

Helical tomotherapy for meningiomas of the skull base and in paraspinal regions with complex anatomy and/or multiple lesions

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ABSTRACT

Aim. To evaluate helical tomotherapy for the treatment of complex-shaped uni- or multifocal meningiomas.

Methods and materials. Between 2007 and 2009, 12 patients with complex-shaped meningiomas and/or multiple meningioma lesions were treated with helical tomotherapy. Histologic classification according to the most recent WHO classification for brain tumors was WHO grade I meningioma in 5 patients, atypical WHO grade II meningioma in 5 patients, and anaplastic WHO grade III meningioma in 2 patients. Eight patients were treated with primary radiotherapy, and in 4 patients tomotherapy was performed as re-irradiation for recurrent tumors.

Results. All patients were alive at the time of this analysis. Treatment was well tolerated by all patients. No severe side effects were observed. Four of 12 patients developed progression during follow-up at 2, 4, 17 and 29 months after radiotherapy. Of these, 2 patients were diagnosed with anaplastic meningiomas, and 2 patients suffered from atypical meningioma. Tumor progression developed after primary radiotherapy in 2 patients, and 2 recurrences developed after re-irradiation.

Conclusions. Helical tomotherapy can help meet the challenge of treating complex-shaped meningiomas in critical locations with one or multiple lesions due to the excellent dose distributions and the favorable clinical results.

Key words: helical tomotherapy, IMRT, meningioma, skull base.

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