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CLINICAL ASSESSMENT OF A 24-IMAGE IN BONE SCANNING—DIFFERENTIATION BETWEEN MALIGNANT BONE TUMOR AND BENIGN DISEASE. S.Kosuda, T.Gokan, J.Satoh, S.Daibo, T.Dokiya, J.Sakurada, Y.Okano, T.Hashimoto, A.Kubo, S.Hashimoto. Okura National Hospital, the 2nd Tokyo National Hospital and Keio University, Tokyo

In order to differentiate malignant bone tumor from benign bone disease using the delayed uptake of Tc-99m MDP at 24 hr, bone scan was performed in 20 patients, of whom 10 had metastatic bone tumors, 1 had osteosarcoma and 9 had benign bone diseases, that is, arthrosis deformans, spondylosis deformans, chondroma, osteochondroma, fracture, acute and chronic osteomyelitis. 28 areas of abnormal concentration on the bone scans of 20 patients were analysed.

Data were displayed and a rectangular ROI was taken over the bone lesion. The same ROI was placed over a normal bone. The lesion-to-nonlesion ratio(L/N) was calculated for the ordinary and delayed studies. The delayed-to-ordinary study ratio(D/O) was defined as L/N 24 hr / L/N 3-6 hr. The average D/O values for benign bone diseases and malignant bone tumors were 1.18 ± 0.09 (n=13), 1.21 ± 0.09 (n=15), respectively. The difference in the D/O value was not statistically significant.

In conclusion, a 24-hr image in bone scanning was invalid for the differentiation between malignant and benign bone disease, but we would like to institute a four-phase bone scan, including RN-angiography and a 24-hr image, in differentiate them.

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BONE METASTASIS FROM THYROID CANCER DEMONSTRATED ON BONE SCINTIGRAPHY. T.Sone, M.Fukunaga, H.Otsuka, A.Muranaka, S.Yanagimoto, T.Tomomitsu, R.Morita and T.Harada. Department of Nuclear Medicine and Department of Endocrine Surgery, Kawasaki Medical School, Kurashiki.

We studied bone scintigrams on 26 patients with thyroid cancer submitted to Tc-99m MDP scintigraphy for various reasons.

In 13 cases of adenocarcinoma, cold lesions were observed in 7 cases while hot lesions were in 2 cases. Only 2 of the 7 cases with cold lesions showed marginal uptake of the radiopharmaceutical. In 13 cases of medullary thyroid carcinoma, undifferentiated carcinoma or combined differentiated and undifferentiated carcinoma, all metastatic lesions appeared hot areas on imaging. It was suggested that different histopathological types of thyroid cancer have characteristic scintigraphic patterns for their bone metastasis.

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STUDY ON CASES OF PROSTATIC CANCER SHOWING SO-CALLED SUPER BONE IMAGE. F.YOSHIGOE, T.MACHIDA, Y.OHISHI, M.UEDA, A.KIDO AND M.YANAGISAWA, DEPARTMENT OF UROLOGY, THE JIKEI UNIVERSITY SCHOOL OF MEDICINE, TOKYO, M.MIKI, DEPARTMENT OF UROLOGY, THE TOKYO MEDICAL COLLEGE, TOKYO.

OUT OF 213 CASES WHICH RECEIVED TREATMENT CHIEFLY CONSISTING OF ANTI-ANDROGENIC THERAPY UNDER DIAGNOSIS OF PROSTATIC CANCER AND IN WHICH SYSTEMIC BONE SCINTIGRAPHY COULD BE PERFORMED, SUPER BONE IMAGE WAS FOUND IN 8 CASES (3.8%). IN 6 OUT OF THESE CASES WHICH COULD BE FOLLOWED UP, AGE, HISTOPATHOLOGICAL FINDINGS, SERUM AL-P, AND PAP AND OUTCOME WERE REVIEWED. SUPER BONE IMAGE WAS FOUND AT THE START OF TREATMENT IN 3 OUT OF THESE CASES AND DURING TREATMENT PERIOD IN THE REMAINING 3 CASES. ALL OF 3 CASES IN WHICH SUPER BONE IMAGE WAS FOUND AT THE START OF TREATMENT HAD WELL-OR MODERATELY-DIFFERENTIATED ADENOCARCINOMA, WHILE 3 CASES IN WHICH SUPER BONE IMAGE APPEARED DURING TREATMENT HAD POOR-DIFFERENTIATED ADENOCARCINOMA. IN 3 CASES SHOWING SUPER BONE IMAGE, SERUM AL-P WAS SIGNIFICANTLY HIGHER THAN THAT IN OTHER CASES OF STAGE D GROUP. IN ALL OF 3 CASES WHERE SUPER BONE IMAGE APPEARED DURING TREATMENT, PATIENTS DIED WITHIN 2 YEARS AFTER APPEARANCE OF SUPER BONE IMAGE. THE REMAINING 3 CASES WHICH WERE FOUND TO HAVE SUPER BONE IMAGE AT THE START OF TREATMENT HAVE SURVIVED THESE 6 YEARS, 3 YEARS AND 3 MONTHS, RESPECTIVELY, TILL NOW.

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BONE SCINTIGRAPHY IN PATIENTS WITH BREAST CANCER: STUDY FOR 7 CASES IN WHICH BONE METASTASIS WAS PROVEN DURING POST-OPERATIVE FOLLOW-UP PERIOD. K.Nagai, M.Fukunaga, N.Otsuka, T.Sone, A.Muranaka, T.Furukawa, S.Yanagimoto, T.Tomomitsu, R.Morita, H.Ohama, H.Sonoo and T.Senoo. Kawasaki Medical School, Kurashiki.

It is well known that breast cancer frequently metastasizes to bone. Therefore, the early and precise diagnosis of bone metastasis is of great importance. In present study, pre- and post-operative bone surveys, using Tc-99m-MDP, were sequentially performed on 208 patients with breast cancer, and the usefulness of follow-up bone scintigraphy was evaluated. To establish a diagnosis of bone metastasis, X-ray tomography and, if needed, bone biopsy were used. 162 cases were found to be no abnormality on pre-operative bone scintigram. In 7 cases among them bone metastasis was recognized on post-operative follow-up bone scintigram, which was repeated every 6 months. In these cases the average interval from operation to definite diagnosis of bone metastasis was 16.1 months, and these patients were relatively young-aged. Metastatic sites and clinical stages in these cases were as follows; (1) 4 in lumbar spine, 3 in thoracic spine, 2 in pelvic bone, 1 in sternum and 1 in femur, (2) 1 in stage I, 3 in stage II and 3 in stage III.

Thus, it was shown that in patients with breast cancer the bone metastasis might occur, in spite of no findings on the time of operation, in post-operative period, and therefore it was necessary to perform periodically bone scintigraphy.