Clinical vignette

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Prostatic bed calcification with [^{99m}Tc]Tc-MDP uptake: Easy to miss on planar images

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Abstract

A 65 years old man with high-risk prostate adenocarcinoma underwent bone scintigraphy with ^{99m}Tc-methylene diphosphate ([^{99m}Tc]Tc-MDP). The scan revealed a focus of radiotracer uptake in the left pubic region, which was suspicious for metastatic involvement. Additional imaging with single photon emission computed tomography (SPECT/CT) confined the uptake to be extra-osseous and contributed to the calcified zone in the prostate bed. Prostatic bed calcification with [^{99m}Tc]Tc-MDP uptake mimics metastasis and can be easily missed on planar images.

KEY words: bone scan; prostate cancer; [^{99m}Tc]Tc-MDP; SPECT/CT; prostatic bed calcification

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A 65 years old with high-risk prostate adenocarcinoma was referred for initial staging with ^{99m}Tc-methylene diphosphate (MDP) bone scintigraphy. Three hours after IV administration of 740 MBq of [^{99m}Tc]Tc-MDP, a whole body bone scan (WBBS) was taken using a dual-head variable angle gamma camera (Discovery NM 670, GE Healthcare) with LEHR collimator (using ^{99m}Tc photopeak with 20% window). There was a focal zone of activity in the left pubic region on planar images rising the possibility of metastatic bone involvement (Fig. 1 — arrows). Also, whole-body images depicted mildly increased uptakes in the 8th to 10th thoracic spine, which were more likely due to degenerative changes (Fig. 1 — arrowhead). Another incidental finding was the non-visualization of the right kidney due to the previous nephrectomy. For precise localization, single photon emission computed tomography (SPECT/CT) from the pelvic region was also performed and showed an extra-osseous focus of radiotracer activity inthe postero-lateral aspect of the prostate bed which contributed to the calcified zone (Fig. 2 — white arrow). Prostate calcification may occur due to obstruction or urinary stasis, prostate adenomatous hyperplasia, carcinoma, or after radiation therapy. Despite the high prevalence of prostate calcification, MDP uptake in prostate beds is rarely reported. Extra-

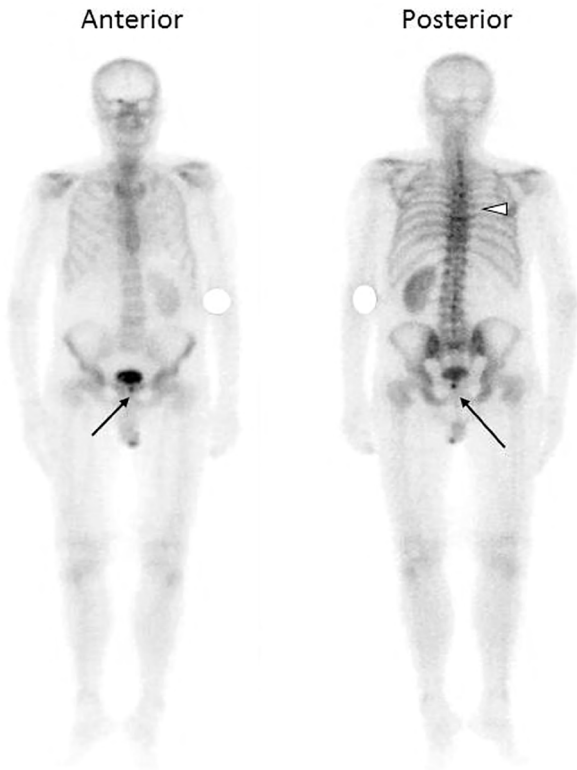

Figure 1. Whole body bone scan showed an abnormal focal zone of radiotracer uptake in the left pubic region. Also, mildly increased uptakes were noted in the 8th to 10th thoracic spine

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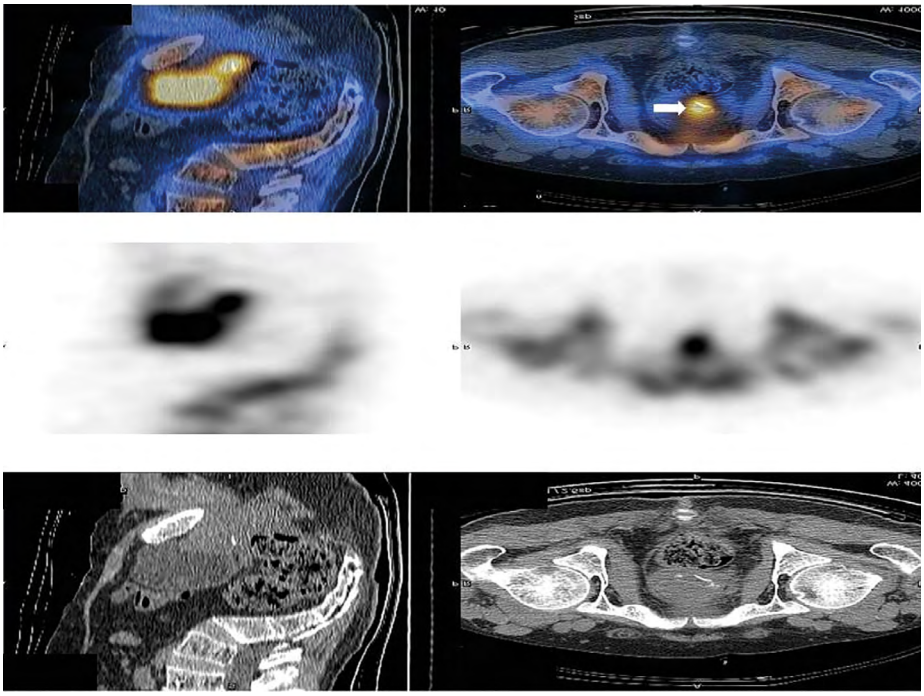

Figure 2. SPECT/CT revealed an extra-osseous focal of radiotracer activity in the postero-lateral aspect of the prostate bed which contributed to the calcified zone

-osseous uptake of [99mTc]Tc-MDP on skeletal scintigraphy is a common finding and has several causes, such as new bone formation, soft tissue calcification, bladder stone, ureteric and renal calculi. Excellent clearance of [99mTc]Tc-MDP from normal soft tissues allows the detection of abnormal extra-skeletal radiotracer accumulations. Furthermore, SPECT/CT helps to increase the sensitivity of bone scans by detecting additional lesions, better localization of abnormal absorptions mentioned in bone scans, and improves the quality of interpretation. We reported this case as an unusual artifact, which can be easily missed on planar images and mimicking metastasis. Thus SPECT/CT offered better accuracy than planar images and resolved diagnostic uncertainty.

Conflict of interest

There is no conflict of interest to declare.