



Deepening of response to prostate-specific membrane antigen ligand-targeted radioligand therapy beyond end of treatment

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Prostate-specific membrane antigen (PSMA)-targeted radioligand therapy (RLT) has demonstrated high anti-tumor activity in advanced-stage, metastatic castration-resistant prostate cancer (mCRPC) [1, 2].

Here, we report continued long-term anti-tumor effects after discontinuation of RLT in an 88-year-old patient with progressing disseminated bone and lymph node metastases (a) following therapy with leuprorelin acetate, abiraterone acetate, docetaxel, and denosumab. He received a total of 4 cycles of [¹⁷⁷Lu]Lu-PSMA-617 RLT between August 2018 and January 2019 (b). Follow-up PET/CT (c) demonstrated a good partial remission with several PSMA-expressing residual bone metastases, and the PSA was 7.6 µg/L. He then had to discontinue RLT due to denosumab-related osteonecrosis of the jaw requiring extensive surgical treatment. Following a complicated clinical course with prolonged infection, he did not resume RLT,

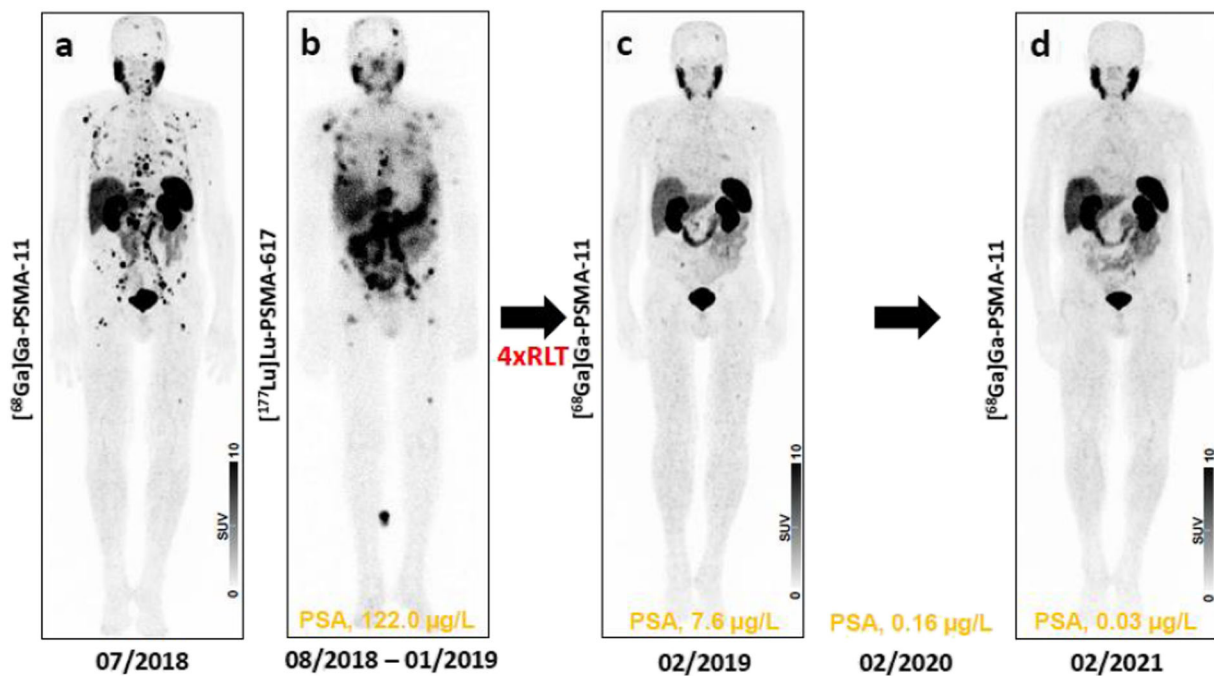
since PSA continued to decline without any tumor-specific treatment apart from continued leuprorelin acetate (August 2019: 0.43 µg/L; February 2020: 0.16 µg/L; August 2020: 0.05 µg/L). Follow-up demonstrated complete remission in PET imaging (d) and further PSA decline to the detection limit (February 2021: 0.03 µg/L).

A small subset of patients may achieve long-term complete remission after both ²²⁵Ac- and ¹⁷⁷Lu-labeled PSMA-617 if having undetectable PSA after the last RLT [2–4]. Usually, however, patients eventually show PSA progression [2]. The observed continuously deepening response after discontinuation of RLT provides a rationale for further research exploring the optimal duration of PSMA-targeted RLT and predictors identifying candidates for treatment de-intensification or termination. Immune mechanisms similar to using radiation therapy to augment responses to immunotherapy via the abscopal effect in mCRPC may be involved [5].

This article is part of the Topical Collection on Image of the month

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Declarations

Ethics approval and consent to participate All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Conflict of interest The authors declare no competing interests.

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