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EVALUATION OF LYMPHOSCINTIGRAPHY FOR DIAGNOSIS OF EDEMA. A.Naitou, H.Fukuoka, M.Kagemoto, K.Itou, T.Nakanishi, K.Mukouida, Y.Ogawa, M.Sasaki, T.Ichiki, K.Kashiwado, and S.Katsuta. Hiroshima Red Cross Hospital. Hiroshima University School of Medicine.

The results of lymphoscintigraphy with Tc-99m rhenium colloid were reviewed. There were 3 cases of primary lymphedema, 12 cases of damage of lymphatic system in inguinal region, 1 case of lymphangitis and 5 cases of venous obstruction.

Three lymphoscintigraphic patterns were identified: (1) diffuse radioactivity of subcutaneous tissue found in 11 cases with damage of lymphatic system in inguinal region, (2) markedly decreased uptake included the inguinal lymphnodes on the affected side found in 3 primary lymphedemas and 1 lymphangitis, and (3) the activity in the lymphatic vessels found in 8 cases with damages in inguinal regions.

There was no relation between the region of lymphatic damages and location of diffuse activity or lymphatic vessels. The diffuse radioactivity in subcutaneous tissue was considered to be a characteristic finding of severe lymphedema. There were no lymphoscintigraphic findings in venous obstruction.

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DYNAMIC STUDY ON LYMPH FLOW OF LOWER LIMB WITH RADIONUCLIDE LYMPHOGRAPHY. K. Senda, H. Kobayashi, T. Uemura, M. Ikeda and S. Sakuma. Department of Radiology, Nagoya University School of Medicine. Nagoya

Time-activity curve obtained from the sequential image of radionuclide lymphography were evaluated on lymph flow dynamics. Radionuclide lymphography was performed with 3 mCi (0.1 ml) of Tc-99m-Re colloid which had been injected intracutaneously into bilateral foot or leg. The image was acquired every 15 sec. for 60 min. immediately after injection by a scinticamera with a minicomputer. The curve was obtained from bilateral region of upper thigh or groin in the image. Bilateral curves of 21 patients were grouped into 27 normal and 15 abnormal cases by findings in physical examination and direct X-ray lymphography. Peak or appearance time of the femoral or inguinal curve revealed a significant difference between normal and abnormal cases and between two injection sites. These parameters were unreasonably small in several abnormal cases. In a couple of them, systemic edema was recognized. And, pulse-or step-like pattern of the curve was remarkable, which was significantly disappeared in majority of abnormal cases. In another case with unilateral inguinal metastasis, unreasonable appearance of ipsilateral large vein was demonstrated in the image and no pulse-or step-like pattern was noticed. These results suggested that the time-activity curve was of clinical value for evaluating lymph flow dynamics.

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NONINVASIVE OBSERVATION OF LYMPH FLOW IN LOWER EXTREMITIES IN EDEMATOUS PATENTS. K. TAIRA, H. HASE, I. ARAI, A. HIROTA, H. SAKAI, S. YABUKI and K. SEKI. 3rd Dep. of Internal Med., School of Med., Toho Univ., Tokyo.

Using a gamma camera connected to the minicomputer system, the lymph flow in human edematous leg was studied noninvasively and clinically. Subjects were composed of 57 nonedematous and 30 edematous legs aged 16 to 89. 4mCi Tc-99mHSA (0,1ml) was injected into the subcutaneous tissue of the pretibial region and a scintigram was registered for about 30 minutes. In edematous legs caused by heart failure and renal dysfunction, the time fraction curves (lymph flow) showed rapid increase with stepwise rise and a lot of spiky waves and the maximum count was over 2.5 times those of the controls. It was concluded that lymph vessels could work actively in order to get rid of accumulated fluid in the interstitial tissue (edema fluid) under edematous state, unless the lymph vessels were injured.

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LYMPHOSCINTIGRAPHY IN THE CHEST WALL OF THE PATIENTS WITH BREAST CANCER AFTER THE RADICAL MASTECTOMY. H.Suzuki, S.Matsubara and T. Okuyama. Tokyo Medical and Dental University School of Medicine. Tokyo.

Lymphoscintigraphy in the chest wall was examined in 8 cases with breast cancer following the radical mastectomy in order to evaluate the lymphatic flow and opacification of regional lymphnodes. Tc-99m-Rhenium colloid was injected subcutaneously at three or four points around the surgical scar. The dose of the radioactive agent was  $3.7 \times 10^7$  Bq/0.3 ml. Scintigraphy was carried out few hours and one day after the injection. In 5/7 cases except one bilateral mastectomy case, the contralateral axillar and supra-or infraclavicular nodes were opacified. This indicated the existence of cross drainage lymphatic flow in the chest wall. The ipsilateral nodes in the operated side were manifested in 2/7 cases. Parasternal lymphnodes were seen in only 3/8 cases. Moreover lymphnodes in the lower lateral chest wall, probably due to unusual lymphatic pathway, were presented in 2/8 cases. There was no significant difference between the first and second scintigrams. Conclusively, lymphoscintigraphy following mastectomy is useful to know lymphatic flow, which offers important information to set up the field for postoperative radiation therapy. The above stated procedure is also useful to decide the extension of the recurrent tumor on the chest wall.