A black man with known sarcoid was admitted with chest pain of two days’ duration. The pain was worsened with sternal compression, and the patient also complained of increasing shortness of breath. Physical examination showed normal findings. Laboratory evaluation showed a mild normochromic, normocytic anemia. ACE, LDH, and alkaline phosphatase levels were moderately elevated. Alpha-fetoprotein levels were normal. Pulmonary function tests were consistent with a moderately severe restrictive pattern. Echocardiogram showed a moderate pericardial effusion and mitral valve prolapse. Liver-spleen scan and bone marrow examination gave normal findings.

PA and lateral views of the chest (Fig 1A and B) demonstrate a large anterior mediastinal mass sparing the hila and paratracheal regions. A fine reticulonodular pattern is seen scattered throughout the lungs. A CT scan (Fig 2A and B) confirms the presence of an isolated anterior mediastinal mass with loss of the normal vascular anatomy in this area. Lung parenchymal settings show the diffuse, reticulonodular disease.
Diagnosis: Primary Mediastinal Seminoma with Superimposed Sarcoid Changes of the Lung Parenchyma

The anterior mediastinum is bounded anteriorly by the sternum and posteriorly by the pericardium, aorta, and brachiocephalic vessels. It contains the thymus gland, anterior mediastinal lymph nodes and mesenchymal tissue. Differential diagnosis of anterior mediastinal masses include mesenchymal neoplasms such as benign dermoid cysts, benign and malignant teratomas, endodermal sinus tumors, seminomas, choriocarcinomas, and embryonal carcinomas. Other differential possibilities are thymoma, substernal thyroid and parathyroid masses (hyperplasias and neoplasms), and the various etiologies of adenopathy.

With known sarcoid, a serious consideration might be that this anterior mediastinal mass is related to sarcoid adenopathy. This is an especially attractive consideration as this patient demonstrates the classic reticulonodular pattern in the lung parenchyma. However, only 16 percent of patients with sarcoid have anterior mediastinal masses. Further, all of these patients had concurrent bilateral hilar and right paratracheal disease. Neither hilar nor paratracheal adenopathy was present in the patient. Adenopathy secondary to sarcoidosis is highly unlikely in this case. Left with the remainder of the differential diagnoses, only biopsy can furnish an exact tissue diagnosis.

Primary seminomas of the mediastinum are rare germ cell neoplasms histologically identical to their testicular counterparts. There are less than 100 cases reported in the world literature. The anterior mediastinum is by far the most frequent location of non-testicular seminomas. The average age of onset is 27 years with a few reported cases in women. The presenting symptoms are nonspecific, of short duration, and related to the local extension of the neoplasm. Retrosternal pain and dyspnea frequently are the initial complaints.

Mediastinal seminomas are believed to represent aberrations of embryologic development with subsequent malignant change and share, in addition to histologic similarities, an unusual degree of radiosensitivity. They may be well encapsulated, or locally invasive. Roentgenographically, these tumors cannot be distinguished from malignant teratomas, being lobulated and protruding from one or both sides of the mediastinum. Seminomas may give rise to distant metastasis. The most frequent sites are bone, liver and/or lungs. Additional studies such as bone scans, liver function tests, routine laboratory evaluations, human chorionic gonadotropin levels, testicular ultrasound, and lymphangiogram should be performed for confirmation of a primary site in the mediastinum.

Uncommon presentations of common diseases should always be a serious consideration to unify all of a patient's pathophysiologic abnormalities. This presentation for sarcoid would be most unusual. Therefore, other etiologies must be investigated as the cause of this anterior mediastinal mass.

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