Unsuspected Active Ulcerative Colitis in a Patient With Dermatomyositis: A Rare Association Detected on ^{18}F-FDG PET/CT During the Search for an Occult Malignancy

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Abstract

Dermatomyositis is an inflammatory myopathy with the characteristic features of skin rash and myopathy. We here present a known case of dermatomyositis evaluated with ^{18}F-FDG PET/CT for the presence of any occult malignancy. The scan was negative for the presence of any malignancy. However, it revealed multiple intensely FDG avid colonic strictures that were later proven on colonoscopic biopsy to be ulcerative colitis. Also, a well-known association of bilateral sacroiliitis was simultaneously demonstrated on the scan. The present case demonstrates that ^{18}F-FDG PET/CT imaging can serve as a one-stop shop imaging modality in dermatomyositis by facilitating detection of occult primary if any and by providing insight into other rare systemic associations.

Keywords: *^{18}F-FDG PET/CT, dermatomyositis, malignancy, ulcerative colitis*

Introduction

Dermatomyositis is an inflammatory myopathy characterized by proximal muscle weakness and associated cutaneous features. The association of dermatomyositis and presence of an underlying internal malignancy is an established entity.[1] In the recent years, ^{18}F-FDG PET/CT has evolved as an important tool in evaluating muscle inflammation and detecting unknown malignancies in patients with dermatomyositis.[2,3] We report a case of a patient with dermatomyositis who underwent an ^{18}F-FDG PET/CT scan to look for any occult malignancy. Although the search for the malignancy was negative, ^{18}F-FDG PET/CT demonstrated active muscle inflammation, abnormal colonic uptake, and features of spondyloarthrosis.

Case Report

A 36-year-old female presented with gradually progressive symmetrical proximal muscle weakness of the upper and lower extremities for the past 9 months. The patient showed an elevated serum creatine phosphokinase, myopathic pattern in the electromyography study and perifasicular atrophy on muscle biopsy suggestive of dermatomyositis. She was started on 60 mg/day of prednisolone followed by tapering dose over 6 months. A flare in the proximal myopathy was noted at 6 months. She complained of malaise, intermittent self-limiting low backache, and discomfort in the right suprascapular region. Laboratory studies showed mildly elevated aspartate aminotransaminase of 72 U/L (normal range 0-40), alanine aminotransaminase of 84 U/L (normal range 0-40), elevated serum creatine phosphokinase (300 IU/L), and increased erythrocyte sedimentation rate of 30 mm/h (normal range 0-22) levels. The chest X-ray was normal. ^{18}F-FDG PET/CT was performed to detect the presence of any occult primary malignancy. Whole-body PET/CT revealed tracer uptake in the right supraspinatus muscle [Figure 1a, Figure 1b]. Multiple foci of abnormal FDG avidity were seen in the large bowel on the maximum intensity projection [Figure 1c], which were localized to the areas of concentric wall thickening and enhancement with mural stratification in the colon (transverse, descending, and sigmoid portions) and rectum [Figure 2a-f]. However, there was no history of any abdominal complaints except for occasional altered bowel habits few weeks prior to the scan. Colonoscopy revealed abnormalities in the

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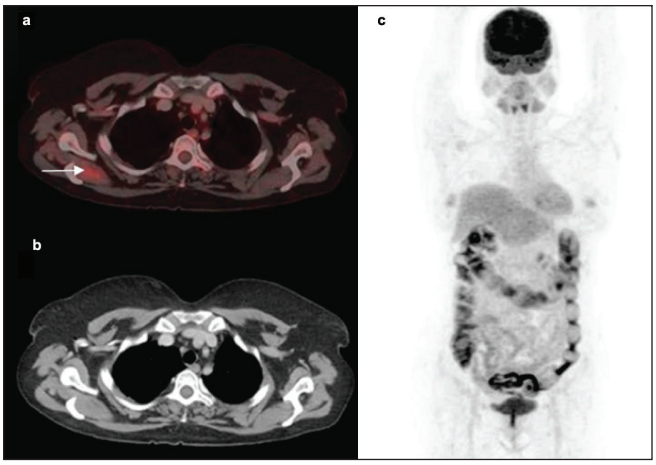

Figure 1: Whole-body PET/CT, Transaxial fused (a), corresponding CT (b) images revealing mild 18F-FDG uptake in the right supraspinatus muscle (arrow). Maximum intensity projection image (c) revealed multiple foci of abnormal increased FDG uptake in the large bowel.

regions corresponding to the areas of abnormal FDG uptake and histopathology of biopsied lesion was suggestive of ulcerative colitis. The FDG PET/CT scan also detected occult spondyloartitis by revealing intense sclerosis in both the sacroiliac joints. Intense sclerosis of the bilateral sacro-iliac joints was also noted with no abnormal 18F-FDG uptake, suggesting inactive bilateral sacroilitis.

