

## Role of Stereotactic Body Radiotherapy for Re-Irradiation of Non Small Cell Lung Cell Cancer Recurrences

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**Categories:** Radiation Oncology

**Keywords:** stereotactic body radiotherapy, non-small-cell lung cancer, cancer recurrence, re-irradiation

### How to cite this abstract

Atalar B, Sahin B, Gungor G, et al. (June 16, 2016) Role of Stereotactic Body Radiotherapy for Re-Irradiation of Non Small Cell Lung Cell Cancer Recurrences. Cureus 8(6): a43

## Abstract

**Objectives:** Stereotactic body radiotherapy (SBRT) is an emerging technique in re-irradiation of lung cancer recurrences. In this study, we aimed to analyze the toxicity and outcome of our patient treated with SBRT after radiotherapy failure.

**Methods:** Between June 2010 and August 2015, 315 patients were treated with SBRT for primary and metastatic lung tumors at our department. Among these, we identified 16 patients who were re-irradiated using SBRT. All but one patient received prior external beam radiotherapy (EBRT). The median previous EBRT dose was 66 Gy (range, 46 - 66 Gy). All patients were staged using PET-CT and found to have recurrent non-metastatic disease within the previous radiotherapy treatment volume. Tumor responses were evaluated with PET-CT 3 months after SBRT and with computerized tomography (CT) every 3 month intervals. Outcomes analyzed were > grade 3 radiation pneumonitis, overall survival (OS), local control (LC) and distant metastasis.

**Results:** Volume receiving prescription dose was decreased using RTTT treatment in all cases. CI100 ranged from 0.98 – 1.09 for RTTT compared to 1.06-1.24 for an ITV-style treatment. CI70 and CI50 were increased for RTTT treatments (ranges 2.51-2.57, 4.69-4.93) relative to ITV treatments (range 2.31-2.55, 4.47-5.77) for all but one patient. Absolute PTV volumes were decreased by 0, 20, and 30% when using RTTT versus ITV/gating style treatments.

**Conclusions:** Re-irradiation with SBRT for recurrent lung tumors arising in previous RT fields seems to be a feasible and well-tolerated option for carefully selected patients. Our findings suggest that, even using lower BED doses provided excellent LC for recurrent lung tumors in the previous RT field with an acceptable complication rate.

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Abstract

Published 06/16/2016

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