the scan were from 2×2 cm to 7×7 cm.

(B) Brain tumor with clinical diagnosis of CVD:

Thirty six cases of brain tumor were assessed from 1938 autopsied cases at department of pathology in this hospital during December '60 to June '75. Before June '72, there were 18 cases of brain tumor and the physician never suspected or proved the presence of brain tumor. After the hospital was enlarged in its scale and equipped with modern facility at June '72, there were 18 cases of brain tumor proven by autopsy. The percent of correct clinical diagnosis for brain tumor was elevated up to 67%. The reason was attributed to the introduction of various new examination methods including brain scan. Brain scan was done on 13 out of 18 autopsied brain tumor cases. Five and a half cases (42%) among 13 patients were referred to our department with suspect of brain tumor. Brain tumor was diagnosed in 11 cases (85%) by brain scanning. Three cases diagnosed by scan were sent to our department under the clinical diagnosis of CVD.

In conclusion, 7 oligosymptomatic brain tumors and 3 cases of brain tumor diagnosed CVD before scannint were reported.

The Brain Tumor Scanning by ^{99m}Tc-pyrophosphate

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As we reported previously, we have emphasized the value of brain scan with two ^{99m}Tc-labels; ^{99m}Tc-pertechnetate and ^{99m}Tc-pyrophosphate. The scan with those two labels may increase diagnostic accuracy and serve for immediate differentiation of brain tumor from CVD.

The purpose of the present study is to show the value of combined use of those two labels for the brain tumor scanning.

Also, the usefulness of ^{99m}Tc-pyrophosphate as the brain tumor scanning agent was discussed.

Eighteen cases of primary and 12 cases of metastatic brain tumor were examined by both ^{99m}Tc-pertechnetate and ^{99m}Tc-pyrophosphate. All primary brain tumor patients in this study, were proved by operation or autopsy. The histological finding of those cases were as followed: 6 meningioma, 4 glioblastoma, 4 pituitary tumor and one of each glioma, astrocytoma, oligodendroglioma and chondroma. Also, 12 cases of metastatic brain tumor patients were histologically proved by autopsy except a few cases of which clinically diagnosed by various examinations. The primary diseases of almost all of these were noted as a lung cancer. The lesion of abnormal radioisotope uptake were measured in various projection, and their density was compared with that in sagittal sinus. Then, areas of abnormal radioisotope uptake were graded from 0 to 4: 0, normal (not seen); 1, barely perceptible; 2, distinctly seen; 3, equal to the density of sagittal sinus; and 4, greater than the density of sagittal sinus.

Ten out of 18 cases of primary brain tumor and 4 out of 12 of metastatic brain tumor were identified as the same grade. And all of these cases were classified as grade 3 & 4 which indicate same or higher density to the sagittal sinus except 1 case of metastatic brain tumor. Patients with 1 grade difference in scan by two ^{99m}Tc-labels, there were 6 & 7 cases in primary and metastatic brain tumor, respectively.

There were only 3 patients which had 2 or more

grade difference in both groups. In comparison of difference in grade by ^{99m}Tc-pertechnetate and ^{99m}Tc-pyrophosphate scans in all patients, 7 cases were observed greater grade in ^{99m}Tc-pertechnetate and 9 cases were noted greater in ^{99m}Tc-pyrophosphate.

In some cases, the scanning were performed during the courses of radiotherapy by both ^{99m}Tc-labels. The decreased accumulation of ^{99m}Tc-pyrophosphate was observed in all cases of irradiated brain tumors, while ^{99m}Tc-pertechnetate scan still showed marked accumulation to the lesions.

A case of acusticus neurinoma and a case of subtentrial tumor were found by ^{99m}Tc-pyrophosphate more clearly than ^{99m}Tc-pertechnetate. The size and extent of these lesions which were covered by adjacent activity in conventional ^{99m}Tc-pertechnetate scan were disclosed clearly by ^{99m}Tc-pyrophosphate. In conclusion, the use of ^{99m}Tc-pyrophosphate brain scan were summarized as followed;

1) ^{99m}Tc-pyrophosphate can be used as the brain tumor scanning agent.
2) Almost same visualization of the brain tumor between ^{99m}Tc-pertechnetate and ^{99m}Tc-pyrophosphate.
3) ^{99m}Tc-pyrophosphate should useful agent to check the radiation effect.
4) ^{99m}Tc-pyrophosphate should be used in the case of brain axis or subtentrial tumor.

Brain RI-Scintigrams of Cystic Tumors of the Brain

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Preoperative detection of cystic part of the brain tumor is vital for neurosurgery. RI-brain scanning was performed on 23 cases of brain tumor which were suspected of being partially cystic. Location, volume and nature of cystic part of these tumors were confirmed by either operation or autopsy.

On the scintigraphic findings, the cystic lesion could be recognized as follows; 1) the cystic part is colder than the surrounding solid part of the tumor, so that the typical 'dounats sign' could be found occasionally, in the scintigrams. 2) The cystic part less than 8mm in diameter could not be detected by this method. Therefore, the small multiple cysts in the tumor as inaccessible. 3) The cystic part locating peripherally in the tumor was detected on films meticulously graded in density. 4) In ependymomas, the cystic parts were revealed only in the late scintigram.

The precise diagnosis of cystic part in the brain tumor should be reconfirmed on angiographic findings as hypo- or avascularity and dislocation of the cerebral vessels. The differential diagnosis of cystic part from necrosis or hematoma in the tumor could be done, to some extent, by clinical features.