cholangioma, 6 with metastatic liver cancer, and 5 with cirrhosis of the liver.

Definite accumulation was noted in the lesion of only one with hepatocellular carcinoma of 18 total cases.

The combination studies with both $^{99m}$Tc-colloid and $^{67}$Ga-citrate scintigraphy were quite informative in differentiating hepatocellular carcinoma from other focal lesions in the liver, and in detecting histology of primary lesion of the metastatic liver cancer.

Using Hepatic Scintigraphy to Examine Primary Hepatocellular Carcinoma


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We have discussed the diagnostic value hepatic scintigraphy for Primary Hepatocellular Carcinoma after Hepatectomy.

(Method and Objection) We have researched 15 cases during the last 10 years. The equipment used was TOSHIBA 3 inches dual scanner, 5 inches PICKER MAGNA scanner. Using $^{198m}$Au-Colloid, $^{99m}$Tc-phytate. The liver was separated into 4 segments (posterior, anterior, medial, lateral), 2 areas (superior, inferior) and the cancerous part, the non-cancerous part and the size of cancer detected separately by the machine mentioned above.

(Results) Of the 15 cases examined, 11 were of simple tumor and 4 were multiple. For the sizes of tumors vary from $2.0 \times 1.5 \text{ cm}$ to $19.0 \times 11.0 \text{ cm}$. The probability for correct diagnosis using the machine is 9 out of 15, that is 60%. Only 5 cases were tumor size smaller than $5.0 \ 5.0 \text{ cm}$. The probability for correct diagnosis is 1 in 5, that is 20%. For non-cancerous part, there are 8 cases of liver cirrhosis, and 7 cases of non-cirrhosis. The probability for correct diagnosis for the 8 cases are 50%, and for the 7 cases, 71.4%. There are 4 cases where the tumor is located in 1 segment and 1 area. Here the machine can not correctly diagnose. When tumor is found in 2 segment and in the inferior area, the probability for diagnosis by are machine is 33.3%.

(Conclusion) In relation to the operation, when such a devise as many directions by camera is used sequential venous injection is necessary instead of the traditional methods to obtain a correct diagnosis.

Significance of Liver Scintigraphy from Surgical Point of View: Its Preoperative Evaluation in Patients with Gastrointestinal Cancer

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The preoperative liver scintigraphy using scinticamera was performed in 207 patients with digestive diseases. An intravenous injection of $^{131}$I, $^{198}$Au colloid and $^{99m}$Tc was used. Patients suffering from primary hepatoma were excluded in this study. A total of 92 patients with gastrointestinal cancer underwent laparotomy. The site of primary lesions and occurrence of liver metastases (%) were as follows: (a) stomach, 4/52 (7.7%); (b) colon and rectum, 9/28 (32.1%); (c) biliary tract, 2/4 (50%); (d) small intestine, 1/3 (33.3%); (e) esophagus, 0/3 (0%) and pan-
creas, 1/2 (50%) respectively. In our series of 92 cases, 16 cases (17.4%) were diagnosed the occurrence of liver metastases. Three out of 16 cases proved to be false positive during surgery. Of 76 cases who had been classified as normal liver group, 5.3% (4 cases) proved to be false negative. All of the latter patients had many liver metastases in the size of up to 2 cm. The accuracy of preoperative RI-diagnosis of the occurrence of liver metastases became apparent during the operation and/or autopsy. For liver imaging, the gamma camera has many advantages over the liver scanner. However, there is difficulty in interpreting the space occupying lesions in the size of under 2 cm. A calculation of CEA values should be performed as a supplementary test in such occasion. All of the four patients who had small liver metastases (false negative cases) showed a significantly higher levels of CEA. To know preoperative liver status of patients with gastrointestinal cancer is important.

Actually, preoperative or postoperative liver scintigraphy using scinticamera in patients with gastrointestinal malignancy is becoming more important in the surgical approach to the primary malignant lesion or recurrent malignant tumor. When liver scintigraphy was initially introduced in patients with gastrointestinal cancer, there was considerable merits concerning an efficacy in the surgical treatment.

99mTc-Sn-Colloid Liver Scanning in the Patients with Diffuse Hepatic Disease
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99mTc-Sn-colloid liver scanning was performed in 169 patients with diffuse hepatic disease diagnosed by liver biopsy. Histological diagnosis were as folows, liver cirrhosis: 21, fatty liver: 21, acute hepatitis: 47, prolonged hepatitis: 12, chronic active hepatitis: 59, chronic inactive hepatitis: 9. As to the size of the liver measured in the scan, 38% of the patients was normal in liver cirrhosis but in the other disorders, as many as 56-70% was normal. Splensmegaly was seen in 38% of the patients with liver cirrhosis, but was seen in only 5-11% of the patients with the other disorders. Increased RI activity of the spleen was seen in 66% of the patients with liver cirrhosis, but was seen in only 11-22% of the patients with the other disorders. Appearance of the bone marrow was more common in the liver cirrhosis than in the other disorders. Not only the liver findings but also the spleen and bone marrow findings were negative in 14% of the patients with liver cirrhosis. On the contrary, as many as 44-52% of the patients with the other disorders were negative about the liver, spleen and bone marrow findings. Within the diffuse hepatic disease except for liver cirrhosis, there was no particular difference in the scan findings.

Computer Differential Diagnosis of Diffuse Liver Disease based on Findings of 99mTc-Sn Colloid Liver Scintigram
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Using 51 liver scintigrams of diffuse liver disease, which were diagnosed by biopsy, differential diagnosis was tried utilizing BMD program of FACOM 230-38. We made a program with which