

L. Liver and Bile Duct

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EVALUATION OF THREE-VIEWS HEPATIC SCINTIGRAPHY WITH GAMMACAMERA COMPARED WITH ABDOMINAL ANGIOGRAPHY. H.Sugaya, M.Maehara, Y. Yoshitsuqu, Y.Katoh, T.Hisauchi, M.Thori, T. Harada, N.Iwasaki, H.Hyodo and T.Watarai. Dokkyo University School of Medicine, The Second Department of Internal Medicine and Radiology. Mibu, Tochigi.

To evaluate three-views hepatic scintigraphy with gammacamera as a routine examination, we compared SOL on hepatoscintigram with the corresponding findings on abdominal angiogram. Gammacamera Model GCA 401 was used for hepatic scintigraphy. Fifteen minutes after injection of Tc-99m phytate, hepatoscintigram was taken on anterior, posterior and rt.lateral view. Forty cases who undergone hepatic scintigraphy and abdominal angiography were studied.

- 1) Twenty seven cases (67.5%) had corresponding findings on both hepatoscintigram and abdominal angiogram as to SOL.
- 2) Six cases (15%) were false positive, and three cases (7.5%) were false negative on hepatoscintigram compared with findings on abdominal angiogram.
- 3) Most of these false positive cases had chronic liver disease. These cases had no abnormal findings of all three views on hepatoscintigram.
- 4) In the false negative cases, a size of localized lesions in the liver was below 2 cm in diameter.

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CLINICAL EVALUATION OF Tc-99m-MILLIMICROSPHERES(HSA-MM) AS A LIVER AND SPLEEN IMAGING AGENT. T.Morita, M.Fukuchi, A.Kido, K.Tachibana, K.Onoue, H.Kitani, Y.Maeda and K.Nagai. RI Center, Hyogo College of Medicine, Nishinomiya, Hyogo.

Evaluation of metabolizable HSA-MM as a liver and spleen imaging agent were studied. HSA-MM were commercially obtained, and each subjects such as 2 normal volunteers and 48 patients with various liver diseases recieved 4 mCi i.v. by bolus injection. Purity of labeled HSA-MM was shows similar to those of Sn-colloid and phytate by paper chromatography. (A)Following results was obtained in 2 normal volunteers; (1)Blood clearance at 20 min after injection were as follows; HSA-MM 4-6.6%, Sn-colloid 6.5% and phytate 17.6%. (2)Maximum liver uptake was found at 8-9 min by HSA-MM, 9 min by Sn-colloid and 10 min by phytate. (3)Spleen-liver ratio was shows 0.5-0.9 with HSA-MM, 0.6 with Sn-colloid and 0.1 with phytate. (4)The time activity curves with HSA-MM, Sn-colloid and phytate were expressed as a fraction of the 30 min uptake. The ratio was rapidly decreased in the HSA-MM, slightly decreased in the phytate and no significant in the Sn-colloid.(B)Following results was obtained in 48 patients; (1)The images of liver was shows similar to those of other agents. (2)The images of spleen was shows most clearly than those of other agents. (3)Radioactivity in the stomach area of the 2 patients is visualized in smaller amount. From our data, it can be used for the assessment of RES status.

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AUTOMATED COMPUTERIZED PATTERN CHARACTERIZATION OF THE LIVER SCINTIGRAM. M.Matsuo, K. Ushio, R.Ohnishi, K.Sugimura, A.Ichyanagi, S. Kimura, S.Nishiyama, Y.Kaneda, S.Fujii and M. Kobayashi. Kobe University School of Medicine and Kobe University Faculty of Systems Engineerings. Kobe.

We have reported the automated computerized pattern characterization of off-line data of liver scintigrams, which were taken on Polaroid films and devined into a computer through flying spot scanner and A/D converter. The automated computerized pattern recognition and differential diagnosis have been also reported with good results. This time, we report the automated computerized pattern characterization of on-line data of liver scintigrams, which are taken through a scinticamera minicomputer on-line system. The characteristics of our algorithm is in its contour extraction of liver. We used smoothing, thresh holding, modified merging technique and two dimensional matching technique, in which contours of liver and spleen are extracted in anterior view and posterior view liver scintigram referring to each other informations using two dimensional matching techniques.

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QUANTITATIVE EVALUATION OF DIAGNOSTIC EFFICACY IN LIVER SCINTIGRAPHY. T.A.Iinuma, Y. Tateno, T.Matsumoto, K.Machida*, G.Uchiyama*2, A.Kubo*3, T.Yamazaki*4, K.Kawakami*5, T.Nakajima*6, H.Murata*7, M.Iio*7. National Institute of Radiological Sciences, *Univ. of Tokyo School of Medicine, *2 Univ. of Chiba School of Medicine, *3 Keio Univ. School of Medicine, *4 Tokyo Women's Medical Univ., *5 Jikei Medical Univ., *6 Saitama Cancer Center, *7 Tokyo Metropolitan Geriatric Hospital.

Liver scintigraphy is widely employed as a screening test in various liver diseases, but only a few reports on its diagnostic efficacy have appeared in the literature. In order to obtain a quantitative value of diagnostic efficacy on the static liver image, 404 cases with confirmed diagnoses were collected from 8 different institutions which include 148 normals and 118 SOL^{99m}Tc

The radiopharmaceuticals used are ^{99m}Tc phytate of 378 cases, ^{99m}Tc Sn colloid 19 cases and others 7 cases. Imaging instruments employed are Anger camera of 309 cases and scanner of 95 cases. Each case consists of three images, A-P, P-A and right lateral, and the images were read by 11 nuclear medical specialists of different institutions. Results of interpretation are analyzed by ROC curve for the detetion of space occupying lesions. The 11 doctors who read the images showed remarkably similar ROC characteristis. Diagnostic efficacy is significantly low in the detection of lesions smaller than 3 cm compared to those larger than 3 cm.