radical removal because of its invasive expansion, both patients perform regular daily life without any difficulty.

3. In cases of the pontine glioma, LINAC radiation therapy produces satisfactory elimination of the clinical manifestations such as dyspnea, dysphagia or inability of sputum expel.

4. As for the cerebral glioma, the utmost possible radical operative attack is our first choice and the LINAC radiation therapy is second supplemental at present and it requires more extensive follow up before obtaining the definite conclusion.

5. We believe that the optimal radiation dose by LINAC to the permissible capacity of the cerebral tissue can be determined by the deliberate accumulation of the cases in near future.

S-11. Long Surviving Cases of Pineal Body Tumors treated by Radiation

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(See the Text)

S-12. Radiotherapy of Pineal, Pontine, and Cerebellar Tumors

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The role of radiotherapy in the management of intracranial neoplasms, either conjointly with surgery, or alone, was evaluated in 7 cases of pineal tumors, 4 cases of pontine gliomas and 5 cases of cerebellar tumors. Clinical evidence was confirmed by radiological examination in all cases except one. Orthovoltage X-ray was used in 7 patients and Cobalt beam in 9. Two opposing lateral portals were used, usually being 5×5 to 8×7 cm. Total tumor dose varied between 2,000 and 5,600 r in 10 to 52 days.
1) Pineal tumors: Two men with atypical teratoma were irradiated after subtotal removal of the tumor. They are alive for 58 months in active life and for 43 months in partially disabled state respectively. Other 5 cases were treated by shunts and irradiation. A woman has become a mother of a healthy baby, and is enjoying active life over 54 months. Although mentally retarded since childhood, a man is alive for 19 months without any evidence of recurrence of tumor. A girl survived for 20 months in active life. She gradually became disabled and expired 2 months later. A man, who had active life for 11 months, died on the 20th month because of medulla and spinal cord metastases. A small cyst and a few tumor cells were found in the pineal region. Spinal cord tumor was pinealocytoma. Following 4 and a half months of active life, a boy became lethargic and expired one and a half months later. Autopsy revealed marked growth of malignant teratoma in the third ventricle and intratumoral hemorrhage.

2) Pontine tumors: A boy and a girl with pontine glioblastoma showed no improvement despite of radiotherapy, and died 5 and 7 months later respectively. A girl is gradually improving over 5 months, although still almost totally disabled. After 6 months of active life, a girl suffered from increased intracranial pressure. Following shunting procedure, she is now irradiated again.

3) Cerebellar tumors: A girl with medulloblastoma, treated by shunt and irradiation, is enjoying active life over 80 months. Subtotal removal, shunt and irradiation improved definitely clinical findings of a boy with medulloblastoma over 5 months. He expired on the 7th month because of brain stem and spinal cord metastases. A boy with medulloblastoma is alive over 5 months in almost healthy life. Following subtotal removal of glioblastoma in the cerebellar hemisphere and irradiation, a girl survived for 36 months in active life. She gradually became disabled over 3 months and expired. A girl with a tumor in the cerebellar hemisphere was treated by shunt and radiotherapy, because she refused direct attack on the tumor. After 11 months of active life, she suffered from increased intracranial pressure. Reestablishment of shunt improved clinical findings. She is now under radiotherapy.