

Interesting images

 ^{99m}Tc -MIP-1404 CZT SPECT/CT versus ^{68}Ga /PSMA-11 PET/CT: Imaging of prostate cancer metastasis **^{99m}Tc -MIP-1404 CZT SPECT/TC versus ^{68}Ga -PSMA-11 PET/TC: diagnóstico por imagen de las metástasis en el cáncer de próstata**A. Saudi^a, P. Takhar^b, F. Aljabery^a, M. Ochoa-Figueroa^{b,c,d,*}^a Division of Urology, Department of Clinical and Experimental Medicine, Linköping University, Linköping, Sweden^b Department of Radiology in Linköping, and Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden^c Department of Clinical Physiology in Linköping, and Department of Health, Medicine and Caring Sciences, Linköping University, Linköping, Sweden^d Center for Medical Image Science and Visualization (CMIV), Linköping University, Linköping, Sweden

72-year-old male with prostate cancer cT3b, Gleason 7b and PSA level of 23 $\mu\text{g/l}$. Two weeks after diagnosis, a ^{99m}Tc -HDP whole body bone CZT SPECT/CT scan (Fig. 1) and a computed tomography (CT) scan (no image) were performed to investigate metastases, both scans were negative. Radical prostatectomy was performed and confirmed the finding of pT3b, Gleason score 7b with negative margins, but the PSA level after surgery remained elevated at 22 $\mu\text{g/l}$. A ^{68}Ga -PSMA-11 PET/CT (Fig. 2) and a ^{99m}Tc -MIP-1404 CZT SPECT/CT (Fig. 3) scan were performed postoperatively to investigate possible metastasis and both scans reveal hypermetabolic activity in a 9 mm lymph node in the perirectal fat and in the right scapula with obvious clinical suspicion of metastasis. Previous studies have investigated ^{99m}Tc -MIP-1404 and conventional SPECT/CT for staging prostate cancer with promising results

[1,2]. Furthermore, general-purpose CZT SPECT/CT cameras have shown high sensitivity and might be a good alternative to conventional cameras [3]. In this case, ^{68}Ga -PSMA-11 PET/CT using a GE Discovery D710 (GE Healthcare; Milwaukee, WI, USA) and ^{99m}Tc -MIP-1404 CZT SPECT/CT using a CZT Veriton (Spectrum Dynamics, Caesaria, Israel) have shown comparable findings without inferiority with high lesion uptake in the metastatic lesions compared to the background, which raises the question of whether ^{99m}Tc -MIP-1404 CZT SPECT/CT could be an alternative to conventional imaging (^{99m}Tc -HDP whole body bone scan and CT) and possibly to ^{68}Ga -PSMA-11 PET/CT for prostate cancer staging, emphasizing the need for further studies. To the authors knowledge this the first prostate cancer patient undergoing the combination of ^{99m}Tc -MIP-1404 and CZT SPECT/CT in the scientific literature.

