3. The resolution of scintillation camera with multihole collimator was found to be the same to that of scintillation scanner. Scintillation camera with pin hole collimator has superior resolution.

Scanning for Determination of the Invasive Axnyme of Maxillary Carcinoma

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For the purpose of appear positive delineation of the maxillary carcinoma by R.I. scanning. In this method, RISA 50~100 μCi and mixed with "splase" ferment was injected into intra cavital tumor tissue of maxillary cancer. By this injection, RISA infiltrate to the tissue after 24 hours. By the scanning apparatus with 3 inches crystal and 27 holes collimeter, 7 cases of maxillary cancer was examined and satisfactory results.

Bone Tumor Scintiscanning with Strontium-85

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We have performed bone scintiscanning with strontium-85 on 50 patients (56 portions) from November, 1965 through August, 1967 at the National Cancer Center Hospital. There were 14 cases of primary bone tumor, and the scintiscanning was done on 15 portions (9 malignant and 6 benign lesions). In the cases with malignant bone tumor, 7 out of 9 portions were visualized on the scan. Two negative portions were osteogenic sar-

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coma in one patient. Four out of 6 benign tumors were negative on the scan. Two benign tumors having positive scintigrams were giant cell tumors.

Thirty-three scintigrams were obtained in 28 patients on whom metastatic tumors were suspected. As far as the confirmed metastatic lesions were concerned (by other methods such as biopsy) X-ray findings were definitely positive in 21 portions in which 18 were visualized on the scan; and 5 portions were suspicious on X-ray films, in which 4 were positive on the scan. There were 7 portions on which metastatic lesions were finally denied. One of them was positive on the scan as well as on the X-ray film. However, the final diagnosis in this case was compression fracture of lumbar spine. One portion, on which X-ray film was positive but the scan was negative, was simple osteosclerosis of fibula. There was another portion on which X-ray findings were negative and the scan was positive in the sacral and iliac bone areas. We considered that the false positive in this case was probably due to the accumulation of strontium-85 within the intestinal canal.

There were 8 portions of soft part tumors. Three of them were confirmed as having direct bone invasions and the all three were positive on the scan. Four out of 5 portions having no bone invasion were negative on the scan. One positive case was arthritis and the scintigram was obtained after exploratory operation.

In comparison with the patterns of X-ray findings in cases with malignant bone tumor (including metastatic lesions), 12 out of 16 portions of osteolytic lesions were positive on the scan. All the portions showing osteoplastic pattern (11 portions) or mixed pattern (5 portions) were apparently positive on the scan. In portions with sclerotic pattern (peri-focal sclerosis), 3 out of 4 were negative on the scan. Four out of 5 portions on which X-ray diagnosis was only suspicious of bone tumor (including metastases) showed apparently positive scintigrams.

From our experiences on the bone scintiscanning with strontium-85, it will be possible to say that the malignant bone tumor including metastatic lesions show positive patterns at a high percentage. In contrast with this fact, benign bone tumor has a low tendency in appearing on the scan with the exception of giant cell tumor. When this technique is utilized to soft part tumor it will be possible to detect direct bone invasion at an early stage. Although it is known that inflammatory lesions in bone as well as fracture may have positive patterns on the scan, this technique will be of practical value in detecting bone tumors.

Zinc Metabolism in Malignancy (4)

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We reported previously that zinc content of leukocytes decreased markedly in patients with malignant tumor. In this report we tried to study on its mechanism clinically and experimentally with $^{65}$Zn. 100 μCi of $^{65}$Zn was administered intravenously to the various patients. Thereafter uptakes of leukocytes and erythrocytes were determined after their separation by the sedimenting method using PVP. In erythrocytes uptake began at 1 hour after administration and increased gradually to 7th day, but no difference was observed.