(P093) Cesium-131 Brachytherapy in High-Risk and Recurrent Head and Neck (HN) Cancers: Long-Term Results of a Pilot Study

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Compared with prior literature, our study shows comparable rates of survival with a decreased rate of radiation-induced toxicity.

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**BACKGROUND:** The feasibility and efficacy of re-irradiation using contemporary radiation techniques to treat recurrent head and neck cancer have been demonstrated, but the role of brachytherapy is unclear. Here, we describe the use of cesium (Cs)-131 brachytherapy with concurrent salvage surgery in 18 patients.

**MATERIALS AND METHODS:** Eligible patients underwent maximal gross resection of the tumor with implantation of Cs-131 brachytherapy seeds, delivering a minimum dose of 80 Gy to the tumor bed. Rates of overall survival (OS), locoregional progression-free survival (LRPFS), disease-free survival (DFS), and radiation-induced toxicity were analyzed.

**RESULTS:** Between 2010 and 2013, a total of 18 patients with 20 implants were enrolled and treated with surgical resection and brachytherapy for the management of locoregional recurrences of head and neck cancer. The majority of histology was squamous cell carcinoma (10 of 18). All but one patient had a history of prior radiation in the area of tumor recurrence. One patient had gross residual disease following surgical resection. Two patients underwent an additional surgical resection and brachytherapy implantation 2 months and 5 months later for local recurrence that developed outside of the treatment volume. A total of 13 patients had previous locoregional recurrence treated with surgical salvage therapy. The total dose following initial definite external beam radiation therapy (RT) ranged from 5,000 cGy to 7,000 cGy. Two patients developed grade 3 toxicity; no grade 4 or 5 complications were observed. With a median follow-up of 38 months (range: 1–44 mo), 11 patients developed another recurrence or progression of head and neck cancer. In 6 of these 10 cases, the failure was locoregional, and in 4 patients, it was isolated distant failure. One patient was found to have simultaneous locoregional and distant progression of disease. The median OS was 15 months, and median DFS was 11 months. The 6-, 12-, and 18-month OS rates in this study were 77%, 71%, and 45%, respectively. The 6-, 12-, and 18-month LRPFS rates in this study in patients were 69%, 62%, and 52%, respectively. The 6-, 12-, and 18-month DFS rates in this study were 57%, 45%, and 37%, respectively.

**CONCLUSION:** Compared with prior literature, our study shows comparable rates of survival with a decreased rate of radiation-induced toxicity.

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