

## $^{18}\text{F}$ -FDG 섭취를 보인 하지의 혈관평활근종

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### Uptake of $^{18}\text{F}$ -FDG in the Angioleiomyoma of the Leg

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Angioleiomyoma is a rare benign tumor arising from the vascular smooth muscle (tunica media) and characterized by either a painful or painless, solitary subcutaneous nodule occurring most often in the lower extremity. We report a case of intense FDG uptake in the angioleiomyoma of right lower leg on  $^{18}\text{F}$ -FDG PET/CT. (Nucl Med Mol Imaging 2007;41(1):59-61)

**Key Words:**  $^{18}\text{F}$ -FDG PET/CT, angioleiomyoma

### Introduction

Angioleiomyoma is a rare benign smooth muscle tumor that originates in the tunica media of veins and occurs most often on an extremity, particularly the lower leg.<sup>1,2)</sup>

Positron emission tomography with  $^{18}\text{F}$ -fluorodeoxyglucose ( $^{18}\text{F}$ -FDG PET) is a useful noninvasive imaging modality for the diagnosis and staging of cancer. Whole body  $^{18}\text{F}$ -FDG PET has shown the superior ability of detecting small tumor deposits compared with conventional imaging modalities, including computed tomography (CT) and magnetic resonance imaging (MRI).<sup>3-5)</sup>

We met a patient with pathologically proven cutaneous malignant melanoma of left foot, and  $^{18}\text{F}$ -FDG PET/CT for the evaluation of nodal metastasis showed intense FDG uptake of the right lower leg. The pathologic confirmation was angioleiomyoma, and to our knowledge, intense FDG uptake in angioleiomyoma has not been reported.

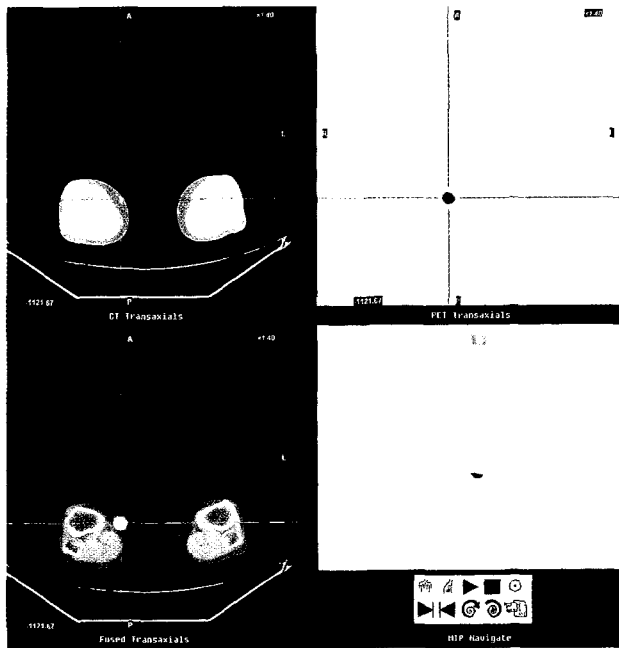
### Case Report

A 64-year-old woman with pathologically proven cutaneous malignant melanoma of left foot was referred to our hospital. To the evaluation of nodal metastasis and staging,  $^{18}\text{F}$ -FDG PET/CT (Discovery ST PET/CT scanner, GE medical system) was performed. Remarkable intense FDG accumulation (maxSUV : 46) was seen in the medial aspect of right lower leg (Fig. 1). Physiologic FDG radioactivity at heart, liver, and urinary system was normal range, and we could not find the possibility of contamination. Ultrasonography of the right calf area showed an amorphous 1cm-sized hypoechoic mass in the subcutaneous vein eccentrically (Fig. 2). Color Doppler image reveals no evidence of vascularity within the mass. Excisional biopsy was done and the pathologic confirmation was angioleiomyoma. On microscopic examination, the mass was composed of interlacing thick smooth muscle bundle with elongated nuclei and indistinct cytoplasmic membrane, without evidence of mitotic figure.

