

**Reirradiation with External Beam Stereotactic Radiotherapy for Recurrent
Posterior Choroidal Melanoma After Brachytherapy**

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Introduction: This study aims to evaluate the effectiveness and long-term safety of external beam stereotactic radiotherapy (SRT) as a non-invasive alternative to enucleation for managing recurrent choroidal melanoma following Iodine-125 brachytherapy.

Methods: A retrospective review of patients with recurrent choroidal melanoma following Iodine-125 brachytherapy treated with SRT at Princess Margaret Cancer Center from June 2013 to December 2020 was conducted. Actuarial rates of tumor control, globe salvage, and treatment complications were assessed.

Results: Forty-four consecutive patients experiencing recurrent choroidal melanoma after prior Iodine-125 brachytherapy with a median follow-up period of 35 months (range 17-55 months) post-SRT were included. A 97.7% tumor recurrence control rate and an 81.8% globe salvage rate were observed. Enucleation was required in seven (15.9%) of patients due to a painful blind eye after reirradiation, and one (2.3%) patient was wee enucleated due to tumor recurrence, with a median enucleation-free survival time of 80.5 months. SRT-related complications included radiation retinopathy (43.2%), radiation papillopathy (54.5%), neovascular glaucoma (38.6%), radiation-induced cataract (43.2%), and vitreous hemorrhage (27.3%).

Conclusions: External beam stereotactic radiotherapy emerges as a non-invasive alternative to enucleation for recurrent choroidal melanoma after brachytherapy with robust rates of tumor recurrence control and globe salvage.