

### **Brain Scanning with Meningioma**

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57 Brain Scans and operations from 38 patients with histologically meningiomas were evaluated. 52 of the 57 brain scans were positive (91.0%) and had a well-circumscribed, peripherally located area of activity on the static image to be highly specific for meningioma. But we had 5 negative scans in the basilar and infratentorial regions (2 were in the tuberculum sellae, 1; clivus, 1; sphenoidal ridge, 1; pretricular region).

They were all small. Of the 46 contrast angiography, 34 cases had tumor stains. RI angiography were performed : meningiomas. In 6 cases, the lesion showed a gradual accumulation of activity commencing in the late arterial and early capillary phases and persisting through the venous washout.

Histologically 4 was meningothelial, 1; heman-

gioblastic, 1; fibroblastic meningiomas. They have all tumor stains except one posterior convexity meningioma. But in the 1 hemangioblastic meningioma, the lesion showed immediate good visualization followed by rapid decline of radioactivity. The contrast angiography showed the same pattern. In 2 cases, the dynamic study showed delayed visualization, followed by a gradual increase in radioactivity. Histologically 1 was fibroblastic meningioma which had no tumor stain, but 1 was meningothelial one which had tumor stain.

We have found RI angiography of the meningioma showed various patterns. And there is no apparent correlation between the positive static scans and the histological types, the presence of the tumor stains.

### **Alterations of Abnormal Activity on the Brain Scintigram with Tc-99m-pertechnetate after Glucocorticoid Administration. Clinical and Experimental Studies after Glucocorticoid Administration Clinical and Experimental Studies**

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There are some occasions to perform several brain scintigraphies repeatedly in the same patient with brain tumor for examining his clinical course. At that time, we often experience those cases in

which scintigrams showed decreased abnormal activity following glucocorticoid administration. The present study describes how much the brain edema is concerned in the appearance of abnormal

activity on the brain scintigram and how much glucocorticoid administration influences the abnormal activity according to the histological nature of the tumor.

In 18 cases with initially abnormal brain scintigrams, repeat scintigram after glucocorticoid administration showed decreased abnormal activity in 9. They were 4 cases of glioblastoma multiforme, 2 metastatic tumors, 2 pinealomas and one unverified tumor of the left parietal lobe, all of which had been thought accompanying severe brain edema. In 2 cases out of these, repeat scintigraphy was done after the drug was discontinued. They showed again increased abnormal activity similar to that of the initial scintigrams. On the other hand, there were no changes of abnormal activity in both cases of meningioma and acoustic neurinoma, both of which have been thought that the appear-

ance of the abnormal activity on the scintigram was mainly based on the abundant vascular bed of the tumors.

As an animal experiment, cold induced brain edema was produced in the right parietal region of the Wistar rat. Then, we observed that the radioactivity of Tc-99m-pertechnetate in the edematous region decreased significantly after glucocorticoid administration.

It might be concluded that the decrease of the abnormal activity on the brain scintigram after glucocorticoid administration was due to the improvement of the brain edema by the drugs. Therefore, when one performs the brain scintigraphy, it is important, to make sure whether the patient has been treated with glucocorticoid for accurate diagnosis.

### **Cerebral Blood Flow in the Aged Patients**

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We investigated the regional cerebral blood flow of 36 patients who were all of ages over 65 years old. The average age of this series of patients was 70 years old. These consist of 8 chronic subdural hematomas, 8 normal pressure hydrocephalus, 6 brain tumors, 5 cerebrovascular diseases, 4 Alzheimer's diseases, 2 metastatic brain tumors, 3 miscellaneous diseases.

Regional cerebral blood flow was detected by the  $^{133}\text{Xe}$  clearance method of Lassen and Ingvar.

#### **Results;**

1. Patients with brain tumor: Focal rCBF dis-

turbances could be detected in agreement with the tumor location as verified directly or by other diagnostic procedures. That is, a relative hyperemia was detected at the areas corresponding to the tumor site. Mean fg (flow of gray matter) of 4 patients was  $77.3 \pm 14.0$  ml/100 g/min. on the tumor areas,  $48.1 \pm 6.6$  ml/100 g/min. on the peri-tumoral regions and  $63.1 \pm 4.1$  ml/100g/min. on the non-tumoral regions. Average regional cerebral blood flow of non-tumoral areas in the 4 patients was  $36.6 \pm 2.4$  ml/100g/min. and that of the peri-tumoral