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Case report

Pulmonary benign metastasizing leiomyoma: A case report

Malik Khan[a,1], Annum Faisal[b,*], Hussain Ibrahim[a,2], Terrance Barnes[c,3], Glenn M. VanOtteren[c]

[a] Grand Rapids Medical Education Partners/ Michigan State University, Grand Rapids, MI 49503, USA
[b] Spectrum Health/Michigan State University Internal Medicine Residency, Grand Rapids, MI 49503, USA
[c] Department of Pulmonary and Critical Care, Spectrum Health Medical Group, 100 Michigan St NE, Grand Rapids, MI 49503, USA

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ABSTRACT

Uterine leiomyoma is the most common benign gynecological tumor. Rarely, it has benign extra-uterine growth patterns, including benign metastasizing leiomyoma (BML), with lungs being the most common metastatic site.

We present a case of a 47-year-old female who, 3 years prior to presentation, underwent abdominal supracervical hysterectomy for benign leiomyoma. Approximately 6 months prior to presentation, she was seen for shortness of breath and chest pain. A CT of the chest revealed multiple new non-calcified pulmonary nodules bilaterally. PET/CT demonstrated mild FDG uptake in multiple lung nodules, with no significant extra-thoracic sites of abnormal FDG uptake. A CT guided lung biopsy showed a low grade, smooth muscle tumor. Immunohistochemical staining was positive for smooth-muscle actin and desmin, estrogen and progesterone receptor and was negative for CD117, HMB-45, CD34, pan cytokeratin and EMA. She underwent wedge resection of one of the nodules which confirmed the above findings. A cytogenetic analysis was also performed, which was consistent with pulmonary BML. She ultimately underwent left lower lobe resection and was started on a daily aromatase inhibitor.

BML is a rare disease usually seen in women of reproductive age. The pathogenesis and treatment remain controversial. BML mostly tends to have an indolent course and a favorable outcome.

1. Introduction

Uterine leiomyoma is one of the most common benign gynecological tumors [1–3]. Rarely, it has been shown to have benign extra-uterine growth patterns, including benign metastasizing leiomyoma (BML) [1,2,4]. Lungs are the most common metastatic site amongst others such as lymph nodes, deep soft tissues, central nervous system, mesentery, bones and heart [2,5–9]. Most pulmonary BMLs (PBML) are discovered incidentally in asymptomatic patients with scattered, well-circumscribed, multiple, non-calcified bilateral nodules on imaging studies [2,3,10].

2. Case description

We present a case of a 47-year-old, morbidly obese African American female, G6 P4-0-2-4, with a 22 pack per year smoking history who had quit 5 years prior to presenting. She had an abdominal supracervical hysterectomy 3 years prior to presentation for uterine fibroids. Surgical pathology had confirmed benign leiomyomata with no malignant findings. A CT of the abdomen/pelvis was performed a year later for abdominal pain which showed a 42 × 47 mm right ovarian cyst and multiple ventral hernias. She did not follow up for the ovarian cyst.

Six months prior to presentation the patient was seen in the hospital for shortness of breath and chest pain. She underwent a CT of the chest with pulmonary embolus (PE) protocol, which showed multiple, non-calcified pulmonary nodules bilaterally, with the largest being 14 mm in the left lower lobe (LLL), accompanied by a 10 mm nodule in the right middle lobe amongst others, concerning for metastatic disease. No pulmonary embolism was seen (Fig. 1A–C). As part of the initial workup, given her history of ovarian cyst, she underwent a CT of the abdomen and pelvis again which showed bilateral cystic masses in the adnexa, likely ovarian in nature. She subsequently had a pelvic ultrasound confirming right and left ovarian cysts which were 13 × 24 × 20 and 33 × 23 × 27 mm, respectively. No other masses were seen.

This prompted a repeat visit to her gynecologic oncologist. Her

* Corresponding author. 407 Briar lane NE, Grand Rapids, MI, 49503, USA.
E-mail addresses: khurramsher86@gmail.com (M. Khan), annumfaisal@gmail.com (A. Faisal), hussain.ibrahim12@gmail.com (H. Ibrahim), Terrance.barnes@metrogr.org (T. Barnes), glenn.vanotteren@spectrumhealth.org (G.M. VanOtteren).
[1] Present affiliation and address: University of Cincinnati Medical Center, Division of Pulmonary, Critical Care & Sleep Medicine; Cincinnati, OH, 45267, USA.
[2] Present affiliation and address: University of Texas Medical Branch, Division of cardiology; Galveston, Texas, 77555, USA.
[3] Present affiliation and address: Department of Pulmonary Medicine, Metro Health, University of Michigan Health, 2212 Health dr SW, Suite 220, Wyoming, MI 49519, USA.

