

PET/CT of Delayed Uterine Leiomyoma Metastasizing to Lung and Femur

Kenneth N. Huynh and Ba D. Nguyen

Department of Radiology, Mayo Clinic Arizona

Benign metastasizing leiomyomas are benign disseminated extra-uterine tumors in patients with prior history of uterine leiomyomas and may occur years after hysterectomy. The lung is mostly affected, with a less common occurrence in the brain, heart, spine, retroperitoneum, and bone. We present the role of ^{18}F -FDG PET/CT in the metabolic staging and postsurgical monitoring of a patient with lung and femoral involvement.

Key Words: uterine leiomyoma; metastasis; thorax; femur; PET

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A case of pulmonary and osseous benign metastasizing leiomyoma is presented with ^{18}F -FDG PET/CT imaging.

CASE REPORT

A 76-y-old woman had a 6-mo history of right hip pain with MRI detection of a right femoral diaphyseal intramedullary lesion. Further CT imaging showed a left hemithoracic mass with chest wall and rib invasion. Contemporary ^{18}F -FDG PET/CT (Fig. 1) showed borderline hypermetabolic left lung mass (SUV, 4.2) and right femoral lesion (SUV, 3.4). Subsequent CT-guided biopsy of both lesions showed spindle cell features considered as synchronous metastatic smooth cell neoplasm, with immunostains positive for desmin, estrogen receptor, and progesterone receptor and negative for pancytokeratin, CK5/6, S100, CD117, and CD10. Her clinical history was remarkable for a total abdominal hysterectomy and bilateral salpingo-oophorectomy for uterine leiomyoma 15 y before the present event. These lesions were consistent with benign metastasizing leiomyoma

(Fig. 2). The patient underwent the left thoracic and right femoral tumor resection with right hip arthroplasty. No residual or recurrent tumor was detected during the subsequent 6-y PET/CT surveillance.

DISCUSSION

Benign metastasizing leiomyoma (BML) is a rare disease characterized by histologically benign extrauterine smooth cell metastatic tumors in patients with prior history of uterine leiomyomas. BML may occur years after hysterectomy for benign uterine leiomyomas; however, few cases have been reported in women without previous uterine surgery (1). The lung is the site most affected, with rare involvement of the brain, heart, spine, retroperitoneum, and bone (1–3). Although several theories detail the route of metastasis, the etiology and pathogenesis of BML still remain unclear. A few theories suggest a metaplastic process or hematologic spread of uterine leiomyomatous tissue at the time of hysterectomy (1). Even though MR and CT depicted well the femoral and chest tumors in our patient, ^{18}F -FDG PET/CT

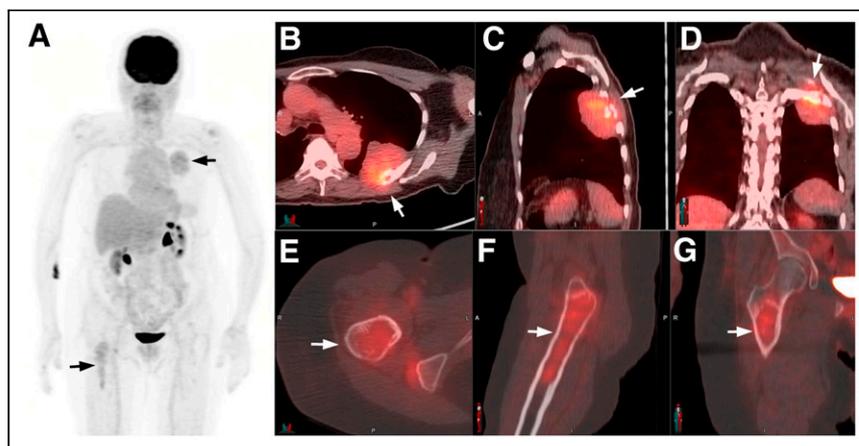


FIGURE 1. Anterior PET maximum-intensity-projection image shows the borderline hypermetabolic lesions of left thorax and right proximal femur (A, arrows). (B–G) Corresponding axial, sagittal, and coronal fused PET/CT of the mass of lung and chest wall (B–D, arrows) and of proximal right femur (E–G, bone window, arrows).

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For correspondence or reprints, contact Ba D. Nguyen (Nguyen.ba@mayo.edu).
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provided the metabolic characteristics of these lesions, the whole-body assessment for potential additional lesions/metastasis, and the postsurgical surveillance of BML. Leiomyosarcomas are ^{18}F -FDG-avid, whereas BML typically lacks tracer

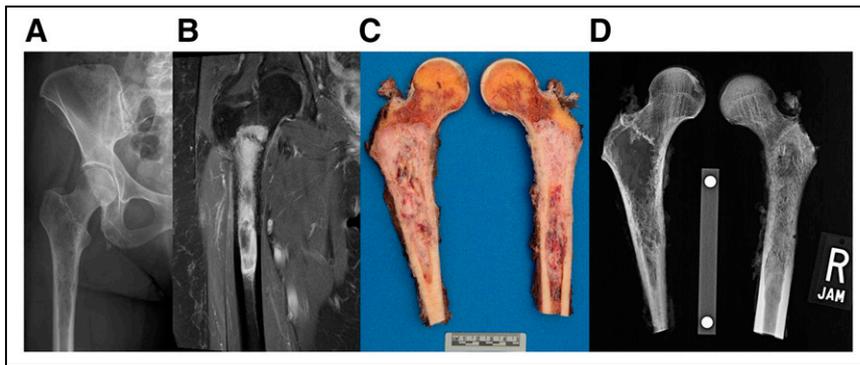


FIGURE 2. Corresponding radiograph of the right femur before resection (A), coronal contrast-enhanced MR image (B), photograph of surgical specimen (C), and radiograph of surgical specimen (D) of proximal femoral lesion.

uptake. However, a small proportion of BML may exhibit mild borderline tracer uptake as seen in our case (2). ^{18}F -FES ($^{16}\alpha$ - ^{18}F -fluoro- $^{17}\beta$ -estradiol) PET/CT may provide useful information about BML estrogen receptor expression with an option for antihormonal therapy (4). Histologically, the absence of cellular atypia and low mitotic activity favor a diagnosis of BML. However, low-grade and slow-growing leiomyosarcoma cannot be totally excluded from the differential diagnosis even with benign histologic features.

CONCLUSION

BML is of rare occurrence. PET/CT is a useful functional imaging modality for a comprehensive evaluation and post-therapeutic surveillance of this potentially multifocal disease.

DISCLOSURE

No potential conflict of interest relevant to this article was reported.

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