

Intense FDG uptake in an intra-articular localized giant-cell tumor of the tendon sheath (pigmented villonodular synovitis) mimics metastatic melanoma

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We describe a patient with metastatic melanoma, one year following a clinical trial of VEGF Trap anti-angiogenic therapy, in whom a restaging whole-body FDG PET/CT demonstrated a new, intensely FDG-avid, intra-articular soft-tissue mass in the left knee (SUV=25 g/ml). MRI revealed findings compatible with nodular pigmented villonodular synovitis (PVNS), also known as giant-cell tumor of the tendon sheath (GCTTS), which was confirmed by excisional biopsy. Increased FDG uptake within tenosynovial giant-cell tumors can be explained on the basis of their high monocyte/macrophage content. Radiologists must be aware that both melanoma and tenosynovial giant-cell tumors can be intensely FDG-avid, in order to avoid a false-positive interpretation.

Case report

A 72-year-old Caucasian male underwent wide local excision of an ulcerated, 1.4-mm Breslow thickness, Clark level IV, articular melanoma in 2004. There was no evidence of regression, lymphovascular invasion, perinodal extension, or microsatellitosis at diagnosis. The surgical margins were clear, and the sentinel lymph node biopsy revealed no evidence for additional disease. His initial stage was therefore IIA (T2b, N0, M0). In the fall of 2007, FDG PET/CT showed multiple small pulmonary nodules, with maximum SUV (SUVmax) of 3.8 g/ml. CT-guided needle biopsy of one nodule revealed metastatic melanoma. The patient completed two cycles on a clinical trial of VEGF-

Citation: Pallas A, Hagge R, Borys D, Hunter J. Intense FDG uptake in an intra-articular localized giant cell tumor of the tendon sheath (pigmented villonodular synovitis) mimics metastatic melanoma. *Radiology Case Reports*. [Online] 2009;4:343.

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Competing Interests: The authors have declared that no competing interests exist.

DOI: 10.2484/rcr.v4i4.343



Figure 1A. 72-year-old man with giant-cell tumor of the tendon sheath. FDG PET/CT. Attenuation-corrected, maximum-intensity projection FDG PET shows intense FDG uptake within the lateral compartment of the right knee.

FDG uptake in an intra-articular localized giant-cell tumor (PVNS) mimics metastatic melanoma

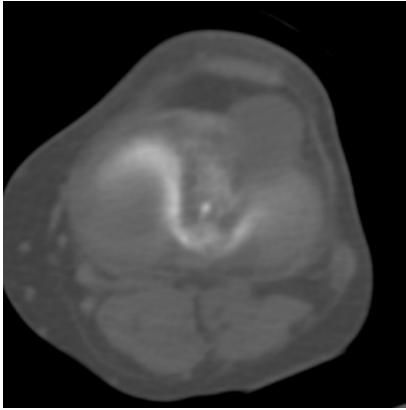


Figure 1B. 72-year-old man with giant-cell tumor of the tendon sheath. FDG PET/CT. Bone-windowed transaxial image from the noncontrast CT component shows a solid, soft-tissue-density, intra-articular mass, centered at the synovium.

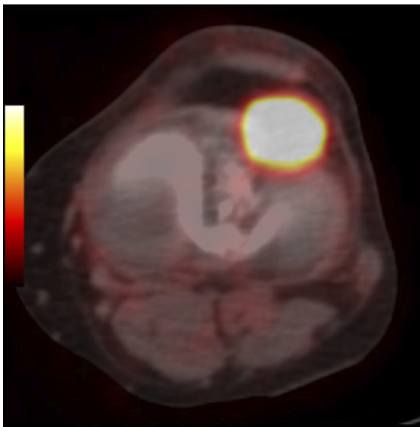


Figure 1C. 72-year-old man with giant-cell tumor of the tendon sheath. FDG PET/CT. Soft-tissue-windowed, transaxial fused PET/CT image shows intense FDG uptake within the mass. Maximum SUV was 25 g/ml.

