in proportion to the increase of the volume of tumor. By this fact, we estimated presumable diameters of nodules of hepatoma corresponded with serum AFP value of 2000, 1000, 400 and 200 ng per mililiter in five cases of nodulate hepatomas with high concentration of serum AFP. Presumable mean diameters of tumors were 2.5, 2.0, 1.5 and 1.2 cm respectively. It seems that hepatoma is detected below 2 cm of diameter in some case.

b) The clinical significance of the scanning with ^{67}Ga citrate.

Scintiphotography with ^{67}Ga citrate was performed in 14 cases of primary liver cancer and positive scanning case were 11 cases (78%).

Clinical differences between positive and not positive scanning case.

1. ICG retention rate is increased and clearance rate of ^{198}Au colloid in blood is decreased in not positive cases as compared to positive cases. It is suspected that effective hepatic blood flow has relation to positive scanning of hepatoma.
2. 9 of 11 positive scanning cases and 1 of 3 not positive cases are high concentration of serum AFP. However, 2 of 4 cases of hepatoma with low concentration of serum AFP also showed positive scanning.
3. There are no efficient histological differences between positive and not positive scanning cases in our study.

Dynamic Studies on the Portal Hemodynamics by Scintiphotosplenoportography

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A new technique, scintiphotosplenoportography (SSP), was developed, which permits a clear visualization of portal venous system by injecting $^{99m}TcO_4^-$ into the spleen. Thirty three patients with various disorders were studied. The scintillation camera employed was a Picker Dynacamera system and all information was stored on videotape for large playback. The images of the SSP in the portal circulation were divided into 4 groups. Group I: No abnormality of portal circulation. Group II: Tortuous splenic vein present. Group III: portal systemic channels with liver image present. Group IV: Portal systemic channels present, but no liver image. All patients with liver cirrhosis were placed into Group II, III or IV. It suggests that patients of Group II, III and IV show a portal hypertension in some extent.

We, also, using the data processor, estimated the time taken for $^{99m}TcO_4^-$ to travel a known distance between the two areas of interest over the splenic and/or portal veins and thus calculated the velocity of the portal flow in terms of cm/sec. The velocity of the portal flow was 9.78 ± 2.45 cm/sec in patients without liver disease, 7.80 ± 1.66 cm/sec in patients with chronic hepatitis and 4.39 ± 1.40 cm/sec in patents with liver cirrhosis. Consequently the velocity of the portal

flow in patients with cirrhosis was significantly reduced.

Therefore, the SSP is considered to be a simple, accurate and safe procedure compared with roentgenographic splenoportography for the investigation of hemodynamics and physiologic functions of portal circulation.