

Intense PSMA-expression using ^{68}Ga -PSMA PET/CT in a paravertebral schwannoma mimicking prostate cancer metastasis

Christoph Rischpler¹ · Tobias Maurer² · Markus Schwaiger¹ · Matthias Eiber¹

Received: 3 September 2015 / Accepted: 16 October 2015 / Published online: 27 October 2015
© Springer-Verlag Berlin Heidelberg 2015

The prostate-specific membrane antigen (PSMA) is highly expressed in prostate cancer (PC) cells. The recently introduced PSMA-PET/CT has evolved as a powerful imaging tool for staging of PC [1–3]. Albeit the high specificity of PSMA-tracers, there are reports of high PSMA-expression in non-prostatic malignant (e.g., renal cell carcinoma, bronchial carcinoma, and glioblastoma) and benign (schwannomas) lesions [4]. These reports raise concerns over the specificity of PSMA-PET imaging indicating the need for thorough review of accompanying morphological images besides exclusive interpretation of and reliance on PSMA-expression in PET.

A 69-year-old patient with PC (Gleason 6 [3+3], iPSA 11.3 ng/ml) underwent ^{68}Ga -PSMA-PET/CT for primary staging. ^{68}Ga -PSMA-PET/CT showed intense PSMA-expression in the prostate representing the histological proven primary PC (A: MIP). Intense PSMA-expression was also observed in projection on a right paravertebral soft-tissue mass (B-D).

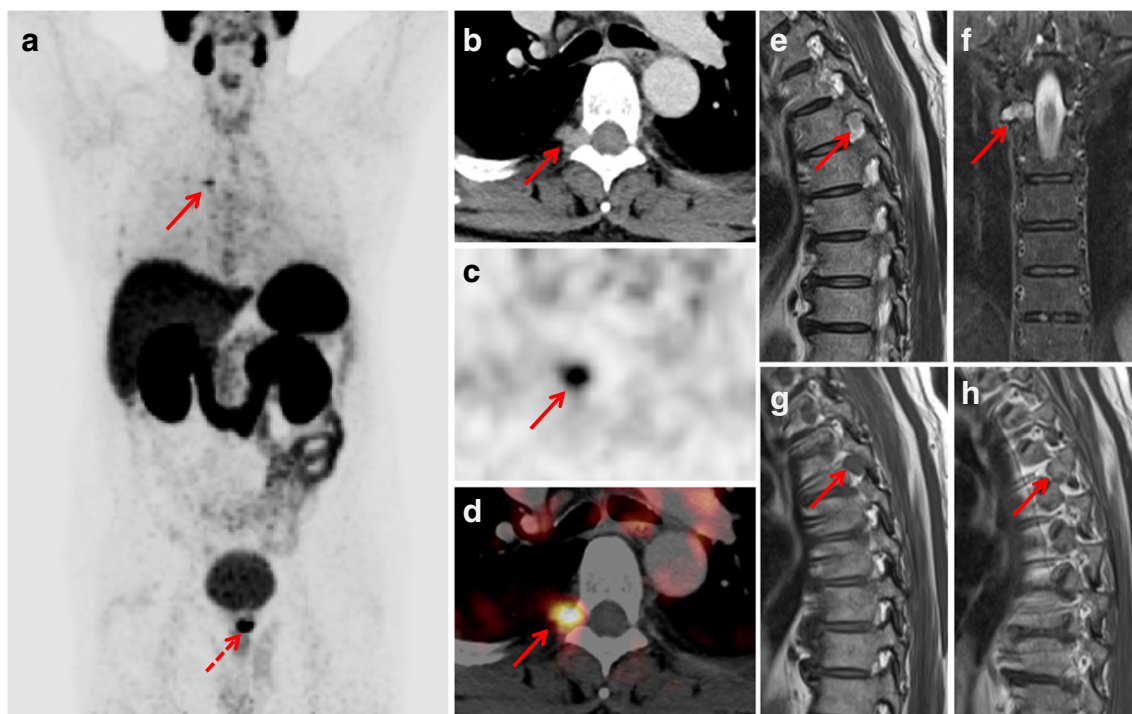
Due to pain in the thoracic spine the patient had undergone MRI one month before. Images revealed typical features of a schwannoma showing a slightly hyperintense signal in T2w (E) and dumbbell configuration in coronal T2w stir with pathognomonic growth along the neuroforamen (F). In addition, T1w images showed a native hypointense lesion with inhomogeneous contrast enhancement (G,H). Thus, the patient was diagnosed with local PC without metastatic spread.

This case advises caution particularly in patients with solitary “lesions” as the interpretation of PSMA-PET/CT scans might directly influence therapy guidance (curative surgical vs. palliative medical treatment). In this case, typical MRI features (localization relative to the nerve, typical configuration) [5] as well as a former report of possible positive PSMA-expression in schwannomas [4] led to the diagnosis of this benign lesion.

✉ Christoph Rischpler
C.Rischpler@tum.de

¹ Nuklearmedizinische Klinik und Poliklinik, Klinikum rechts der Isar, Technische Universität München, Ismaninger Strasse 22, 81675 Munich, Germany

² Urologische Klinik und Poliklinik, Klinikum rechts der Isar, Technische Universität München, Munich, Germany



Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflicts of interest.

Informed consent This article does not contain any studies with human participants performed by any of the authors. Informed consent was obtained from the individual participant included in the study. Retrospective data analysis was approved by the Ethics Committee of the Technical University Munich (permit 5665/13).

References

1. Eiber M, Maurer T, Souvatzoglou M, Beer AJ, Ruffani A, Haller B, et al. Evaluation of Hybrid (6)(8)Ga-PSMA Ligand PET/CT in 248 Patients with Biochemical Recurrence After Radical Prostatectomy. *J Nucl Med*. 2015;56:668–74.
2. Afshar-Oromieh A, Avtzi E, Giesel FL, Holland-Letz T, Linhart HG, Eder M, et al. The diagnostic value of PET/CT imaging with the (68)Ga-labelled PSMA ligand HBED-CC in the diagnosis of recurrent prostate cancer. *Eur J Nucl Med Mol Imaging*. 2015;42:197–209.
3. Maurer T, Beer AJ, Wester HJ, Kubler H, Schwaiger M, Eiber M. Positron emission tomography/magnetic resonance imaging with 68Gallium-labeled ligand of prostate-specific membrane antigen: promising novel option in prostate cancer imaging? *Int J Urol*. 2014;21:1286–8.
4. Wang W, Tavora F, Sharma R, Eisenberger M, Netto GJ. PSMA expression in Schwannoma: a potential clinical mimicker of metastatic prostate carcinoma. *Urol Oncol*. 2009;27:525–8.
5. Wu JS, Hochman MG. Soft-tissue tumors and tumorlike lesions: a systematic imaging approach. *Radiology*. 2009;253: 297–316.