agent. In this respect, all the scintigrams in this series were taken by the whole body scanner and the data before the whole body scanner became available were excluded.

As for the general quality of the scintigrams, ^{111}In-chloride and ^{111}In-bleomycin were found to have stronger affinity to skeleton than ^{67}Ga-citrate and ^{67}Ga-malate in general, and also the former two agents showed some accumulation in the cardiac area not infrequently. Therefore, we have more favorable impression with ^{67}Ga-citrateand ^{67}Ga-malate than with ^{111}In-chloride and ^{111}In-bleomycin.

In 5 patients, ^{111}In-chloride and either ^{67}Ga-citrate or ^{67}Ga-malate were given with certain interval and the scintigram qualities were compared with each other. Equally definite accumulation were seen in one patient with Hodgkin's disease, equally weak accumulation in one lung cancer patient, and equally negative accumulation in one patient with pulmonary metastasis from the kidney cancer. In 2 patiens, one with metastatic lesions from ureter cancer and the other with recurrent lesion of esophageal cancer, however, ^{67}Ga-compounds showed strong accumulation in the diseased areas but indefinite with ^{111}In-chloride.

In 5 patients, ^{111}In-bleomycin and either ^{67}Ga-citrate or ^{67}Ga-malate were given with certain interval. In this group, ^{67}Ga-compounds were always better than ^{111}In-bleomycin except one with a metastatic lesion from thyroid cancer on whom both agents failed to visualize it. From our present studies, though the number of the patients tested is small, it can be said that ^{67}Ga-compounds in the form of citrate or malate are more practical and better agents than ^{111}In-chloride and ^{111}In-bleomycin clinically.

Changes of ^{111}In-Bleomycin in Vivo

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In order to investigate the changes taking place on bleomycin after administration, In-111 Bleomycin and In-111 chloride in liver was injected to rat. After 24 hrs the blood was collected and plasma was fractionated with Sephadex. It was found that the whole radioactivity was eluted at V_0, and no free radioactivity was found. In liver it was found as follows : 90 min after injection, the liver was excised, homogenized, and fractionated by Schneider's method. After fractionating the supernatant of 105, 000g, radioactivity was found at V_0 and there was another minor free radioactivity at column bed volume. An attempt was performed to separate this free radioctivity to find out whether this free radioactivity is In-111 ions or In-111 bound bleomycin, the separation was carried put using a large Sephadex G-50 column.

The results indicated that the peak of the eluates comes in between two authentic peaks of cold bleomycin and IN-chloride respectively, making the decision of the position difficult. It can be estimated at present that the radioactivity of the eluate is the sum of In-111 chloride and In-111 bleomycin. A more accurate separation is being carried out in our laboratory The distribution of radioactivity

in liver fractions (nuclei, mitchondria, microsomes and sap) indicated that no major difference was found between In-111 chloride and In-111 bleomycin. This result indicates the release of free In-111 ions from In-bleomycin moiety in vivo.

The Diagnosis of the Head and Neck Tumors by Means of a Catheter Semiconductor Detector

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A new method of making a diagnosis of malignant tumors of the head and neck region, by means of employing a catheter semiconductor radiation detector, which the authors have developed, after injection of ^{32}P intravenously previously, is reported. As to the diagnostic efficiency, this method appears to be on equal basis with that of the biopsy with added advantages. The catheter part of the detector is small enough that it could be inserted into most of ENT cavities; it could be applied repeatedly in differents parts of the body without fear of causing metastasis, and in the midst of an operation the extent of the cancer involvement can be determined to which the removal may be necessitated.

Studies on Thymic Scintigraphy: Special Reference on Myasthenia Gravis

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The thymic figure in vivo has been demonstrated by pneumomediastinography or thymic venography. The thymic scintigraphy was studied in this paper using both ^{75}Se-selenomethionine and ^{67}Ga-citrate. Nine patients of myasthenia gravis (4 was with thymoma, 4 was with thymic hyperplasia and 1 was with thymic adenocarcinoma) were studied their thymic uptakes of ^{75}Se-selemethionine before and after thymectomy, while only 3 patients of thymoma were studied with ^{67}Ga-citrate before thymectomy. Thymic uptake of ^{75}Se-selenomethionine was demonstrated in the patients with thymic hyperplasia and/or with thymoma except two cases (a case was thymic hyperplasia and the other was epithelial malignant thymoma who has a experience receiving the atomic bomb at Hiroshima in 1945).

The image of thymic cyst contained thymic adenocarcinoma was well figured out with ^{67}Ga-citrate, and was coincided with extirpated tumor size and tumor figure. After extirpation of cystic tumor, a corresponded figure of