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A Woman with a Lung Mass and Multiple Pulmonary Nodules

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Data Collection B
Statistical Analysis C
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Patient: Female, 41
Final Diagnosis: Benign metastatic leiomyoma
Symptoms: Cough • shortness of breath
Medication: —
Clinical Procedure: Bronchoscopy • open lung biopsy
Specialty: Pulmonology

Objective: Rare disease

Background: Patients presenting with lung mass and/or nodules are common problems for pulmonologists. The common etiologies for this condition in this area (Ohio River Mississippi Valley area) are malignancy, histoplasmosis, and sarcoidosis. However, there can be other rare causes of this presentation for which a detailed clinical history, examination, and broad knowledge is needed for diagnosis.

Case Report: A 41-year-old woman presented with complaints of progressive nonproductive cough, shortness of breath, and decreased exercise limitation for several months. The symptoms were progressive and were hindering her daily work. Physical examination, including vital signs, was within normal limits. A chest X-ray followed by CT chest was done. CT chest showed a right infrahilar mass 3.5×2.5 cm along with multiple bilateral lung nodules of size 9 to 11 mm. Bronchoscopy with transbronchial needle aspiration (TBNA) and transbronchial biopsy (TBB) and CT-guided biopsy failed to show any diagnosis. Repeat CT scan at follow-up showed the same lesion and the patient had an open-lung biopsy. A diagnosis of benign metastasizing leiomyoma (BML) was made based on clinical, radiological, and histological features, and immunophenotype of the lesion. The patient was started on leuprolide (a GnRH agonist). Follow-up imaging showed decrease in size of lesions. The patient is asymptomatic with increased exercise tolerance.

Conclusions: Clinicians need to be aware of rare causes of lung mass, like BML. This will help in timely diagnosis and treatment.

MeSH Keywords: Leiomyoma • Multiple Pulmonary Nodules • Neoplasm Metastasis

Full-text PDF: <http://www.amjcaserep.com/abstract/index/idArt/893749>

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Background

The detection of pulmonary nodules has become increasingly prevalent over the years with advancements in imaging modalities. The differential is vast and includes, but is not limited to, malignancy, infection, inflammatory conditions, and vasculitides. Usually, imaging and minimal invasive procedures like bronchoscopy can lead to diagnosis. However, even with increased modalities now available for diagnosis, it can be challenging for clinicians at times to diagnose and manage these patients. We report an interesting case of a woman with lung mass and multiple lung nodules.

Case Report

A 41-year-old African American woman presented to the emergency room with complaints of mild nonproductive cough, shortness of breath, and decreased exercise limitation for several months. The symptoms were progressive and were

hindering her daily work. She had no symptoms of fever, night sweats, or weight loss. Her past medical history was only significant for a hysterectomy 9 years ago and she took no daily medications. She denied any history of smoking, drug use, or international travel. Physical examination, including vital signs, was within normal limits. A chest X-ray followed by CT chest was done. CT chest showed a right infrahilar mass 3.5×2.5 cm along with multiple bilateral lung nodules of size 9 to 11 mm (Figures 1, 2). At this time our differential diagnoses were mainly malignancy, sarcoidosis, and histoplasmosis, as the patient was from area with high prevalence of sarcoidosis and histoplasmosis. Bronchoscopy with transbronchial needle aspiration (TBNA) and transbronchial biopsy (TBB) was performed and there was no evidence of malignancy, infection, or inflammation, including sarcoidosis. Urine histoplasma antigen was negative. CT-guided biopsy of the right infrahilar mass was also done, but failed to suggest any diagnosis.

The patient returned for follow-up after 3 months. At this time her cough had improved, but her exercise limitation had

Figure 1. CT Chest showing multiple bilateral lung nodules.

Figure 2. CT Chest showing right infrahilar mass.

Figure 3. CT guided biopsy of the right infrahilar mass.

Figure 4. CT Chest showing right infrahilar mass and lung nodules.

