

spleen visualization (ranging from 5 to 15 cm in longitudinal diameter) appeared in 50 patients (83.3%). On the other hand, in the

present series there were 82 instances of moderate spleen visualization and 63 (76.8%) of these had liver cirrhosis in some degree.

Basic Study of Visualization of the Spleen in ^{198}Au Liver Scintigram

K. OKUDA, F. YAKUSHIJI, Y. SHIMOKAWA, M. TANAKA and H. HOTOKEZAKA

The Second Department of Medicine, Kurume University School of Medicine

Y. FURUKAWA

The Department of Radiology, Kurume University School of Medicine

The visualization of the spleen in ^{198}Au liver scintigram is frequently noted in various liver diseases including liver cirrhosis and occasionally in acute hepatitis. Our studies aim at clarifying the mechanism of this visualization in the liver scanning.

No close relationship was seen between spleen scanning using ^{51}Cr labeled heat-damaged red cells and visualization of the spleen in ^{198}Au liver scintigrams. However, clearance of ^{51}Cr from the blood seemed to be closely correlated with the visualization of the spleen in ^{51}Cr spleen scintigram.

In the rats, in which fairly large amounts of Au colloid were infused intravenously, the uptake ratio of the spleen and bone marrow to the liver showed to be considerably high: those Au colloids, once accumulated in the spleen, seemed to be discharged again into the blood stream for about 3h after the infusion.

In the carbon tetrachloride treated rats, the clearance of the intravenously infused Au and of indian ink colloids from the blood, showed to be gradually increased for at least

48 hours after the intoxication, and the uptake of the colloid in the spleen was found to be increased. In the chronic CCl_4 induced liver injuries, the clearance of the colloids from the blood was decreased with increased uptake of the spleen. No definite difference in the splenic uptake per gram of the spleen was noted between the acute and chronic liver injuries. However, the spleen in chronic liver injury was greater in weight than in acute one. On the other hand, the hepatic uptake of the colloids decreased with no changes of the weight of the liver in the chronic liver injuries.

These findings might suggest that the uptake of the colloids by the RES of the liver is decreased by the parenchymal injuries and the increased uptake by the splenic RES contributes to the visualization of the spleen in the liver scintigram.

Other factors such as blood flow in the visualization of the spleen have been investigated.

Spleen Visualization in Liver Scanning by Colloidal Radiogold with Reference to the Clinical Evaluation of Liver Diseases

M. FUJII

Central Radioisotope Laboratory, Faculty of Medicine, Kyoto University, Kyoto

Y. TAKAHASHI, H. SASAKI and G. WAKISAKA

First Division, Department of Internal Medicine, Faculty of Medicine, Kyoto University, Kyoto

The diagnostic value of the spleen visualization in liver diseases were examined using

^{198}Au colloid. The diagnosis of the patients was based on histological findings by liver

biopsy. The amounts of colloidal radiogold for a single intravenous injection were below the critical dose to allow the measurement of hepatic blood flow. Liver scanning was performed in supine and prone positions (anterior-posterior and posterior-anterior). The setting of the scanning device was made in supine position according to the maximum count rate over the liver and was not altered in the scanning in prone position including the height of the detector from the bed.

1) In acute hepatitis the spleen was not visualized in both of the above scanning as well as in normals even in the cases of reduced hepatic blood flow. In some cases of chronic hepatitis the spleen was visualized in various degree but mostly in slight degree so that definitely only in the posterior scanning. In all cases of liver cirrhosis spleen visualization was positive and markedly in most cases as well as deformance of the liver.

2) Histological findings revealed that in most of the cases of spleen visualization in chronic hepatitis lobular disorganization with increased fibrosis was observed. And in those cases hepatic blood flow was reduced in moderate to marked degree. Some patients with the above histological findings and without spleen visualization was obtained after over several monthes without evidence of

improvements of histological findings of the liver.

3) By heated red cell method or MHP red cell method, spleen scanning was performed and revealed that in much cases with chronic hepatitis the spleen was enlarged in almost the same degree as in the cases of liver cirrhosis with more enhanced spleen visualization. Therefore the enlargement of the spleen was not appreciated to be primary cause of spleen visualization in liver cirrhosis.

4) As the cause of spleen visualization the increased lienal blood flow resulted from the enhanced intra-and extra hepatic shunts should be considered. However colloidal radiogold below the critical dose was directly injected into the spleen in some cases and thereafter liver scanning was performed. In this procedure more enhanced spleen visualizations were observed than in the cases with usual intravenous injection, in the patients with chronic hepatitis and liver cirrhosis. But in normals spleen visualization was not obtained as in the usual intravenous injection. Therefore, the enhanced function of reticulocytes in the spleen should be entered into consideration as the cause of spleen visualization in liver scanning of chronic hepatitis and liver cirrhosis.

Liver Scanning and Hepatic Arteriography

T. SASAKI

Radiology Department, Nagoya University, Nagoya

M. KANEKO, C. KIDO and N. SATO

Diag. Radiology Dept., Aichi Cancer Center Hospital

Summary:

The findings obtained from both liver scanning and hepatic arteriography were comparatively studied. The reliability of each method and improvement of diagnostic accuracy with co-application were examined.

The liver scanning is taken following the administration of 200 μ Ci of ^{198}Au intravenously. The hepatic arteriography is taken serially 2 exposures per second following the injection of 30 c.c. of 76% urografin by the automatic injector under the pressure of

2 Kg/cm².

The cases subjected to study were 34 in total, 11 of which were primary liver cancer (hepatoma), 16 metastatic liver cancer and 7 normal liver cases.

The diagnostic discrepancy between liver scintigraphy and hepatic arteriography was found 2 cases in liver scintigraphy and 1 in hepatic arteriography. All other remaining cases were agreed each other in diagnostic findings. The liver scanning showed, however, the lesion only as a homogeneous defect