

firmed by biopsy, operation, and autopsy, there were 80 cases (57%) whose skeletal X-P or bone scanning were abnormal.

In sixty-three cases of these (78.7%) bone scanning revealed more skeletal lesions than bone X-P. In twelve case (15.0%) bone scan and skeletal X-P were equally sensitive. In remaining 5 cases (6.3%) X-P were superior to scanning.

Urological abnormalities were detected in 87 out of 359 cases (24.9%), and this percentage is much higher than what we have expected.

In 87 cases, we had 32 renal concentration asymmetries, 17 total unilateral defects, 7 partial defects, 5 position abnormalities, 3 size abnormalities, 10 focal hot spots, 3 ureter visualization (hydro ureter), 3 urinary bladder abnormalities, 7 faint kidney visualizations.

Most of the renal concentration asymmetries were due to the unilateral radioisotope retention of the kidney. Thirteen of 17 total defects were known nephrectomy. In six of 7 focal defects we

found renal cell tumors. Three cases of ureter visualization were ureter tumor, ureter stone due to hyperparathyroidism, urinary bladder carcinoma, all of which showed hydronephrosis and hydroureter in IVP's. In 8 cases of focal hot spots in the renal pelvis, renogram and/or IVP were performed, but no abnormalities were detected. In faint kidney visualizations, 6 of 7 cases showed multiple bone metastasis due to various malignancies.

Concerning the soft tissue abnormalities, we had 8 cases of lymphedema, 3 chest wall asymmetries due to mastectomy, 2 tumor uptake of ^{99m}Tc -Diphosphonate.

In this series, there were relatively high percentage of renal, urinary tract abnormalities. Bone scanning has potentially three different informations; 1) bone images, 2) renal, urinary tract images, 3) soft tissue images. So we must pay much more attention to these extra-skeletal informations in the bone scanning diagnosis.

Bone Scanning of Metastatic Tumors with Tc-99m-EHDP

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Examinations of the bone metastases in the case of lung and breast cancer are necessary for evaluation of clinical stage and choosing suitable treatment. Since October 1974, we have been studying on the clinical usefulness of bone scanning for the examination of metastatic bone tumor with Tc-99m-EHDP (Nihon Mediphysics) and whole body image system of gamma camera (Toshiba 202). At 4-6 hours after the injection of 10-15 mCi of Tc-99m-EHDP, whole body scintigram of anterior

and posterior views were obtained. Because in some cases image of coecum and/or ascending colon appears after 4 hours, one must not mistake the images for an abnormal accumulation in pelvis due to tumor. Whole body camera could delineate the lesions of small bone such as of hand or foot.

Seventy various cancer cases chiefly consisting of lung cancer (44 cases) and breast cancer (9 cases) were examined. Half of these 70 cases was positive. In the cases of lung cancer 19 out of 44 (43.2%)

were positive and in breast cancer 7 out of 9, respectively. The ratio of positive scans in each histologic type of lung and breast cancer cases was as follows; in adenocarcinoma of lung cancer 11/19 (57.9%), in small cell undifferentiated carcinoma 6/12 (50%), in squamous carcinoma 1/8, in large cell carcinoma 1/5, and in scirrhous carcinoma of breast cancer 5/6, carcinoma of other type 2/3.

Total individual positive sites in 35 positive cases accounted 78. Rib, vertebra and pelvis gave a higher percent of positive scans. The 67 sites among these 78 ones were coexamined with X ray, finding that 43 sites out of 67 (64%) was found to be abnormal.

Bone scanning with Tc-99m-EHDP and whole body camera was found to be useful to find bone metastases in lung and breast cancer.

Bone Scintigraphy on Bone Destruction in Head and Neck Cancer

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We have been studied on bone scintigraphy for diagnosing the spread of head and neck cancer. The purpose of this paper is to evaluate the condition of bone destruction in head and neck cancer, comparing X-photos, clinical findings, operations findings and the region of recurrences.

The scintigraphy was taken two or four hours after injection of 2-4 mCi of Sr-87m or 10 mCi of Tc-99m labelled pyrophosphate and diphosphanate using 3 inches rectilinear scanner and scinticamera.

Patients studied in this paper were 37 cases of cancer of paranasal sinus, 8 cases of cancer of nasopharynx, 9 cases of cancer of oral cavity, and 14 cases of miscellaneous malignancy in head and neck.

Increased uptake on the scintigraphy were observed 64 of 68 patients. 37 of 37 patients with cancer of paranasal sinus, 7 of 8 patients with nasopharyngeal cancer, 8 of 9 patients with cancer of oral cavity. The region of increased uptake on the scintigraphy were more extensive than abnormality on X-photos. In patients with cancer of paranasal sinus who were proved invasion of the cancer by operation and follow-up data, we were found a disagreement with pathologic changes of X-photos, abnormal uptake on the scintigraphy and invasion of the cancer. 12 false positive of X-photos, 8 false positive of the scintigraphy, one false negative of X-photos, two false negative of the scintigraphy were observed in 20 patient.