Isolated Muscular Sarcoidosis Revealed by Hypercalcemia and ^{18}F-FDG PET/CT

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Abstract: A 43-year-old woman, with previous history of renal lithiasis, was admitted on an emergency for severe hypercalcemia fortuitously discovered in a context of rapidly progressive kidney failure. An ^{18}F-FDG PET/CT performed to rule out underlying malignancy revealed an intense diffuse and isolated muscular FDG uptake with fascia infiltration on the CT finding. A muscular biopsy was performed and demonstrated a non-necrosing granuloma with multinucleated giant cells consistent with muscular sarcoidosis. A corticotherapy was started with a rapid normalization of serum calcium level. The follow-up ^{18}F-FDG PET/CT 4 months later showed a complete response of the sarcoidosis myositis.

Key Words: FDG, PET/CT, myositis, muscular sarcoidosis, hypercalcemia

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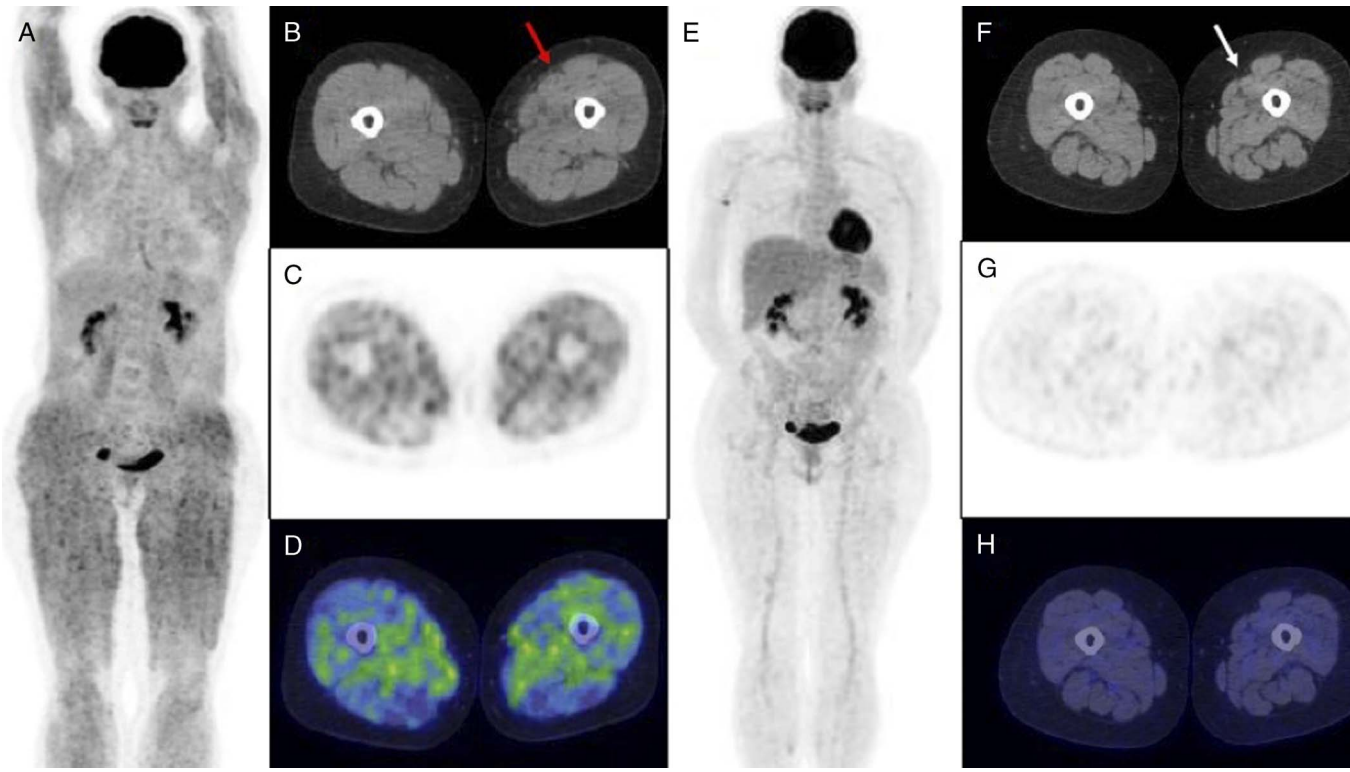

FIGURE 1. We report the case of a 43-year-old woman referred for ^{18}F-FDG PET/CT to rule out underlying malignancy in a context of severe hypercalcemia of unknown etiology. Maximum intensity projection image (**A**) revealed an intense (SUVmax of 4.2) and diffuse muscular FDG uptake. Transaxial CT (**B**), PET (**C**), and fused PET/CT images (**D**) showed a pattern of myositis in the thighs with muscular and fascia infiltration on CT scan (red arrow). A muscular biopsy guided by ^{18}F-FDG PET/CT findings was consistent with sarcoidosis myositis. PET/CT follow up 4 months after corticotherapy start showed a complete response of the myositis (**E**, MIP; **F**, CT; **G**, PET; and **H**, fused PET/CT) with regression of the diffuse infiltration (white arrow).

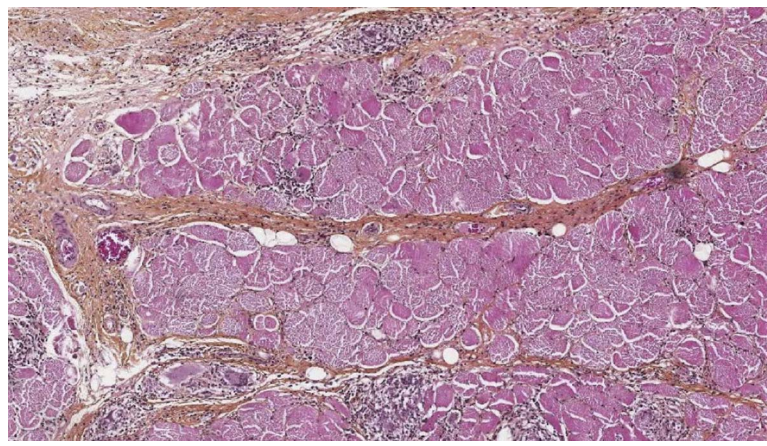

FIGURE 2. A biopsy was obtained from muscular infiltration of the left thigh. Microscopic findings (hematoxylin-eosin stain) demonstrated noncaseating epithelioid cell granulomas and many multinucleated giant cells, associated with a pattern of myositis in immunohistochemistry analysis. The histology was consistent with muscular sarcoidosis. Sarcoidosis is a systemic granulomatous disease of unknown etiology involving many organs.[1,2] Isolated muscular involvement is a rare, usually asymptomatic as in this case, feature of sarcoidosis.[3–6] Hypercalcemia is manifested in 5% to 11% of patients with sarcoidosis because of overproduction of active vitamin D by macrophages in the sarcoid granuloma.[7] It has been well studied that FDG is clearly taken up by activated immune cells such as activated macrophages and CD4 T lymphocytes underlying the ability of FDG to account for disease activity.[8] ^{18}F-FDG PET/CT imaging can lead to the diagnosis of sarcoidosis in patients with hypercalcemia of unknown etiology: it also plays a pivotal role in evaluating the extent of the disease, guiding biopsy, and monitoring corticotherapy efficacy.[9,10]