jnm/CASE REPORT

INTRAHEPATIC FOCAL LESION IN ACUTE VIRAL HEPATITIS

Jon M. Beauchamp, Martin A. Belanger, and Harold R. Neitzschman

Charity Hospital of Louisiana at New Orleans, New Orleans, Louisiana

A case of viral hepatitis exhibiting a large focal defect on rectilinear scanning with ^{99m}Tc-sulfur colloid which showed a positive localization of ^{75}Se-selenomethionine was recently described. This report presents a similar patient in whom a positive localization with ^{67}Ga-citrate was noted. As in the previously described case, the lesion was initially thought to represent a space-occupying mass rather than diffuse inflammatory process.

Koenigsberg and Freeman (*1*) recently described a case of a 15-year-old girl with acute hepatitis in which liver scanning with ^{99m}Tc-sulfur colloid demonstrated a large focal defect, subsequently shown to positively localize selenomethionine. This report describes an additional case in which focal inflammation within the liver due to acute viral hepatitis produced a similar cold area in routine colloid liver scanning with positive localization using ^{67}Ga-citrate.

CASE REPORT

A 55-year-old white woman was admitted with complaints of right axillary adenopathy. The patient had had bilateral radical mastectomies 10 years before for carcinoma of both breasts, with no evidence of recurrence in the interim. Her initial clinical evaluation revealed no physical abnormality other than firm, fixed right axillary adenopathy. No history of hepatitis contact, recent blood transfusion, or parenteral medication was elicited.

Laboratory results revealed a hematocrit of 36%, WBC 5,000/mm^3 with a normal differential. Total and direct bilirubin, SGOT, SGPT, LDH, alkaline phosphatase, total serum protein, and globulin and prothrombin time were within normal limits. No Australian antigen determination was made as the patient was not initially suspected of an hepatic problem. Blood, urea, nitrogen, glucose, calcium, phosphorus, total serum protein, and electrolytes were also within normal limits. Electrocardiography, chest x-ray, and plain film of the abdomen showed no abnormality other than evidence of previous bilateral mastectomies.

The patient was taken to surgery and biopsy of her right axillary lymph node performed. Pathological examination of the specimen showed only reactive hyperplasia. In the immediate postoperative period the patient complained of epigastric pain. For this reason, a liver scan and additional liver function studies were obtained. The laboratory determinations were within normal limits. The ^{99m}Tc-sulfur colloid rectilinear scan demonstrated a somewhat vaguely defined area of decreased tracer activity

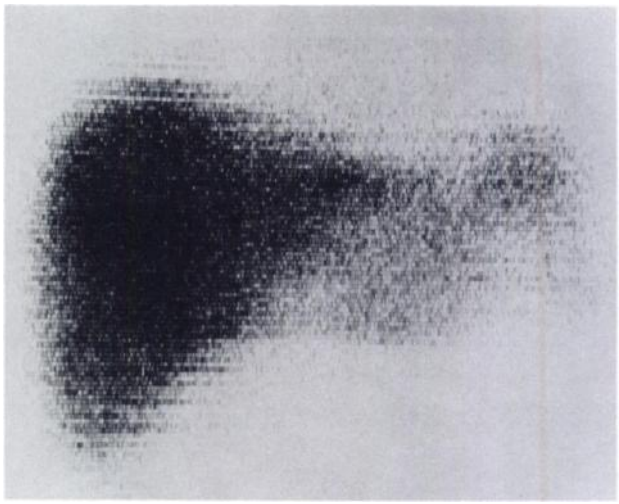

FIG. 1. Rectilinear liver scan with ^{99m}Tc-sulfur colloid showing focal defect in left lobe.

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For reprints contact: Jon M. Beauchamp, Dept. of Nuclear Medicine, Charity Hospital of Louisiana at New Orleans, 1532 Tulane Ave., New Orleans, La. 70140.