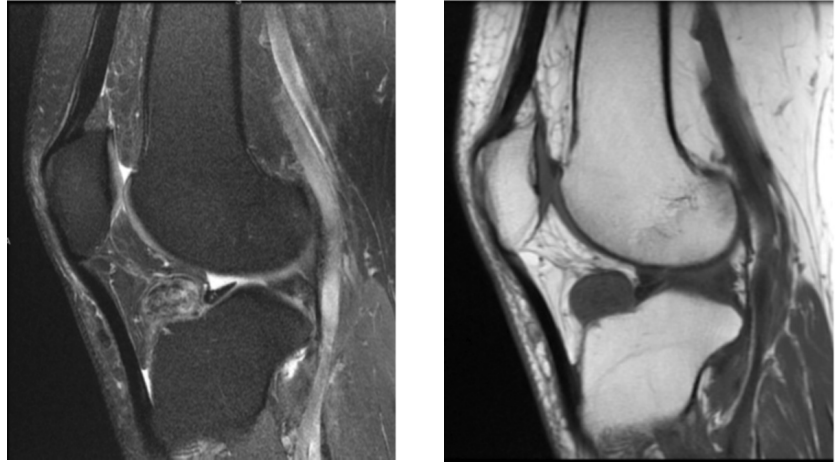


Figure 2. 72-year-old man with giant-cell tumor of the tendon sheath. MR imaging shows findings typical of intra-articular GCTTS (PVNS). Left: Sagittal T1 weighted image shows low signal. Right: Proton density with fat saturation shows intermediate signal.

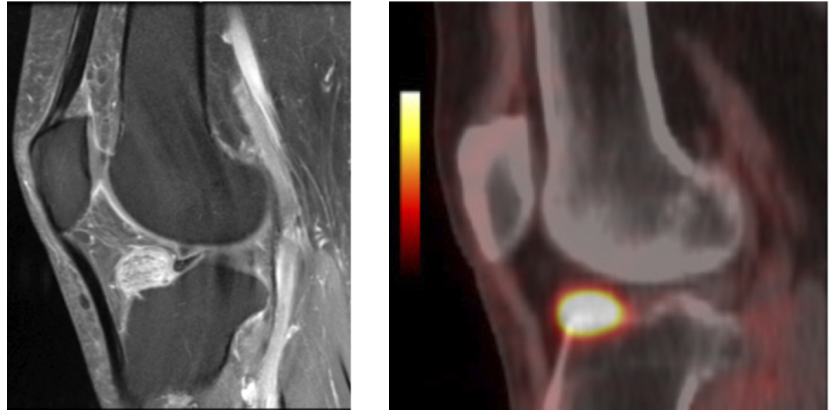


Figure 2. 72-year-old man with giant-cell tumor of the tendon sheath. MR imaging shows findings typical of intra-articular GCTTS (PVNS). Left: Sagittal T1-weighted imaging with fat saturation, post-IV-gadolinium, shows enhancement within the mass. Right: Corresponding sagittal-fused FDG PET/CT image demonstrates intense FDG uptake, with SUVmax 25 g/ml.

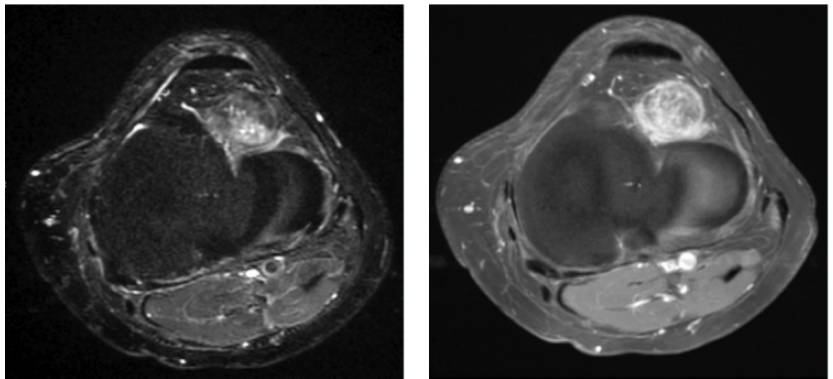


Figure 2. 72-year-old man with giant-cell tumor of the tendon sheath. MRI shows findings typical of intra-articular GCTTS (PVNS). Left: Transaxial MR inversion recovery. Right: T1-weighted fat saturation imaging postgadolinium.

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