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FUNDAMENTAL AND CLINICAL EXAMINATION OF COMPARISON BETWEEN  $^{67}\text{Ga}$ -ECT AND PLANAR IMAGE FOR  $\text{N}_2$  DIAGNOSIS OF PRIMARY LUNG CANCER. R. Matsui, I. Narabayashi, T. Suematsu, T. Sakamoto, T. Komiyama, S. Yoshino, N. Tsubota, K. Sugimura, I. Inoue, S. Nishiyama and M. Kohno. Kobe Univ. Hospital and Hyogo Adult Disease Hospital.

We examined phantom study to investigate the detectability of hot spot between  $^{67}\text{Ga}$ -ECT and planar image. Phantom was 30cm diameter cylinder and hot spot was varied in depth, density and size. Sternum phantom was made on the cylinder phantom. The planar image was inferior to the ECT without the sternum phantom and with the sternum phantom planar image got worse in detectability.

We performed  $^{67}\text{Ga}$ -ECT for 40 patients with Lung cancer before operation and compared our findings to the other modalities (planar image and CT).  $^{67}\text{Ga}$ -ECT was superior to planar image in sensitivity but inferior in specificity for  $\text{N}_2$  diagnosis because of it's high sensitivity to the inflammatory change. The Sensitivity rates were 71% for ECT, 50% for planar and 85% for CT. The specificity rates were 54% for ECT, 69% for planar and 50% for CT. Both ECT and CT had many false positive cases. In CT most of false positive cases were squamous cell carcinomas. ECT and CT combined judgement was very useful for the  $\text{N}_2$  diagnosis of squamous cell carcinoma.

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COMPARISON OF GA-67 SCAN WITH CT SCAN ON PULMONARY HILUM AND MEDIASTINUM. H. Toyama, A. Takeuchi, T. Itoh, T. Saitoh, T. Kawamura, K. Ejiri, H. Anno, N. Fujii and S. Koga. Department of Radiology, Fujita Gaku en Health University School of Medicine, Toyoake, Aichi.

The accumulation to pulmonary hilum and mediastinum with or without its lesions on Ga-67 scan are usually seen. So, degree of Ga-67 uptake are compared with CT findings with 260 cases (225 cases of malignant disease and 35 cases of benign disease). Ga-67 scan and CT scan were performed within 1 month. The positive cases of Ga-67 scan in the positive cases of CT scan showed 85.5% in hilum, and 76.3% in mediastinum. The negative cases of Ga-67 scan in the negative cases of CT scan showed 58.6% in hilum, and 85.3% in mediastinum. The positive cases of CT scan in the positive cases of Ga-67 scan showed 42.8% in hilum, and 68.2% in mediastinum. So, it is considered that the accumulation of mediastinum was more useful than that of hilum in positive cases of Ga-67 scan. But many cases which showed remarkable uptake in Ga-67 scan were positive in hilum and mediastinum. So in that case, we thought that both accumulations were useful. Furthermore the reason of the cases that discrepant in Ga-67 scan and CT scan was investigated. It was thought that the interval between Ga-67 scan and treatment would influence the uptake of Ga-67 scan.

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DETECTION OF BONE METASTASES FROM BRONCHOGENIC CARCINOMA BY Ga-67 SCINTIGRAPHY. H. Igari, Y. Ono, Y. Nakamura, T. Ishe. Department of Nuclear Medicine, Kanagawa Cancer Center.

The purpose of this study is to evaluate the clinical usefulness of Ga-67 scan in detecting bone metastases in bronchogenic carcinoma. We examined the accuracy of Ga-67 scans in detecting bone metastases when compared with bone scans. Bone metastases in 46 patients with primary lung cancer were analyzed by Ga-67 scintigraphy and bone scintigraphy. Total of 227 lesions were found by these examinations. The distribution of bone metastases was seen in ribs in 32.6%, thoracic spine in 20.7%, pelvis in 16.3%, lumbar spine in 12.8%. 43 lesions out of 227 metastatic bone tumors (18.9%) were detected by Ga-67 scintigraphy. In only one patient, bone metastasis could be detected by Ga-67 scan when a bone scan failed to detect. We conclude that the usefulness of gallium is questionable in detecting bone metastases in patients with primary lung cancer.

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CLINICAL EVALUATION OF In-111 LEUKOCYTE IMAGING. C. Saitoh, K. Itoh, E. Tsukamoto and M. Furudate. Sapporo General Hospital and Hokkaido University School of Medicine, Sapporo.

Sixty-four examinations in fifty-eight patients (28 male, 30 females, age range 1-78) of In-111 labeled mixed leukocytes (In-111 WBC) scans were performed. And studies of fifty six patients used autologous WBC were evaluated clinically or pathologically. In the sixteen studies with suppurative lesions, thirteen cases showed In-111 WBC accumulation according to the lesions. While three cases of chr. pyothorax, liver abscess and Crohn's disease, whose courses had been chronic, didn't show any positive findings. In the seven studies of sarcoidosis, malignant lymphoma (non-Hodgkin) and Wegener's granulomatosis, there were four positive cases.

As a result, sensitivity and specificity of patients suspected of having site of inflammation or infection were 85% (17/20) and 93% (27/29), respectively.

Some In-111 WBC images were compared with Ga-67 scintigrams. There was discrepancy of findings between both studies seemed to be owing to duration of inflammation or infection.