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APPLICATION OF RADIONUCLIDE COMPUTED TOMOGRAPHY (RCT) FOR BONE DISEASES. T. Umeda, N. Takada, E. Hodaka, N. Yui, F. Kinoshita, M. Koakutsu and Y. Akiyama Department of Orthopedic Surgery, Radiology, Chiba Cancer Center Hospital. Chiba.

A Single-photon radionuclide computed tomography (RCT) system (GCA-401-5 type developed by Toshiba company) was used to study seventy-five bone lesions. The examination was performed following routine bone scintigraphy. The anatomy of the affected bones was well determined with clear separation. We found many diagnostic usefulness by RCT for various bone lesions. (1) RCT is particularly useful for detecting lesions of anatomical complexed bone lesions such as skull, Jaw, spine and pelvis. (2) In long bone lesions we can find the medullary accumulation. (3) We can get much information from bone scintigraphy in comparison with the image of X-ray CT.

2501

ANALYSIS OF BONE SCINTIGRAMS IN PATIENTS OF CHRONIC RENAL FAILURE ON HEMODIALYSIS. N. Katsuyama, C. Ishii, A. Yoshitake, M. Tsukioka, Y. Mori, R. Kawai, K. Kawakami Department of Radiology, Jikei University School of Med. Tokyo

Bone scintigraphy of whole skeleton was performed in 23 patients of chronic renal failure on hemodialysis to examine the bone changes of whole skeleton. The scintigrams of the 23 patients were classified into 5 groups according to the distribution of the activity in the whole skeleton. Group 0; Normal bone scintigram. Group 1; Increased activity in the central bones. Group 2; Increased activity in bone of extremities. Group 3; Diffusely increased activity in whole skeleton. Group 4; Diffusely decreased activity in whole skeleton, and increased activity in soft tissue. Two of the 23 cases showed normal bone image (group 0), three showed group 1, 2 showed group 2, 4 showed group 3, and 12 showed group 4. Mean age of group 4 was higher than that of other groups. Mean bone soft tissue ratio (B/S) of group 4 (1.49 ± 0.26) was lower than that of other groups (2.0 ± 0.6). Otherwise, 11 of the 23 cases showed abnormal accumulation of activity in the heart. One case of the 23 cases demonstrated diffusely increased activity in both lungs. In result, whole skeletal scintigram is useful for the evaluation of bone changes of whole skeletal system.

2502

FOCAL HOT SPOT OF THE PATELLA ON BONE SCANS. Y. Ono, A. Nakamori, K. Tanohata, K. Odagiri, F. Sakai, K. Asakura, K. Mastui, Y. Ohashi and T. Koshino Department of Radiology and Orthopedic Surgery, School of Medicine, Yokohama City University, Yokohama.

Patients with accumulation in the patella on bone scintigraphy with Tc-99m MDP were studied. Massive uptakes were shown in five sites of bipartite patella, three cases of fracture and three cases of bone tumors (two bone cysts and a fibroma). Moderate uptakes were noted in nine sites of bipartite patella and two cases patellar chondromalacia. No abnormal uptakes was shown in six sites of bipartite patella. There is no reports dealing with the focal hot spot of the patella on bone scans in the patients with painless bipartite patella. We must keep in mind on benign bone lesions such as bipartite patella when abnormal uptakes in the patella is noted on bone scans in patients with malignancy.

2503

PREOPERATIVE BONE SCINTIGRAM OF LUNG CANCER PATIENTS WITH CHEST WALL INVASION. M. Kawahara, H. Mori, N. Kuroiwa, R. Arai, K. Sawamura Department of Medicine, Radiology and Surgery, Sanki Central Hospital for Chest Diseases, Sakai

Bone scintigram of 10 lung cancer patients with chest wall invasion were performed preoperatively, and its detectability of direct invasion of tumor into ribs was studied. Bone imagings were undertaken 3-4 hours after intravenous injection of Tc-99m-MDP 20 mCi using Hitachi scintillation camera (RC-1C-1635LD). Patients' mean age was 57 years old, all were males, and 4 had squamous cell carcinomas, 3 adenocarcinomas and 3 large cell carcinomas. Their tumor sizes varied 2 to 8.5 cm in diameter, the numbers of resected ribs were 1 to 4 ribs per patient. Totally 33 ribs were resected and examined histopathologically. Findings of bone scintigram and bone x-p were regarded as positive if there were hot area on scintigram or rib destruction on bone x-p. The sensitivity of bone scintigram was 79% (11 out of 14 ribs), that is, false negative was 21%. The sensitivity of bone x-p was 43% (6/14). The specificities of bone scintigram and bone x-p were 95% (18/19) and 100% (5/5), respectively. These results indicated that on detecting direct invasion of tumor into ribs, bone scintigram was more useful than bone x-p, but there still remained 21% false negative.