

Undescended Testis in Inguinal Canal Detected Incidentally on Fluorodeoxyglucose PET/CT Imaging

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The differential diagnosis at the inguinal region is very important for hypermetabolic foci because of the possibility of metastasis at this level in cancer patients ongoing PET imaging for detection of metastases. It is important to distinguish this activity from other possible malignant and benign conditions such as lymph node activity, testicular cancer, metastatic disease activity, inflammation and urine skin contamination artefact (1). A 66-year-old male patient with operated colon cancer and liver metastasis was referred for PET/CT examination for re-staging because of suspicious metastases. Findings of PET/CT imaging with undescended testis detected incidentally was presented. UROLOGY 79: e29–e30, 2012. © 2012 Elsevier Inc.

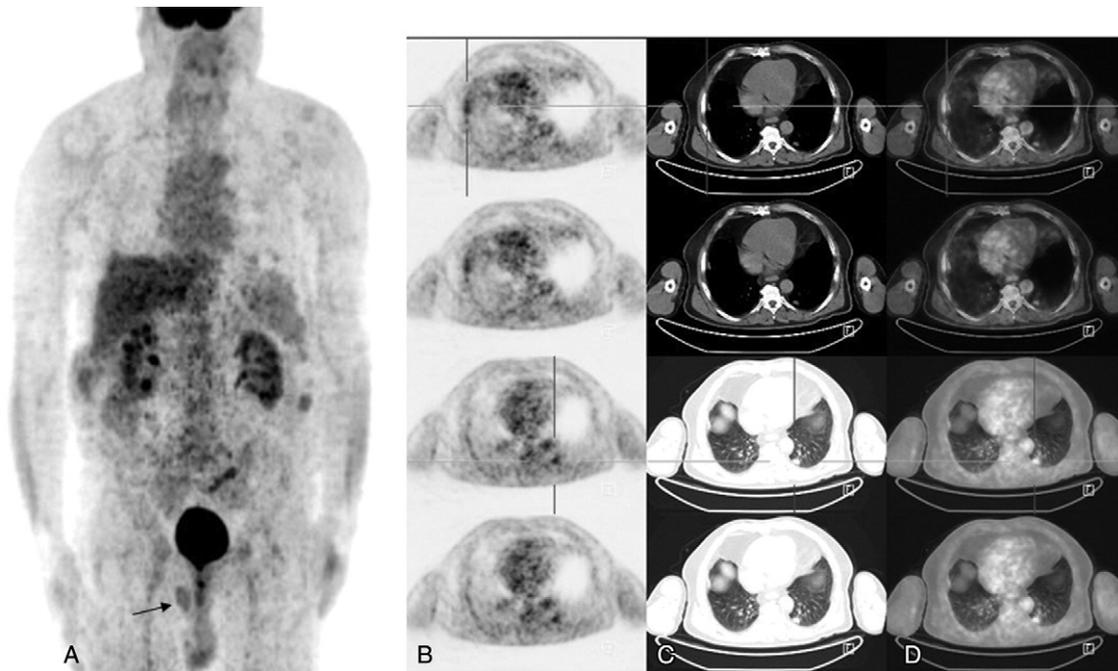


Figure 1. (A) Whole body maximum intensity projection image. Routine PET/CT images from top of skull to mid-thighs acquired 60 minutes after intravenous injection of 10 mCi of fluorodeoxyglucose per standard protocol. On fluorodeoxyglucose-PET/CT imaging, a 16 × 11-mm nodular lesion with increased fluorodeoxyglucose uptake was detected on postero-basal segment of left lung (maximal standardized uptake value [SUVmax] 2.87) and pleural thickening with increased fluorodeoxyglucose uptake observed at right hemithorax (SUVmax 2.9). (b) Axial positron emission tomography scan. (c) CT scan. (d) PET/CT fusion. In addition, spherical lesion with radiotracer uptake (SUVmax 3.33) at right inguinal region that appears separated from vesical activity detected on PET imaging (Fig. a, arrow). Left testis in normal localization (SUVmax 3.57). Left normal testis had same SUVmax as right undescended testis.