### Discussion

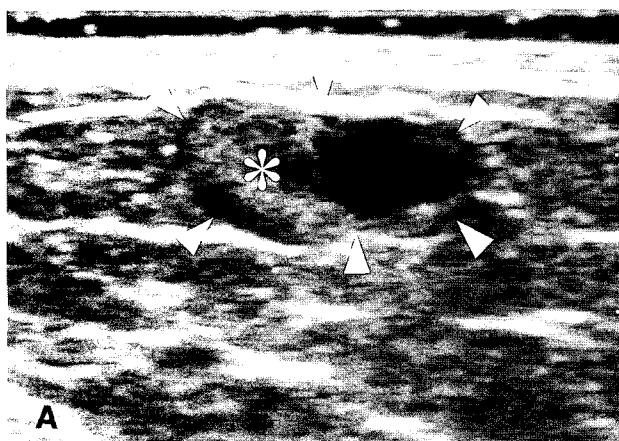
Soft tissue leiomyomas are benign tumor of smooth-muscle origin that can occur wherever smooth muscle is present. They are classified into three groups: cutaneous,

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**Fig. 1.**  $^{18}\text{F}$ -FDG PET/CT. A focal hypermetabolic lesion (maxSUV : 46) is noted in the medial aspect of right lower leg.

vascular or angioleiomyoma, and leiomyomas of deep soft tissues.<sup>6,7)</sup> Angioleiomyoma is a benign tumor arising from the vascular smooth muscle (tunica media) and characterized by either a painful or painless, solitary subcutaneous nodule occurring most often in the lower extremity.<sup>1,2,6,7)</sup> The peak incidence is in the fourth to sixth decades of life.<sup>8)</sup> Hachisuga et al.<sup>8)</sup> reviewed 562 cases of angioleiomyoma and divided them into three histologic types : solid, cavernous, and venous, depending on the amounts of vascular and smooth muscle components.



Preoperative diagnosis of angioleiomyoma is difficult, and in most cases, the diagnosis will be made only by histological examination. Imaging studies such as ultrasonography, CT, or MRI have no characteristic findings. Hwang et al.<sup>2)</sup> reported that for an extremity mass with mixed areas of hyper- and isointensity to skeletal muscle on T2-weighted MR images and with a hypointense rim, a diagnosis of angioleiomyoma should be considered. Sardanelli et al.<sup>9)</sup> reported a case of angioleiomyoma studied with ultrasonography, color Doppler ultrasonography, digital subtraction angiography, and MRI. At this report, well-defined and homogeneous structure with high resistance of intratumor arteries were described on ultrasonographic examination.

$^{18}\text{F}$ -FDG PET is a useful noninvasive imaging modality for the diagnosis and staging of cancer. The superiority of  $^{18}\text{F}$ -FDG PET compared with CT for the detection of distant metastasis, except small lung nodules and brain metastases, has been demonstrated.<sup>10)</sup> FDG uptake reflects an increased glycolytic metabolic rate in the cells, and increased uptake of FDG in the infectious and inflammatory lesions also have been demonstrated. Schwarzbach et al.<sup>3)</sup> described that SUVs for FDG correlate with tumor grade in soft tissue sarcomas. At this report, benign soft tissue tumors (e.g., lipoma, leiomyoma, ganglion) did not accumulate FDG.

Four cases of FDG accumulation in uterine leiomyomas were reported.<sup>4)</sup> They suggested that the existence of higher levels of growth factors, including basic fibroblast



**Fig. 2.** Ultrasonography of the right calf area. A: Axial image reveals a 1cm-sized eccentric mural mass (\*) in the subcutaneous vein (arrowhead). B: Longitudinal image shows focal ectatic change of the lumen.

growth factor, transforming growth factor, granulocyte-macrophage colony-stimulating factor and receptors, and proliferation of smooth muscle cells in leiomatous uterus may be able to explain the reason for the accumulation of FDG in uterine leiomyomas. This report may give a clue for the accumulation of FDG uptake in the angioleiomyoma. Our patient showed increased uptake of FDG in the angioleiomyoma of the right lower leg. To our knowledge, intense FDG uptake in angioleiomyoma has not been reported, and the reason for the accumulation of FDG in the angioleiomyoma has not been known.

We report a case of intense FDG uptake in the angioleiomyoma of right lower leg on <sup>18</sup>F-FDG PET/CT.

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