

Case Report, ^{68}Ga -PSMA in Prostate Cancer.

^{68}Ga -PSMA Uptake in Lymphoma: A Potential Pitfall in Prostate Cancer PET Imaging.

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ABSTRACT:

Receptor targeted imaging using prostate specific membrane antigen (PSMA)-a labeled radioisotope currently plays a key role in prostate cancer imaging. This is due to the overexpression of PSMA, a type II Tran's membrane protein, in prostate cancer cells. Gallium-68 and fluorine-18 labeled PSMA are currently available for positron emission tomography/ computed tomography (PET/CT) imaging for the diagnosis, staging, treatment planning and follow-up of prostate cancer.

In this case report we discuss a 70 year old male who presented with progressively rising serum prostate-specific antigen (PSA) levels. Three prostate biopsies performed at different

time points were negative and failed to provide a histological diagnosis. ^{68}Ga -PSMA PET/CT was subsequently requested to guide biopsy and appropriately stage the disease. PSA level at the time of imaging was 39ng/ml. Uptake was demonstrated in the left posterior-lateral aspect of the prostate gland ($\text{SUV}_{\text{max}}=15.27$), identifying the target biopsy site for histological confirmation of the diagnosis of prostate cancer (**Figure 1**).

Unusual uptake was also noted in a right axillary lymph node ($\text{SUV}_{\text{max}}=6.18$). Biopsy of this lymph node confirmed Hodgkin's Lymphoma (**Figure 2&3**).

This clinical case demonstrates the non-specific nature of PSMA in prostate cancer, despite its name. We would like to advise caution in the interpretation of distant nodal

uptake sites on ^{68}Ga -PSMA PET/CT imaging for the diagnosis and/or staging of prostate cancer.

Key Words: Prostate cancer, ^{68}Ga -PSMA, Lymphoma, Hodgkin's lymphoma.

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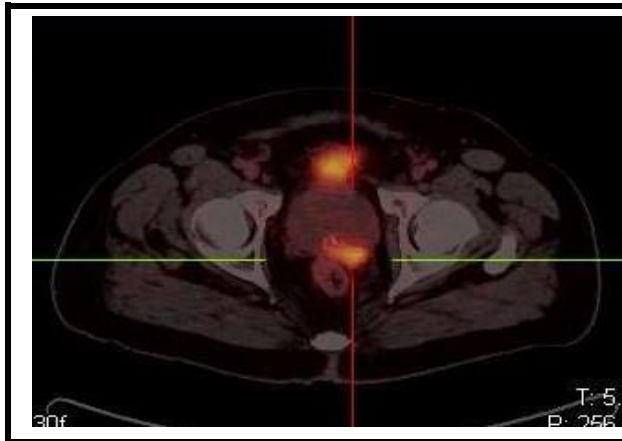


Figure (1): ^{68}Ga -PSMA activity is noted in the left posterior-lateral aspect of the prostate gland (SUVmax=15.27).

This represents the ideal biopsy site to histologically confirm the diagnosis of prostate cancer.

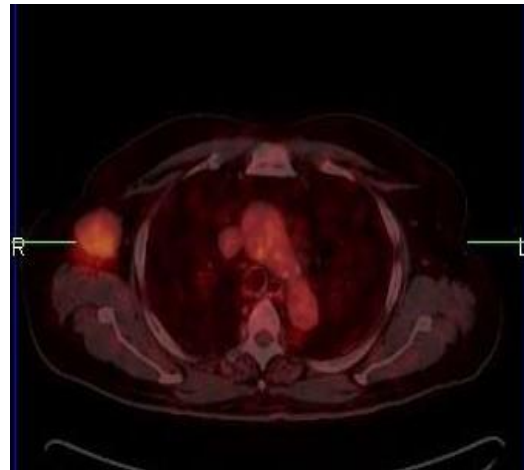
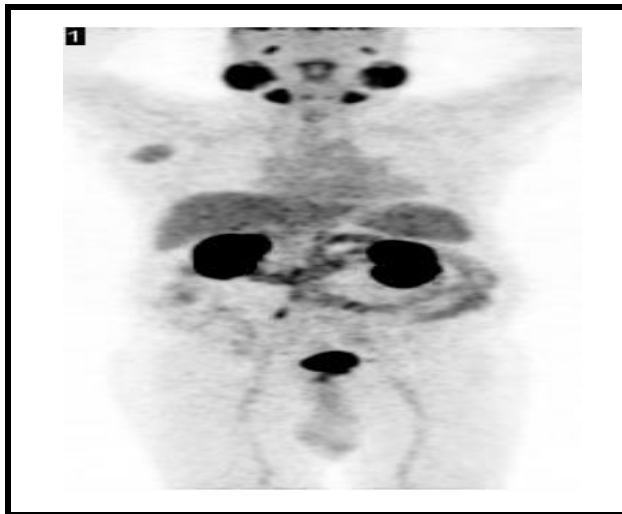