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Submitted: June 27, 2011, accepted (with revisions): October 30, 2011

The differential diagnosis at the inguinal region is very important for hypermetabolic foci. Because of the possibility of metastasis at this level in patients with cancer undergoing positron emission tomography (PET) imaging for the detection of metastases. It is important to distinguish this activity from other possible malignant and benign conditions, such as lymph node activity, testicular cancer, metastatic disease activity, inflammation, and

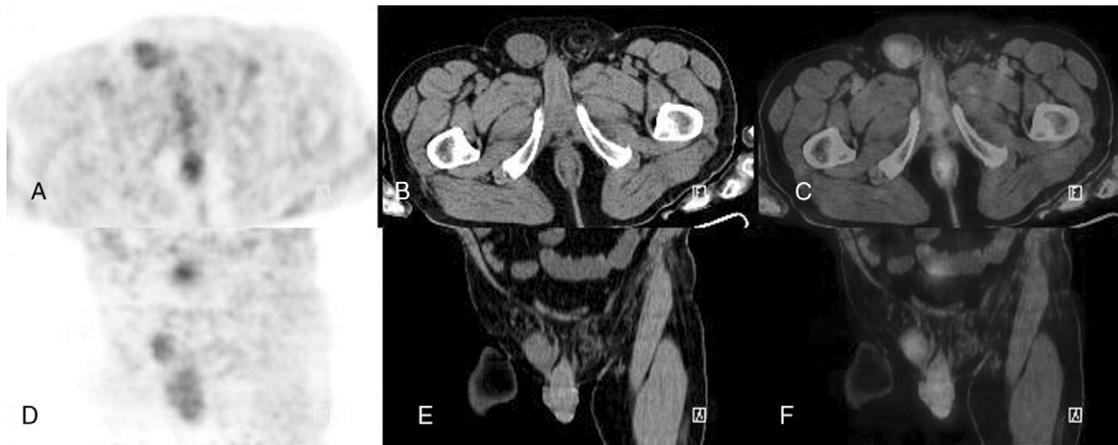


Figure 2. (A) Axial PET, (B) CT, and (C) PET/CT fusion images and (D) coronal PET scan, (E) CT scan and (F) PET/CT fusion confirmed this activity belonged to an undescended testis in inguinal canal. In our patient, the maximal standardized uptake value of the right undescended testis and left normal testis was 3.33 and 3.57, respectively. Although both maximal standardized uptake values were within normal limits in accordance with physiologic fluorodeoxyglucose uptake, undescended testes are known to have an increased risk of malignancy. On physical examination, a right testis was not found in the scrotum with palpation. No significant disorder was found from his history. The patient was referred to the urology department for surgical evaluation. In such cases, correlation with ultrasonography is recommended. No evidence of malignancy was found on ultrasonography. The CT component of PET/CT provided an advantage in the differential diagnosis of the inguinal region. CT findings has been useful in showing focal increased fluorodeoxyglucose uptake seen on PET imaging at right inguinal region belonging to undescended testicular activity.

urine skin contamination artifact.¹ A 66-year-old male patient with operated colon cancer and liver metastasis was referred for PET/computed tomography (CT) examination for restaging because of suspicious metastases. The findings from PET/CT imaging with an undescended testis detected incidentally are presented (Figs. 1-2).

Physiologic fluorodeoxyglucose uptake observed in the testes should not be confused with pathologic accumulation. In a study investigating the physiologic testicular fluorodeoxyglucose uptake on PET/CT imaging by Kitajima et al,² the standardized uptake value was found 2.44 ± 0.45 . Gray-scale ultrasonography is nearly 100% sensitive for the detection of testicular tumors.^{3,4} There are a variety of benign intratesticular processes, such as hematoma, orchitis, abscess, infarction, and granuloma, that mimic testicular malignancy and must therefore be considered in the differential diagnosis. Carcinoma in situ also cannot be detected by ultrasonography. The principal role of ultrasonography in the diagnosis of testicular cancer is to help distinguish intratesticular from extratesticular lesions.⁵ Most (90%-95%) primary testicular tumors in adults are of germ cell origin, with the most

common seminomas and mixed germ cell tumors. Seminomas are typically homogeneous, hypoechoic nodules that can range from small, sharply demarcated masses, to large masses causing diffuse testicular enlargement. Other tumors that can involve the testes include lymphoma, leukemia, and metastases.⁶

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