

# Solitary Penile Metastasis from Prostate Cancer on <sup>18</sup>F-Prostate-Specific Membrane Antigen Positron Emission Tomography/Computed Tomography

## Abstract

We report a case of a 66-year-old man with prostate cancer who underwent <sup>18</sup>F-prostate-specific membrane antigen positron emission tomography/computed tomography for baseline staging that revealed primary lesion in prostate gland along with a solitary metastatic deposit in the penile shaft. Penile metastasis is rare and usually associated with widespread metastatic disease. Solitary penile metastasis is even rarer and can present as a unifocal, multifocal, or diffuse lesion. Early detection is important in guiding treatment and preventing complications.

**Keywords:** Penile metastasis, prostate cancer, prostate-specific membrane antigen positron emission tomography/computed tomography, solitary

A 66-year-old male with prostate cancer (Gleason score 4 + 4) was sent for <sup>18</sup>F-Prostate-specific membrane antigen (<sup>18</sup>F-PSMA) positron emission tomography/computed tomography (PET/CT) for baseline staging (serum prostate-specific antigen level – 93.16 ng/ml; normal levels: <4 ng/ml). The patient had difficulty in micturition and was catheterized. PSMA-PET/CT revealed soft-tissue density lesion epicentered along the right lobe of prostate gland with contiguous extension and involvement of the right seminal vesicle (maximum standardized uptake value [SUV<sub>max</sub>] – 14.40). Fat planes with urinary bladder and rectum were not well defined (a-d, thin white arrows; g, thin black arrow). Interestingly, there was a solitary metastatic deposit (measuring ~ 2.2 cm × 2.9 cm; AP × TR) in the penile shaft as well (SUV<sub>max</sub> – 13.7) (e and f, thick white arrow; g, thick black arrow). There was no significant PSMA avid or enlarged locoregional lymphadenopathy or PSMA avid lesion elsewhere in the body (g) [Figure 1]. Prostate cancer usually metastasizes to bones or locoregional lymph nodes and less commonly to lung and liver.<sup>[1]</sup> Penile metastasis is rare and usually associated with widespread

metastatic disease with most common primaries originating in urinary bladder, prostate, and rectosigmoid colon.<sup>[2-4]</sup> Solitary penile metastasis is even rarer with only handful of cases described in the literature.<sup>[5-7]</sup> It can present as a unifocal, multifocal, or diffuse lesion with commonly seen signs and symptoms being penile pain, ulceration, priapism, urinary retention, dysuria, hematuria, and nodules. Early detection is important in management and preventing complications and thus may result in better treatment outcome.<sup>[4,7-9]</sup>

## 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.

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## Conflicts of interest

There are no conflicts of interest.

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**Varun Singh Dhull<sup>1</sup>,  
Pankaj Kshirsagar<sup>2</sup>,  
Manoranjan  
Chowhan<sup>1</sup>, Swapnil  
Chandrakant Patil<sup>1</sup>**

<sup>1</sup>Department of Nuclear Medicine, <sup>2</sup>Department of Surgical Oncology, Aditya Birla Memorial Hospital, Pune, Maharashtra, India

**Address for correspondence:**  
Dr. Varun Singh Dhull,  
Department of Nuclear  
Medicine and PET/CT, Aditya  
Birla Memorial Hospital,  
Pune - 411 033, Maharashtra,  
India.  
E-mail: drvarundhull@gmail.  
com

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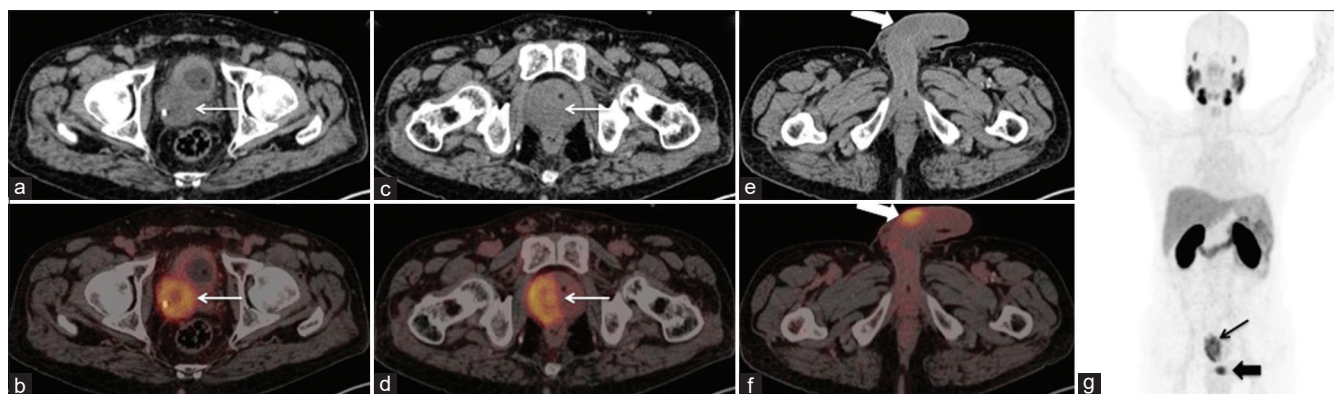
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**Figure 1:** CT images (a, c, e), corresponding PSMA PET/CT images (b, d, f) and maximum intensity projection (MIP) image (g) revealed PSMA avid lesion epicentered along the right lobe of prostate gland (SUVmax- 14.40) (a-d, thin white arrows; g, thin black arrow). Also, there was a solitary metastatic deposit in the penile shaft (SUVmax- 13.7) (e, f, thick white arrow; g, thick black arrow)

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