

etc. The remaining 59 were discarded because of unsatisfactory informations. Abnormal accumulations were divided into two categories, one is "significant accumulation" and the other "equivocal". Ninety six patients were classified into the former category. Eighty seven (90.6%) of them were proved to be true positive, and the remaining 9 (9.4%) were false positive. Twenty-three of 25 patients in the latter category (92.0%) were proved to be benign conditions of the vertebrae, and the other 2 (8.0%) were false negative.

The false positive were mostly due to degenerating spondylitis or old trauma, which were also main causes of "equivocal" accumulations. On the other hand, the false negative had uneven dis-

tributions of RI uptake affected by previous irradiation on the vertebrae.

In laboratory examinations, an average value of serum alkaline phosphatase was abnormal and the highest in the true positive cases, but most of the equivocal cases and the false positive cases were within normal limits. Therefore, it can be said that high level of serum alkaline phosphatase would suggest bone metastasis in cancer patients.

Now, we take 1/1 size scintiphotographs of vertebra in all cases and noticed that the lateral projection clearly points out increased accumulations in the intervertebral spaces, which are probably due to degenerating spondylitis.

#### **A Problem in Reading a Scintigram, A New Finding in Bone Scintigram 4 Cases of Defect Finding**

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Bone scintigraphy using  $^{99m}\text{Tc}$  labelled phosphate compound is an inevitable method for detecting metastatic bone lesions because of its superior detecting ability. Bone scintigraphy can detect bone metastasis earlier than X-ray film. However, there are a few false negative cases, in which no abnormal finding can be obtained by bone scintigraphy, although an obvious metastatic lesion can be obtained by X-ray examination. It is considered to be due to the fact that the

reactive bone proliferation has not been fully developed in the lesions. Recently, there is a new finding on bone scintigraphy which presents a problem in reading a scintigram: It is reported that on a bone scintigram, metastatic lesion show a finding of less accumulation than the normal area, or the lesions appear as a defect finding. Four cases in which accumulation in the lesion was less than that in the normal area by bone scintigraphy using  $^{99m}\text{Tc}$ - were reported.

#### **Clinical Significance of Whole Body Scintigraphy with a $^{99m}\text{Tc}$ -Phosphate Compound in the Orthopaedic Field —with Special Reference to Malignant Bone Tumors—**

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We performed the scintigram test with a  $^{99m}\text{Tc}$ -phosphate compound of 40 primary bone tumor cases and 87 metastatic bone tumor and suspected cases, 127 cases in total and compared the accumulation pictures obtained with clinical blood exam-

ination finding, X-ray findings, angiogram and pathological findings in them in order to investigate the clinical value of the test as a subsidiary diagnostic method.

Results: