



FIG. 2. Case 2. Right lateral (left) and RAO scintiphotos (right) of right lung and liver after injection of 4 mCi of Tc-99m microspheres and 5 mCi of Tc-99m PIPIDA, showing normal liver and absence of space-occupying subphrenic process.

tient as well as decreased cost, and possibly earlier diagnosis and shorter hospitalization.

JOSEPH MARC BECKER
PAT FOGEL
Temple University Hospital and
The American Oncologic
Hospital
Philadelphia, Pennsylvania

REFERENCES

1. BROWN ML, FREITAS JE, WAHNER HW: The hepatic parenchymal image in hepatobiliary scintigraphy. *J Nucl Med* 21:P17, 1980 (abst)
2. FONSECA C, GREENBERG D, ROSENTHALL L, et al: Assessment of the utility of gallbladder imaging with ^{99m}Tc-IDA. *Clin Nucl Med* 3:437-441, 1978
3. KLINGENSMITH WC III, FRITZBERG AR, SPITZER V, et al: Clinical comparison of ^{99m}Tc-diethyl-IDA and ^{99m}Tc-PIPIDA for evaluation of the hepatobiliary system. *Radiology* 134:195-199, 1980
4. WEISSMANN HS, FRANK MS, BERNSTEIN LH, et al: Rapid and accurate diagnosis of acute cholecystitis with ^{99m}Tc-HIDA cholescintigraphy. *Am J Roentgenol* 132:523-528, 1979
5. WEISSMANN HS, BADIN JD, HALL T, et al: Tc-99m-diisopropyl iminodiacetic acid (DISIDA): The best overall cholescintigraphic radionuclide for evaluation of hepatobiliary disorders. *J Nucl Med* 21:P18, 1980 (abst)
6. WEISSMANN HS, FRANK MS, FREEMAN LM: Serendipity in technetium-99m dimethyl iminodiacetic acid (HIDA) cholescintigraphy. *J Nucl Med* 20:679, 1979 (abst)

Reply

We are in complete agreement with Becker and Fogel that there is definitely important anatomic information available in the early hepatocyte phase of hepatobiliary scanning (1,2). Multiple views in the hepatocyte phase are feasible, and we have done anterior, right lateral, posterior, and oblique views when necessary for the characterization of biliary-tract structures or incidentally noted filling defects. We do not perform these views routinely, since in most cases referred for biliary scintigraphy these extra views are not necessary. When both anatomic and functional imaging is necessary, as pointed out in the two cases mentioned by Becker and Fogel, the biliary scanning agents can certainly be used to answer both questions, thereby obviating the need for a sulfur colloid scan.

We still stand by our previous statement that biliary scintigra-

phy should not replace routine sulfur colloid scanning when a mass lesion is in question. Although the sensitivity for lesion detection appears to be equal to PIPIDA in our study, this fact cannot be used to substantiate the need to exclude the sulfur colloid scan from routine use. The biliary scanning agents do not permit an evaluation of the relative distribution of colloid, or an assessment of splenic function. Both of the abovementioned findings have been found useful in the interpretation of the liver scan. The biliary scanning agents are dynamic in function and, although multiple views are obtainable early in the study, if additional views are required (such as obliques, standing views, or gated images) the biliary agents would already be out of the hepatocyte phase and into the biliary phase.

MANUEL L. BROWN
HEINZ W. WAHNER
Mayo Clinic
Rochester, Minnesota
JOHN E. FREITAS
William Beaumont Hospital
Royal Oak, Michigan

REFERENCES

1. BROWN ML, FREITAS JE, WAHNER HW: The hepatic parenchymal image in hepatobiliary scintigraphy. *J Nucl Med* 21: P17, 1980 (abstract)
2. BROWN ML, FREITAS JE, WAHNER HW: Useful hepatic parenchymal imaging in hepatobiliary scintigraphy. *Am J Roentgenol*, in press

Re: False-Negative Gallbladder Scintigram in Acute Cholecystitis

Two cases of acute cholecystitis with apparently normal gallbladder scintigrams were described in the September 1980 issue of the *Journal* (1). The authors present some interesting pathologic correlation. After a careful review of the images presented in Fig. 1, however, we conclude that the focal increase in activity may not represent the gallbladder. The area of uptake appears unusually early to be the gallbladder, for there is some visualization on the 5-min image, which is more consistent with renal uptake. Comparison of the focal increase in the anterior and right anterior oblique views is very helpful. The gallbladder, an extremely anterior structure, should rotate closer to the midline in the right anterior oblique (RAO) view. In this case, the focal increase is slightly more lateral in the RAO view, again in keeping with a posterior structure, such as the right renal pelvis. This point can be confirmed by measuring from the focus of increased activity to the lateral edge of the right lobe of the liver, a distance that should be greater in the RAO view than in the anterior view.

The final bit of evidence is seen by comparison of the posterior 25-min and the anterior 30-min views. Even with allowance for slightly different intensities, the focal increase clearly is much brighter on the posterior view, which again suggests a posterior location. The other possibility would be that the gallbladder has already begun to empty at 30 min, which is rather unlikely. In the unusual case in which an acutely inflamed gallbladder does visualize, impaired emptying is expected.

The pathologic data and scintigram of the unopened gallbladder confirm that tracer did reach the gallbladder before surgery, which probably occurred at least several hours following injection of the tracer. It is interesting to speculate whether there would have been enough tracer in the gallbladder within the first 60-90 min to consider the study truly normal.

The images in the second case probably do represent the gallbladder.