

right lobe and hypertrophy of the left lobe was characteristic of liver cirrhosis.

4) In an undetermined large number of cases, the lateral scan was useful in confirming, refuting or localizing pathology when a

scan in the anterior projection was equivocal.

The lateral scan also was helpful in delineating pathology within liver, such as tumors, and behind the liver, such as renal, lymph node lesions.

New Indicators for Reading Liver Scintiphotos

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As liver Scintiphotos are influenced by the change of shape and form of liver characterized by disease and other bodily conditions, it is necessary to distinguish the former from the latter changes for the diagnosis of liver disease. Radio-gold ($200 \mu\text{Ci}$) was administered to 89 cases including 33 of acute hepatitis, 30 of chronic hepatitis, 17 of liver cirrhosis and 9 control cases. The life size Scintiphotos were taken by Toshiba GAMMA CAMERA in the direction of postero-anterior, right-lateral and antero-posterior in patients supine. On well gradationed right-lateral film the oblique line directed from upper-posterior to lower anterior is often appeared, and this is assumed to be a liver base line involving hepatic

portae. The angle which this line forms to antero-posterior axis of body is named liver hanging angle θ , and the lowest point of the right lobe of liver is named M point. In control cases θ is about 25° , in acute hepatitis about 35° , and liver cirrhosis about 15° , in chronic hepatitis indefinite, and in thin person except cirrhosis θ is generally larger. M point is shifted to posterior in atrophic liver cirrhosis and in thin person. These indicators, θ and M point are useful in diagnosing disease, because they can quantitatively indicate the characteristic shape and form of liver and the changes of that in the course of liver disease.

Scanning Studies with ^{67}Ga -Citrate on Patients of Liver Tumor

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We studied liver scanning with ^{67}Ga -citrate on 32 patients who showed cold area on the liver scintigram with ^{198}Au -colloid.

Two micro curie of Ga-citrate was injected intravenously and scans were made 24 to 72 hours following injection.

Now we reported 3 cases who showed hot area on liver scintigram and were made post-mortem examination.

Case 1 52 year old male.

He died from hypoglycemia and anemia. Scans of Ga-citrate revealed hot area on the liver. He was diagnosed as cancer of the stomach with liver metastasis by postmortem examination.

Case 2. 48 year old male

Clinical fininding presented cirrhosis of the liver. Scans of ^{67}Ga -citrate showed $8 \times 6 \text{ cm}$

hot area. After necropsy cirrhosis of liver with primary hepatoma was revealed.
case 3. 52 year old male.

Multiple hot areas appear on scans of the liver. He suffered from cancer of the pancreas with metastasis of the liver.

Diagnosis of Liver Cirrhosis by Scintiscanning Using ^{198}Au -Colloid

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No single test is more diagnostic for liver cirrhosis than gamma-scanning. This study aimed at elucidating whether the changes in liver scans including the spleen would reflect any characteristics of histologic alterations, and if so, whether or not the histologic types of cirrhosis may be assessed from the analysis of the scan.

The material consisted of scans of 183 cases of unequivocal cirrhosis of cryptogenic and alcoholic types, obtained with ^{198}Au -colloid. The configuration of the liver and spleen, sometimes the bone marrow, was classified into the following 6 types: I. normal type, with little changes in the shape, 52 cases or

28.4%. II. Left hypertrophy, 38 cases (20.7%). III. Hypertrophy of both lobes 12 (6.6%). IV. Flying-bat type, 49 (27.3%). V. Round type, 19 (10.4%). VI. Others, 13 (7.1%).

Histologic findings as seen at autopsy or by biopsy were classified into postnecrotic and portal according to Nagayo's classification, and alcoholic. Although no clear-cut correlation was found between the histological types and scan patterns, the tendency was apparent that the ratio of the right to the left lobe decreases with advance of the disease, and it is more pronounced in the postnecrotic type and the least so in the alcoholic.

The Problems in Evaluation of Liver Scintigraphy in Diagnosis of Liver Cirrhosis

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It seems to be generally accepted that the findings of decrease in size of the right lobe and increase in size of the left lobe are one of cardinal signs in diagnosis of liver cirrhosis on scintigraphy.

There is, however, no definite pathological confirmation in this findings. We are now presented a several cases of typical liver cirrhosis and discussed on the readings of scintigraphic changes of the liver.

From our limited experience of liver cirrhosis, no definite signs of left lobe hypertrophy is noted from arteriographic changes of the liver and also pathological findings obtained from autopsy.

Therefore, it is concluded that these are due merely to anatomical variation and topographical changes in position of the liver secondary to decrease in volume resulting from cirrhotic changes.