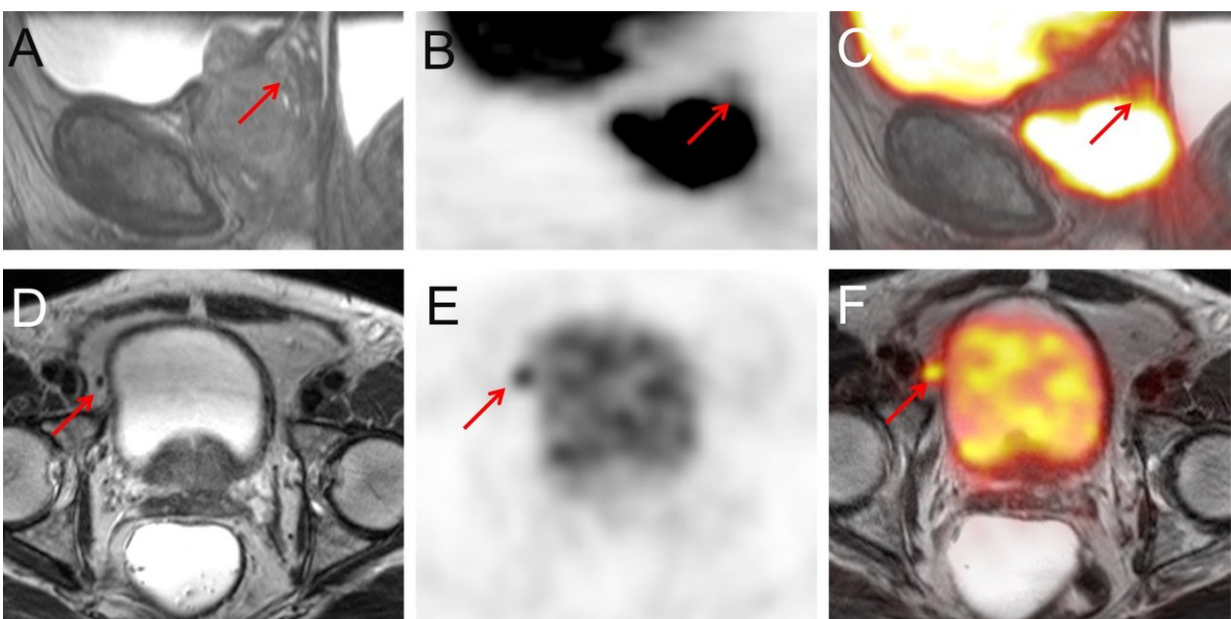


Whole-body PET/MRI provides one-stop shop for staging high-risk prostate cancer patients

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68Ga-PSMA-11 PET/MRI of a 75-y-old patient with high-risk PC. Local sagittal reformatted T2w sequence (A), PET (B), and fused PET/MRI (C) show tumorous involvement of apical two thirds of prostate, with extension into seminal vesicles (arrows). Pelvic T2w turbo spin echo (D), PET (E), and fused PET/MRI (F) demonstrate intense PSMA ligand uptake in 6-mm lymph node adjacent to bladder. Postoperative histopathology resulted in pT3b N1 stage. Variables from biopsy, PSA-value, and digital rectal examination resulted in cT3-4N1 stage for the MSKCC nomogram and cT3N0 stage for Partin tables based on thresholds from ROC analysis. Credit: Matthias Eiber, Andrei Gafita, Klinikum rechts der Isar, Munich, Germany.

New research on prostate cancer staging shows that PSMA-targeted PET/MRI performs equally as well as currently used predictive tools to determine the risk for advanced disease. The first-of-its-kind study, published in the December issue of *The Journal of Nuclear Medicine*, purports that whole-body imaging with 68Ga-PSMA-11 PET/MRI could be advantageous for physicians, as it offers information to guide treatment options for prostate cancer patients.

Accurate primary staging is imperative to develop individualized treatment strategies for those with [prostate cancer](#). Currently, [prediction tools](#)—or nomograms—assess a variety of factors to determine risk of advanced disease: prostate-specific antigen value at diagnosis, Gleason score, and others. While these nomograms offer an estimate of probability, they do not specifically indicate the extent of disease, which can be obtained using molecular imaging.

To compare the performance 68Ga-PSMA-11 PET/MRI with clinical nomograms, researchers conducted a retrospective study including 73 patients. Each patient's risk for advanced disease was predicted using the Memorial Sloan Kettering Cancer Center (MSKCC) [nomogram](#), the Partin tables and 68Ga-PSMA-11 PET/MRI. The staging predictions were then compared with histopathologic results, specifically, the prevalence of lymph node metastases (LNM), extracapsular extension (ECE) and seminal vesicle invasion (SVI).

In each of the three advanced disease types analyzed (LNM, ECE and SVI), 68Ga-PSMA-11 PET/MRI resulted in an equivalent positivity rate compared with the MSKCC nomogram and the Partin tables. On a patient base, the sensitivity and specificity for 68Ga-PSMA-11 PET/MRI were also comparable to that of the other methodologies for the three disease types. Overall, a trend towards higher prediction of the final T and N stages on a patient base was noticed for PSMA-targeted molecular imaging.

"Our results showed that PSMA-targeted PET/MRI performed equally well to established clinical nomograms for preoperative staging in high-risk prostate cancer patients and provided additional information on tumor location" noted Andrei Gafita, MD. "Translated into a [clinical setting](#), the use of this imaging technique for preoperative staging might support treatment planning that may lead to improved patient outcomes."

More information: Mark Thalgott et al, One-Stop-Shop Whole-Body ⁶⁸Ga-PSMA-11 PET/MRI Compared with Clinical Nomograms for Preoperative T and N Staging of High-Risk Prostate Cancer, *Journal of Nuclear Medicine* (2018). [DOI: 10.2967/jnumed.117.207696](https://doi.org/10.2967/jnumed.117.207696)

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