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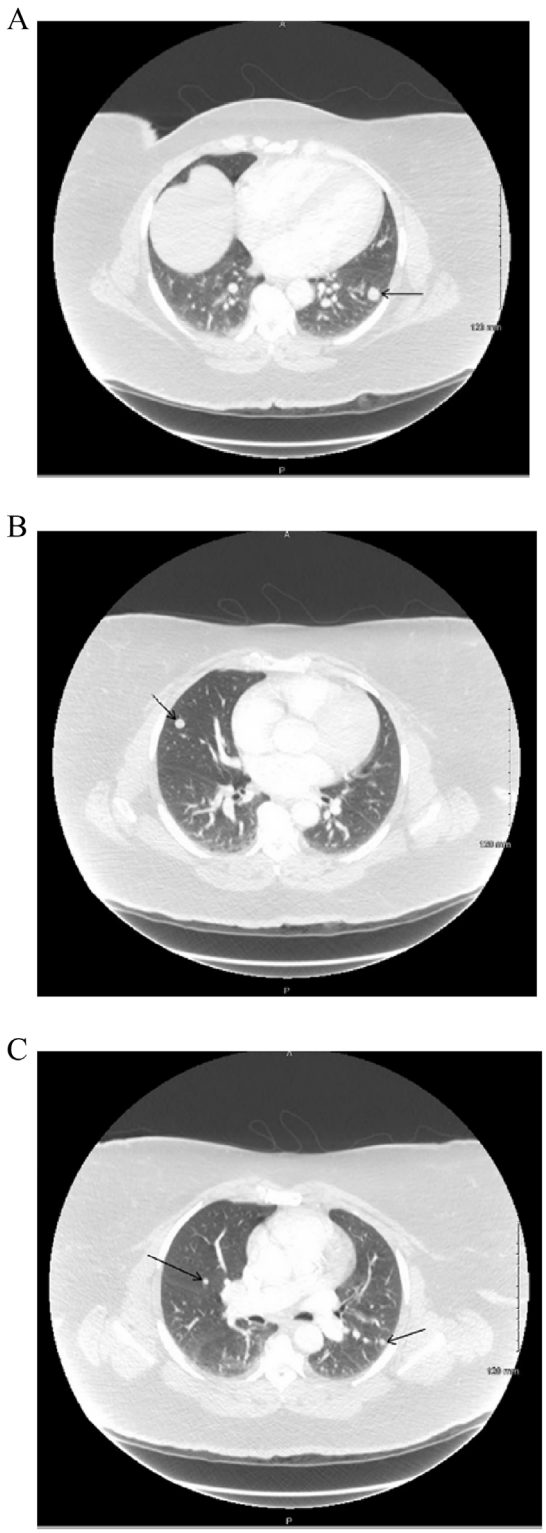

Fig. 1. A: CT chest with PE protocol showing a non-calcified 14 mm pulmonary nodule in left lower lobe. B: CT chest with PE protocol showing a non-calcified 10mm pulmonary nodule in Right Middle Lobe. C: CT chest with PE protocol showing small non-calcified pulmonary nodules in Right and Left Upper Lobes.

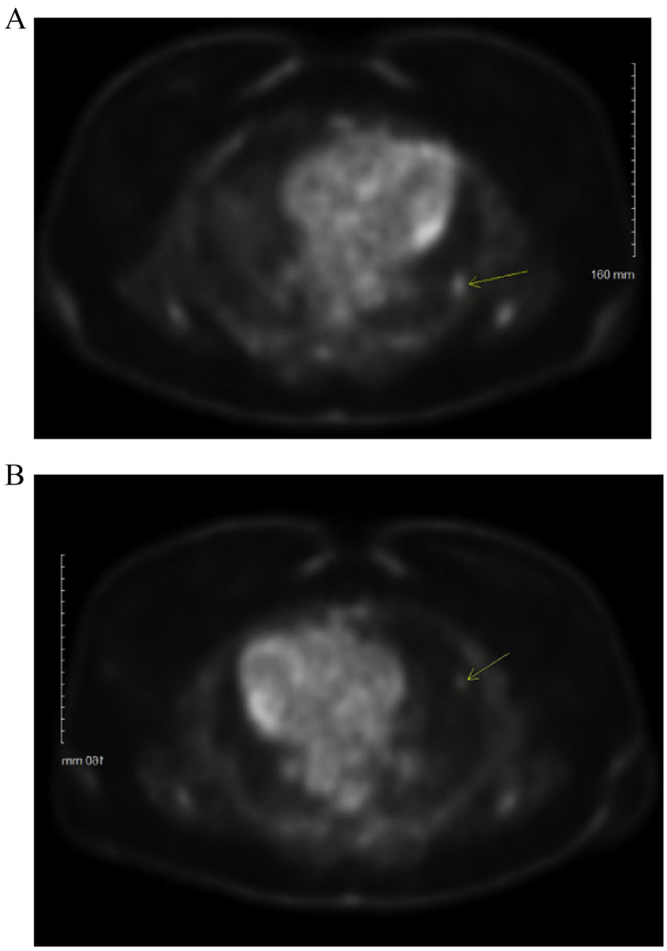

Fig. 2. A: PET/CT scan showing mild FDG uptake in the Left Lower Lobe Nodule. B: PET/CT scan showing mild FDG uptake in the Right Middle Lobe Nodule.

tumor markers, including CA-125 and CEA, were normal. FSH was normal as well. Based on the nature of the cysts and negative tumor markers, metastatic ovarian cancer to the lungs was deemed highly unlikely and a referral was made to the lung cancer center.

PET/CT was ordered to further assess the nodules and assess for any extra-pulmonary areas of abnormal uptake. It again showed the largest nodule measuring 13 × 14 mm in the LLL, and a middle lobe nodule measuring 10 × 10 mm, both demonstrating mild FDG uptake (Fig. 2A and B).

When compared with a CT performed four years prior, the LLL nodule was new and the middle lobe nodule had increased in size since that time (Fig. 3). Also, at least 7 other smaller nodules, which were beneath the threshold of reliable characterization with PET FDG imaging, were seen with no significant extra-thoracic sites of abnormal FDG uptake.

Based on these findings she underwent a CT guided biopsy of the LLL nodule. Pathology identified a low grade (2/8 HPF mitosis), benign appearing, smooth muscle tumor. Immunohistochemical staining showed smooth-muscle actin and desmin, but was negative for CD117, HMB-45, CD34, pan cytokeratin and EMA. An estrogen receptor was