

HYPERMETABOLIC BILATERAL INFRASCAPULAR LESIONS IN PET-CT IMAGING: ELASTOFIBROMA DORSI

Case Report

PET-BT GÖRÜNTÜLEMEDE HİPERMETABOLİK BİLATERAL İNFRAKAPULER LEZYONLAR: ELASTOFİBROMA DORSİ

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ABSTRACT

Elastofibromas are benign pseudotumoral fibroelastic lesions commonly localized in the periscapular region in elderly women. The etiology of these lesions are not known. They were first reported in 1961. These lesions are well recognized in the pathology literature and have also received some attention in the radiology literature recently. They are often confused with neoplasms on CT (Computed Tomography) or MRI (Magnetic Resonance Imaging). We present a patient with infrascapular elastofibroma dorsi. Bilateral subscapular FDG (Fluor 18-Deoxy-Glucose) hypermetabolism in PET (Positron Emission Tomography) were detected and these images were compared to CT or PET-CT fusion images, after which we diagnosed elastofibroma dorsi. This technique may prevent patients undergo unnecessary biopsies and surgical procedures.

Keywords: *Elastofibroma; pseudotumor; positron emission tomography; hypermetabolism.*

ÖZET

Elastofibromlar genellikle orta-ileri yaştaki kadınlarda, skapula çevresindeki dokularda yerleşmiş olan benign natürde, psödötümöral fibroelastik lezyonlardır. Etiyolojisi hala belli değildir. Patoloji literatüründe çok iyi bilinen ve son yıllarda radyoloji literatüründe ilgi ile karşılanan bu lezyon ilk olarak 1961 yılında tarif edilmiştir. Bu patoloji bilgisayarlı tomografi (BT) veya manyetik rezonans görüntüleme (MRG) sırasında tespit edildiklerinde tümörler ile karıştırılabilirler. Bu çalışmada infraskapüler yerleşimli elastofibroma dorsi tespit edilen bir hasta bildirilmiştir. Hastanın pozitron emisyon tomografi (PET) görüntüleme sırasında izlenen FDG hipermetabolizması, BT veya PET-BT füzyon görüntüleri ile karşılaştırılarak elastofibroma dorsi tanısı kondu. Bu yöntem hastaları gereksiz

cerrahi girişim veya biopsi işlemlerine maruziyetten koruyabilir.

Anahtar kelimeler: Elastofibroma; psödötümör; pozitron emisyon tomografi; hipermetabolizma.

INTRODUCTION

Elastofibroma dorsi (ED) is a benign pseudotumoral lesion first described by Jarvi ve Saxen in 1961. It is characteristically derived from abnormal fibroelastic tissue proliferation in subscapular localization. (1,2) It is reported in 11-24% of autopsy reports (3). It's detection rate on thorax computerized tomography is 2%. The reason for this difference is milimetric elastofibroma lesions cannot be detected on CT. ED is usually asymptomatic and sometimes can cause symptoms like shoulder pain, shoulder motion limitation, or growing soft tissue mass (4). ED is seen bilaterally in 10% of patients. Most frequent localization of ED is serratus anterior, latissimus dorsi and rhomboid muscles. ED lesions are smooth limited and have similar density with muscle. They may include band style hypodense streaks of fat tissue (5). Similarly, MRI appearance of ED is similar to muscle tissue (hypointense on T1A and T2A images with linear hyperintense streaks (6). To our best knowledge, a few studies have reported hypermetabolic activity on PET analysis of ED lesions (7-9).

CASE REPORT

A 78 year old female patient, who had been operated for carcinoma of sigmoid colon two years ago, was operated again for a relapse lesion 6 months ago. She had defecation difficulty and pelvic pain. She had the same complaints 2 years ago when she was diagnosed of cancer. PET-CT was ordered for advanced evaluation of the patient.

PET-CT examination was performed with a 16-detector device composed of CT and

PET fusion (GE Healthcare Discovery ST Hpower 60 PET-CT System). PET-CT was performed 45 min after giving patient 575

MBq FDG intravenously. Patient had not consumed any food or drink except water for five hours before process. The section thickness was 3.75 mm in study. After the procedure, PET-CT fusion images were evaluated by processing images on the work station (GE Advantage Workstation Release 4.3 Software).

Minimal thickening of pelvic intestinal loops' walls and density increase that showing no heterogeneous contrast enhancement in presacral fat-marked plans described in previously applied contrast-enhanced abdominal CT examinations of the patient. FDG accumulation was not detected at a pathologic level during evaluation of PET-CT images. However, in fusiform soft-tissue masses which deep-seated in both infrascapular and symmetrically followed, has similar density with surrounding muscle tissue in CT images, homogeneous FDG uptake that can be distinguished more demarkable than environment plans was observed. FDG uptake which also homogeneous in the coronal (**Figure 1**) and axial (**Figure 2**) sections, the findings

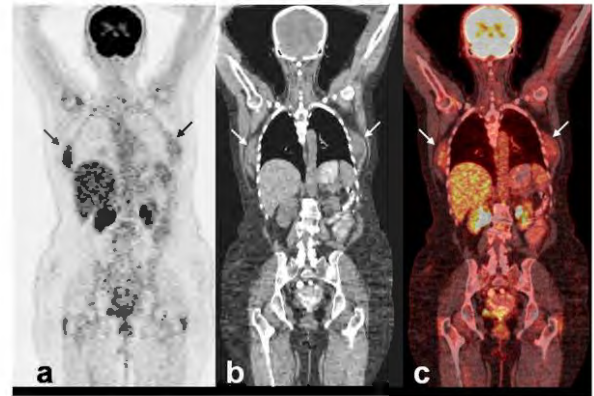


Figure 1. 78 year old female with elastofibroma dorsi. In view of PET (a), CT (b) and fusion (c) images obtained in the coronal plane, in fusiform soft-tissue masses which deep-seated in both infrascapular and symmetrically followed, has similar density with surrounding muscle tissue in CT images, homogeneous FDG uptake that can be distinguished more demarkable than environment plans was observed.

