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Locally advanced castration resistant prostate cancer undetectable after short course radiotherapy: A case report

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Introduction: Prostate cancer is a slow growing tumor and high radiation doses are recommended to eradicate it so that new advanced technologies are implementing to deliver ≥76 Gy to prostate gland sparing healthy organs. A prolonged anti-androgenic hormonal therapy leads to molecular expressions changes. We present a case of castration resistant with very short PSA doubling time, locally advanced prostate cancer treated with short course radiation therapy (RT) and disease free 18 months after.

Case report: In June 2013, 69 years old patient affected by obstructive urinary symptoms because of a Gleason Score 4+4=8 prostate cancer with initial PSA 24 ng/ml, suspicious bone metastases at bone scan and bladder invasion by a great pelvic mass at abdominal computed tomography (CT) scan (Figure 1) at diagnosis was referred to our department after an early onset of total androgenic block resistance. The patient had undergone hormonal therapy with Leuprorelina and Bicalutamide from July 2012 with a PSA nadir of 0.08 ng/ml in October and a subsequent fast increase: 0.43 in November, 5.68 in February 2014 with testosterone <50 ng/dL, 10.27 in April and 26.88 in May. CT and magnetic resonance targeted bone scan excluded bony metastases, a choline positron emission tomography detected pelvic disease only with lymph nodal metastases; a cystoscopy excluded mucosal involvement. Rectal digital examination detected a great fix hard pelvic mass anteriorly to the rectum. Since pelvic disease size about 250 cc and the high risk of microscopic distant metastases, a palliative short course RT on PET positive disease, 30 Gy, 3 Gy/fraction, 5 fractions/week was planned and performed in July 2013. PSA pre-RT was 33.32 ng/ml with a doubling time from October 2012 of 1 month.

Results: One month later PSA was 0.45 ng/ml and from November 2013 to the last control in January 2015 PSA became undetectable (<0.03 ng/ml). Obstructive urinary symptoms were improved and rectal digital examination showed a hypertrophic soft prostate.

Discussion: Castration resistant prostate cancer with a short doubling time PSA could be different by the initial disease known as a slow growing tumor, so that radiation dose useful also could be different and lower. It is often associated with distant metastases so that an uncontrolled PSA after pelvic RT could be due to a distant failure that could had until now masked this knowledge. In our case it was then obvious that disease was limited to the pelvis and a relatively low dose RT with palliative intent was enough to eradicate a great mass with regional lymph node metastases. We believe that further study, in vitro also are needed to test radiation sensitivity of different types of this neoplasm.

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