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# The $^{99m}\text{Tc}$ -MIP-1404 PSMA Uptake in the Isolated Paratracheal Lymph Node From the Prostate Adenocarcinoma

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**Abstract:** The oncologist consulted a 56-year-old man after receiving prostate-specific antigen screening results. Prostate-specific antigen level during the screen time was 33 ng/mL. As a result, poorly differentiated prostate adenocarcinoma with a Gleason score of 9 (5 + 4) was diagnosed. SPECT/CT scan with  $^{99m}\text{Tc}$ -MIP-1404 PSMA tracer was performed. The  $^{99m}\text{Tc}$ -PSMA-positive lesions were detected in the prostate, external iliac, obturator lymph nodes of the pelvis, para-aortic, and the right lower paratracheal space. The patient was prescribed androgen deprivation therapy and early chemotherapy with docetaxel (6 fractions), after which radiation therapy to prostate and seminal vesicles was planned.

**Key Words:** PSMA, SPECT/CT, prostate cancer, paratracheal nodes

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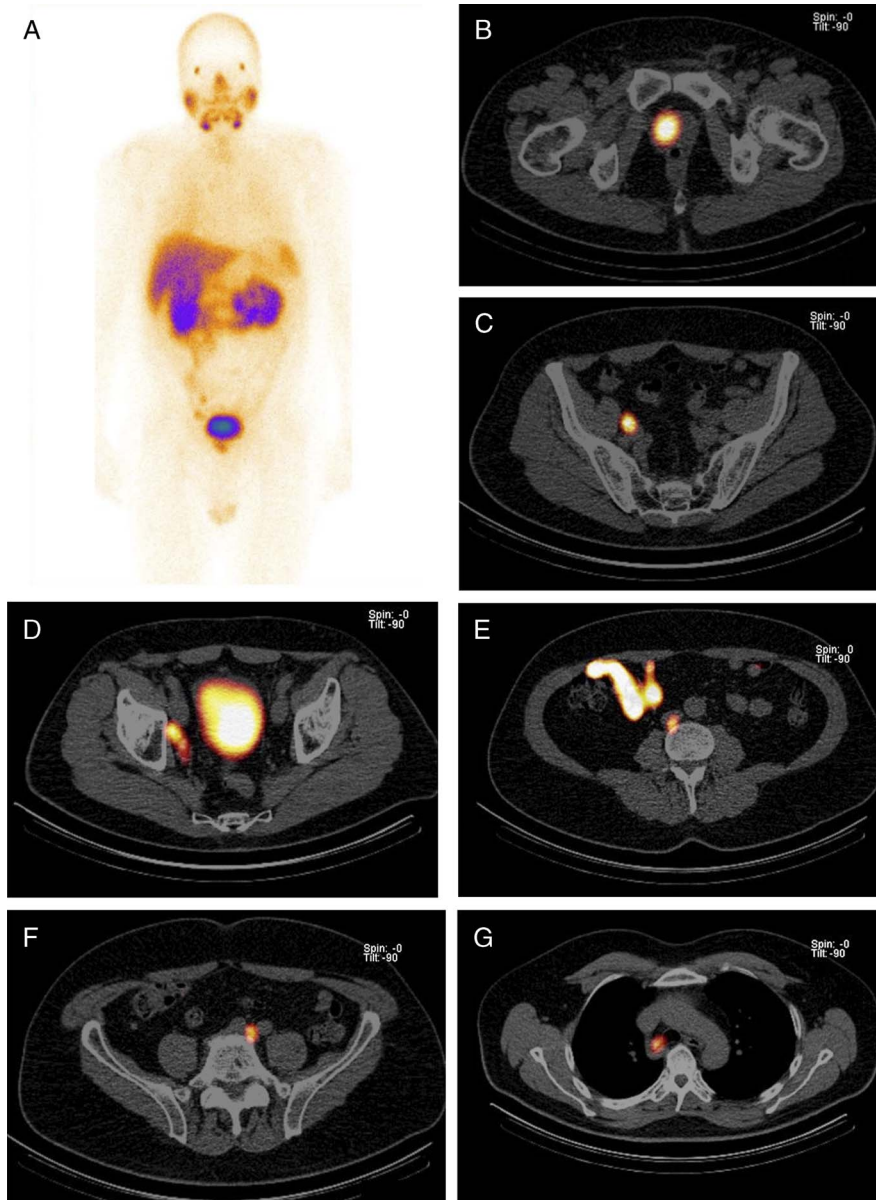
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**FIGURE 1.** The oncologist consulted a 56-year-old man after receiving prostate-specific antigen (PSA) screening results. The PSA level during the screen time was 33 ng/mL. T3 stage of disease was suspected during the digital-rectal examination. Prostate mpMRI was performed right after. PI-RADS 5 lesions were identified in the right peripheral zone. The systemic 12-needle biopsy was performed, which staged the disease as follows: poorly differentiated prostate adenocarcinoma with a Gleason score of 9 (5 + 4). The patient was referred for a whole-body MRI (WB-MRI) scan for the distant staging. WB-MRI confirmed prostate cancer in the prostate gland. In addition, the right side iliac lymph nodes were classified as suspicious for metastasis. No distant metastases were detected on WB-MRI. In addition, the patient was referred for the  $^{99m}\text{Tc}$ -MIP-1404 PSMA SPECT/CT scan (Siemens Symbia T6 SPECT/CT). Fused pelvic SPECT/CT images demonstrate  $^{99m}\text{Tc}$ -PSMA-positive lesion in the prostate (A and B), external iliac (C), and the obturator lymph nodes of the right pelvis (D). Moreover, there were tracer-positive lesions in the para-aortic and right lower paratracheal lymph nodes (E–G). As a result, the patient was prescribed androgen deprivation therapy and early chemotherapy with docetaxel (6 fractions), after which radiation therapy to prostate and seminal vesicles was planned. Usually, prostate cancer tends to metastasize to bones and pelvic lymph nodes.<sup>1</sup> There have been reports of uncommon places where prostate cancer metastases have been observed with the PSMA PET/CT imaging.<sup>2–4</sup> On the other hand, there is a scarcity of data regarding prostate cancer metastases detected in the mediastinum. Only a few case reports have reported metastases to the mediastinal area.<sup>5,6</sup> It has been shown that SPECT/CT imaging with a  $^{99m}\text{Tc}$ -MIP-1404 PSMA tracer (Progenics Pharmaceuticals, Inc, New York, NY) is accurate and has low interobserver variability.<sup>7,8</sup> Moreover, another study showed that this tracer strongly correlates with PSA level in blood and is a viable method for evaluating treatment efficiency.<sup>9</sup> Therefore, this case report agrees with previous studies, demonstrates the rare case of paratracheal metastases of prostate cancer, and shows the advantage of  $^{99m}\text{Tc}$ -PSMA imaging in high-risk prostate cancer staging.