nm/ CASE REPORT

INTRAHEPATIC LESION PRESENTING AS AN AREA OF INCREASED RADIOCOLLOID UPTAKE ON A LIVER SCAN

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Space-occupying lesions of the liver, if large enough, will normally present as areas of diminished counting rate on radionuclide scintiphotography. The following is a case of increased radiocolloid uptake in the liver in an area suspected of being diseased.

CASE REPORT

This was the first University Hospital of San Diego County admission for this 63-year-old Mexican national who was admitted with a chief complaint of chest pain and left arm numbness of 6 weeks' duration. Three weeks prior to admission, the patient noted the onset of arm and facial swelling. He had been a smoker with a chronic cough for approximately 50 years and had been treated for emphysema for approximately 3 years. There was no history of liver disease.

Physical examination revealed an elderly gentleman with mild respiratory distress. His blood pressure was 120/50, pulse of 80 per min, respiration of 16–20 per min. Lymph nodes were palpable in the neck and were firm in consistency. There was a trace of pitting edema on his face, and 2+ pitting edema was present in both upper extremities. The neck veins were markedly distended bilaterally, as were the veins over his chest and back, which flowed caudally. Diffuse inspiratory and expiratory rhonchi of both lungs were noted with diminished breath sounds at the right base. The abdomen was soft without organomegaly.

Pertinent laboratory values included hemoglobin 10 gm%, hematocrit 31%, white blood cell count 14,800, sedimentation rate 135, serum glutamic oxaloacetic transaminase 15 μ (normal 8–40 units), lactic dehydrogenase 400 μ (normal 500 units), and bromosulphalein 17% (normal less than 5%). The chest x-ray showed a right mid-mediastinal paratracheal mass as well as a right pleural effusion. A superior venacavogram revealed complete occlusion of the superior vena cava with marked collateralization around both subclavian veins. Cystological examination of the pleural fluid was Class 2, and the sputum was Class 3.

A liver scan was obtained using 3 mCi of ^{99m}Tc-sulfur colloid (Fig. 1). There was a region of pronounced increased counting rate at the junction of the right and left lobes of the liver. A repeat radiocolloid liver scan revealed a similar area of increased uptake. To explain this unusual finding, the liver scan was repeated with 250 μCi of ^{131}I-rose bengal (Fig. 1) which revealed a decrease in counting rate over the area previously described as abnormal. An ultrasound scan of the abdomen (Fig. 2) revealed multiple abnormal echoes from within the liver in the area in question consistent with either metastatic disease, localized cirrhosis, or fatty metamorphosis.

During his hospital stay, the patient developed hemoptysis. Because of the history and the clinical findings, a presumptive diagnosis of carcinoma of the lung was made. Because of the severity of the patient's clinical course, radiotherapy was administered to the lung and mediastinum without a tissue diagnosis. The patient received 4,700 rads tumor dose to the right anterior and posterior mediastinum and upper chest using ^{60}Co. He tolerated the therapy well, but his presenting symptoms were unrelieved. He was discharged to be followed in tumor clinic but returned to Mexico and was lost to followup.

DISCUSSION

To our knowledge the radiocolloid liver scintiphotos presented here are unique in that a probable liver mass presents as an area of increased counting rate. Since colloids are extracted from the plasma only by

