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Abstract

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Abstract

Objectives:

Demonstrate the efficacy and safety of hypofractionated treatment with maximum dose of 50Gy for adequate hemangioma volume reduction with optic apparatus protection.

Methods:

Retrospective analysis of 3 cases of hemangiomas treated with multiple session GKRS and evaluation of maximal tumor and optic apparatus doses, volume response and symptomatology.

Results:

Case 1:

64 yo man with progressive left vision loss, MRI showing a 2.157cm³ mass at posterior medial intra-orbital extending to the apex. A 5 fraction GKRS with total of 25Gy, at 50% isodose line, and gradient index of 2.8. Maximum optic dose was 22Gy with a mean of 9.1Gy. Follow-up scans at two, five, ten and sixteen months showed a volumetric decrease of 16, 25, 47 and 72,5% respectively, with no evidence of adverse radiation effect and stabilization of the visual acuity.

Case 2:

40 yo woman with scotomas and blurry vision. MRI showed a right sided intraorbital, extra-ocular mass with total entrapment of the optic nerve. Biopsy confirmed cavernous hemangioma. Patient progressed with right amaurosis. GKRS with 25 Gy at 54% isodose line in 5 fractions. Maximal tumor dose was 46.3Gy, due to tumoral involvement to the nerve, no optic protection was possible. Follow-up scans at 2, 4, 12 and 15 months showed a volumetric reduction of 59%, 76%, 90% and 89%, respectively, with the patient reporting identification of luminous stimulus, but no functional vision.

Case 3:

77 yo woman with worsening proptosis presented on MRI an enhancing lesion on the lateral orbital wall without compression of the optic nerve. Single session GKRS was performed prescribing 12 Gy of marginal dose at 51% isodose line, with maximal tumor dose of 23.5Gy and gradient index of 2.49. Maximum optic dose was 3.9 Gy with mean of 1.5. The 1-month follow-up scan showed a 3% increase in volume and the 5-month FU had 8% increase. A new GKRS treatment was performed in a single session with 15 Gy at 56% isodose line. Cumulative total tumor dose was 50.2 Gy, and a maximal cumulative dose to the optic nerve of 7.2Gy with mean of 4.3. The lesion presented at 6 months 17.4% decrease and at 9 months 24% decrease. Patient had no visual complains during the follow-up and proptosis completely resolved.

Conclusion(s):

The maximal dose < 25Gy was insufficient to treat this kind of lesion, but a maximum dose close to 50Gy in multiple session had adequate tumor reduction and optic apparatus protection.