

Image-guided robotic radiosurgery as salvage therapy for locally recurrent prostate cancer after external beam irradiation: retrospective feasibility study on six cases

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ABSTRACT

Aims and background. Technological advances in treatment planning and execution are providing new potential opportunities in the treatment of recurrent prostate cancer. This study was conducted to evaluate the feasibility and safety of reirradiation with image-guided radiosurgery using CyberKnife, a robotic arm-driven compact linear accelerator, for intraprostatic recurrence after external beam radiotherapy (EBRT).

Methods. Between September 2007 and May 2008, 6 patients diagnosed with locally recurrent prostate cancer after EBRT were treated using the CyberKnife system. The total reirradiation dose was 30 Gy in five fractions. Prior to radiosurgery four patients were treated with androgen-deprivation therapy. Radiation Therapy Oncology Group/European Organization for Research and Treatment of Cancer criteria and the Houston-Phoenix definition (PSA nadir + 2 ng/mL) were used for toxicity and biochemical failure evaluation, respectively.

Results. After a median follow-up of 11.2 months (range, 9.6-18.6 months), all patients are alive with no evidence of severe urinary or rectal acute morbidity. Local control cannot be exactly determined due to the short follow-up and the bias of the use of androgen ablation. Four patients had biochemical failure, three of them with clinical failure evidence (lymph node, bone and lung metastasis, respectively): none of these patients had clinical evidence of tumor persistence in the prostate.

Conclusions. Salvage radiosurgery with CyberKnife after irradiation is feasible with low urinary and rectal morbidity. A longer follow-up and a larger number of patients are necessary to evaluate its effectiveness and optimal patient selection criteria. Free full text available at www.tumorionline.it

Key words: CyberKnife, prostate cancer, reirradiation, salvage therapy.

Conflict of interest: The authors declare that they have no actual or potential conflicts of interest.

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