

# Primary skeletal muscle lymphoma with unusual soft tissue metastases in the stomach and pancreas detected by $^{18}\text{F}$ -FDG PET/CT

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## Abstract

A 69 y/o woman with a history of primary diffuse large B cell lymphoma in the right thigh muscle was referred for recurrence evaluation with  $^{18}\text{F}$ -FDG PET/CT. After routine courses of chemoradiation, MRI was done in order to evaluate treatment response with inconclusive findings.  $^{18}\text{F}$ FDG PET/CT revealed abnormal uptake in the primary site of the disease as well as secondary involvement of stomach, pancreas, pelvic lymph nodes, and both tibiae. Our case showed the importance of  $^{18}\text{F}$ -FDG PET/CT in the detection of unusual soft tissue extension of lymphoma.

**KEY words:** Diffuse large B-cell lymphoma; non-Hodgkin's lymphoma;  $^{18}\text{F}$ -FDG PET/CT

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## Introduction

Diffuse large B cell lymphoma (DLBCL) is the most common subtype of non-Hodgkin's lymphomas (NHL) [1], which usually arises from lymph nodes. It can also have an extra-nodal origin in approximately 30–40% of the cases [2]. The most common extra-nodal sites are testis, skin, lung, bone, central nervous system, respiratory and gastrointestinal tracts [3]. Primary skeletal muscle involvement is very rare [1–3]. It has also been reported that upper extremities and gluteal muscle involvements are more predominantly affected [1]. In muscular lymphoma which usually is FDG avid, diffuse enlargement or focal intramuscular mass are seen [4]. Bone involvement is not common [5] and secondary involvement of the pancreas is very rare [6]. In the present case report, we described an unusual pattern of primary skeletal muscle NHL detected by whole body  $^{18}\text{F}$ -FDG PET/CT.

## Case report

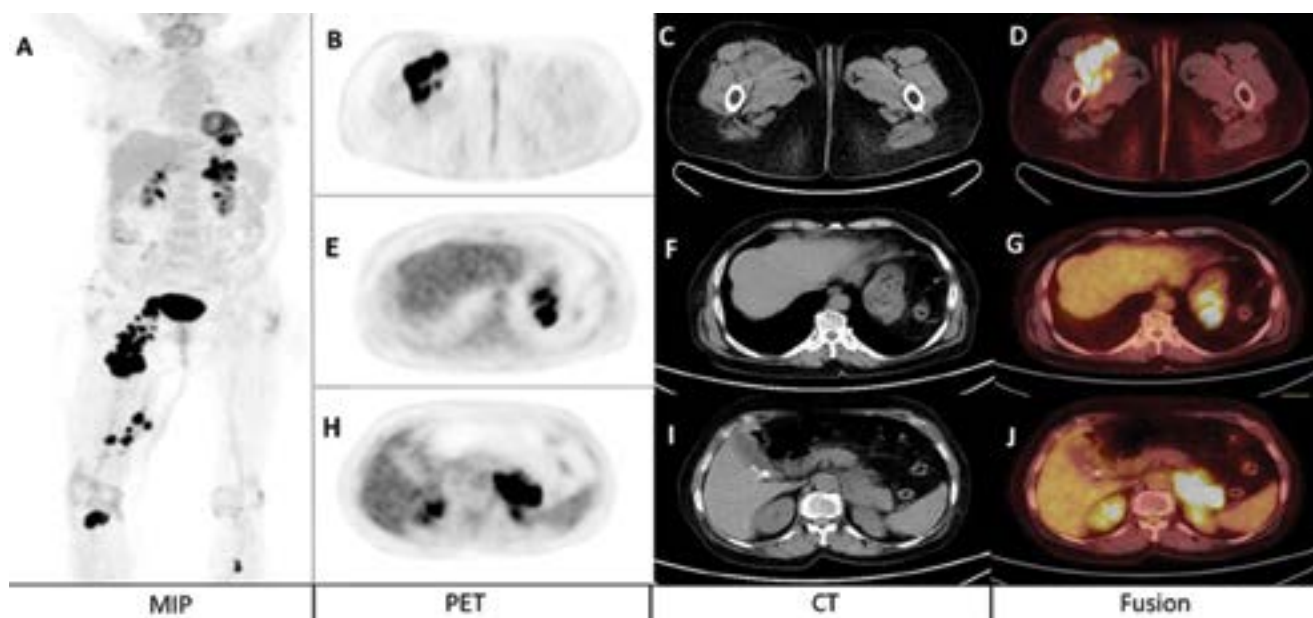
A 69-year-old woman with a history of DLBCL within the right thigh muscles had been treated with chemoradiation. She

experienced no pain in the involved region. The patient underwent MRI for response evaluation. MRI results were inconclusive and couldn't differentiate between post-radiation changes and residual disease. She was referred for more assessment with  $^{18}\text{F}$ -FDG PET/CT. Whole body MIP image revealed multiple foci of increased FDG uptake in the right thigh, stomach, pancreas, pelvic lymph nodes and both tibiae (Fig. 1A). The axial images demonstrated increased FDG uptake throughout the right thigh muscles (Fig. 1B–D). Also, abnormal FDG uptake was noted in the thickened stomach wall (Fig. 1E–G) with SUVmax of 16.91 and pancreatic body and tail (Fig. 1H–J) with SUVmax of 17.79 which were in favor of secondary extranodal involvement. No further follow up scan was acquired.

## Discussion

Although the secondary extranodal disease is common in lymphoma, it rarely occurs as a primary site of lymphoma [9]. Primary skeletal muscle involvement occurs in only 0.1% of all lymphomas [7]. In addition, the pancreas is rarely involved by lymphoma [6]. Although the stomach is the most common site of involvement as the primary extra-nodal site or secondary to disseminated nodal disease [7], majority of secondary gastric NHL couldn't be detected by conventional diagnostic methods [8].  $^{18}\text{F}$ -FDG PET/CT is a valuable diagnostic test for identifying extranodal sites involvement in lymphoma staging, treatment response or recurrence evaluation [8, 9] and it is more sensitive

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**Figure 1.** The Whole body MIP image showed multiple foci of increased FDG uptake in the right thigh, stomach, pancreas, pelvic lymph nodes and both tibiae (A); The axial images demonstrated increased FDG uptake throughout the right thigh muscles (B–D); stomach wall (E–G) and pancreatic body and tail (H–J)

and specific than conventional imaging for assessment of disease extension [10, 11]. Here, we showed an unusual pattern of NHL by emphasizing the role of  $^{18}\text{F}$ -FDG PET/CT in the differentiation of recurrence from post-radiation changes, as well as showing the extension of the disease.

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