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## RADIOIMAGING OF VENOUS THROMBI WITH Ga-67 DAS-DF-FIBRINOGEN.

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Ga-67 DAS-DF-Fibrinogen, newly developed imaging agent of thrombus, retains clottability higher than 70% of that of unlabeled fibrinogen and the excellent thrombus/blood ratios were obtained in the animal studies.

In normal cases, blood clearance was rather slow ( $T_{1/2}$ ; 26-30hrs) and accumulation of radioactivity to liver, spleen, bone marrow and kidneys were observed. The urinary excretion rate was 28% of administered dose for 72 hours.

7 cases suspected of venous thrombosis were studied. 2mCi of Ga-67 DAS-DF-Fibrinogen was injected and images were obtained at 24, 48 and/or 72 hours.

4 of 7 cases showed abnormal hot spots at 48 hours. 3 cases who did not reveal abnormal hot spots were thought to have rather old thrombi.

Ga-67 DAS-DF-Fibrinogen was expected to be a good radiopharmaceutical to image fresh and active thrombi.

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## REGARDING THE CLINICAL SIGNIFICANCE OF RADIONUCLIDE ANGIOGRAPHY IN THE HEAD AND NECK REGION. I. Umehara, Y. Kuwabara and T. Okuyama. Tokyo Medical and Dental University, Tokyo.

Three-phase radionuclide angiography (RN-AG) with Tc-99m-labeled red blood cells or human serum albumin, was performed on 107 patients with mass lesion in the head and neck region; patients with hemangioma in the main. RN-AG consists of a flow study (angiogram), early (5-10 min after) and delayed (45-120 min after) blood-pool images. The findings in the flow study and delayed pool image were evaluated. Negative flow and positive pool finding was characteristic of cavernous hemangioma. But each case of malignant lymphoma and lingual thyroid showed the same finding. Positive flow and positive pool group had capillary hemangioma and so on. Positive flow and negative pool group included osteosarcoma and inflammatory lesions. Aneurysmal bone cyst which is formed by blood-filled spaces and so interesting in the hemodynamic aspect, was negative pool. The smallest lesion, detectable on pool image, was 15X11 mm in size. The detectability depends on the size and location of the lesion. RN-AG is useful for the diagnosis of hemangioma. Its technique is easy and non-invasive. It is also useful for the observation of the postoperative course.

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## "HOT SPOT" IN THE LIVER DEMONSTRATED BY RADIONUCLIDE VENOGRAPHY IN SUPERIOR VENA CAV-AL OCCLUSION. M. Mashimo, T. Muramatsu, K. Suzuki and T. Miyamae. Saitama Medical School. Moroyama, Saitama.

We observed hot spots (10 cases) in the liver by radionuclide venograms in patients with superior or inferior vena caval (SVC or IVC) occlusions.

Hot spots were found in 5 cases (11%) out of 45 SVC occlusions, in 4 cases (5%) out of IVC occlusions and in one case out of both occlusions.

In the case of SVC occlusion, a hot spot was visualized in the quadrate lobe (QL) in 2 cases, in the medial segment (MS) in 2 cases and in both areas in one case. The hot spot in the QL represents a venous blood flow from the internal mammary vein to left portal branch via the paraumbilical vein, and that in the MS represents from the internal mammary vein to the bare area via the phrenic vein.

In the case of IVC occlusion, a hot spot was visualized in the QL in all cases. The hot spot represents a venous blood flow from the superior and/or inferior epigastric veins to left portal branch via the paraumbilical vein.

In the case of both SVC and IVC occlusions, a hot spot was visualized in a wide area. It was suggested a venous blood flow from the superior hemorrhoidal vein to portal vein via the inferior mesenteric vein, in addition to the venous blood flow via the paraumbilical vein.

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## RADIONUCLIDE VENOGRAPHY AND SVC SYNDROME T. Hirano, T. Isawa, T. Teshima, A. Ebina, and K. Konno. Tohoku University, Sendai

The purpose of the study was to elucidate how radionuclide (RI) venography was useful to diagnosing SVC syndrome and evaluating the response to treatment. 115 patients were studied. The tracer (Tc-99m MAA) was injected into bilateral antecubital veins with the patients in the supine position under a gamma camera. Normally the tracer reached the SVC rapidly via the axillary, subclavian and innominate veins. In 12 patients with lung cancer and/or mediastinal tumor with clinical SVC syndrome, collateral pathways were present in all without exception. The collateral pathways observed were through 1) the inter-nal thoracic vein to the IVC, 2) the lateral thoracic vein to the IVC and 3) the jugular vein to the opposite side of the neck. These pathways were seen singly or in combination. 9 patients with no manifest SVC syndrome revealed collateral pathways and one of them developed the syndrome later. Time required for the tracer to travel from the axillary veins through the lung tissue was twice longer in patients with SVC syndrome than normally expected. In 10 patients, radionuclide venography was repeated after treatment of the SVC syndrome with irradiation and chemotherapy. 4 of them showed a marked improvement and the remainder, none.

In conclusion radionuclide venography with Tc-99m MAA is useful to the diagnosis of SVC syndrome and the evaluation of the response to treatment.