

INTRACRANIAL GERM CELL TUMORS AND PINEAL TUMORS: SUBOPTIMAL TREATMENT WITH RADIOSURGERY ALONE REPORT OF FOUR CASES AND REVIEW OF LITERATURE

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The therapeutic approaches to intracranial germ cell tumors (GCTs) vary from craniospinal irradiation (CSI) to focal irradiation with or without chemotherapy. There were several cases reports in favor of the application of radiosurgery in the management of intracranial GCTs. In this report, four cases of presumed germinomas treated with Gamma Knife radiosurgery (GKRS) were presented. The first patient, a 25 years old gentleman with presumed pineal germinoma, had spinal seeding at 6 months after 15 Gy of GKRS. After salvage CSI, 4th cranial nerve radiation injury developed. The second patient, a 14 years old boy with basal ganglion germinoma and elevated serum β -HCG, received a 10 Gy upfront GKRS boost but declined the scheduled periventricular irradiation. In-field local recurrence developed at 7 months after the GKRS. After salvage periventricular irradiation, the patient suffered from mild neurological deficit with poor left limb coordination. The third patient, a 30 years old lady with presumed pineal germinoma, had a poor response to therapeutic trial of 10 Gy GKRS. She was given a second course of 9.5 Gy GKRS. The fourth patient, an 18 years old gentleman with presumably pineal germinoma, had tumor control at 3 years after 15 Gy of GKRS. Based on the outcome of these 4 cases, radiosurgery alone is not recommended as the primary treatment for intracranial GCTs.

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INTRODUCTION

Intracranial germ cell tumors are most commonly seen in the second and third decades of life. The most common type is germinoma, accounting for two-third of these lesions. Germ cell tumors most frequently arise in the pineal region and suprasellar region. These tumors also occur in other regions of the brain,

including the basal ganglion, fourth ventricle, and thalamus. In general, germ cell tumors arising in the basal ganglionic region or the thalamus are more likely to be germinomas, rather than non-germinomatous germ cell tumors. The geographic variation in incidence of germ cell tumor is high. In western series, they constitute only 0.3~3.4% of all primary intracranial tumor. In Asia series, the incidence of germ cell tumor

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