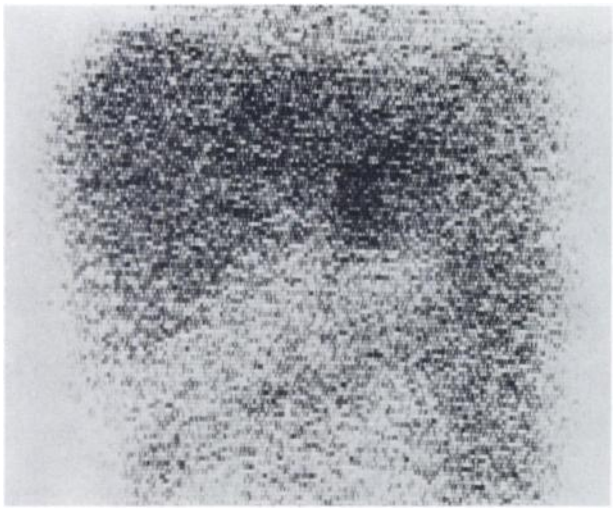

FIG. 2. Rectilinear liver scan with ^{67}Ga-citrate showing increased tracer activity in area of diminished colloid localization.

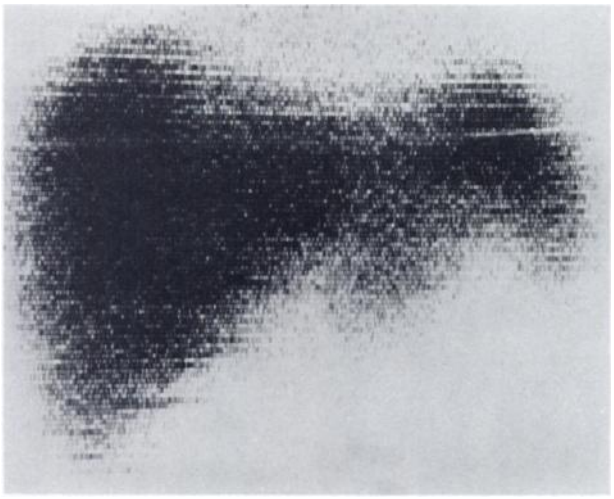

FIG. 3. Rectilinear liver scan using ^{99m}Tc-sulfur colloid obtained 2½ months after initial study, showing resolution of focal defect in left lobe.

in the left lobe of the liver (Fig. 1). Because of the patient's relative lack of symptoms, normal laboratory findings, and the appearance of a relatively discrete focal area of diminished activity, a ^{67}Ga-citrate scan of the abdomen was obtained. This showed an area of increased activity corresponding to the cold area detected on the previous examination (Fig. 2). Because of these findings and because of the patient's history of previous malignancy, possibility of a metastatic lesion was considered and open biopsy was obtained. The histological findings of the biopsy specimen were typically those of acute viral hepatitis.

The patient developed no further symptoms, with fairly prompt remission of the epigastric discomfort initially described. During the following 3 weeks several liver chemical determinations were obtained, none of which showed any abnormality.

The patient returned 2 months following discharge for repeat liver scanning at which time the area of diminished activity was no longer evident, the entire liver scan then being interpreted as essentially normal (Fig. 3).

DISCUSSION

The presence of a focal defect within the liver in an otherwise well patient, especially in an individual with a previous history of malignancy, is generally considered a strong indication for liver biopsy. In this case, the patient's subclinical hepatitis was not suspected preoperatively because of normal liver function studies. In addition, the finding of focal defects in viral hepatitis is unusual but has been described before (*2*). Localization of ^{67}Ga-citrate may occur in many pathological processes within the liver, including both benign and malignant neoplasms, abscesses and other inflammatory conditions, as well as within normal liver tissue (*3*). The mechanism of reduced tissue activity in the colloid scan is presumed to be the result of swelling and necrosis of the hepatocytes, producing a relative displacement or widening of the distribution of the Kupffer cells. Mechanism of localization as seen in the ^{67}Ga scan is only speculative but may be related to localized alteration of the intercellular pH due to the pathologic process. The importance of recognizing this scintigraphic pattern is obvious in preventing unnecessary surgical intervention or biopsy in patients with acute viral hepatitis. This condition is of importance to the medical personnel and to the patient because it is transmissible.

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