
We have encountered unusual patterns on the bone scintigram in some cases of bone metastases. We presented these cases as pitfalls on the interpretation of the bone scintigrams. These unusual patterns were divided into three types: 1) cold type, 2) ring-like type, 3) diffuse high activity type.

In spite of growing of the tumors, the metastatic lesions which were seen as hot spots in the early stage gradually changed into "warm" and/or "cold" on the bone scintigram. On the other hand, Ga-67-citrate uptake in such areas was increased on the follow up studies. Therefore, it is useful to perform Ga scintigraphy when the cold lesion is seen on the bone scintigram because of avoiding misinterpretation as improvement of the lesion.

In the diffuse high activity type, it is important to recognize the imaging technique. The bone scintigram taken by a preset count, in other words, optimum density might be misinterpreted as normal in the diffuse high activity type. Then, exposure time, faint visualization of the kidney and inappropriately clear image of ribs and vertebra even in the aged patient should be recognized on the interpretation of the bone scan.


The present study is to present our plan of prospective study in evaluating the clinical efficacy of bone scans in breast and prostatic cancer. For this purpose we made three kinds of data sheets. The first sheet is for the documentation of the stage of cancer, the result of biochemical examination and X-ray. And the probability of existence of metastasis was classified into 14 grades. In the second sheet the findings of bone scan and the probability of metastasis are recorded. The third sheet is for the documentation of the final diagnosis. The confirmation are performed by autopsy, operation, and biopsy. However, clinical course over one year is also used for the final diagnosis when the pathological data are not available. (The study is supported by Japan Radiolotope Association.)


Dynamic scintigraphy with Tc-99m-EDTA was used to evaluate 40 patients with metastatic bone tumors of various origins and 10 patients with other bone diseases. Local short-term deposition of the tracer in all cases of metastatic lesions was observed in the blood pool phase (1-3 min after injection). On the other hand, tracer accumulation in cases of old traumatic fractures and osteoarthritis appeared in the early phase (after 10 min). Although both radiography and static scintigraphy did not show abnormal accumulation in the initial stage of metastasis, lesions were shown in both the vascular (10 sec) and blood pool phase of dynamic scintigraphy. Scintigraphic differentiation of early metastatic bone tumors from other lesions was facilitated by dynamic scintigraphy with Tc-99m-EDTA.