cylindrical cone to get their scintigrams. In the cases of tumors of pancreas and G.I. Tracts, ^{131}I-MAA was given intra coeliac artery and their poor scanning results in the region of two indicated that the large amount of the injected ^{131}I-MAA may definitely be deposited into the spleen. On the other hand, when ^{131}I-MAA injected into the alimentary canals of the lung, liver, and spleen directly, their scintigrams showed good results. In the case of lung tumor, ^{131}I-MAA deposited into two parts, tumor and normal lung tissue, however, there was no significant difference in term of activity decay between the both parts. In the case of liver tumors, deposition of given ^{131}I-MAA were seen both the liver and the spleen at the same time because ^{131}I-MAA was injected into the coeliac artery. All of our ^{131}I-MAA liver scintigrams showed good deposition in their tumors inspite of the ^{198}Au examination showed the "defect" in the tumor area. The liver scintigrams which were taken immediately after the injection of ^{131}I-MAA showed difference in nature with the tumor vascularities. The scintigrams of the spleen were good in nature because of their large blood supplies. In general, when ^{131}I-MAA was given into a coeliac artery, good deposition was always seen in the vascular abundant organ. Now we have a conclusion that the degree of deposition of the given ^{131}I-MAA may largely be depended on the tumor vascularity. All our cases showed no deposition 4 days after injection of ^{131}I-MAA whose reasons may depends mainly on activity decay. It was difficult to find the decay difference between tumors and surrounding tissue. We will continue these examinations till some definite conclusion of these deposit decay are analysed.

Studies on the Radiosensitivity of the Cancer of the Uterine Cervix

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The examinations to find out the radiosensitivity of the cervical cancer of the uterus were undertaken about ^{32}P-uptake, O^2 tension, DNA content and histological examination.

According to the macrospectic and histological changes of the primary lesion of the uterine cervix after test irradiation, the patients were classified good-, mediate- and poor responded group.

The relationship between the radiosensitivity and the results of each examination was as follows:

1. ^{32}P-uptake; In good responded group, the ratio of T/C (CPM of the tumor/CPM of the vaginal wall) decreased markedly after the test irradiation, while in the poor responded group, the degree of the despression of the T/C ratio was considerably lower than that of the former group.

2. Content of DNA; The modal DNA values before the test irradiation varied between hyperdiploed and hypertetraproid range. After the irradiation, the modal DNA values of all cases were depressed in various degree, and the range of scatter was narrowed than that of before the test irradiation. But no significant correlationship could be noticed between the radiosensitivity and the content of DNA.

3. pO_2; Quantitative measurements of oxygen tension in the tumors and in the control normal portio was made.

The tissue oxygen tension of cancer was 21.2 mmHg, which was markedly lower than that of the normal portio (50.4).

Before irradiation, the good responded group averaged 21.4, while the meditate and poor responded group marked 21.3 and 17.0.

In most of the cases oxygen tension raised

after irradiation, but there was no difference between these three groups.

4. Histology; The good responded group commonly showed well vascularity and spindle shape in cell type by preirradiated histological examination. On the other hand, the cases in poor responded group appeared relatively lesser vascularization and tend to keratinize histologically.

After the test irradiation, even for a week, the extent of cellular necrosis was often more evident in above cases than in follower cases. When the two extreme groups are compared with, they may be presumed their radiosensitivity to some extent, but there are many difficult problems by the histological expectations alone.

An attempt was made to know the radiosensitivity of the cancer of the uterine cervix, but only a few corelationship was found in P-uptake and histological examination.

Since the problem of radiosensitivity seems to have many factors, the further investigations are necessary to dissolve this problem, we think.

Comparison of Scintillation Camera and Scintillation Scanner, Especially on Resolution

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Method

The test chart was used, to discriminate minimum distance of line sources (1 mm), which was arranged pararelly on the plain of 10.5 × 10.5 cm in size, with varying distance of 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 cm, respectively.

The sources used were ^{98m}Tc, ^{75}Se, ^{131}I and ^{195}Au.

Results

1. The resolution of scintillation camera increases as dot number increases, but decreases as energy of nuclides and window width increase.

With multihole collimator, the resolution decreases with increasing collimator-source distance, but with pin hole collimator it remains constant.

2. The resolution obtained was as follows.

Resolution of Scintillation Camera

Collimator		Pin hole		100 hole
Nucliees		^{195}Au, ^{131}I, ^{75}Se	^{99m}Tc*	^{195}Au, ^{131}I, ^{75}Se, ^{99m}Tc+
Collimator-source distance	1 cm	1.0 cm	0.5 cm	1.5 cm } 2.0 cm, ^{75}Se, ^{99m}Tc 4000 hole
	5	1.0	1.0	1.5 }
	10	1.0	1.0	2.0
	15	1.5	1.5	2.5
Coment		* Resolution increases as energy decreases		+ ^{75}Se shows highest resolution