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BONE MARROW SCINCIGRAM USED AS AN AID FOR ESTIMATION OF BONE TUMOR EXPANSION - A CASE REPORT OF OSTEOSARCOMA IN FEMUR.

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Bone marrow scincigram was examined whether it can be used to estimate the bone tumor expansion or not. The patient was 9 years old male with osteosarcoma in his right femur shaft. He was given 3mCi of In-111-chloride intravenously and went under bone marrow scincigram after 24 and 48 hours. (window level 170 and 240KeV) The degree of In-111 chloride up take was markedly decreased below the intertrochanteric line to distal epiphyseal plate. So we diagnosed that the tumor expanded to this level. The findings was not influenced by changing some conditions such as time delay nor window level. After a cours of chemotherapy and irradiation, his hip joint was disarticulated. Amputated femoral bone showed tumor invaded to the level of intertrochnteric line, where we had pre-operably diagnosed. This result suggests us that In-111 bone marrow scincigram will contribute to estimate tumor expansion in bone marrow.

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DIAGNOSTIC VALUE OF RADIONUCLIDE ANGIOGRAPHY FOR BONE TUMORS.

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Radionuclide angiography was performed 30 bone tumors and the diagnostic value was evaluated in comparison with the findings of bone scintigraphy. After administration of 10 to 20 mCi Tc-99m human serum albumin, both dynamic images and static images were taken with the gamma camera. The regions of interest were selected on the radionuclide accumulation area, and then time-activity curves of those regions were obtained by the data analyser. In benign tumors, the delayed increases of the radionuclide accumulation were obtained on radionuclide angiography, and the accumulation area on radionuclide angiography were smaller than that on bone scintigraphy. In malignant tumors, however, the increases of the radionuclide accumulation were inclined to be rapid, and the accumulation area were larger than that of bone scintigraphy. These suggests that differential diagnosis of tumors is attainable by using both radionuclide angiography and bone scintigraphy.

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QUANTITATIVE ASSESSMENT OF FEMORAL HEAD INVOLVEMENT IN AVASCULAR BONE NECROSIS.

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The purpose of this study was to assess femoral head vascularity and osteogenic activity in 40 patients with avascular bone necrosis of the femoral head (7 corticosteroid induced, 9 following cervical fracture, 24 misc.) using Tc-99m EHDP (15mCi/patient) and a gamma camera computer data collection system. A reference point unaffected by the disease was used for deriving comparative uptake ratios in each femoral head. Scintigraphic results were correlated with clinical findings and X-ray, and confirmed where possible by histological examination. Dynamic scintigraphy(1'-6') was found to allow early diagnosis of avascular necrosis prior to the appearance of minimally abnormal X-ray findings, particularly in cases of corticosteroid-induced necrosis. Also,necrotic regions were detectable as 'hot-spots' on the static images before any definite abnomality could be seen on the X-ray. In conclusion, it may be possible to use dynamic scintigraphy in combination with static images to detect new bone formation in the femoral head at an earlier stage than is possible by X-ray alone.

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DIAGNOSTIC METHOD FOR BONE LESION WITH Tl-201-Cl SCINTIGRAPHY.

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Tl-201-Cl scintigraphy has been performed in 132 cases of bone lesions. Positive image was noted in malignant bone tumors, fibrous dysplasias, acute osteomyelitis and many kinds of benign bone tumors. On the contrary, negative image was presented in some kinds of benign bone tumors and the bone lesions which does not belong to bone tumors. From these findins, it was concluded that malignant bone lesion could be eliminated in case of negative image in Tl-201-Cl scintigraphy and this method was usefull as a supplemental diagnostic method for bone lesions.