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AN EXPERIMENTAL STUDY ON THE ACCUMULATION OF Ga-67 IN INFLAMMATORY LESIONS. A.Kudoh† Y.Furukawa† S.Morita†H.Ohtake†and K.Yano.** *Dept.of Radiology,Kurume Univ.School of Medicine,and **Yanagawa Public Hospital.

E.coli K 12 strain were injected into the gastrocnemius muscle of mature rabbits unilaterally to produce inflammatory lesions. Changes in the accumulation of Ga as a function of the inflammation course were observed by taking a tissue specimen for microscopic examination, scintigraphy and autoradiography. Only one day after the production of inflammatory lesions, a large infiltration of neutrocytes developed and Ga accumulation 4.6 times as strong as the normal side was seen. In one week, an abscess had formed and infiltration of neutrocytes was intense. Ga accumulation was as strong as 4 times normal. In two weeks, infiltration of cells began to decrease and granulation and fibrosis becomes marked. The Ga accumulation ratio decreased to 1.7 times. In 3 or 4 weeks, granulation and fibrosis were the main constituents. Ga accumulation ratio approximated the normal side at 1.3 times normal. The best time for scintigraphy seems to be 48 hours after the administration of Ga-citrate. By microautoradiography, Ga accumulation was seen corresponding to the sites infiltrated with neutrocytes.

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DIAGNOSTIC EFFICACY OF Ga-67-CITRATE SCINTIGRAPHY IN INFLAMMATORY DISEASES. M.Ishizawa†Y.Komatsu†A.Suzuki†Y.Sakata†*T.Kon†* R.Itoh†*T.Deto†*S.Tomita†** Hiroasaki University School of Medicine†Misawa City Hospital†*Goshogawara Seihoku Hospital†** Hiroasaki,Misawa and Goshogawara

Although Ga-67-citrate is a most extensively used agent for detecting tumors, its use for inflammatory processes is not well recognized yet. The authors reported 64 scans with Ga-67-citrate on patients who had strong clinical confirmation of inflammation. Scans were obtained at 48 hours and 72 hours postinjection of 2 mCi of Ga-67-citrate. Abnormal accumulation of radiogallium was observed in a man with subacute thyroiditis, a female with acute pyelonephritis and a man with acute appendicitis. In lung scans, Ga-67 positive lesions were observed in 7 of 14 patients with lung T.B., 2 of 4 patients with acute bronchitis, 5 of 6 patients with pleuritis, 7 of 9 patients with pneumonia, 3 of 4 cases with lung abscess and all 3 cases with sarcoidosis. Repeated lung scans revealed remarkable decrease in radioactivity on the Ga-67 positive lesions following adequate therapy. Our data show that Ga-67-citrate scanning is a useful procedure of evaluating the severity and the stage of lung T.B., pneumonia and sarcoidosis and the recovery from abscess of the lung.

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CLINICAL EVALUATION OF GALLIUM-67 CITRATE IMAGING IN MEDIASTINAL TUMORS. K.Shirono, K.Shimabukuro, H.Sakata, M.Nakajo and S.Shinohara. Dep. of Radiology, Kagoshima University School of Medicine. Kagoshima.

Gallium-67 citrate imaging was evaluated in 33 patients with mediastinal lesions which were suspected to be mediastinal tumors on chest roentgenogram and histologically proved by thoracotomy, biopsy or autopsy (11 with malignant lymphoma, 6 with malignant thymoma, 4 with benign thymoma, 3 with thymic hyperplasia, 3 with dermoid cyst, 3 with neurogenic tumor, 2 with lymphangioma and 1 with bronchogenic cyst). The positive rate of gallium-67 accumulation was 94% (16/17) in malignant mediastinal lesions and 19% (3/16) in benign lesions. Three benign lesions which exhibited positive images were benign thymomas. If a positive image was regarded as a malignant lesion and a negative image as a benign lesion, the positive image accuracy rate was 84% (16/19), the negative image accuracy rate was 93% (13/14) and the diagnostic accuracy concerning differentiation of benignancy from malignancy was 88% (29/33). Therefore gallium-67 citrate imaging in mediastinal tumors was thought to be useful for differentiation between benign and malignant lesions.

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THE USEFULNESS OF GA-67 SCINTIGRAPHY IN MANAGEMENT OF MALIGNANCIES IN MEDIASTINUM AND HILAR REGIONS. M.Kawamura, S.Tanada, M.Ishino, A.Komatsu, A.Iio, K.Hamamoto, I.Ogushi. Dep. of Radiol. Ehime Univ. School of Med. Ehime.

Ga-67 scintigraphy was performed in 39 cases of lung cancer, 26 cases of malignant lymphoma, and 23 cases of esophageal cancer, before, during and after radiation therapy. Before radiation therapy, 94.7% of lung cancer, 93.3% of malignant lymphoma, and 74% of esophageal cancer were positive by Ga-67 scintigraphy. After radiation therapy, 11 cases of lung cancer, 3 cases of malignant lymphoma, and 1 case of esophageal cancer are positive by both Ga-67 scintigraphy and clinically or histologically. Eight cases of lung cancer, 4 cases of malignant lymphoma, and 3 cases of esophageal cancer were positive by scintigraphy but negative histologically or clinically (may be due to radiation effects). Sixteen cases of lung cancer, 17 cases of malignant lymphoma and 15 cases of esophageal cancer were negative by scintigraphy but positive histologically or clinically. Two cases of lung cancer, 1 case of malignant lymphoma and 1 case of esophageal cancer were negative by both scintigraphy and histologically or clinically. These results indicate, Ga-67 scintigraphy is useful in 1) The staging of lung cancer and malignant lymphoma, 2) The estimation of the effects of radiation therapy, 3) The decision of necessity of further treatment, 4) The early detection of the radiation pneumonitis.