of ^{201}Tl-chloride and scintiscans were made for 5 min after injection. The apparatus used was a Nuclear Chicago's Pho-gamma HP and the count was 200K.

Result: (1) In normal cases ^{201}Tl was seen incorporated into the nasal cavity, nasopharynox, oral cavity, salivary gland, and thyroid gland. (2) Among the 11 cases of cephalocervical malignant tumors, 7 cases, including cancer of the upper jaw, maxillary papillon, cancer of the tonsil, and cancer of the larynx, gave positive reactions to the scanning test. In these 7 cases a scanning test with ^{57}Co-BLM was also positive.

There were some cases in which the affected parts and the physilogical accumulation parts of ^{201}Tl-chloride were overlapped and the judgement of scintiscans obtained were difficult.

The advantages of the use of ^{201}Tl-chloride are as follows:

(1) ^{201}Tl-chloride does not accumulate in bornes.
(2) Scanning can be started 5 min after injection and the result can be obtained in several tens of minutes. ^{201}Tl-chloride is considered to be a nuclide applicable to malignant tumors in the cephalocervical part.

Clinical Evaluation of Tomor Scintigraphy with ^{201}Tl-Chloride

Y. Hiraki, S. Morimoto, K. Mizukawa, T. Tamai, M. Yamamoto
Department of Radiation Medicine, Okayama University Medical School, Okayama

Thallium-201 chloride scintigraphy was evaluated in 63 patients with various diseases in the chest region. (Primary lung cancer: 47 cases, malignant lymphoma: 5 cases, tuberculosis: 2 cases, other benign diseases: 9 cases).

Scintigraphy was performed 15～30 minutes after intravenous injection of 2 mCi of ^{201}Tl-chloride with a Nuclear Chicago scinticamera model Pho/Gamma III and minicomputer system.

Scintigrams obtained were classified as: (++) marked accumulation of ^{201}Tl-chloride in the tumor, clearly revealing its contours, (+) slight ～moderate, (−) negative. The following results were obtained;

1. A high positive rate was shown in cases of primary lung cancer and malignant lymphoma. primary lung cancer: (++) 35/47 (74.5%), (+) 7/47 (14.9%), total positive rate 42/47 (89.4%), malignant lymphoma: (++) 4/5, (+) 1/5, total positive rate 5/5 (100%).
2. A significant difference in positive rate was not in fact discerned with relation to pathohistological type of primary lung cancer.
3. In the case of primary lung cancer with atelectasis and/or pleural effusion, the accumulation of ^{201}Tl-chloride was only in the focal lesion. The invasion to the mediastinum and hilums by primary lung cancer and malignant lymphoma was often easily detected.
4. In the cases of benign diseases, all of them were negative.
5. None of the 63 cases scintiscanned with ^{201}Tl-chloride manifested side effects.

^{201}Tl-Chloride Scan for Various Uterine Tumor

C. Tobari*, H. Kurosawa*, H. Kanaumi*, K. Muroi**, H. Watanabe**,
S. Noguchi**, K. Matsui*** and M. Iio***
**Department of Radiology, **Deptrtment of Obst. and Gynecol., Toho University, Ohmori, Tokyo, ***Division of Nuclear Medicine, Tokyo Meteropolitan Geriatology Hospital*

Up to date, no established simple and invasive radioisotopic proecdure is reported for the detection of the uterine tumors, ^{201}Tl-chloride, widely used for the myocardial imaging, was applied on patients with various uterine tumors. Two mCi of ^{201}Tl-chloride was injected intravenously in

78 cases using γ-camera with high resolution collimetor.

The diagnistic accuracy of this procedure were 100% in uterine corpus cancer and myoma if growthing over 5 cm in diameter, the images of myoma as benign tumor were revealed the most accumulated activities with even distribution especially in the adenomyosis and with uneven distribution in the uterine corpus cancer. But impossible discrepancy image between normal uterine and back ground in normal cases is observed.

On the other hand, we considered that the possibility of differential diagnosis on the images in various uterine tumor is noted by combinating clinical datas.

In addition, these facts might be indicated the affinity of $^{201}Tl^{+}$ to one of the specific tissue as uterus as similar myocard.

86-Rubidium Uptake by Red Blood Cells of Patients with Uterus Carcinoma and Female Controls

T. YAMANE, N. FUKUDA and T. MATSUMOTO
National Institute of Radiological Sciences

Rubidium-86 red blood cell uptake was lower in patients with breast tumor than in femal controls. The present study is part of an attempt to identify the red blood cell defect in cancer patients. We performed in vitro rubidium-86 uptake studies on female healthy controls between 35 and 51 years of age, and on patients with uterus cancer who were between 28 and 77 years old patient being follow-uped after radiotherapy, whose ages ranged from 44 to 68. Rubidium-86 was used as a substitute for radioactive potassium.

When incubated in vitro with rubidium-86 and their own plasma had lowest passive uptake values in follow-uped patients and lower in cancers than the red blood cells of female controls. There is no significant different active transport between three groups. Red blood cell membrane may have different sites for potassium and sodium and glycoside binding, or an other unknown factor.

Their plasma potassium, hematcrit value and copuscular voume were statistically no difference between the three groups, and cholesterol was higher in both of patients groups than female controls, however there is no correlation between the rubidium-86 red cell uptake and plasma cholesterol.

We interpret our and F.K. Bauer's data as a a membrane effect secondary to a plasma factor which inhibited rubidium-86 influx leading to reduced passive transfer of rubidium.

Tumor Imaging by RI Angiogram

Masaki KOAKUTSU, Nobuharu YUI and Fujimi KINOSHITA
Chiba Cancer Center, Division of Nuclear Meidicine

We discussed the RI angiograms using ^{99m}Tc-M.A.A. and ^{99m}Tc-R.B.C. or $^{99m}Tc\text{-}O_4^-$ for the examination of malignant tumors. By infusion of ^{99m}Tc-M.A.A. to the tumor-nurishing artery, we can obtain abnormal scintigram that shows increased density in tumor site, and by intra-venous administration of ^{99m}Tc-R.B.C. or $^{99m}Tc\text{-}O_4^-$, we can get scitigram that shows abnormal circulation caused by malignant tumor. In fifty-five of 60 patients with malignant tumors, ^{99m}Tc-M.A.A.-scan showed abnormal deposits, and in 37 of 41 patients, ^{99m}Tc-R.B.C. or $^{99m}Tc\text{-}O_4^-$ scan showed abnormal circulation. Moreover, it is easy to differentiate the malignant tumor and aortic aneurysm without invasive process. We conclude that RI angiogram is useful imaging method to know the localization and the extension of malignant tumors, especially in theracic and pelvic regions.