Breast Cancer Detected as an Incidental Finding on 18F-FDG PET/CT

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Abstract

The 18F-FDG PET/CT provide an accurate staging and post-therapeutic surveillance of cancer. In the process of detecting high metabolic malignancy, this combined functional and anatomic imaging modality may demonstrate unexpected remote metastases or incidental additional primary cancers. Incidental 18F-FDG–avid lesions in the breast are rare on PET/CT but, when present, are associated with high risk of malignancy. As a result, it is important to thoroughly investigate these lesions using other imaging modalities and ultimately to sample tissue when clinically or radiographically indicated. We report a case of 68-year-old lady, with known Large B cell non-Hodgkin’s Lymphoma, who presented with PET/CT incidental findings of a breast cancer.

Introduction

The 18F-Fluorodeoxyglucose (FDG) Positron Emission Tomography with Computed Tomography (PET/CT) is extensively used in the initial staging, evaluation of the therapeutic response, and detection of recurrent disease [1-3]. However, with the wide increasing use of FDG PET/CT, sites of increased tracer uptake have been occasionally discovered in unexpected locations, which may not correlate with the patient’s clinical history or the expected spread of the primary malignancy. Most incidental malignant lesions are located in the lung, colon, thyroid, and breast. The prevalence rate of incidental primary malignancies diagnosed by FDG PET/CT is reportedly 1.0% to 1.8% [4-6]. Breast incidentalomas with focal increased FDG uptake on PET/CT were found in 0.36% to 1.12% of patients and healthy subjects in multiple studies [7-13]. Previous reports have indicated that focal breast incidentalomas found on FDG PET/CT have variable malignancy rates (27.3% to 83.3%), and additional imaging modalities such as Ultrasound (US) and Computed Tomography (CT) have been described as clinically useful.

In this case report, we present a 68-year-old woman with known Large B cell non-Hodgkin’s lymphoma, who presented with PET/CT findings of a breast mass and diseased axillary lymph node.

Case Presentation

A 68-year-old woman with a history of Large B cell non-Hodgkin’s Lymphoma, referred to Nuclear Medicine at our institution for post therapy evaluation of her disease. A whole body PET/CT scan with intravenous injection of 7.8 mCi of 18F-Fluorodeoxyglucose (FDG) was performed at a rate of 5 min/bed. An intensely hypermetabolic focus (SUVmax of 11.4) was incidentally found in the lower lateral quadrant of the breast, which corresponded to a 17 mm soft-tissue lesion found on the concurrent non-diagnostic low dose CT scan (Figure 1). An additional multiple regional axillary as well as intramammary FDG avid lymphadenopathy were also detected, involving a deep axillary FDG lymph node (SUVmax of 6), in the left axillary (SUVmax of 9.7) and in the left internal mammary with (SUVmax of 7.7). Otherwise, PET and CT were normal (Figure 2). The patient stated that no palpable mass was detected during a routine clinical examination. Bilateral Mammogram and ultrasound of the left breast were performed two days after the PET/CT revealed highly suspicious irregular left breast mass, with enlarged and distorted left axillary lymph nodes (Figure 3). A fine needle aspiration of the breast mass was performed. Histological analysis of the breast mass showed at infiltrating ductal carcinoma.

Discussion

In women undergoing 18F-FDG PET/CT for non-breast malignancy, the incidence of unexpected increased 18F-FDG uptake within the breast ranged from 0.82% to 6.3% and malignancy...
Incidental 18F-FDG–avid lesions in the breast are rare on 18F-FDG PET/CT but, when present, are associated with high risk of malignancy. Therefore, it is important to thoroughly investigate these lesions using other imaging modalities.

References


