

incorporation of isotope in the cistern in the case of convulsive seizure and hemiplegia occurring as sequela of head trauma, a finding unlikely to be obtained by PEG alone, this agreeing well with EEG findings, (5) denial of the presence of tumor in the case of cerebellospinal degeneration that is often mistaken for spinal tumor or pons glioma, in which cisternography proved a valuable auxiliary means of diagnosis by supplying normal picture. Between RISA and $^{169}\text{Yb-DTPA}$, the latter was found to have following advantages over the former: $^{169}\text{Yb-DTPA}$ (1) Suffers no change in cerebrospinal fluid, which makes it unnecessary to carry out any prior treatment, (2) Highly stable, and has long shelf life, (3) Has short biological half-life, and emits no β -ray which means that it can be administered in massive amount so that clearer view would be obtained, (4) Produces no side effect. Slight difference was also observed between $^{169}\text{Yb-DTPA}$ and RISA in dynamic characteristics: $^{169}\text{Yb-DTPA}$ reached the cistern faster than RISA. This presumably was attributable partly to difference in molecular weight between them.

II. Conclusion

1. There was difference between $^{131}\text{I-HSA}$ and $^{169}\text{Yb-DTPA}$ in time needed for each to reach the brain surface. This was attributed to difference in molecular weight between them.

2. It took 3-6 hr. and 30-60 min. respectively for $^{131}\text{I-HSA}$ and $^{169}\text{Yb-DTPA}$ to reach the brain surface. In cases where longer time was needed, some disturbance of pathway for the liquor was suspected. Further study seemed necessary concerning this point.

3. In cases in which retention, asymmetry, accumulation and defect were observed, clinical findings were positive but corresponding abnormalities were not detected by other diagnostic techniques.

4. Cisternography could safely be applied by lumbar tap in cases in which intracranial pressure was increased.

5. The present test concerns dynamic flow of spinal fluid. When combined with angiography and PEG dealing with morphological features and EEG which is electrophysiological test, it proved helpful in discovery of abnormalities so far not clarified besides producing the result which agreed well with clinical findings.

6. Cisternography is extremely useful as a screening test done prior to angiography or PEG in cases of spinal cord tumor and other brain tumors.

7. Cisternography helps not only the study of dynamic flow, but is valuable in diagnosis of abnormalities not detected by other auxiliary diagnostic techniques, thereby proving useful in selecting cases for which operation is the treatment of choice.

Diagnostic Value of Thyroid Scintiscanning:

As a Information for the Surgical Management of Thyroid Lesions

M. MAKIUCHI

Department of Surgery, Faculty of Medicine, Shinshu University, Matsumoto

When the thyroid lesions are treated with surgery, the most important role of the thyroid scintiscanning with radioactive iodine may be differentiation between benign and malignant neoplasm of the thyroid, and diagnosis of developmental anomalies. Therefore, the scintiscanning have been performed as a rou-

tine examination before surgery in our department.

In this paper, the diagnostic significance of scintigrams of 165 cases of carcinoma and 170 cases of adenoma of the thyroid was discussed and presented our experience of developmental anomalies of the thyroid.

The scintigram of carcinoma revealed that cold nodules were seen in 87.1 per cent, warm nodules in 12.9 per cent and hot nodules in none. In adenoma, on the other hand, cold nodules were seen in 68.8 per cent warm nodules in 29.4 per cent and hot nodules in 1.8 per cent. Cold nodules constituted the majority of carcinoma and adenoma, but a 20 per cent difference was thus noted between both lesions. Consequently, it is rather difficult to differentiate between these two by the scintigram alone. Generally speaking, however, cold nodules may be considered to present definite indications for surgery.

Moreover, in view of the fact that even a small carcinoma frequently shows a cold nodule on the scintigram, the possibility of such a small cold nodule being malignant is much greater. On the other hand, if a large nodule shows warm on the scintigram, this nodule may usually be considered benign. There is scarcely any possibility of a hot nodule being carcinoma.

When the site of nodule in the thyroid is compared between carcinoma and adenoma,

the lower pole of the lobe was most frequently involved in both groups except for large tumors occupying the whole lobe on one side. Since the carcinoma involves the upper pole of the lobe and the isthmus more frequently than adenoma, a cold nodules located at the upper pole of the lobe and the isthmus has a greater chance of being malignant. As described above, the scintigram appears to be useful in the differentiation between adenoma and carcinoma, and may provide useful information for the management of thyroid nodules.

The scintiscanning with radioactive iodine is also excellent clinical examination for the diagnosis of agenesis, dysgeneses and/or ectopia of the thyroid. Our clinical data of substernal goiter, ectopic thyroid and aplasia of right lobe of the thyroid were presented. These anomalies revealed frequently a mass at the anterior neck and should be differentiated with functioning autonomus thyroid nodule on the scintigram. This can be confirmed by demonstrating radioactivity in previously nonfunctioning parenchyma following administration of TSH.

Evaluation of Cardiovascular Diagnosis by Using a Scinticamera

M. TAKAHASHI, S. ISHII and K. DOMEKI

Department of Surgery

S. OKAMOTO, H. MURAYAMA and K. ABE

Department of Roentgenology, Tokyo Medical College, Tokyo

Studies were carried out on 246 patients with congenital heart disease (92 cases), acquired heart disease (62), aortic aneurysm (31), obstructive disorder of peripheral artery (9), normal cases (39) and others by a scintillation camera. This method has been used to demonstrate hemodynamic changes in the heart and the vessels by pho/gamma scintillation camera with a 1600 ward memory system after administration of ^{99m}Tc Technetium or ^{113m}In Indium through peripheral vein. The conventional dose was 10mCi in a 3 to 5cc volume of normal saline solution. In the cases of

A.S.D. and V.S.D., a dilution curve of a right cardiac area showed distinctive double peaks curve caused by recirculation, and with comparison of the dilution curves of left and right ventricle areas a shunt volume correlative to a result from cardiac catheterization was estimated. In some cases rarely the double peaks dilution curve was not seen, however, in such a case diagnosis was also possible from phenomenon such as distension of build-up time and increase of a ratio of C_2 over C_1 (C_1 is count rate at the curve reach peak and C_2 is count rate at twice of peak time). This cal-