

## Long-term Analysis of Salvage Low Dose Robotic Stereotactic Body Re-irradiation of Centrally Located Recurrences following Definitive Chemotherapy and Thoracic Radiation

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### Abstract

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## Abstract

**Objective:** Few studies exist to support re-irradiation of local recurrences following curative radiation of non-small cell lung carcinoma. This retrospective study analyzes the role of low dose robotic stereotactic body re-irradiation (SBRT) of centrally located recurrences as salvage after primary definitive thoracic radiation and concurrent chemotherapy.

**Methods:** From March 2009 and February 2019, 59 patients underwent robotic SBRT re-irradiation for local failure following curative thoracic radiation concurrent with chemotherapy. The median dose for the prior curative radiation was 61.2 Gy. The standard dose for the SBRT re-irradiation was 25-30 Gy in 5 fractions. Cumulative dose evaluation was calculated and met organ at risk constraints. The median time between the first and second radiation courses was 16.5 months. The median irradiated volume was 21 cc. All recurrences were deemed within the prior radiation portal (in field recurrences), and did not represent geographic failures.

**Results:** The median follow-up was 54 months. Local control was 83%. The median overall survival was 42.1 months. The median progression free survival was 32.8 months. The rate of grade 1 toxicity was 1.6%. No higher grade toxicity was observed.

**Conclusion:** This long-term retrospective analysis of low dose SBRT for central recurrences following curative radiation demonstrates excellent control rates, equivalent to results of studies using higher doses. Toxicity was acceptable and below rates of prior studies using higher doses. Close attention to cumulative dose constraints for organs at risk is essential to achieving low toxicity.