

Feasibility of image-guided robotic radiotherapy using three fractions for uveal melanoma

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ABSTRACT

Aims. A retrospective study was performed to demonstrate the feasibility and efficacy of 3-fraction image-guided robotic stereotactic radiotherapy (fSRT) for uveal melanoma.

Materials and methods. Six patients with medium-sized or large tumors, who declined enucleation, were enrolled. The gross tumor volume (GTV) ranged from 454 to 2185 mm³. The total doses included 36 or 39 Gy in 3 fractions.

Results. Follow-up ranged from 19 to 40 months. In 5 patients, the tumor mass gradually underwent an average 24.5% size reduction. All 3 patients with a GTV <1000 mm³ had a functional eye, while 3 patients with a GTV ≥1000 mm³ did not have a functional eye. Radiation-induced complications occurred to some degree in all patients. However, complications that required enucleation were not detected.

Conclusion. We suggest that image-guided robotic radiotherapy using 3 fractions is a feasible and safe treatment option for patients with uveal melanoma. In cases of medium-sized and large tumors, fSRT could be used as an alternative treatment for cases ineligible for brachytherapy, but a longer follow-up and a larger number of patients are required to confirm the suitability of the method.

Key words: uveal melanoma, fractionated stereotactic radiotherapy, CyberKnife.

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