

## Radioisotope angiography for differentiation of hepatic mass

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It has become well known that an ideal combination of the rapid imaging properties of the scintillation camera and a large dose of a short-lived nuclide makes possible a dynamic study of the heart, the major blood vessels and the kidneys by a simple intravenous injection. By the intravenous radioisotope angiography using  $^{113m}\text{In}$  Fe DTPA-ascorbic acid, renal cysts and neoplasm was easily distinguished. Likewise, the differentiation of hepatic cysts and neoplasms was thought to be possible by radioisotope angiography. An area of decreased radioactivity in the left lobe of the liver and remarkable visualization of the spleen were noticed on the liver scan made with  $^{198}\text{Au}$ -colloid. A large space occupying lesion could be suspected. Serial 3-second-exposure scintiphotographs were obtained after injection of 10 mCi of  $^{113m}\text{In}$  Fe ascorbic acid into an antecubital vein. In the frame from 14 to 17 seconds, image of the heart chamber and great vessel appeared and, in the frame from 24.5-27.5 seconds, radioactivity accumulated over the area corresponding to the defect on the radiogold scan.

This is due to ample hepatic artery flow, that is tumor stain. In the frame from 35 to 38 second, the accumulation of radioactivity were observed more clearly. This corresponds to portal vein phase. In the frame 112 to 115 seconds, radioactivity was diminishing from tumor already. Thus, radioisotope angiograms gave us the evidence that this was the case having hypervascular tumors. This was proved by autopsy to be hepatoma.

Another case with cystic liver primarily occupied in the left lobe was shown. From the radiogold scan, the space occupying lesion was suspected to be located on the left lobe. Immediately following intravenous injection of 10 mCi of  $^{113m}\text{In}$  Fe ascorbic acid, serial 3-second-exposure scintiphotographs were taken. In this case the lesion itself remained as a cold scan. This indicated the lesion was avascular. Thus, radioisotope angiography became a routine diagnostic tool in our department, when we discovered a space occupying lesion of unknown origin on the radiogold scan. At least, one can get easily an information whether tumor is hyper-vascular or not.

## Radioalbumin Microaggregates for reticuloendothelial Organ Scanning

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Radioactive particulate materials has been used for scanning agent of the liver, spleen and bone marrow.  $^{131}\text{I}$  colloidal albumin or  $^{131}\text{I}$  aggregated albumin (AA) was applied for the study of liver circulation or RES function. However, the turnover rate of this substance was too fast for the purpose of organ scan-

ning.

In 1967 Taplin and his associates reported a new method to prepare "micron" sized albumin aggregates using microwave oven and ultrasonic agitator. This new suspension of albumin aggregates was called "microaggregates", which is 1-5 $\mu$  in size and shows