of blood count came from brain. This figure was larger than the expected value which should be less than 10% because of our previous animal experiments.

Half value thickness of 99m Tc 140 kev gamma ray is 4.6cm in water and is 3.8 cm in bone. A breadth of a human head is maximally 17.5cm (scalp, 1.0 skull, 1.2 brain, 15.3cm) with a lateral view. We found that the brain count was contaminated with the scalp count in opposite side.

A mathematical model which can discriminate less than 3 tissues from an external count, is demonstrated.

But a three compartmental model which is consisted of superficial tissue, brain and again superficial tissue, could be more profittable.

The Study of the Abnormal Brain Scan (^{99m}Tc-pertechnetated) in the Cases of Vasospasm after Ruptured Intracranial Aneurysm

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ECKER and RIMENSCHNEIDER (1951) supplied angiographic evidence of some important cerebral arteries in ruptured aneurysms localized in the circle of Willis.

Since then neumerous workers have considered that vasospasm is the main couse of mortality in patients with ruptured intracranial aneurysms. Many workers have described, in fatal ruptured intracranial aneurysms, there are many cases with masive cerebral infarction, and mechanical obstruction by thrombosis, embolism, or atherosclercsis is not considered to be significant in produceing in produceing in infarcts. They have suggested the vasospasm contributes significantly to the production of the cerebral infarction.

We presented 5 cases to show that the cerebral vasospsm acompanying subarachnoid haemorrhage can be associated with abnormal brain scans, justas cerebral infarction.

These abnormal R.I. (^{99m}Tc-pertechnetate) accumlation occurred in the distribution of one or two of the major cerebral arteries approximately 2 to 25 days afer the onset of the neurological deficits. In one of 5 cases, gross and microscopic examination appeared ischemic softening, without mechanical stenosis of major cerebral arteries, suspected to result from cerebral vasospasm. In other 4 cases, cerebral like findings without haematoma in the area of abnormal R.I. accumlation were found in the gross examination under macroscopic operation.

This study was carried out in these cases to confirm the relationship between the areas, or density of abnormal R.I. accumlation, the

grade of vasospasm and the patient's clinical course.

(1) Vasospasm-Area (scan) Relationship
In the cases with bilateral abnormal scan, the larger the area the more diffuse the vasospasm.

(2) Neurological Severity-Area
In the cases with bilateral abnormal scan, the larger the area the severer the neurological deficit.

(3) Prognosis-Area
The larger the worse the prognosis.

(4) Density-Vasospasm Relationship
No significant relationship was found.

In the cases with vasospasm and neurological deficit of no abnormal scan, the vasospasms were local

Value of the Brain Scan of the Aged

(Comparative Evaluation of Clinical and Pathological Studies)

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Brain scannings using 99m-TcO_4^- or 99m-Tc-pyrophosphate were performed on 296 patients of over 60 years old. Diagnoses were proved by autopsy in 64 patients and in 13 patients by operation. Among these autopsied cases thirty-eight or 50.0% of 76 lesions appeared as positive scan.

Patients with CVD formed the largest group of abnormal scans. Of 41 patients of this group, 14 or 34.1% had definite areas of increased activity where pathological abnormality was found. At autopsy, twenty-eight patients had significantly large lesions. In these 28 cases, abnormal scan finding was observed in or 50%. Negative scans among these were found within 4 days or after a few months after onset of CVD. The earliest positive scan in this series was observed at 4th day after onset of the stroke. The longest positive scan was observed throughout 9 months after the onset. Twelve patients had diffuse or small lesionns at autopsy. All of patients of these group had negative scans. The time of maimum uptake of 99m-TcO_4^- by the CVD lesion of the brain were different from case to case. The scans do not necessary remained positive for longer period in the slow recovery group than is the rapidly recovered group. But Case of grade I or II was better than that of III or IV in prognosis. (According to the relative density to the sagital sinus, lesions were classified into 0, I, II, III and IV grades.) The size and shape of the lesion in scan were various.

In cases of brain tumor, the incidence of positive scan was significantly higer than that of CVD. Abnormal scans were detected in 16 or 88.9% of 18 patients. Two cases with negative scan had very small lesion or simultaneous complication of diffuse CVD. Positive brain scans were obtained in 6 out of 9 patients with subdural hematoma. Rim sign and doughnut sign were rarely found. Three patients with subarachnoid bleeding were scanned. One positive and two negative scans were obtained.

After scan-pathology correlation study, we can pick up several important points for the