 (TTF-1) (strong positive internal controls with 8G7G3 and SPT24 clones), and CD31, confirming the diagnosis malignant mesothelioma epithelioid type.

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DISCUSSION

We present a case of an epithelioid diffuse malignant (pleural) mesothelioma with a predominant diffuse intraparenchymatous growth pattern and without marked pleural thickening or restriction. Clinically and radiologically, this tumor was first diagnosed as an interstitial lung disease. During the initial histological examination an epithelioid hemangioendothelioma was considered with epithelial malignancy and malignant mesothelioma in the differential diagnosis. Nind et al.[1] reviewed 200 diffuse malignant pleural mesotheliomas and found only one case showing a growth pattern resembling desquamative interstitial pneumonia on histology. In this same group, a total of three cases exhibited intra-alveolar growth pattern mimicking epithelioid hemangioendothelioma. All three cases were of the sarcomatoid subtype.[1] To the best of our knowledge, there is no previous report of an epithelioid diffuse malignant pleural mesothelioma showing this growth pattern in literature.

The neoplastic cells of an epithelioid hemangioendothelioma are reactive with the endothelial markers CD31, CD34, and factor VIII and negative for the mesothelial markers cytokeratin 5/6 and calretinin whereas in malignant mesothelioma the reverse is true.[2,3]

Ordóñez[4] recommended a combination of calretinin and CK 5/6 (or WT-1) as positive markers and carcinoembryonic antigen and MOC31 as negative markers to distinguish malignant mesothelioma from primary pulmonary adenocarcinoma, because of their sensitivity and specificity for mesothelioma.[4]

It is important to recognize the unusual growth patterns of diffuse malignant pleural mesothelioma both clinically and histopathologically to avoid misdiagnosis, which could have an adverse effect on treatment and prognosis.

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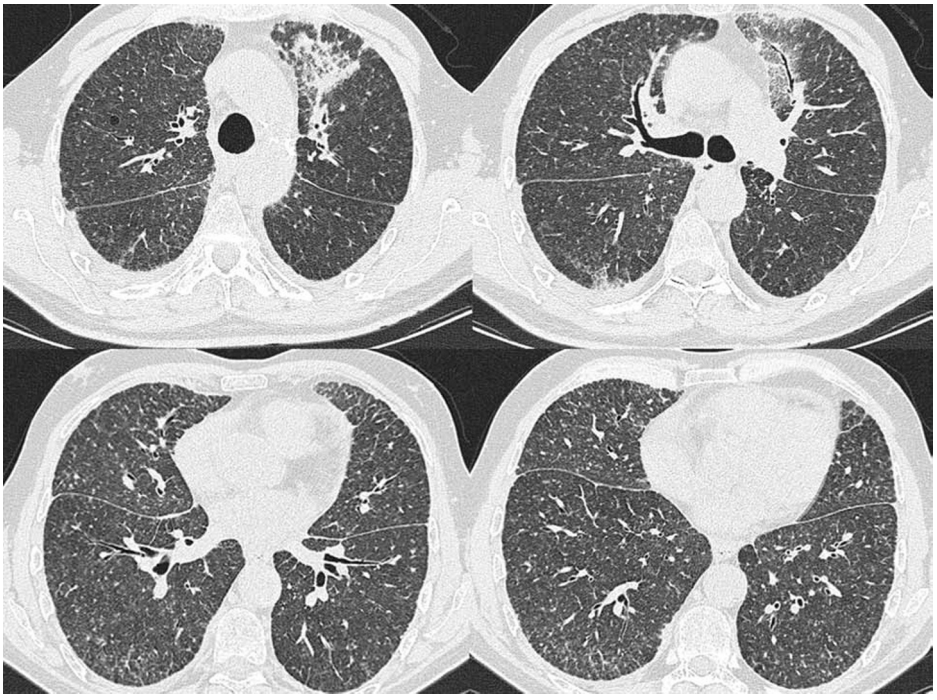

FIGURE 1. High-resolution computed tomography showing peripheral increase in the vascular markings, septal thickening, diffuse nodular opacities in both lungs, and ground-glass opacities in the left lung.

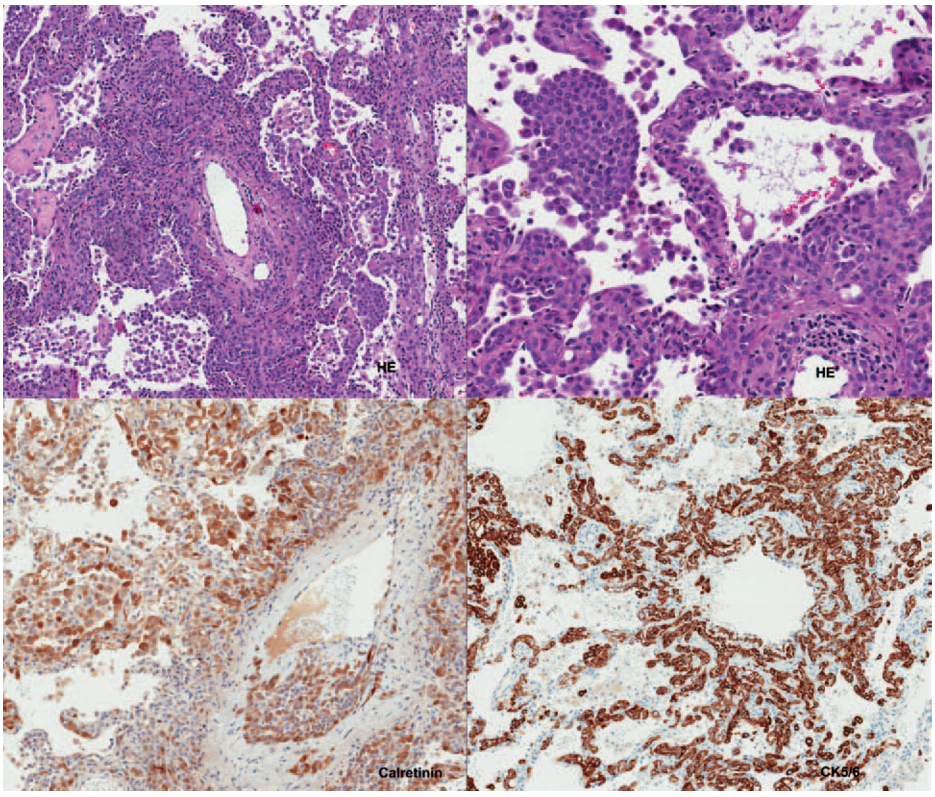

FIGURE 2. High-powered micrograph showing epithelioid cells (hematoxylin and eosin staining). High-powered micrograph showing positive cytoplasmic and nuclear staining for calretinin and positive staining for CK5/6 (calretinin staining and CK5/6 staining).

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