Multiple Pulmonary Nodules in an Asymptomatic Patient*

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Manuscript received October 6, 1998; revision accepted January 21, 1999.

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A 49-year-old black woman presented after an initial radiologic evaluation of her shoulder incidentally revealed the presence of multiple pulmonary nodules. The asymptomatic patient denied dyspnea, cough, sputum production, hemoptysis, or fever. There was no history of malignancy. Her history included only a hysterectomy and left-sided oophorectomy performed approximately 12 years earlier for uterine fibroids.

A chest roentgenogram revealed multiple pulmonary nodules scattered throughout both lung fields (Fig 1). CT of the chest (Fig 2) demonstrated innumerable, moderately well-circumscribed nodules ranging in size from a few millimeters to 2 cm. A pericardial effusion was also identified (Fig 3). Pulmonary function test results were relatively unremarkable, and an echocardiogram confirmed the presence of a small pericardial effusion with normal left ventricular function. A percutaneous biopsy was performed.

**What is the diagnosis?**

**Figure 1.** Posteroanterior view of the chest showing multiple diffuse pulmonary nodules.
Figure 2. CT scan of the upper chest demonstrating numerous well-circumscribed nodules ranging in size from a few millimeters to 2 cm.

Figure 3. CT scan of the chest showing a pericardial effusion of moderate size.
Diagnosis: Spindle cell proliferation consistent with benign metastasizing leiomyomas

The etiology of multiple pulmonary nodules is quite complex, with metastatic disease being the most common cause. Other possibilities include sarcoidosis or an inflammatory process, such as a fungus, tuberculosis, nocardiosis, or septic emboli. However, in asymptomatic patients, further considerations include the presence of rheumatoid nodules, amyloidosis, and arteriovenous malformations.1 The possibility of even less common lesions, including hamartomas and smooth muscle tumors such as leiomyomas, also exists.

Benign metastasizing leiomyoma is rare, with 40 documented cases.2 The disease usually appears several years after a hysterectomy for uterine fibroids, with a radiographic appearance of slow-growing, solitary, or multiple lung nodules.3 Most patients underwent a hysterectomy 3 to 20 years earlier.4 Although most of these patients are asymptomatic, presenting symptoms such as dyspnea, dry cough, or chest pain have been reported.5,6

The most common sites of metastasis include the lungs and lymph nodes. Metastasizing leiomyomas may have caused the pericardial effusion of this patient, although pericardial fluid sampling was not performed. However, a metastatic focus involving the anterior papillary muscle of the right ventricle causing obstruction of the main pulmonary trunk has been described in a case report.2

The etiology of metastasizing leiomyomas includes the presence of metastatic disease (before or at the time of surgery) and the presence of metachronous lesions.6 The delay in the appearance of the leiomyomas is explained by the incredibly slow tumor growth rate.

Uterine leiomyomas are known to be estrogen sensitive. In fact, both estrogen and progesterone receptors have been identified in lung lesions and have led to treatment based on hormonal manipulation with either surgical or medical oophorectomy including the administration of progesterone.6,7

Lung lesions tend to remain stable, with occasional regression after treatment. The nodules in this patient did not change after separate trials of both progesterone and aromatase inhibitors.

ACKNOWLEDGMENT: The authors thank Neil Abramson, MD, for sharing this unusual case, and Bonnie Hami for her review of this manuscript.

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