



Pitfalls in Ga-68-PSMA-PET/CT: incidental finding of parathyroid adenoma

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Received: 5 March 2018 / Accepted: 6 December 2018 / Published online: 19 December 2018
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Imaging using prostate-specific membrane specific antigen (PSMA) PET/CT has shown its potential in initial diagnostic and staging of prostate cancer. PSMA is highly overexpressed in most prostate cancers, but other malignancies such as lung cancer, colon, gastric, thyroid and renal cancer have been reported to express PSMA and have been reported as incidental findings on PSMA PET/CT scans [1–3]. Here we report an incidental finding of a patient with prostate adenocarcinoma and biochemical recurrence (PSA 0.15 ng/ml) who underwent a Ga-68-PSMA-PET/CT. The scan showed focal uptake dorsally to the right thyroid gland, at the typical location of the parathyroid gland (*a* PET only, *b* fused PET/CT, *arrows* indicate the lesion). The patient was referred to surgery to remove this lesion. Preoperatively, serum calcium (2.93 mmol/l; normal range 2.20–2.65 mmol/l) and parathyroid hormone (445.7 pg/ml; normal range 15–65 pg/ml) were elevated. Post-operative histology showed a parathyroid adenoma (*c*

positive parathyroid hormone staining, *d* HE staining) and parathyroid hormone and serum calcium decreased after surgery. PSMA was mainly expressed in small intraparathyroidal blood vessels / capillaries (*e arrows*). This is in line with previous reports showing expression of PSMA in highly vascular regions [4, 5]. Parathyroid adenoma should be included in the differential diagnosis of focal tracer uptake on PSMA PET-CT.

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