We have tried to apply these methods. With conventional radiography, we can most useful to detect the bone changes clearly of the maxilla and mandible of 10 patients showed the marked decrease in the bone activity ratio after surgery. Our new method with SPECT is the most useful to detect the bone changes sensitively and quantitatively, because it shows change in the quantitative procedure. We have tried to apply these methods to detect the bone changes after medical treatment with the drug (elicitonin).

Nineteen patients with various vertebral abnormalities, 13 vertebral metastasis, 1 cervical caries, 1 granular cell tumor of lumbar spine, and 4 normal cases were examined. In 12 patients, MRI showed abnormalities in same region to bone scintigram. In another 2 patients, MRI did not demonstrate disorders on bone scintigram, because of unsuitable section and of low spatial resolution of MRI. 5 patients, MRI demonstrates abnormal findings, whilst bone scintigram was normal. Previous bone scintigram in 3 out of these 5 patients before treatment have shown abnormal findings as MRI. Remaining 2 patient are the cases of post irradiation and diffuse bone metastases.

Bone scintigrams of 75 dialysis patients using Tc-MDP could be divided into two groups; Group I (56) in which uptake of the soft tissue was increased and uptake of the bone decreased, and Group II (19) in which uptake of the soft tissue was decreased and the uptake of the bone increased, visually. Patients in Group I and II were further classified into four subgroups; Group Ia (articular type: 21) in which uptake around the joint was relatively increased and Group Ib ( reduction type: 35) in which uptake was decreased in the whole bone. Group Ic (spinal type: 14) in which uptake of the spine was particularly increased and Group Id (cranio-facial type: 5) in which uptake in the cranio-facial region was increased. All 75 dialysis patients were compared with 146 subjects with normal bone scintigram in terms of B/S ratio of the cranial bone, jaw bone, lumbar vertebra and femoral bone and the ratio of epiphysis uptake to diaphysis uptake (E/D ratio) in the femoral bone. The B/S ratio was low in Group I and Group II for each site, and the E/D ratio was markedly high in Group Ia. Group I, and Group II were histobiochemically estimated to have had osteomalacia and secondary hyperparathyroidism, respectively. It was considered that the above-mentioned visual classification and semiquantitative study were useful for evaluating the pathological condition of renal osteodystrophy.