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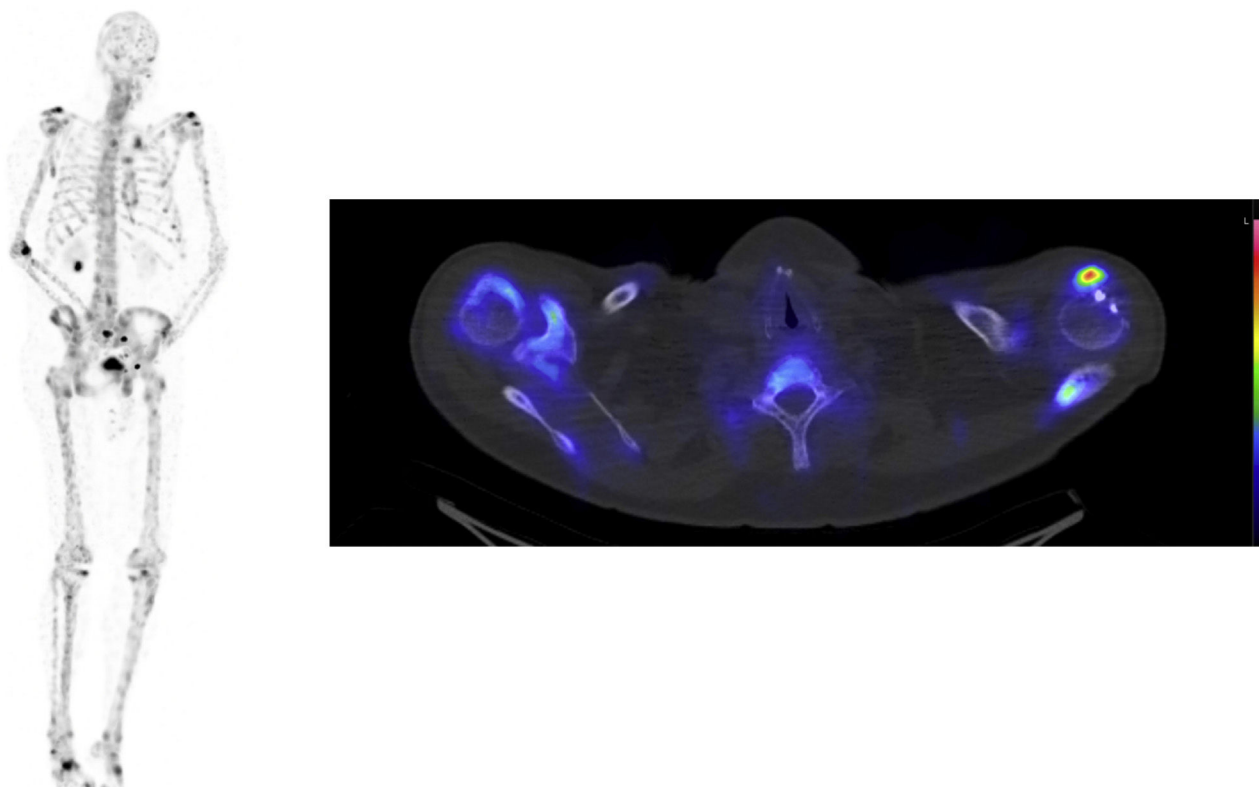


Figure 1. CZT SPECT/CT whole body bone scan performed after the intravenous administration of 500 MBq ^{99m}Tc -HDP, showing no uptake suspicious for skeletal metastases. The axial CZT SPECT/CT shows no signs of metastases in the right scapula.

