Artifact or Filling Defect

Stephen E. Bostrom

University of Colorado Medical Center, Denver, Colorado

The distinction between true lesions and defects created artifactually is of great concern, particularly when interpreting studies obtained from the scintillation camera.

Recently, a patient was referred to the nuclear medicine clinic for evaluation of liver damage secondary to chronic alcoholic cirrhosis. The liver-imaging procedure, using ^{99m}Tc-sulfur colloid and the scintillation camera, was carried out in the usual fashion which included anterior, posterior, left and right lateral projections.

Figure 1 shows scintiphotos obtained 10 min after the intravenous administration of the radiopharmaceutical. Note the well-circumscribed defect seen in the central aspect of the left lobe. Note also that the defect is seen only in the anterior projection.

The anterior view is routinely obtained as the first scintiphoto of the series, and since the defect was not observed on subsequent images, the possibility of an instrument-related artifact seemed remote. Repeat examination the following day failed to confirm the original finding (Fig. 2).

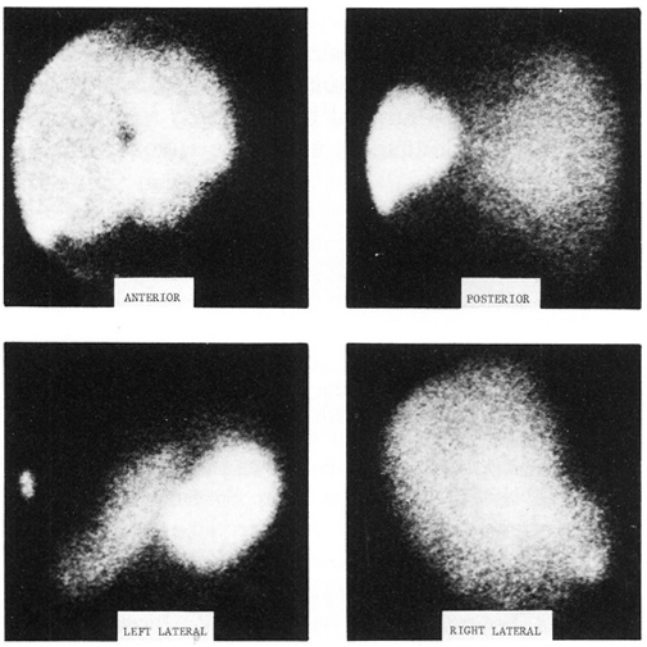

FIG. 1. Routine projections obtained during liver-imaging procedure illustrating defect (arrow) in anterior view only.

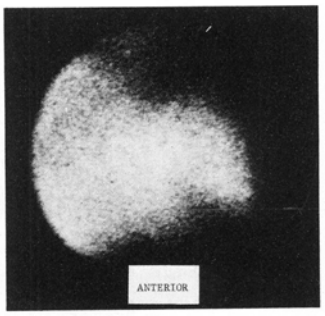

FIG. 2. Repeat liver-imaging (anterior projection) study 24 hr later showed no evidence of filling defect.

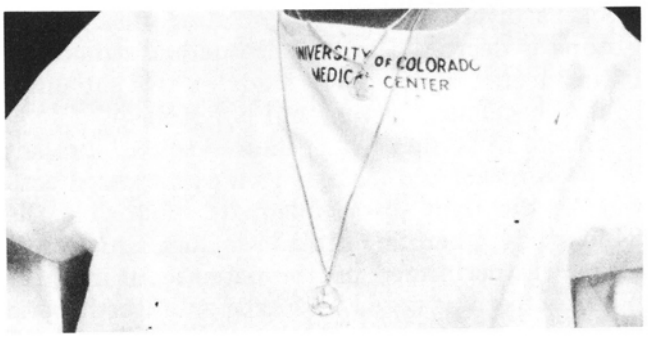

FIG. 3. Patient with religious medal which measured 2.0 cm in diam.

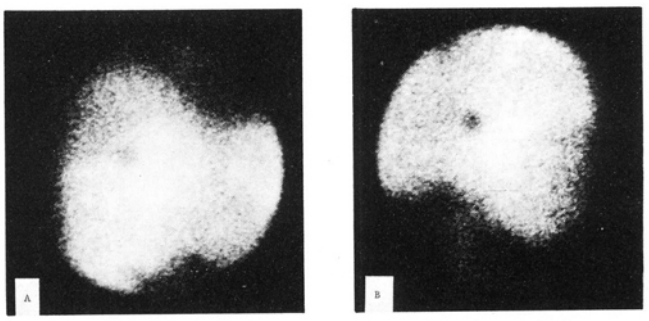

FIG. 4. Scintiphotos obtained with patient wearing religious medal. Position of medal was changed to exemplify difference of attenuation by greater thickness of liver tissue in right lobe (A) and thinner left lobe (B).

The patient was questioned regarding the presence of foundation garments and/or jewelry

For reprints contact: Stephen E. Bostrom, Box 114, University of Colorado Medical Center, 4200 E. 9th Ave., Denver, Colo. 80220.

and it was learned that she had worn a religious medal on the day of the initial examination. The medal was examined and found to be made of solid gold measuring 2.0 cm in diam, suspended from a long golden chain (Fig. 3). Scintiphotos were then obtained with the medal in place around the patient's neck (Fig. 4). Although not in the same position, the cause of the defect had been found.

This situation is presented in an effort to illustrate the need for alert examination of the patient before the study. The axiom, "Defects should be seen in at least one subjacent view," proved to be the deciding factor in the correct evaluation of this case.