

Incidental Detection of Asymptomatic Brain Metastases Due to Carcinoma Prostate in Ga-68 PSMA HBED-CC Positron Emission Tomography-Computed Tomography: Reiterating its Superiority in Assessing Disease Status

Abstract

Brain metastasis originating in adenocarcinoma of the prostate is rare and can be expected in cases of disseminated bone and soft-tissue disease. Asymptomatic brain metastasis is rare at any point of the disease stage. Ga-68 PSMA positron emission tomography-computed tomography (PET-CT) is one of the useful investigations for assessing the disease status in adenocarcinoma of the prostate. We report a case of asymptomatic brain metastases detected in Ga-68 PSMA PET-CT scan.

Keywords: 68Ga-PSMA, brain metastasis, prostate carcinoma, PSMA-RADS

A 59-year-old male patient was diagnosed with adenocarcinoma of the prostate (Gleason's Score-4 + 4) (pT3bN0Mx). Underwent radical prostatectomy and was on monthly injection leuprolide. 1 year after prostatectomy, he was diagnosed with local recurrence. It was treated with salvage radiotherapy to the pelvis. Ga-68 PSMA HBED-CC positron emission tomography-computed tomography (PET/CT) (Ga-68 PSMA PET/CT) [Figure 1] was done for response assessment. Images (a-c) revealed abnormal tracer accumulation in the enhancing ~2.3 cm × 1.5 cm × 2 cm lesion in the right temporal lobe, SUV max-1.51 (Low grade PSMA expression). S. PSA at that time point was 0.4 ng/dl. Magnetic resonance imaging (MRI) brain was done to confirm brain metastasis. T2-weighted coronal section of the brain (d) showed dural-based extra-axial hyperintense lesion in the right temporal region with no significant edema in the adjacent temporal lobe. Postcontrast axial T1-weighted image (e) showed intense contrast enhancement in the lesion with the enhancement of the underlying duramater and few nonenhancing cystic areas within it, suggestive of dural metastasis. The patient did not have any neurological symptoms. The patient did not undergo further histopathological examination.

Isolated brain metastases are rare in carcinoma prostate.^[1] They have a high predilection for the leptomeningeal disease owing to the direct connection of the prostatic venous plexus with Barton's venous plexus.^[2] Asymptomatic brain metastases are relatively uncommon and have been reported in only very few instances.^[3,4] Asymptomatic brain metastases with normal S. PSA levels are a rarity.^[5-7]

MR brain is considered as the best investigation for evaluating brain metastases.^[8,9] Ga-68 PSMA agents are proven to have a role in initial staging, response assessment, biochemical recurrence in castration-resistant prostate cancer, and radiotherapy planning.^[10-13] In this case, solitary brain metastasis was found in the setting of normal PSA levels. So it was initially reported as PSMA-RADS 3C lesion.^[14] Later, metastasis was confirmed by MR brain. It is devoid of any neurological symptoms. If routine investigations such as bone scan, contrast-enhanced computed tomography thorax, and abdomen and MRI pelvis were only performed in this case, Odds of missing of these brain metastasis would be more. Ga-68 PSMA provides the advantage of whole-body assessment. These cases

**Harihara Sudhan
Nellaiappan,
Vishnukumar
Rajaraman,
Dhanapathi
Halanaik,
Ramesh
Ananthakrishnan¹**

*Departments of Nuclear
Medicine and ¹Radiodiagnosis,
Jawaharlal Institute of Post
Graduate Medical Education
and Research, Puducherry, India*

Address for correspondence:

*Dr. Dhanapathi Halanaik,
Department of Nuclear
Medicine, Jawaharlal Institute
of Post Graduate Medical
Education and Research,
Puducherry, India.
E-mail : dhanapathih@
gmail.com*

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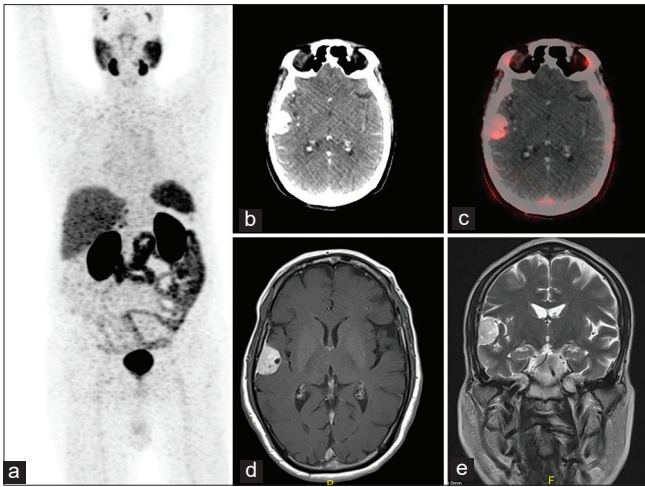


Figure 1: Ga-68 PSMA positron emission tomography-computed tomography images (a-c) reveals abnormal tracer accumulation in the enhancing ~2.3 cm × 1.5 cm × 2 cm lesion in the right temporal lobe, SUV max -1.51. T2 Weighted coronal section of brain (d) showing dural based extra axial hyper intense lesion in the right temporal region with no significant edema in the adjacent temporal lobe. Post contrast axial T1 weighted image (e) showing intense contrast enhancement in the lesion with enhancement of the underlying duramater and few nonenhancing cysti

reiterate the superior role of Ga-PSMA PET/CT in assessing the disease status in the cases of carcinoma prostate.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflicts of interest

There are no conflicts of interest.

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