

Metastatic PSMA avid prostate tumour with penile uptake; a rare metastatic site on PET-CT

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Abstract

Prostate carcinoma is the most common malignancy in males and the second most common cause of mortality. Initially, metastatic prostate cancers tend to involve bones, but these tumours can involve any system. Gallium-68 prostate specific membrane antigen (PSMA) positron emission computed tomography (PET-CT) scan is indicated in prostate cancer patients if PSA levels are raised, and CT and bone scans are inconclusive. Metastatic penile involvement is a rare phenomenon. We present a case of prostate cancer with foci of PSMA uptake in the penile region. .

Keywords: Ga68-PSMA PET-CT scan, Penile, Prostate carcinoma.

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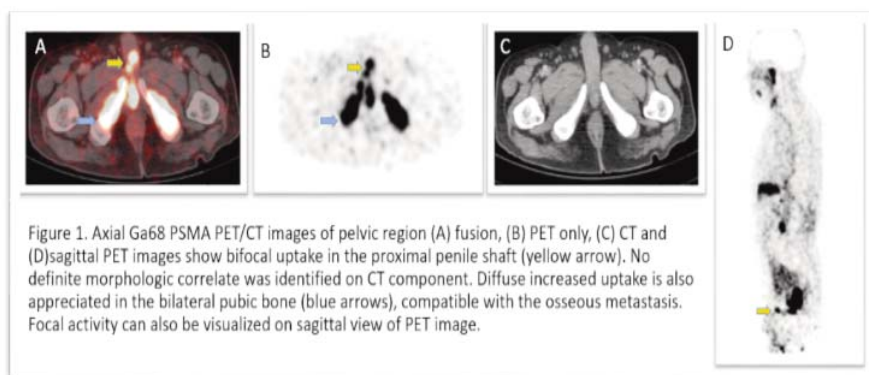


Figure 1. Axial Ga68 PSMA PET/CT images of pelvic region (A) fusion, (B) PET only, (C) CT and (D) sagittal PET images show bifocal uptake in the proximal penile shaft (yellow arrow). No definite morphologic correlate was identified on CT component. Diffuse increased uptake is also appreciated in the bilateral pubic bone (blue arrows), compatible with the osseous metastasis. Focal activity can also be visualized on sagittal view of PET image.

A 66-year-old, male presented with suspected prostate carcinoma on recently performed MRI scan of the pelvis. Baseline PSA levels patient were 47.3 ng/ml. Gallium-68 PSMA PET-CT scan was acquired from vertex to mid-thigh to evaluate the extent of disease. Scan showed unexpected uptake along the penile shaft as two adjacent foci. No corresponding morphologic abnormality was identified. (Figure 1 and 2).

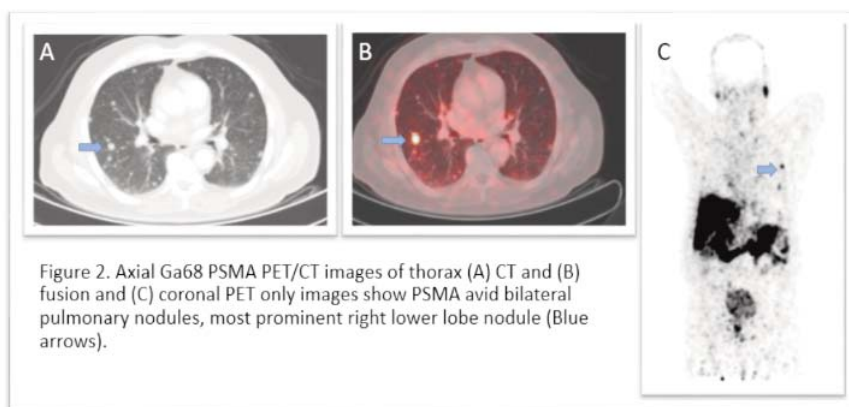


Figure 2. Axial Ga68 PSMA PET/CT images of thorax (A) CT and (B) fusion and (C) coronal PET only images show PSMA avid bilateral pulmonary nodules, most prominent right lower lobe nodule (Blue arrows).

Conventional imaging modalities such as MRI scan is the usual mode of initial investigation along with PSA levels in newly diagnosed prostate cancer. However, these can sometimes give false positive results due to prostatitis or benign prostatic hyperplasia especially during screening.¹ Prostate specific membrane antigen (PSMA) is unique receptor which is overly expressed by prostate cancer cells and related metastatic deposits. Gallium68 labelled PSMA ligands are playing the promising role in the diagnosis of

prostate cancer and distant metastases¹ and these radiotracers are also used as pre Lutetium-177 PSMA radionuclide therapy evaluation work up.

Prostate cancer infrequently metastasizes to penis, when occurs, this is associated with increased morbidity, poor prognosis and aggressive disease. Penile metastases from prostate are mostly found on clinical examination.² Detection of penile secondary lesions is limited on conventional imaging modalities and can easily be detected on PET-CT scanning. Penile metastases can also be seen in other malignancies such as Non-Small Cell Lung Cancer, Diffuse Large B-Cell

Lymphoma, Acute Myeloid Leukaemia and pelvic leiomyosarcoma; however, frequency of occurrence is also low in these tumours. Rate of penile metastases from prostate cancer is 0.1% and 0.1-0.5% for all cancers.³

References

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