

# Unusual Scintigraphic Appearances of a Mobile Accessory Lobe of the Liver

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**Accessory hepatic lobules are an uncommon occurrence. In a gallium scan, a highly mobile, asymptomatic liver lobule gave rise to diagnostic confusion. It was resolved by the use of multiple radiopharmaceuticals.**

J Nucl Med 19: 1235-1237, 1978

Accessory liver lobules are a relatively rare occurrence, but may occasionally give rise to symptoms from acute or intermittent torsion of their attenuated pedicles, and thus require surgical intervention (1,2). In a review of the English literature, Pujari found only seven symptomatic cases, all of whom were women (3).

We present here another, but asymptomatic, case of a highly mobile lobe of the liver, with the scintigraphic features following administration of multiple radiopharmaceuticals.

## CASE REPORT

A 21-year-old white nurse was admitted for investigation of persistent pyrexia. Six months before admission, she had been on vacation in Corfu, where she had drunk untreated milk and eaten the local cheese. Two weeks after return home she developed generalized malaise, fever, night sweats, and axillary and cervical lymphadenopathy. The latter resolved, but she remained generally unwell, with persistent fever. Investigations performed locally eventually showed a positive screening test for brucellosis, though later serologic tests did not confirm this. The only other abnormality was an elevated  $\gamma$ -glutamyl transferase level, the other liver function tests being normal. She was treated for 2 mo with streptomycin and co-trimoxazole, but her fever continued and she was admitted to the hospital for further investigation.

Except for the finding of an easily palpable right lobe of the liver, physical examination was normal. The palpable liver had been noted by her father when the patient was six, and intermittently since then. All repeat serologic tests for brucellosis remained normal, as were all the other tests, apart from the persistently raised  $\gamma$ -glutamyl transferase. In view of this, a liver scintiscan was performed using 4 mCi of Tc-99m sulfur colloid. This was interpreted as showing a large Riedel's lobe (Fig. 1).

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Received Oct. 12, 1977; revision accepted May 24, 1978.

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As part of the investigation of her pyrexia, a gallium scan was performed (Fig. 2A) 48 hr after the injection of 2.5 mCi of Ga-67 (pulse height analyzer at 120 keV with 80 percent window). The general distribution of gallium was normal and the distribution in the liver was similar to that in the sulfur colloid study. However, the routine 72-hr scan, shows a gallium-accumulating mass in the left hypochondrium (Fig. 2B). For localizing purposes, a repeat study using 2 mCi of Tc-99m sulfur colloid was carried out immediately in the same position (pulse height analyzer at 140 keV with 40 percent window). This showed that the

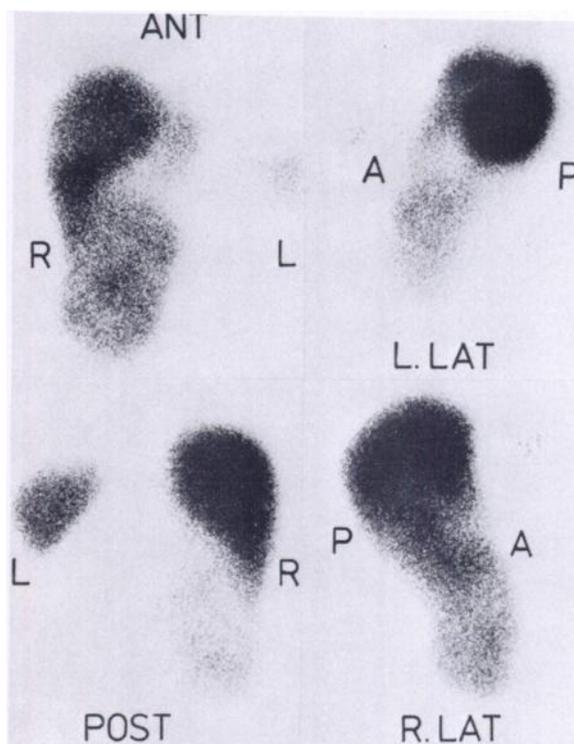
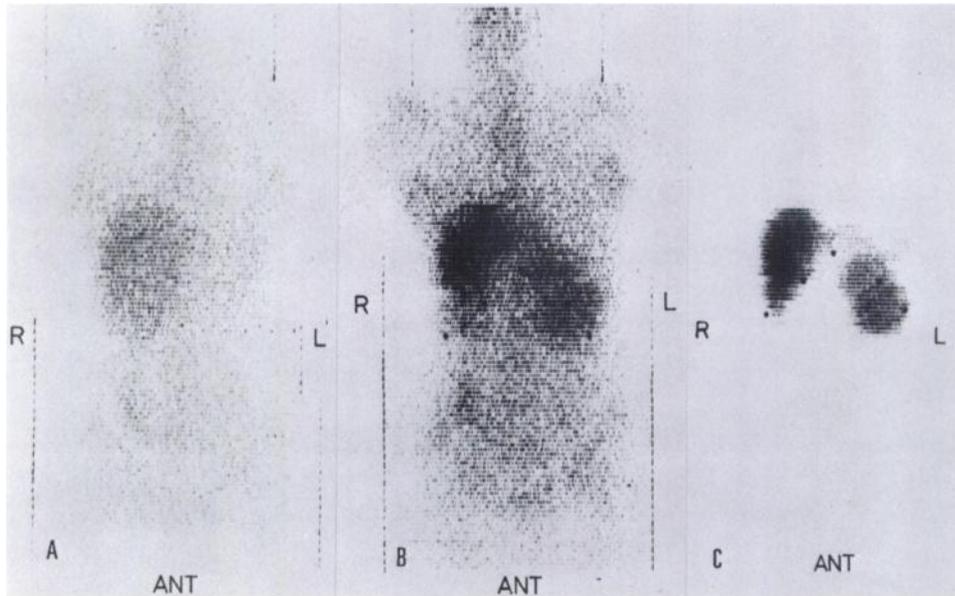


FIG. 1. Tc-99m sulfur colloid liver scintiphoto.