Figure 5. Edge of dominated nodule showing a well circumscribed border to the nodule.

Figure 6. Interfasciculating bundles of ovoid to elongated spindled cells without areas of necrosis or mitosis.

worsened. CT scan of her chest showed a stable right infra-hilar lesion with multiple bilateral nodules. Repeat bronchoscopy with TBB and TBNA and CT-guided biopsy again failed to suggest any diagnosis (Figure 3). She was then seen in follow-up after 6 months with repeat CT scan of chest and abdomen (Figure 4). The imaging showed no change in the infra-hilar mass or pulmonary nodules. The patient was then referred for an open-lung biopsy.

The histological examination of the biopsy specimen showed a mass with a well circumscribed border along with interfasciculating bundles of ovoid to elongated spindled cells without areas of necrosis or mitosis (Figures 5, 6). A diagnosis of benign metastasizing leiomyoma was made based on clinical, radiological, and histological features, and immunophenotype of the lesion. (explained in discussion section). The patient was started on leuprolide (a GnRH agonist). Follow-up imaging showed decrease in size of lesions. The patient is currently asymptomatic and her exercise tolerance has improved.

Discussion

Benign metastasizing leiomyoma is a rare disease, which usually occurs in women with a history of a prior hysterectomy or myomectomy for benign uterine leiomyoma [1]. BML has the potential to metastasize to distant sites such as the lung, lymph nodes, muscular tissue, heart, or retroperitoneum [2]. The underlying pathogenesis of BML is not clearly understood. The fact that BML occurs in a many patients who have undergone hysterectomy or myomectomy supports the theory of a surgically-induced hematogenous spread [3]. Patients are usually asymptomatic but some patients present with cough, dyspnea, and chest pain. Patients can present with leiomyomas years after a hysterectomy [4]. While no guidelines exist for optimal management, a conservative approach is suggested for asymptomatic disease. Treatment with oophorectomy or

agents that decrease estrogen or progestins has resulted in tumor regression [5].

In our case, the patient was stable for more than a year with the exception of her exercise limitation. The patient had no risk factors for lung cancer (for example, smoking, family history, and exposure to toxic substances). Imaging had shown that the mass and the nodules were stable for more than a year. Bronchoscopic results, BAL markers, and serological markers were not suggestive for sarcoidosis or histoplasmosis. A surgical biopsy from the right lower lobe lesion showed a well-circumscribed border to the mass along with interfasciculating bundles of ovoid to elongated spindled cells without areas of necrosis or mitosis. The mass was diffusely immunoreactive with smooth muscle antigen, desmin, CD 56, estrogen receptor, and progesterone receptor, and was non-reactive with HMB-45, S100, Mart-1, epithelial membrane antigen, chromogranin and synaptophysin, cytokeratins 7 and 20, and thyroid transcription factor-1. The presence of a well-circumscribed lesion, no mitosis, no cell necrosis, and no intravascular component ruled out lymphangioleiomyomatosis (LAM). Immunophenotype excluded spindle cell carcinoid tumor, spindled cell melanoma, and spindled cell carcinomas. Additionally, adjacent to the lesion, a single non-necrotizing granuloma resembling a sarcoid-type granuloma was seen.

The constellation of the patient's previous history of uterine leiomyomas, the mass's histological features, and immunophenotype of the lesion strongly suggests BML. In addition, 3 possibilities can be suggested to explain bilateral lung nodules: (1) the remaining nodules are additional leiomyomas; (2) the remaining nodules are additional leiomyomas with possible tumor draining granulomas, sarcoidosis, or granulomatous infection; (3) the remaining nodules are sarcoidosis and the dominant mass is an incidental BML; or (4) the remaining nodules are due to histoplasmosis (patient is from area with high prevalence of histoplasmosis and sarcoidosis).

Conclusions

Clinicians need to be aware of rare causes of lung mass, like BML. This will help in timely diagnosis and treatment.

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Statement

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