

ADDITIONAL DATA ON HEPATIC FLOW STUDIES

An example of the increasing importance of radio-nuclide flow studies is pointed out by the report of Waxman, Apau, and Siemsen (1). These researchers noted that early filling of the liver, following injection of ^{99m}Tc -sulfur colloid, occurred in hepatic tumors and certain other pathologic processes. Three comments can be made that may help bring these hepatic flow studies into perspective.

1. The splenic artery and the hepatic are branches of the celiac axis. Hence, when the spleen fills with radiocolloid, we can assume that the hepatic artery also has had an opportunity to receive flow. Activity in the spleen and none in the liver indicates a negative flow study. In addition, the renal arteries can be useful guidelines. The renal vessels arise below the hepatic; thus, activity in the renal arteries or the kidneys indicates that flow has progressed below the celiac axis. Figure 1 shows a negative study with the tip of the spleen just showing and a blush of activity



FIG. 1. Normal anterior flow study visualizing spleen and kidneys but not liver.

AUTHORS' REPLY

The comments of Dr. Spencer are well appreciated. The appearance of radiocolloid in the normal liver bed usually occurs 6–10 sec after appearance in the surrounding organs such as spleen, kidney, and abdominal aorta. When an increased arterial component of the liver is present, such as in hepatic neoplasms, the radiocolloid will appear early. It is to be emphasized that this technique demonstrates early arrival in "arterialized" livers and gives only limited information regarding total hepatic blood flow.

We have chosen to use 10 mCi of ^{99m}Tc -sulfur colloid because of the low sensitivity of the Pho/Gamma III with a diverging collimator. A lower dose

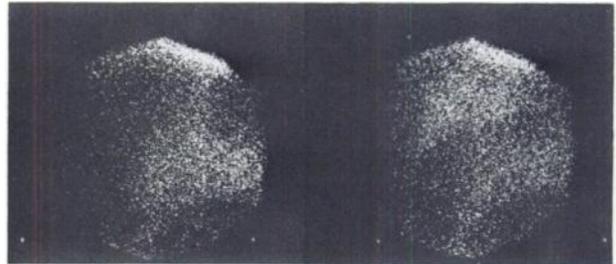


FIG. 2. Activity can be seen in this anterior flow study in left lower quadrant; the liver fills later.

in the kidneys (the patient was a 57-year-old man with carcinoma of the lung).

2. Abnormal intra-abdominal structures, other than within the liver, may be visualized during the flow study. An example is shown in Fig. 2. The left hand scintiphoto shows the early flow in a 54-year-old woman. It is apparent that there is filling of an area on the left side of the abdomen. The right hand view, taken 16 sec later, shows hepatic filling. The early flow was into a mass that proved to be an ovarian tumor.

3. Many laboratories use 2–6 mCi of ^{99m}Tc -sulfur colloid for liver or spleen scans and might be reluctant to increase the dose for a flow study. We have had good hepatic flow studies using 2–3 mCi of the radiocolloid and both Figs. 1 and 2 were made with injections of 2 mCi.

RICHARD P. SPENCER
Yale University School of Medicine
New Haven, Connecticut

ACKNOWLEDGMENT

This work was supported by USPHS HE 14179 (Yale University Lung Research Center) and by ET 44B from the American Cancer Society.

REFERENCE

1. WAXMAN AD, APAU R, SIEMSEN JK: Rapid sequential liver imaging. *J Nucl Med* 13: 522–524, 1972

may be used with a more sensitive detector system. In our early evaluation of this technique, we evaluated the use of 1, 3, and 5 mCi of ^{99m}Tc -sulfur colloid with inconsistent results. We agree with Dr. Spencer that the lowest possible dose to give a desired effect should be employed, and were impressed by the quality of both pictures of Dr. Spencer's in which 2 mCi were used.

ALAN D. WAXMAN
ROBERTA APAU
JAN K. SIEMSEN
LA County-USC Medical Center
Los Angeles, California