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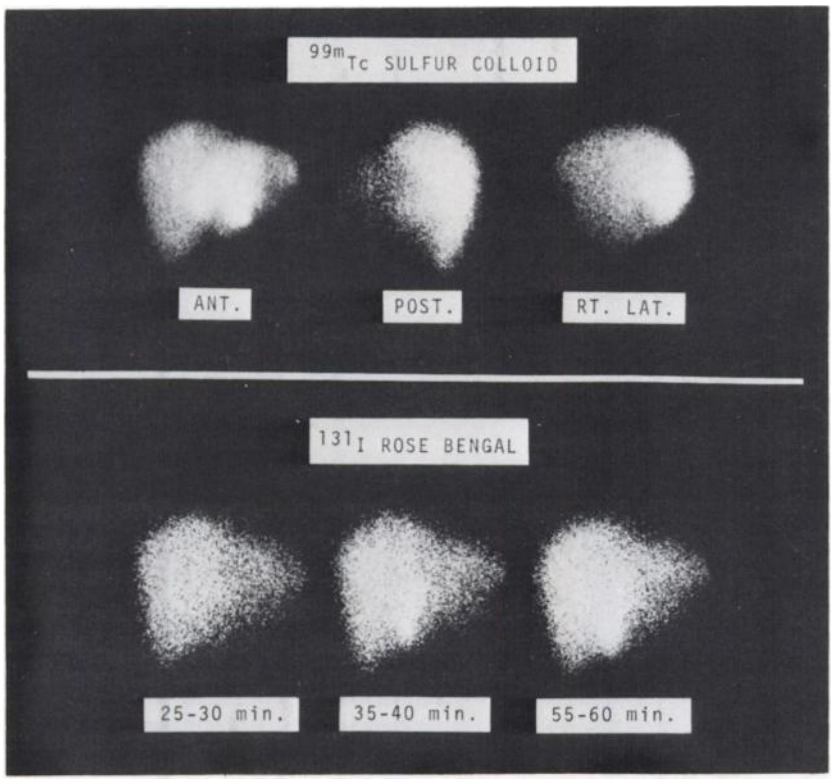

FIG. 1. ^{99m}Tc-sulfur colloid scan reveals area of increased uptake at junction of anterior right and left lobes of liver. ^{131}I-rose bengal study has decreased counts in same region.

the phagocytic cells of the body (Kupffer cells in the case of the liver), it is necessary to postulate that this liver mass is capable of phagocytic activity. That a mass is actually present in the area of increased counting rate seems irrefutable since both the ultrasound and rose bengal study confirm the evidence of a space-occupying lesion in the same position as the colloid scan. Whatever the tissue type, there is very little evidence of polygonal cell activity in the lesion.

Many features of this patient's disease are obscure and will, unfortunately, remain obscure. It would appear from the clinical data available that he did indeed have a malignancy and that the malignancy was the etiology of his superior vena cava syndrome. The possibility of the malignancy being responsible for the area of increased colloid phagocytosis noted on the liver scintiphoto cannot, of course, be either confirmed or denied. Phagocytic activity has been noted in cell cultures of reticulum cell sarcoma; however, it should be noted that such activity is slow. The amount of uptake noted in the liver of our patient would imply that the tissue in question was very active phagocytically and therefore less likely to be malignant. A second possibility could be that each phagocyte extracted only very small amounts

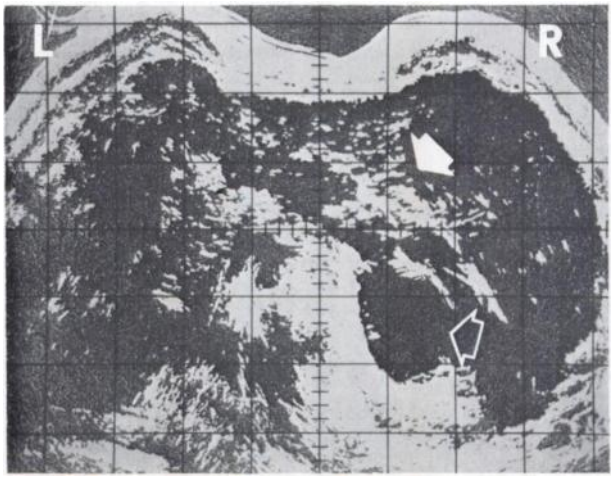

FIG. 2. Low-gain transverse ultrasonic scan of upper abdomen showing focus of abnormal echoes within left lobe of liver (solid arrow) and cyst of upper pole of right kidney (open arrow).

of colloid, yet, by sheer weight of numbers, extracted a great amount of the radiopharmaceutical and presented as an area of increased counting rate.

This case is presented in an effort to stimulate like reports and comments from other investigators working in our field, especially regarding the etiology of the phenomena.