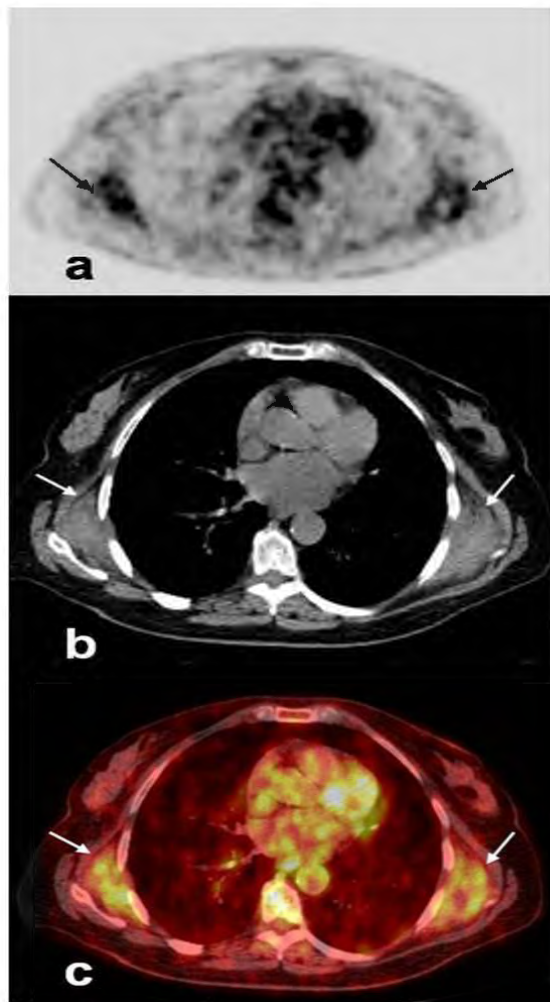


Figure 2. 78 year old female with elastofibroma dorsi. In view of PET (a), CT (b) and fusion (c) images obtained in the axialplane, orientation to localization of the lesion is also easier, FDG uptake is observed as deep-located in serratus anterior muscle in infrascapular localization.

CT and PET-CT fusion images and have SUVmax value of 3.69 in right and 3.24 in left showed the activity in these lesions that located deep in serratus anterior muscle in infrascapular localization.

In our case who is without focus of FDG uptake supporting residual-recurrent malignancy in other areas of the body, without a pain, restriction during each of two upper extremity movement and without respiratory distress, in CT of calcification, heterogeneity, invasion osseous destruction were not identified.

Because of it features like location, fat content in the form of striae in CT sections it is bilateral symmetric, and only suggested the follow-up of patients for this lesions that is characteristic for elastofibroma dorsi.

DISCUSSION

Although elastofibroma dorsi was described as rare after it was identified firstly in 1961, it was proved that in fact it is a pseudotumoral mass (1-3). It is usually asymptomatic and effects middle-advanced age female population. It is bilateral in 10-60 % of cases and located in deep of posterolateral chest wall muscles (10).

It has same density with muscle tissue and shows same features with signal characteristics in CT and MRI exhibitions and facilitates the recognition of contained fat striae (5,6).Gocmen et al reported that CT has a low sensitivity than MRI in elastofibroma diagnosis, but thanks to multi-slice CTs used in recent years this difference has disappeared. They reported that elastofibrom diagnosis in 63 year old female patient was made with a clarity that gives the impression of looking pathology specimen with 64-detector CT (11). In our case, diagnosis was made by using a device composed of a 16-detector CT and PET fusion. Again, the appearance composed of typical multi-layer hypoechoic-hyperechoic bands in ultrasonography is also typical for elastofibroma (12).

Elastofibroma dorsi rarely has symptoms like shoulder pain, shoulder motilite limitation, or growing soft tissue mass (4). This lesion which is sometimes a cause of click during shoulder movement (snapping scapula), and sometimes imitating pathology of the rotator muscles in literature is curable with operation in symptomatic cases and have rarely reported in relapse cases (13). The presence of fat cells located between dense fibrous tissue bands in histopathological examination and the

absence of capsule is also getting along with the imaging findings (14).

In elastofibroma dorsi cases that identified in PET-CT studies reported in the literature, FDG uptake (SUVmax values) levels have been ranged from 1.52-2.8 (7-9). In our cases, we determined the FDG uptake at 3,69 right, 3,24 left SUVmax values for elastofibroma dorsi cases.

PET-CT imaging is a relatively new technology, a useful examination method in staging and especially in detecting of the identification and spread of malignancy. Its application is rapidly spreaded by development of CT and its fusion. However, it has lots of mistake point because of FDG affinity in physiological activity and benign lesions. When infrascapular localized low-level FDG uptake is determined in PET-CT imaging, elastofibroma dorsi can be recognized with the help of CT sections and thus unnecessary forth evaluation, biopsy, surgery can be avoided.

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