cisternograms and computed tomograms of 57 patients who were examined by these 2 methods in the same status were correlated and the relationship of ventricular reflux and stasis to morphological information was analysed. The degree of the ventricular reflux and stasis is almost in parallel with the degree of the ventricular dilatation. The patients with moderate to marked expansive ventricular dilatation and narrowing of the basal cisterns have a tendency for ventricular reflux and long stasis. The indication of V-P shunt for these cases has been already discussed.

In this study, an attention was paid to the patients who were diagnosed cerebral atrophy by computed tomographic informations. The informations are slight to moderate ventricular dilatation and widened cerebral sulci.

Various degrees of the ventricular refuses and stases were revealed in these patients. Some patients might be improved or stabilized by the changing the flow of the cerebrospinal fluid including V-P shunt.

Follow up study for prognoses of the operated patients must be done. We hope the radionuclides cisternographic findings to be select the treatable cases in the patients with cerebral atrophy.

3H-Thymidine Autoradiography of CSF Cells in Neurosurgical Practice

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CSF cells in various diseases of the central nervous system were examined using 3H-thymidine autoradiography.

Method: The CSF withdrawn by lumbar or ventricular puncture was immediately incubated at 37°C for 1 hour with an admixture of 3H-thymidine at a rate of 1 uCi/ml CSF. The cells were collected by centrifugation or sedimentation and fixed with methanol. Microautoradiography was performed by a dipping method and the specimens were developed after exposure of 2-4 weeks. When silver grains were present more than five on a nucleus, it was counted as labeled.

Results: In 21 out of 22 cases of non-neoplastic disease CSF cells were found labeled. Polymorphonuclear leukocytes were labeled in no case and small lymphocytes were very rarely labeled. Labeled CSF cells in non-neoplastic state were considered to be large or medium-sized lymphocytes and monocytes. The mean labeling index of total CSF cells was 0.22% and the highest 0.74%. When polymorphonuclear leukocytes and small lymphocytes were excluded, the highest labeling index of CSF cells in non-neoplastic state was 1.7%.

Eighty-nine cases of neoplastic disease of the CNS were also examined. Labeled cells were found in all of the cases. The labeling index of CSF cells excluding polymorphonuclear leukocytes and small lymphocytes was the highest (14.4%) in a case of malignant lymphoma of the brain with subarachnoid dissemination. In 21 out of 89 neoplastic cases the labeling index exceeded the highest (1.7%) in non-neoplastic cases. A high labeling was seen in primary brain sarcoma, metastatic carcinoma and meningeal leukemia. Gliomas, even though malignant, showed relatively lower labelings in most cases. The results of autoradiography, cytology and autopsy were almost always consistent in tumors with subarachnoid dissemination.

Conclusion: 3H-thymidine autoradiography of CSF cells is useful in detecting subarachnoid tumor dissemination and evaluating proliferative activity of the tumor in CSF.