

of porta-systemic circulation in liver cirrhosis.

In a patient with essential tremor, a patient with essential hypertension and 3 patients with chronic hepatitis, as well as in 5 patients with liver cirrhosis and a patient with portal hypertension, ^{13}N -activities were measured for 50 min over the head and leg.

In all subjects, ^{13}N -activity appeared in the head and leg in about 1 min after rectal administration, and increased linearly up to 30 min.

^{13}N -head activity seems to serve in differentiating between the control and the cirrhosis or portal hypertension group.

Studies on Portal Hemodynamics by Per-Rectal Portal Scintigraphy

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The per-rectal portal scintigraphy was reported at this conference previously (1975, 1976).

This time, portal shunt index was measured in animal study and compared with that by other procedures such as trans-splenic injection and portal vein catheterization.

Materials: Sixteen rats with hepatic damages induced by carbon tetrachloride and 5 healthy control rats were used

Portal shunt indexes by the per-rectal portal scintigraphy were calculated from the radio-activities in the ROI on the liver and head after the instillation of $^{99\text{m}}\text{TcO}_4^-$ into the rectum. On the same subjects within one week, portal shunt indexes by trans-splenic injection and portal vein catheterization were calculated from the activities of ^{131}I -MAA or $^{99\text{m}}\text{Tc}$ -MAA in the removed liver and lung.

Results: In cases with hepatic cirrhosis or portal hypertension over 150 mmH₂O, portal-

shunts by these three techniques were detected frequently and portal shunt indexes correlated well with the extent of hepatic fibrosis and value of the portal blood pressure.

Even in cases without hepatic cirrhosis or cases with slight elevation of portal blood pressure, portal shunt indexes by perrectal portal scintigraphy correlated well with the extent of hepatic fibrosis and value of portal blood pressure.

On the other hand, other 2 methods were almost unable to detect the portal shunts in these cases and portal shunt indexes not always correlated with the extent of hepatic fibrosis and value of portal blood pressure.

In conclusion, our per-rectal portal scintigraphy is possible to detect the portal shunt more sensitively even in the cases with the early stage of hepatic fibrosis and slight elevation of portal blood pressure.

Comparative Study of RI Tomoscan (PHO/CON) and CT (ACTA Scan) in Intrathoracic Diseases

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Abnormal accumulation of ^{67}Ga citrate detected by PHO/CON was compared with the findings of CT image in the intrathoracic diseases.

Diagnostic value of the RI tomoscan and CT on

anatomical localization of the lesion detected by both methods were discussed.

Comparison was performed in 28 cases with malignant tumor in the lung and the mediasti-

num; 11 cases of primary lung cancer, 5 cases of metastatic lung cancer, 2 cases of malignant lymphoma and 10 others.

By PHO/CON, localization of ^{67}Ga deposit was divided to 3 groups; 1) mediastinal region, 2) hilar region, 3) lung field. The localization of lesions in each group was compared with the findings of CT image.

In group 1) and 2), mediastinal lymphnodes were tried to identified.

The tomoscan and CT were well correlated in almost all cases. In some post irradiation cases, garium scintigraphy was negative and CT image was able to detect the lesion.

The RI tomoscan, PHO/CON, can facilitate the localization of Ga accumulation by tomographic manner and it appears to be possible to identify subdivided mediastinal lymphnode groups by combination of the tomoscan and CT.

Comparison Studies on Diagnoses of Hepatocellular Carcinoma by Multiplane Tomographic Scanner and Scintillation Camera, and Diagnosis by Computed Tomography

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Forty-nine patients with liver tumors were examined by multiplane tomographic scanner (PHO/CON) and scintillation camera and 8 patients with hepatocellular carcinoma among the above 49 patients were further studied by computed tomography using ACTA 0-100 (CT). Two patients among the above 8 patients were performed autopsy.

PHO/CON was superior to scinticamera in obtaining clearer images of space occupying lesions. The liver lesions were detected in all of the 8 patients with hepatocellular carcinoma by

using PHO/CON and in only 4 patients in the case of CT.

The autopsy disclosed that the hepatic lesions almost corresponded to the cold areas on PHO/CON, while on CT it was often difficult to detect the tumor lesions, because there was probably no clear distinction in X-ray absorption between cancerous lesions and non-cancerous portions. However, clearer outline of the lesions might be detected by using both PHO/CON and in some cases.

Retrospective Comparison of Radionuclide Imaging and Computed Tomography of the Intrahepatic Mass Lesions

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Forty-four patients with intrahepatic mass lesions were proven at either autopsy or surgery, or on angiography, were studied by both radionuclide imaging and computed tomography (CT). These two examinations were performed with intervals less than 2 weeks on both primary and secondary liver cancers and less than 4 weeks on

cystic liver diseases. Of 44 cases, 18 were primary liver cancers (hepatocellular carcinoma: 16, hepatoblastoma: 2), 18 were secondary liver cancers and 8 were cystic liver diseases (simple cyst: 4, polycystic disease: 4).

Radionuclide images were obtained 30 min. after intravenous injection of 2mCi $^{99\text{m}}\text{Tc}$ phytate,