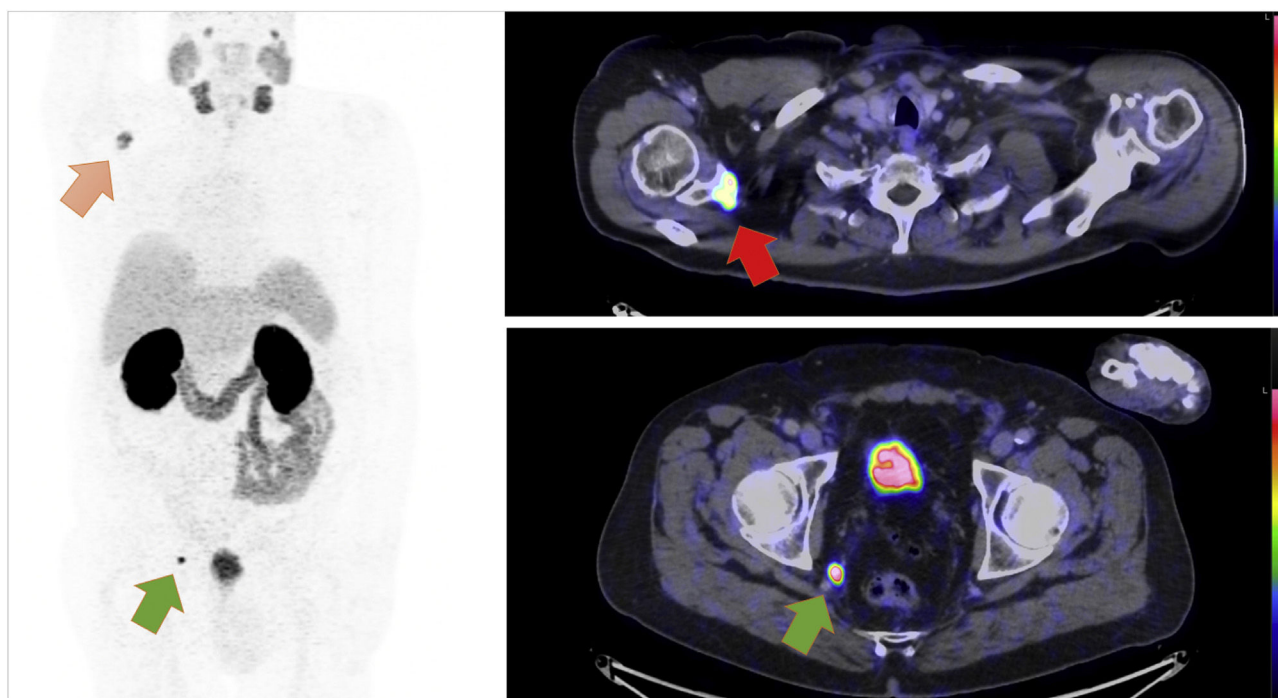


Figure 2. PET/CT performed after the administration of 220 MBq of ^{68}Ga -PSMA-11 showing high uptake in the right scapula (red arrow) and in a 9 mm lymph node in the perirectal fat (green arrow), suggesting metastases.

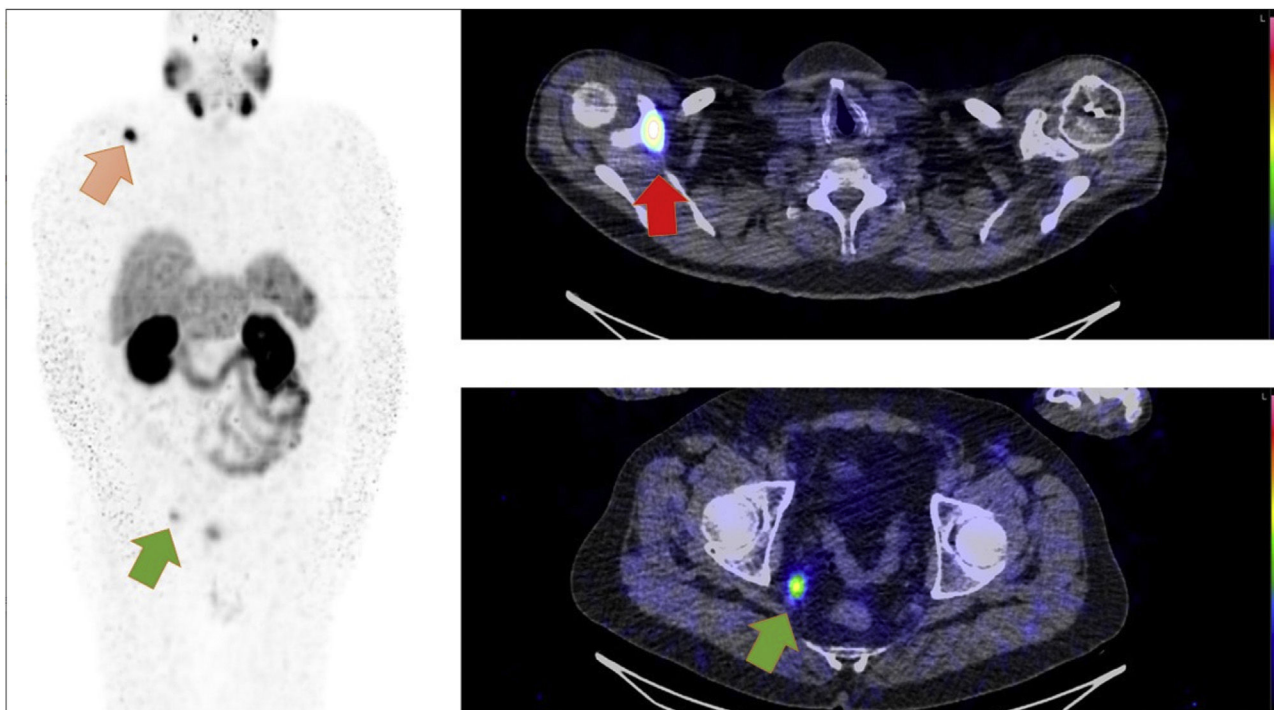


Figure 3. CZT SPECT-CT scan performed after the intravenous administration of 750 MBq ^{99m}Tc -MIP-1404 showing high uptake in the right scapula (red arrow) and in a 9 mm lymph node in the perirectal fat (green arrow), suggesting metastases.

Funding

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Ethics approval

The study was approved by the Swedish Ethical Review Authority (approval number 2021-01642) and the Swedish Medical Products Agency (EudraCT-number 2021-001059-15).

Consent to participate

Written consent was obtained from the patient.

Conflicts of interest/Competing interests

The authors have no conflicts of interest to declare.

Acknowledgments

None.

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