GAMMA KNIFE RADIOSURGERY FOR RECURRENT NASOPHARYNGEAL CANCER

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\textit{Purpose:} To report the results of salvage treatment of recurrent nasopharyngeal cancers (NPC) using Gamma Knife radiosurgery (GK) alone or combined with conventional radiotherapy.

\textit{Materials and methods:} From 1993 to 1997, eleven patients (6 males and 5 females) were diagnosed to have recurrent tumors over the primary site of nasopharynx and/or skull base at our hospital after initial radiotherapy. The time interval between the primary radiotherapy and salvage GK was 1 to 12 years (median = 2.0 years). All patients received single fraction of Gamma Knife radiosurgery was performed with peripheral doses of 12.5 to 20 Gy (median = 15 Gy) to cover the recurrent tumor as conformal as possible. The tumor volumes (TV) were less than 1 to 33 cc (median = 11cc) whereas radiation volumes (RV) were 6 to 48 cc (median = 20.9 cc). Retrospectively the patients were divided into two groups according to their treatment. Four patients received GK without further radiotherapy (Group A). The other 7 patients received hyperfractionated external beam radiotherapy of 30 to 47 Gy (median = 38 Gy) and concurrent chemotherapy (cisplatin, 5-FU, mitomycin C) for further boost of the tumor (Group B).

\textit{Result:} All patients tolerated GK well without significant acute toxicity. The first MRI after GK showed tumor regression for eight out of nine patients receiving this examination. One patient died of sepsis induced by concurrent chemotherapy, not receiving fractionated RT. For the other 3 patients receiving GK without combined RT (group A), 2 tumors recurred 7 and 15 months later and one patient lost to image follow-up and expired within 6 months after GK. Five out of seven patients of group B remained local control at the last image follow-up (6 to 62 months after GK). However, three patients of this group of had prominent brain damage shown by MRI and PET scan after salvage irradiation. The median survival of all our patients is 48.8 months. The five-year survival rate is 36.4%.

\textit{Conclusion:} Combined fractionated RT, GK radiosurgery and concurrent chemotherapy seem to achieve better local control for intracranially recurrent NPC than GK alone. It is not recommended to use single-fraction radiosurgery to salvage a newly diagnosed skull base recurrent NPC. Bilateral opposing fields in fractionated RT should be avoided to lower the incidence of late complications.

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