Incidental Finding of Bladder Diverticula on F-18 FDG PET/CT and Whole Body Bone Scintigraphy

F-18 FDG PET/BT ve Tüm Vücut Kemik Sintigrafisi Görüntülereinde İnsidental Mesane Divertiküllerin Bulgusu

ABSTRACT A sixty year old male patient with mechanical jaundice of unknown origin underwent F-18 FDG-PET/CT and Whole Body Bone Scintigraphy (WBBS) for identification of any possible malignant primary focus. There were six foci of increased FDG uptake in pelvis, corresponding to the mass lesions on CT images equal in density with bladder; four of them were being located at left and right posterolateral aspect of bladder and the other two at both anterolateral sides of bladder. Concomitant WBBS images demonstrated an abnormal accumulation of 99m Tc-MDP at right superolateral side of the bladder. All of these radionuclide accumulation sites represented bladder diverticula in which radiotracer was entrapped.

Key Words: Diverticulum; urinary bladder; positron emission tomography

ÖZET Nedeni bilinmeyen mekanik ikteri olan altmış yaşındaki bir erkek hastaya, olası bir primer malignite odağının saptanması için F-18 FDG-PET/BT ve Tüm Vücut Kemik Sintigrafisi (TVKS) uygulandı. Pelvis içerisinde, iki tanesi mesanenin her iki anterolateral tarafında ve dört tanesi her iki posterolateralinde olmak üzere, Bilgisayarlı Tomografi kesitlerindeki mesaneyle eş dansitedeki kitlelere karşılık gelen, altı adet artmış FDG tutulum odakları saptandı. Eş zamanlı TVKS görüntülerinde mesanenin sağ superolateralinde anormal 99m Tc-MDP birikimi gözlemdi. Bütün bu radyonükleldir birikim bölgeleri, içerisinde radyonükleldir retansiyonunun bulunduğu mesane divertikülleri temsil etmektediydi.

Anahtar Kelimeler: Divertikül; mesane; pozitron emisyon tomografisi


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ladder diverticula and herniations may cause false positive findings by simulating intrapelvic relapses of neoplastic diseases and lymph node metastases on Fluorine-18 fluorodeoxyglucose (F-18 FDG) positron emission tomography (PET)/CT (F-18 FDG-PET/CT).

A sixty year old male patient with mechanical jaundice of unknown origin was referred for F-18 FDG-PET/CT and whole body bone scintigraphy (WBBS) in order to search for malignancy and identification of primary focus. After six hours of fasting and having serum glucose 78 mg/dl, the patient was injected with 444 MBq (14 mCi) of 18F-FDG intravenously. After 50 minutes of waiting in a semireclined relaxed chair, the patient was imaged using an integrated PET/CT scanner which consisted of a full-ring

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HI-REZ LSO PET and a 6-slice CT (Siemens Biograph 6, Chicago, USA). The CT portion of the study was done without an iv contrast medium. Evaluation of PET images revealed a pathologically increased FDG uptake at the root of mesentery suspicious for metastasis. There were six foci of increased...
FDG uptake in pelvis, corresponding to the mass lesions on CT images equal in density with bladder, four of them being located left and right posterolaterally and the other two at both anterolateral sides of bladder. The largest one of these structures was 7x5 cm in diameter on CT images and they were interpreted as bladder diverticula. Concomitant WBBS images demonstrated an abnormal accumulation of 99m Tc-MDP at right posterolateral side of the bladder. Additionally there were pathologically increased 99m Tc-MDP uptake at T8 and L1 vertebrae suggestive of metastasis but there were no corresponding hypermetabolic lesions on PET images.

Bladder diverticula are generally asymptomatic and found incidentally on anatomical imaging, but identification of them is important since they have potential risk for herniation\(^1,2\) and might result in several complications like acute renal failure, trauma and bladder rupture, rarely malignancy, vesicocutaneous fistula formation, bladder calculi formation, abscess and chronic urinary tract infection.\(^3\) We must be familiar with the visualization pattern of these variations on PET/CT images, since there is also risk for misinterpretation of them on PET imaging as intrapelvic relapses of pelvic malignancies and metastatic lymph nodes especially when only PET images are evaluated without combining relevant CT data.

We present this case in order to emphasize the importance of being aware of the possibility of increased FDG activity on F-18 FDG-PET/CT and increased 99m Tc-MDP activity on WBBS being benign or normal variants rather than malignancy and the necessity of concurrent interpretation of the PET with the corresponding CT data to reveal the correct diagnosis.

**REFERENCES**