Figure (2 A): ^{68}Ga -PSMA PET/CT shows prostatic uptake below the bladder as well as a focus of uptake in the right axilla. The PSA level at the time of imaging was 39ng/ml.

Figure (2 B): a right axillary lymph node (SUVmax=6.18) which represents an unusual site of prostate cancer metastases. Biopsy of this lymph node revealed Hodgkin's Lymphoma.

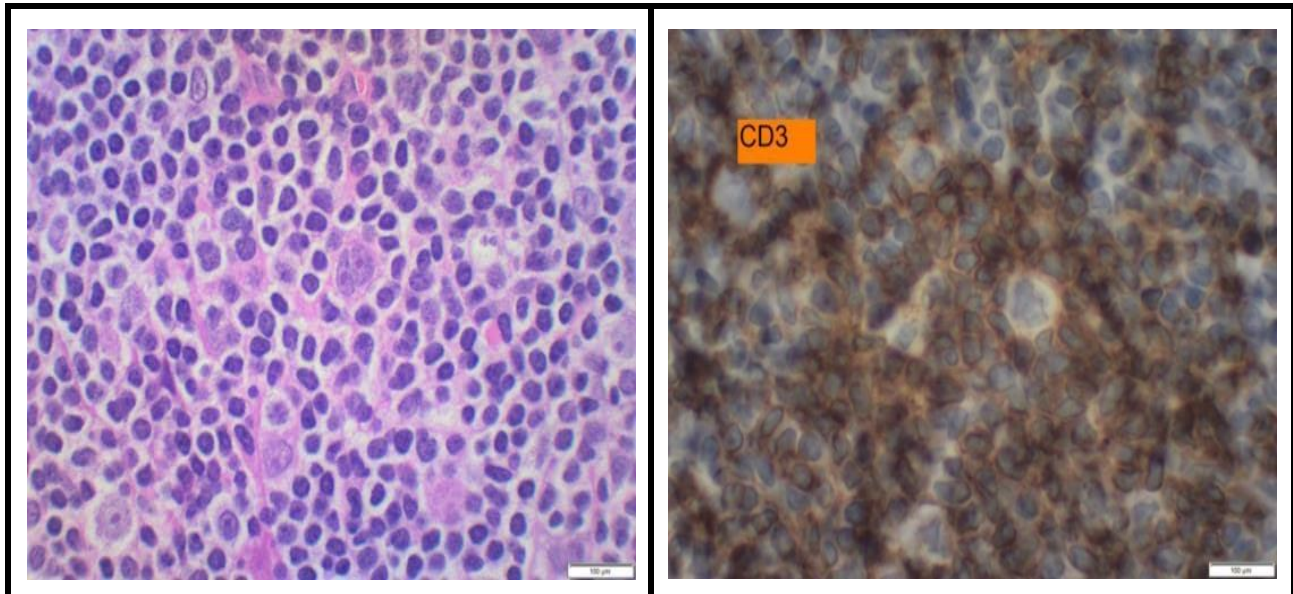


Figure (3 A,B): Immunohistological stain of biopsy material from the right axillary nodal lesion at two different laboratories confirmed Hodgkin's Lymphoma.

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