

Polymicrobial Pyomyositis in a Patient with Suspected Myeloma on ¹⁸F-FDG PET-CT

Abstract

Pyomyositis is an infective involvement of systemic skeletal muscles. We discuss the case of 43-year-old male who presented with quadriparesis, anemia, and hypercalcemia, leading to suspicion of multiple myeloma, and on FDG PET-CT, incidentally, pyomyositis was found. FDG PET-CT thus helped in diagnosing an occult infection which helped in the treatment of the patient.

Keywords: *FDG PET-CT, occult infection, pyomyositis*

A 43-year-old bed-ridden man with known diabetes presented to us with acute-to-subacute-onset quadriparesis, following a prodrome of fever for 2–3 weeks. With these complaints, he was admitted to another hospital where he was treated with empirical antibiotics for his fever and was discharged. However, in view of no clinical improvement and severe bony tenderness and myalgia of the thighs, he presented to us for second opinion in a bed-ridden state. Examination was suboptimal in view of severe pain and tenderness all over the body and pressure sores. Baseline investigations showed anemia with elevated ESR, and renal function tests showed raised serum creatinine and raised serum calcium levels. CPK was within normal limits. In view of clinical presentation with fever prodrome, quadriparesis, bony pain, and tenderness and laboratories showing elevated serum creatinine with hypercalcemia, possibility of myeloma was suspected and further worked up. Serum free light chain assay showed elevated lambda, kappa chains with normal lambda: kappa ratio. Bone marrow aspirate and biopsy revealed 7% plasma cells. F-18 FDG PET-CT scan was ordered as a part of myeloma workup. Maximum intensity projection [Figure 1a] image of PET revealed heterogeneously increased metabolic activity in the bilateral thigh and gluteal and forearm region. CT [Figure 1b] and fused PET-CT [Figure 1c] of the

thigh region in the axial view showed increased inter- and intra-muscular tracer uptake with air pockets and atrophy. PET-CT [Figure 1d] in the coronal view showed the same findings. Atrophy and hypodensity were seen in the gluteal muscles too on CT [Figure 1e]. In addition to muscular involvement, cortical break was seen in the right scapula, as seen in axial CT [Figure 1f]. Based on PET images, a differential of infective pathology of muscles, i.e., pyomyositis was concluded since muscular involvement in myeloma is a rare event and more diffuse in pattern.^[1,2] Culture from thigh aspirate confirmed the growth of methicillin-sensitive *Staphylococcus aureus* (MRSA), and PCR was positive for *Mycobacterium tuberculosis*. Antibiotic and antitubercular course were initiated accordingly. Magnetic resonance imaging (MRI) has been the investigation/imaging modality of choice in soft tissue infections. Previous reports in MRSA-pyomyositis have shown it to be multifocal, thus reducing the feasibility of MRI.^[3,4] However, unfortunately, the patient had progressed into multisystem sepsis, and despite vigorous intravenous antibiotic therapy, the patient succumbed to septic shock.

Pyomyositis on FDG PET-CT has been documented in few case reports in the past.^[3,5] However, the usual presentation is of pyrexia of unknown origin. Due to likely concurrent neuropathy (LMN quadriparesis) and subsequent immobilization, prior antibiotic therapy, and afebrile status at

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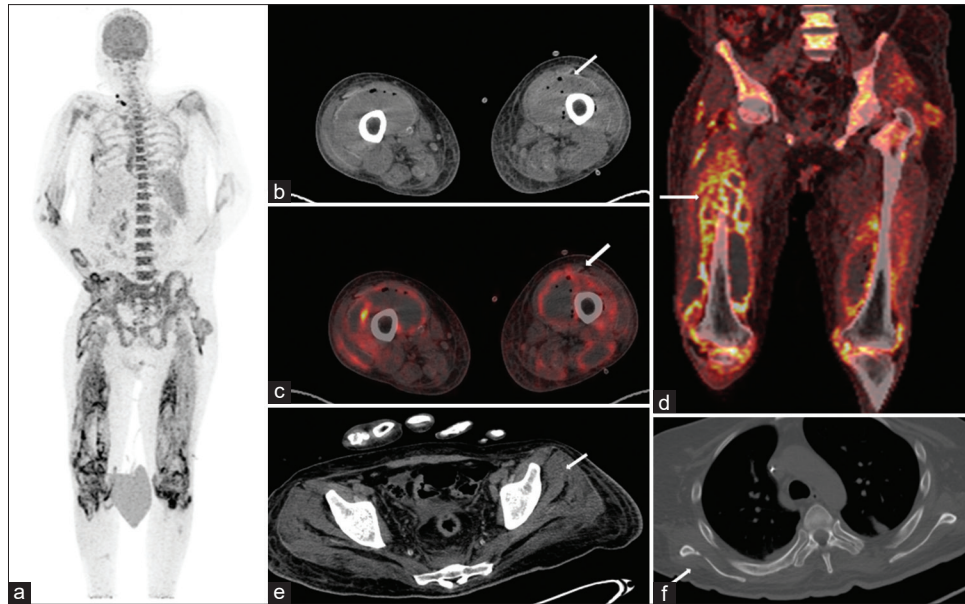


Figure 1: Depicting various skeletal muscle sites of heterogenous hypermetabolism as seen in MIP image (1a), in axial CT images along with muscular atrophy and air pockets (1b and 1e) and in PET-CT fused axial (1c) and coronal (1d) images. Additional lytic lesion noted in right scapula as seen in axial CT images (1f).

admission, there was masking of underlying pyomyositis presentation. FDG PET-CT can successfully detect occult infections in such cases.

This case highlights the importance of FDG PET in detecting underlying occult infection as these are a common cause for mortality in myeloma. Although this patient was a suspected myeloma case, such detection is important in clinical practice as early institution of appropriate antimicrobial therapy is lifesaving. Had FDG PET/CT not been done in this case, pyomyositis would have probably gone undetected indefinitely.

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Conflicts of interest

There are no conflicts of interest.

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