**FIG. 2.** A) Gallium-67 scan 48 hr after injection. B) Gallium-67 scan 72 hr after injection. C) Tc-99m sulfur colloid liver scan, 1:5, with costal margin marked.

mass accumulated colloid (Fig. 2C), and that the Riedel's lobe was no longer visible. The mass was easily palpable in the left hypochondrium and had not been noted clinically before.

Confirmation that this was, in fact, a highly mobile lobe

of the liver was obtained by defining the spleen with Tc-99m labeled autologous red blood cells (Fig. 3A) and finally giving Tc-99m dihydrothioctic acid (DHTA), a hepatobiliary agent, with imaging 5 min after i.v. injection. This showed clearly that the mobile mass contained hepatocytes (Fig. 3B). Ultrasound examination of the abdomen also demonstrated the large lobule and suggested possible diffuse hepatic infiltration (Fig. 4), though this was never confirmed by liver biopsy.

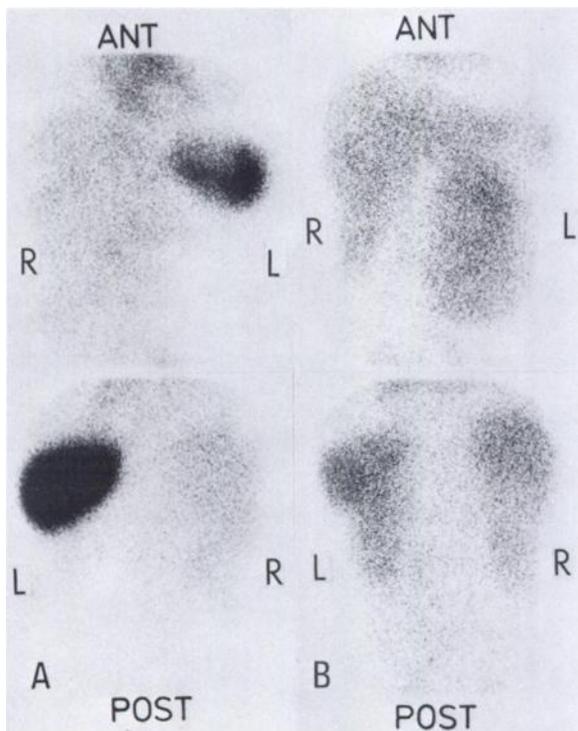
No firm diagnosis of her pyrexia was made, but eventually she was treated with Levamisole on the presumption that her problem was persistent, serologically negative brucellosis.

**DISCUSSION**

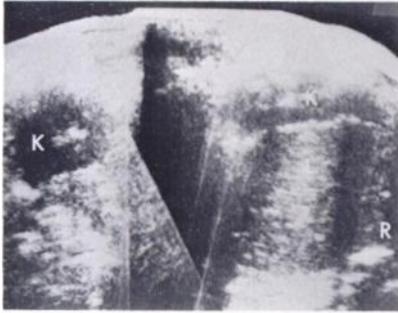
The occasional tongue-like projection of the right lobe of the liver, extending to or below the umbilicus, was first described by Riedel in 1888 (4). His ten cases were all women and had associated adjacent inflammatory lesions, but a review of 31 cases (30 of whom were women) from 1 year at the Mayo clinic suggested that Riedel's lobe was merely a normal variant (5). The appearances of Riedel's lobe on scintiscanning with I-131 rose bengal (6) and with Au-198 colloid (7,8) have been described previously.

In our case, the initial impression of a Riedel's lobe was apparently confirmed by the first sulfur colloid study and the 48-hr gallium scan. At 72 hr, however, the accumulation of gallium in the left hypochondrium caused diagnostic difficulty. It is unlikely to have been indicating intestinal content of gallium because of the comparative lack of uptake in the intestine on the 48-hr study, but a gallium-accumulating tumor was possible. However, the uptake of sulfur colloid and dihydrothioctic acid confirmed that this was simply a highly mobile lobe of the liver that had "flipped" from the right hypochondrium to the left and was suspended from the left lobe by an attenuated pedicle.

Accessory lobes of the liver are a much rarer occurrence than Riedel's lobes (9) and are usually noted incidentally at postmortem. The accessory lobe is usually attached to



**FIG. 3.** A) Spleen scintiphotos with Tc-99m-labeled, denatured autologous red cells. B) Liver scintiphotos with Tc-99m dihydrothioctic acid.



**FIG. 4.** Ultrasound image performed with patient in prone position, transversely (K—kidney, L—liver lobule, R—right). Right kidney is partially displaced and compressed by the lobule.

the liver by a mesentery or by a pedicle, and an artery, vein, portal vein, and bile duct are necessary for its viability.

#### ACKNOWLEDGMENTS

We are grateful to Prof. J. R. Trounce for his permission to report on this case and to Dr. B. C. King for use of the ultrasound image.

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