tigram, appearance of the spleen in scintigram, etc.

In Group (4) we found no functioning area in the liver (space occupying lesion), large spleen, bone marrow uptake in the scintigram, etc.

So, we believe the comparison of $K_b$ and $K_i$ gives us useful information in performing liver scanning.

**The Influence of Hepatic Periarterial Neurectomy on Dogs with Livercirrhosis Caused by Intravenous Administration of Radioactive Gold Colloid**

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For the liver diseases such as liver cirrhosis surgical decompression of portal hypertension has been performed, but there have been still no radical treatments for it. We have studied hepatic periarterial neurectomy on normal and abnormal dogs with liver damage which were produced by CCl₄ intoxication, and the increase of hepatic blood flow due to increased hepatic artery blood flow was observed. In this series the dogs with liver damage were produced by several months' administration of radioactive gold colloid. Then we observed pathological changes as liver cirrhosis with ascites. At the period of light liver fibrosis in these dogs hepatic periarterial neurectomy has been performed, observing the increase of hepatic blood flow. Liver blood flow were estimated by the radioactive gold colloid technique before and after hepatic periarterial neurectomy. It is, therefore, considerable that this surgical treatment could inhibit the progress of liver cirrhosis.

**An Application of Blood Disappearance Rate of Colloidal $^{198}$Au to Interpretation of Photoscan of Liver**

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SINCE the appearance of a preliminary report on the "method for visualization of configuration and structure of liver" by Friedell, Maclntyre and Rajali in 1951, the scintiscanning of the liver has been greatly improved and markedly refined in both instrumental and radiopharmaceutical aspects. And the scanning is now accepted as a standard method of studying the liver of the internal architecture as the size, shape and position.

The lack, however, of diagnostic specificity of most of the scan findings such as "cold" area or "mottling" and alteration in external characteristics of the liver has undoubtedly limited the value of this new diagnostic modality.

The colloidal particulates of radiogold have also been used in the investigation of blood flow of the liver. As early as 1952, Dobson pointed out that radioactive colloidal particulates injected into the vein are quite effectively eliminated from the peripheral blood stream by Kupffer cells of the liver. This principle, being the rationale of scintiscanning, has been applied to measure the hepatic blood flow in both normal and cirrhotic subjects.

The disappearance rate measurements or "retention" rate study of colloidal radiogold
and radioiodinated rose bengal were used in differential diagnosis of hepato-biliary disorders. Christie et al. have commented on the disappearance rate of colloidal radiogold in liver cirrhosis. These authors have found that the disappearance tended to be abnormally delayed in liver cirrhosis. Recently, the present author has carried out a control study on this subject, and has been also to confirm the observation. According to Shaldon et al., extraction of colloidal particulates becomes reduced in liver cirrhosis due to the formation of intrahepatic arteriovenous shunts.

So it appears that the disappearance rate is an excellent index of the hepatic blood flow and of the efficiency of the hepatic extraction of colloidal particulates. Furthermore, changes in the hepatic blood flow and extraction have been shown to be rather specific of certain pathophysiologic conditions by Murray et al.

Clinical Application of Scinticamera

(3) Function Test of the Liver and Bile Duct

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Time sequence of the bile excretion was studied on 41 cases, including 22 with jaundice, by using \(^{131}I\)-Rose Bengal.

In normal cases the average excretion time was 30 minutes to the gallbladder, 45 minutes is the bile duct and 60 minutes to the digestive tract.

The results obtained under pathological conditions were as follows:

1. Congenital choledochus atresia (3 cases) 
   No sign of entry into the extra-hepatic duct was found. The appearance of renal shadow in the early stage was very important same as to Taplin, who reported this finding as pathognomonic.

   We have experienced a case of leucaemic hepatic necrosis, in which early renal appearance was also prominent. The mechanisms of renal appearance should be subjected in the future study, in connection with the possibility of differential diagnosis of congenital bile duct atresia from childhood hepatitis.

   High dependency between alkaline phosphatase in serum and RI excretion time was confirmed.

2. Cholelithiasis with jaundice 
   No cholecystogram was obtained, instead RI retention in the choledochus and excretion into the digestive tract was positive.

3. Metastatic liver disease 
   No pathology was found.

4. Choledocus dilatation (one case) 
   The finding was most striking and pathognomonic. The size of the cholecyst increased enormously with time reading maximum as 3 hours and continued same for a considerable period of time.

An Experimental Study on Detectability of Filling Defects in the Liver Phantom and the Effect of Respiratory Movement on it by using Scintillation Camera

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(Introduction)

We reported before the detectability of filling defect in the liver phantom containing \(^{99m}\text{Tc}, \^{131}I, \^{198}\text{Au}\) by using a rectilinear scan-