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abstract

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HDR Brachytherapy using Customised Surface Mould: An Institutional Experience in Angiosarcoma of the Scalp

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Introduction: Angio Sarcoma of the Scalp (ASS) is a rare solid tumor with a high risk of local recurrence. This study is to report the utility of high-dose rate (HDR) brachytherapy as a boost treatment for an ASS following external beam radiation therapy.

Methodology: A patient with ASS underwent a wide local excision and skin graft. In view of a positive margin, she was planned for EBRT with 50Gy in 25 fractions and mould brachytherapy. A 0.5cm thick gel bolus was customized and used to cover the scar of about 10cm in diameter. 10 flexible interstitial applicators were sandwiched between these two gel boluses at a distance of 1cm. Markings were made on the patient's skull to ensure the precise placement of the mould. Patient underwent computerised tomography (CT) simulation with the customized mould fixed over the treatment area. CTV is drawn, and applicators were reconstructed in varian eclipse version 17 planning system. A dose of 4.5Gy in 3 fractions was planned. Treatment was delivered with 20 channel Gamma-Medplus iX HDR brachytherapy machine using Iridium 192 source. Channels 1 to 10 were selected for treatment.

Results: In ASS cases with positive dissection margins, this is an effective treatment option. Our customized mould provides high conformity to the scalp's anatomy, optimizing dose to the tumor while sparing surrounding normal tissues. Also, we were able to deliver surface mould brachytherapy precisely with utmost patient comfort.

Conclusion: The customized surface mould ensured proper coverage of the scar, compared to the standard flap. Customized surface mould HDR brachytherapy followed by EBRT provides excellent tumor control with minimal toxicity, hence it is a promising treatment modality for ASS.

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