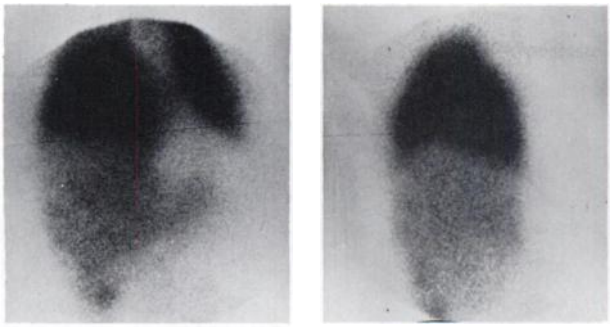

**FIG. 2.** Case 2. Right lateral (left) and RAO scintiphotos (right) of right lung and liver after injection of 4 mCi of Tc-99m microspheres and 5 mCi of Tc-99m PIPIDA, showing normal liver and absence of space-occupying subphrenic process.

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

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## 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 scintigraphy 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.

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## 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.

We agree with the authors' conclusions but believe that only one of the two cases represents a false-negative study. It should be emphasized, however, that some of these cases are difficult to interpret. We routinely obtain images in at least one right anterior oblique and one left anterior oblique view, and a lateral or posterior view may also be helpful. Only with multiple views can we be certain that we visualized a gallbladder rather than renal activity or a prominent common duct or duodenum. We found that the somewhat greater renal excretion of HIDA did tend to cause difficulty with interpretation, and for that reason we prefer to use PIPIDA despite its somewhat slower excretion by the liver.

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## Reply

The points raised by Dr. Brachman and colleagues are well taken; however, reinterpretation based on published images and incomplete knowledge of facts is always difficult. The focus of increased activity in question was only interpreted as representing the gallbladder after consideration of the following. Anatomically the focus lies in the gallbladder fossae and is in the correct relationship to the common duct. It is too medial to be the renal pelvis, and in the posterior view it lies medial to the renal impression in the liver. It is brighter than the left pelvis at all times and does not fade as the pelvis does. In the plain abdominal film the position of the right kidney does not correspond to the focus. The RAO view was obtained by raising the right flank of the patient, and placing a wedge under it. The patient had lumbar scoliosis with a left-sided convexity, and we are not certain how this would affect the postulated posterior rotation of the gallbladder. At 12:30 p.m. the patient received the radiotracer and the gallbladder was removed about 2 hr later. The resected specimen was imaged the next day, and the bile was still radioactive.

We fully appreciate the difficulties in interpretation and routinely use multiple views. In this particular case, however, sufficient time to complete the study to our satisfaction could not be assigned, since the patient was rushed to surgery.

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## Platelet Labeling with In-111 Oxine: Benefit of Prostacyclin ($PgI_2$)—Addition for Preparation and Injection

Wistow et al. (*1*) used prostaglandin $E_1$ ($PgE_1$) for injection of platelets labeled with In-111 oxine and found a decreased adherence of labeled cells to the infusion tubing. However, since no influence on platelet survival could be observed, the authors did not recommend its use.

Moncada et al. (*2*) discovered prostacyclin ($PgI_2$), which acts like $PgE_1$ on platelets but is 20-30 times more active. Since $PgI_2$ could enhance labeling efficiency by increasing intracellular c-AMP (*2*) and by preserving cell function during preparation, we studied its effect on human platelets.

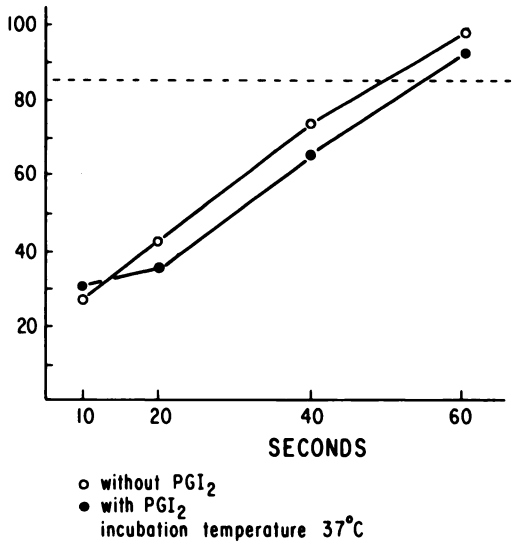


**FIG. 1. Labeling efficiency with and without prostacyclin.**

During labeling, 25 ng $PgI_2$ (kindly supplied by C. Gandolfi from Caro Erba. Milano, Italy) were added per milliliter of withdrawn citrated human blood, also to each milliliter of platelet-rich plasma (PRP) or platelet-rich Tyrode-albumin solution after each wash. While labeling efficiency (Fig. 1) after a short period of incubation was not influenced by the $PgI_2$ addition, the number of small, visible aggregates occurring during preparation was decreased and the number of small aggregates seen under scanning electron microscopy was significantly decreased. In addition, the solution of the pellet during the washing procedure was much easier and quicker. The same data could be obtained using 500 ng $PgE_1$ per milliliter.

Though prostaglandins ($PgE_1$ and $PgI_2$) have no influence on labeling efficiency or platelet survival (*1*), they play a beneficial role, both during preparation and by diminishing platelet adherence to the surface of infusion tubing, most likely through membrane stabilization by elevation of intracellular c-AMP. We, therefore, recommend the use of $PgI_2$ in the dosage mentioned above. Recent findings of a better recovery support the beneficial role of $PgI_2$ during platelet preparation.

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## Reply

H. Sinzinger et al. refer to recent findings of better platelet recovery after prostaglandins have been added to platelet-rich plasma