D. Cytology of Glioma

d-1. Intracranial Latent Tumors

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Latent tumor means the tumor which is found unexpectedly at the time of autopsy in a patient who died of other kind of disease.

1) Incidence and classification of intracranial latent tumors in Japan were studied in about 100,000 autopsy cases registered in "Annual of the Pathological Autopsy Cases in Japan" from 1958 to 1965.

2) Incidences of latent tumors of various organs are in decreasing order: 1) uterus, 2) ovary, 3) kidney, 4) thyroid, 5) liver, 6) adrenal, 7) intestine, 8) stomach, 9) intracranial cavity, 10) pancreas, 11) prostate, 12) lung and so on.

3) Among intracranial latent tumors pituitary adenoma is the most frequent and meningioma next and then neurinoma.

4) Coexistence of glioma with pituitary adenoma or meningioma is rarely seen.

5) In patients of v. Recklinghausen's disease it is to be noticed that not a few cases of glioblastoma of cerebral hemisphere in adult are found. Also unusually more occurrence of meningioma coexisting with uterine myoma seems highly probable.

d-2. A New Gamma Source for Intracavitary Irradiation of Malignant Brain Tumors

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We have made new film-type gamma sources for the intracavitary irradiation of malignant brain tumors. These were made very simply; aqueous solution of Cobalt 60 chloride and latex of Styrene-Butadiene-Copolymer were mixed and dried to a thin film, which was covered with two silicone films and stucked altogether fastly with silicone adhesive then a silk string was attached to one end of the source for the removal from the intracranial cavity after the irradiation. These were so thin (1 mm. in thickness), soft and flexible that the intracavitary application would be very easy and sure and removal after irradiation be also

easily done without craniotomy. Autoradiography of the sources revealed satisfactory distribution of the exposure rate. These have maintained good quality after frequent use for animal experiments over ten months and leakage of the isotope was not observed.

The sources were inserted between duramater and cerebral cortex of normal adult cats in various period and histological and microangiographical examination were performed. On the strongest source containing of 8 mCi of Co 60, most of cats died in short period because of remarkable cerebral swelling associated with localized necrosis and bleeding under the source and diffuse demyelination of subcortex of the irradiated portion. On the source containing of 3 or 1.3 mCi, however, only few cats died and the brain tissue reactions were mild even after enough irradiation in longer period.

d-3. Cytology of the Cerebrospinal Fluid

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We have reported on the cytological study in the cerebrospinal fluid of the 159 patients with verified neoplasm of the central nervous system.

The specimens were collected during lumbar puncture, lumbar drainage, pneumoencephalography, ventricular drainage and puncture of the cystic tumors.

As the cell-catch procedure, centrifugation technique was used. The slides were stained with May-Giemsa, Haematoxylin-Eosin and fluorescent technique.

Of the 159 patients in the series, the tumor cells were found in 34 cases of these CSF and in 9 cases of puncture of the cystic tumors.

The neoplasm must be in direct contact with the ventricles or subarachnoid space and it is necessary to exfoliate easily the tumor cells in the ventricles or subarachnoid space.

In the results of these series positive rate of tumor cells in the CSF is undoubtedly more frequent than in less malignancy of the tumor cells. In the malignant tumor cells identification of the cellular characteristics more easy in less malignancy. In the identification of the atypical cells in the CSF, especially in the Papanicolaou's class III, it is necessary to refer the clinical signs and symptoms of the patients.