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MRI IN BONE DISEASE AND SOFT TISSUE DISEASE.

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MRI was performed on the patients with bone disease and soft tissue disease,and we evaluated extensive or differencial diagnosis and compared conventional method.

MR is 0.35 Tesla superconductive magnet coil (MAGNETOM) and its imaging metod is 2D Fourier transformation method.Our imaging technique is Spin Echo(SE),and we used the surface coil in some cases.

Subjects are 17 patients,osteosarcoma 4cases,aseptionecrosis offemur head 2cases,vertebral hemangioma 1cases,thyroid tumor 1case... MRI of bone tumor is useful in evaluating the extent of the soft tissue mass,and the high contrast between marrow fat and tumor is helpful in evaluating the spread of disease in the bone marrow.MRI is useful in earlier diagnosis of ischemic dead bone. Surface coil imaging has high resolution contrast.

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The Clinical Application of NMR-CT to Renal Masses.

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The nuclear magnetic resonance (NMR) imaging of the renal mass lesions was performed in 25 subjects:16 renal cell carcinoma;3 angiomyolipoma; 1 metastatic renal tumor; 3 renal cystic lesion and 2 other diseases.NMR imaging were obtained on Toshiba NMR-CT Model 15A with 0.15 Tesla resistive type magnet using a variety of saturation recovery(SR) and inversion recovery (IR) imaging techniques and compared with X-lay CT findings. Renal cell carcinoma which had higher or lower intensity than normal kidney and the clear image of tumor thrombus into vena cava using SR technique were demonstrated.In tipical angiomyolipoma specific short T1 which suggested fat tissue was recognized. The superior capability of NMR image in soft tissue characterization allowed differentiation of the angiomyolipoma from renal cell carcinoma. In the near future, when lager numbers of patients are imaged and discussed, NMR will assume a role in the clinical evaluation of renal masses.

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MAGNETIC RESONANCE IMAGING OF LUNG TUMORS AND ENLARGED MEDIASTINAL LYMPH NODES.

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Seventeen patients with primary and metastatic lung cancer were studied with magnetic resonance imaging(MRI). And we have compared the MR images of their tumors and enlarged mediastinal lymph nodes with those of computed tomography images(CT).

The pulse sequences of MRI were the spin-echo technique with TR values of 400msec and TE values of 40msec, providing good tissue contrasts on the region of lung and mediastinum.

All of the tumors lager than 1 cm in diameter on CT were shown on MRI. The dimension of the tumors delineated by MRI were corresponding to those of CT on displaying conditions of window 2000, level -500. However MRI produced slightly larger dimentions than CT on displaying conditions of window 500, level 0 in most of the cases. All of the enlarged lymph nodes visualized by CT (7 cases, 16 nodes, 10-50mm in diameter) were also shown on MRI.

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CLINICAL EXPERRIENCES OF IMAGING FOR THE PELVIS WITH UROLOGICAL AND GYNECOLOGICAL DESEASES.

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A NMR-machine with a super conductive magnet of 0.256 Tesla was installed at the chiba univercity in April 1984. Therty five patients with a variety of urogical and gynecological desease in the pelvis have been taken by the NMR-machine since then,subjected to the clinical evaluation of NMR images. For imaging method and puls sequences used on the patients, spin echo (SE)with multi slice technique was performed at fast, long SE imaging as T2 enhanced images and short SE imaging as T1 enhanced images, moreover inversion recovery (IR) imaging as T1 enhanced images were properly added on selected slices. Direct sagital and coronal images could often take more useful informations concerning three dimesional anatomical localization of the lesion.The locations and extends of the cancers of cervix, endometrium, bladder and ovary were well demonstrated on almost cases with high intensity signals by means of T2 enhanced images. The leseons of prostate cancer, invasive mole, myoma and ovarian cyst were visualized as abnormal mass with a variety of signal intensities, well defind from nomal structure of pelvis in most cases.