Visualization of active bone marrow to determine its distribution pattern was carried out using ^{99m}Tc sulfur colloids with gammer-scintillation camera at appropriate but constant preset counts for each scan field simultaneously measuring respective radioactivity relative to the administration dosis. Spleen scintiscanning was performed using ^{51}Cr labelled heat- or NEM- treated erythrocytes with ordinary scanner having 3 inch NaI crystal and 10 cm focusing collimater at 30% cut off level in order to measure spleen size. Clearance rate of thus treated cells was also measured to examine the splenic sequestration function. Ferrokinetics and life span study were done with routine procedures. In 50 bone marrow scan studies in 17 cases and 53 spleen studies in 17 cases, the results of representative cases were exhibited.

In contrast to the results of ferro-erythrokinetics studies which reflected well the reducing effect on hyperplastic erythropoiesis brought about by busulfan in polycythemia vera or by splenectomy in hemolytic anemias, the results of bone marrow scanning disclosed minimum chage in distribution pattern of expansive hyperplasia noticed in these cases for several weeks, and gradual change afterward approaching normal in activity but with the expansive pattern still remaining for months. This expansive hyperplasia pattern faded in three months with the treatment with glucocorticoids in acquired autoimmune hemolytic anemia with simultaneous reduction in spleen size as well as in clearance rate and extraction ratio of the denaturated cells.

In chronic granulocytic leukemia busulfan or mitomycin induced remission decided by such changes as reduction in the spleen volume and increase in both its blood flow rate per unit volume and extraction ratio of the denaturated cells, and exacervation, by the changes vice versa. On the other hand, bone marrow scanning developed still the expansive pattern of hyperplasia even in the remission stage. Qualitative change in the distribution pattern of active marrow was observed in one case at blastic crisis in which its activity diminished in the central portion such as ribs, sternum and pelvis, while it survived in peripheral portion such as distal end of humerus and femur and proximal end of ulna, radius and tibia.

From the results presented above, we could reach the following conclusion. Results of spleen scanning with examination of it size and function reflected well the disease stage and effect of the treatment.

On the other hand, distribution pattern of reticuloendothelial active marrow appeared to need some time delay for its alteration, absorbing the transient changes occured in the clinical course, in other word, it may be considered to reflect the disease entity, the feature as was observed in polycythemia vera and chronic granulocytic leukemia.

Differential Diagnosis of the Tumor in the Left Hypochondrium by ^{203}MHP (Mercuri-hydroxypropane)

Y. Matsuyuki, N. Hiroshige, R. Kawamori and K. Kanao

Sumitomo Hospital, Osaka

We experienced 2 cases who had tumor in the left hypochondrium. The first case is 47-year-old man who has complained of general fatigue and discomfort in the epigastrium since about 2 months before the admission.

The tumor was palpable 7 finger-breadths below the left costal margin.

We had normal patterns in scintigram of the spleen 10 minutes after the injection of ^{203}MHP and scintigram of the kidney 24 hrs after the injection.

Namely, it revealed the tumor was no spleen and no kidney.

The patient has had the tumor (4×6 cm)

in the left testicle since 2 years ago which has grown very slowly, then he had it no concern.

He underwent the extraction of the left testicle and histological finding demonstrated seminoma. We diagnosed that the tumor in the abdomen was metastasis of the seminoma and ^{60}Co-therapy was maintained for 24 days. No tumor was palpable in the left hypochondrium. He has been well since then.

The second case is 27-year-old man who has complained of general fatigue since I month before admission.

The tumor was palpable 5 finger-breadths below the left costal margin.

We had normal scintigram of the spleen and abnormal scintigram of the left kidney by the injection of ^{203}MHP. Also, in the intravenous pyelography, pelvis of the left kidney wa sabnormal.

We diagnosed him suffering from the tumor of the left kidney.

Nephrectomy was done. The histological finding demonstrated papillary carcinoma of the kidney.

We think that scanning of spleen and kidney by the injection of ^{203}MHP is very effective as differential diagnosis of the tumor in the left hypochondrium.

Comparative Studies of Splenic Scintigram and Removed Spleen

K. Araki and N. Katayama

Second Department of Internal Medicine, Kumamoto University Medical School, Kumamoto

M. Matsumoto

Department of Radiology, Kumamoto University Medical School, Kumamoto

Splenic scintiscanning using ^{203}Hg-MHP has been performed in 97 cases of various diseases, especially blood disorders. Eight to 10 ml of whole blood was withdrawn from antecubital vein into syringe containing 100 to 150 μCi of ^{203}Hg-MHP with 1.1 to 1.8 mg of stable MHP, the syringe was inverted several times while only the needle was kept in the vein. Immediately after that, the blood labeled with ^{203}Hg-MHP was injected into the patient through the keeping needle. Scanning procedure was carried out 50 to 60 minutes after injection, first in prone position, second in right lateral and finally in spine. In 31 cases (10 of autopsied and 21 of splenectomized), splenic scintigram were compared with removed spleen sof which the size and weight were measured. Considerable relationship between the maximums of the scan length and width obtained from 3 directions and those of actual spleen was observed. The maximum of the scan area of normal spleens which were 80 to 130 Gm in weight, indicated within 75 cm^2. If the spleen is rectangulular cube in shape, the volume should be estimated by the following formula;

$$\text{Splenic Volume}(\text{cm}^3) = \frac{\text{Lateral Scan Area}(\text{cm}^2) \times \text{Anterior or Posterior Scan Area}(\text{cm}^2)}{\text{Height}(\text{cm})}$$

According to the correlation of the actual splenic weight and the estimated splenic volume, 31 cases were divided into 3 groups and the relationship between the actual splenic weight (Wg) and the estimated splenic volume (cm^3) was as follows:

I	Hemolytic Anemia	$W = 0.717V + 44$
II	Banti's Syndrome	$W = 0.372V + 121$
III	Other Diseases	$W = 0.278V + 10$