Discussion

Dermatomyositis (DM) is a disease with many systemic associations. It has a paraneoplastic etiology with occult malignancy noted in about 20-25% of the cases.[1] In the recent years, ^{18}F-FDG PET/CT is increasingly being utilized to for myositis activity and for detection of occult malignancy.[2,4,5] Selva-O'Callaghan *et al*. [3] in their study of 55 patients with myositis concluded that the performance of ^{18}F-FDG PET/CT is comparable to the broad conventional screening (involving multiple tests) in detecting occult malignancies. Studies have shown that although diffuse colonic FDG uptake in an asymptomatic patient can be frequently normal, focal FDG uptake might reflect an underlying pathological process and should be evaluated using colonoscopy.[6] ^{18}F-FDG PET/CT has evolved into a promising tool in the evaluation of disease extent and activity status in patients with ulcerative colitis.[7,8] PET/CT enteroclysis has been efficient in detecting higher number of lesions in the bowel compared to conventional barium and colonoscopy combined together.[9] Association of ulcerative colitis with DM had been reported only in few previous cases.[10-12] The association between inflammatory bowel disease and occult spondyloarthritis is well-known.[13] Also, in the present case, occult sacroiliitis was detected by the scan. Studies have shown that during the search for occult malignancy in dermatomyositis, ^{18}F-FDG PET/CT reveals not only malignancy but also other pathologies such as unsuspected infections.[14] Thus, ^{18}F-FDG-PET/CT imaging in DM can serve as one-stop shop modality

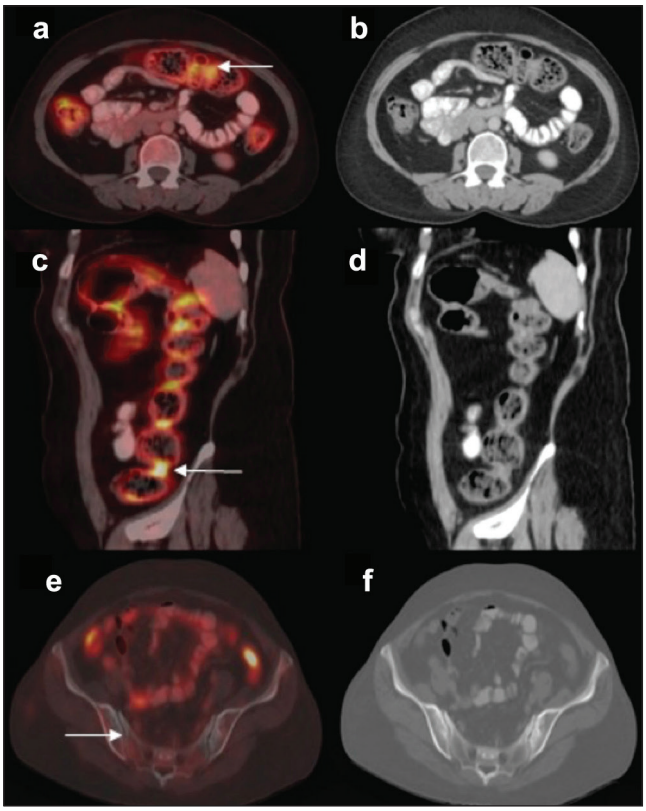

Figure 2: (a and b) Transaxial fused and corresponding CT showing abnormal FDG avid foci (SUV_{max} 10.6 vs liver SUV_{max} of 4.5) in the transverse colon (arrow). (c and d) Sagittal fused and corresponding CT showing abnormal FDG avid foci (SUV_{max} 12.6 vs liver SUV_{max} 4.5) in the descending colon (arrow). (e and f) Transaxial PET/CT images showing sclerosis in both the sacroiliac joints (arrow).

in simultaneously revealing FDG uptake by affected muscles of patients with myositis, thereby assessing the myositis activity, detection of occult malignancy, and/or any additional systemic disease associations. This case emphasizes the need for strongly considering ^{18}F-FDG PET/CT in patients with DM.

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Conflicts of interest

There are no conflicts of interest

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