

## J. Blood, Bone Marrow, Spleen and RES

### Radiolymphadenography Using $^{67}\text{Ga}$ -Citrate and $^{99\text{m}}\text{Tc}$ -Sulfur-Colloid

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$^{67}\text{Ga}$ -citrate has been known as one of the most useful positive scanning nuclides for malignant lymphoma, but it does not always give sharp image of retroperitoneal lymphnodes or abdominal lymphnodes, because of the radioactivities with the  $^{67}\text{Ga}$  uptake to the abdominal organs.

We could get further informations with the aid radiolymphadenography using  $^{99\text{m}}\text{Tc}$ -sulfur-colloid, about the diagnosis, deciding the stage, planning of the method of treatment and its effect, and observation of clinical course.

Remarkable uptake of  $^{67}\text{Ga}$  to lymphnodes is shown in patient with malignant lymphoma before treatment, but markedly decreased uptake is shown after any treatment.

Radiolymphadenography for retroperitoneal nodes using  $^{99\text{m}}\text{Tc}$ -sulfur-colloid in normal case shows lymphnodes chains from inguinal to para-aortic nodes, as the inverted "Y," and this image

is well corresponded to the lymphangiography with lipiodol. Radiolymphadenography of axillary and cervical nodes group is also used.

In patient with malignant lymphoma, scintiphoto of lymphnodes varies its image according to the extent of the nodes involved, such as absence or interruption, marked asymmetry and enlargement.

Comparing these two radiolymphadenographies, using  $^{67}\text{Ga}$ -citrate and  $^{99\text{m}}\text{Tc}$ -sulfur-colloid, we can get more precise informations about the lymphnodes.

These two methods are also simple, painless procedures that require no great skill and no surgical intervention and can be repeated easily.

It is useful to use both  $^{67}\text{Ga}$ -citrate and  $^{99\text{m}}\text{Tc}$ -sulfur-colloid for radiolymphadenography, in order to decide the clinical diagnosis, staging, planning of treatment and its effect, and to observe the clinical course.

### In Vitro Measurement of Globulin Synthesizing Capacity of Lymphocytes using $^{75}\text{Se}$ -Selenomethionine

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Stimulation of lymphocytes by Phytohemagglutinin (PHA) has been observed as increases

in synthesis of DNA, RNA and globulin. Globulin synthesizing capacity of human peripheral

lymphocytes has been measured in terms of the incorporation of  $^{75}\text{Se}$ -selenomethionine ( $^{75}\text{Se}$ ) into the globulin protein. Lymphocytes culture in medium contained  $^{75}\text{Se}$  with and without PHA were incubated for 96 hr at  $37^\circ\text{C}$ . Globulin was separated by adding ammonium sulfate and radioactivity of  $^{75}\text{Se}$  incorporated into globulin of  $10^6$  lymphocytes was measured in a gamma well scintillation counter. The ratio of radioactivities of stimulated to unstimulation cells represents an index of lymphocyte stimulation by PHA.

In lymphocytes of normal subject incorporation of  $^{75}\text{Se}$  into globulin was demonstrated in unstimulated cells (basal synthesis) and was well stimulated by PHA. Index of stimulation of PHA was  $4.4 \pm 2.8$ .

In Hodgkin's disease basal synthesis was nor-

mal but PHA reactivity was suppressed in 3 of 4 cases. In chronic lymphatic leukemia (CLL) basal synthesis and PHA reactivity were remarkably suppressed in 3 cases but were high in one case. In 3 cases of IgG myeloma and 2 cases of Bence-Jones myeloma basal synthesis was normal but synthesis was not stimulated by PHA except one case of IgG myeloma.

In SLE PHA reactivity was suppressed in 5 cases but was high in 2 cases as well as one case of scleroderma. In one case of dermatomyositis, one case of scleroderma and one case of autoimmune hemolytic anemia PHA reactivity was suppressed.

Decreased response to PHA was seen in 3 cases of hypogammaglobulinemia and 4 cases of hypoplastic anemia.

## Thrombokinetetic Studies (II)

### Platelet Labeling Method by $^{99\text{m}}\text{Tc}$ -pertechnetate and Visualization of the Site of its Sequestration and Destruction

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**Introduction:** It is said that spleen and/or liver are the principal site of platelet sequestration and destruction. In this study, platelets were labeled by  $^{99\text{m}}\text{Tc}$ -pertechnetate and  $^{51}\text{Cr}$ . Visualization of the site of platelet sequestration and destruction was evaluated by means of the scintillation camera.

#### Method:

Sixteen patients with various hematological

disorders gave consent for this study. The labeling procedure for platelets is as follows;

1. Centrifuge 250 ml of ACD blood at 1,500 rpm for 15 min and transfer platelet rich plasma (PRP) into a transfer pack.
2. Centrifuge the PRP at 2,300 rpm for 15 min and resuspend the concentrated platelets into 5 ml of physiologic saline.
3. Add 1-3 mCi of  $^{99\text{m}}\text{Tc}$ -saline solution and