

UPTAKE OF ⁷⁵Se-SELENOMETHIONINE BY HEPATOMA

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A case with discussion and review of literature emphasizing the use of ⁷⁵Se-selenomethionine in the diagnosis of hepatocellular hepatoma is presented here.

CASE REPORT

The patient was a 67-year-old Puerto Rican white female who presented with an epigastric mass.

Three weeks before admission the patient had an episode of right upper abdominal pain lasting 5 hr without nausea, vomiting, or diarrhea. There was no history of anorexia, weight loss, change in bowel habits, or jaundice. She was a nonsmoker and non-drinker.

The pertinent finding on physical examination was an irregular, firm, superficial tender 8 × 8-cm mass located in the right epigastric area which moved with respiration.

Laboratory findings were as follows: An abnormal liver profile with SGOT of 82 units, alkaline phosphatase of 160 units, LDH of 375 units. The serum bilirubin was normal (direct 0.1 mg%, indirect 0.4 mg%).

The GI and barium enema exams were negative.

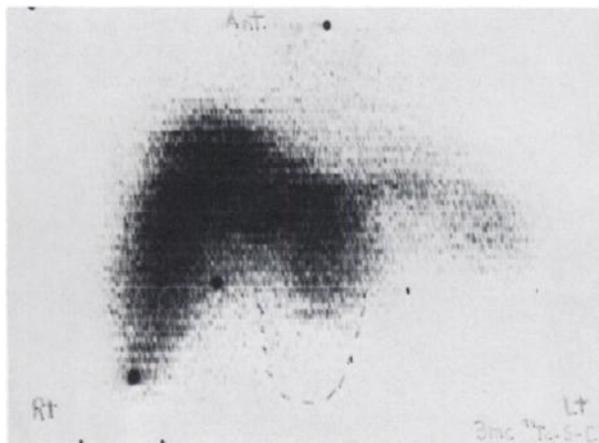


FIG. 1. ^{99m}Tc-sulphur colloid scan of liver demonstrating defect at inferior margin of liver and outline of palpable mass.

The liver scan, performed with an Ohio Nuclear dual-probe 5-in. scanner after i.v. dose of 3 mCi of ^{99m}Tc-sulfur colloid, revealed a large defect in the inferior aspect of the liver intimately related to the palpable mass (Fig. 1). The patient refused liver biopsy. As no primary was found during work-up, a hepatoma was a consideration. The fetoprotein determination was negative. A ⁷⁵Se-selenomethionine scan of the liver demonstrated uptake within the previously noted area of defect in the ^{99m}Tc-sulfur colloid scan which corresponded to the location of the palpable mass (Fig. 2). The patient finally consented to biopsy and the pathology report was hepatoma, mainly hepatocellular type.

DISCUSSION

After i.v. injection selenomethionine is concentrated in numerous organs to different degrees which vary with time. At approximately 1 hr after i.v. injection, selenomethionine is concentrated in the pancreas eight to nine times higher than in the liver and small bowel on a gram-to-gram basis. Activity is also present in the kidneys, spleen, lungs, and gonads to a lesser extent, but too little at 1 hr in a normal patient for scanning (1-3), except for a case report of visualization of the stomach after injection into a coeliac artery during angiography (4).

Increased uptake has been reported in neoplasms—lymphomas (5,6), parathyroid adenoma (7), islet cell tumor (8), and thymoma (9). Marked uptake of ⁷⁵Se-selenomethionine has been found in metastatic melanoma to liver (10). It has been alluded to in hepatoma by Ben-Porath and Kaplan who found hepatoma concentration of ⁷⁵Se-selenomethionine and adjacent normal liver concentration about the same at 52 days in an autopsied case (11,12) and in five biopsied cases (13). They also found

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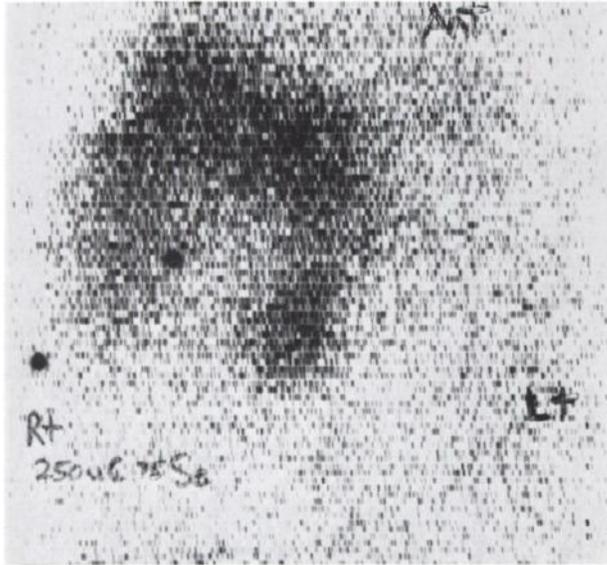


FIG. 2. ^{75}Se -selenomethionine scan of liver demonstrating uptake within area of previous defect and palpable mass.

that metastatic disease concentrated the ^{75}Se -selenomethionine significantly less than normal tissue (1,12,13).

Eddleston, et al (10) have demonstrated uptake of ^{75}Se -selenomethionine in 11 cases of primary hepatocellular hepatoma and in extrahepatic metastases in two of those cases. Histologically, cholangiohepatoma, on the other hand, showed no significant uptake.

SUMMARY

If melanoma is clinically excluded, hepatocellular hepatoma can be strongly suggested by ^{75}Se -selenomethionine liver scanning when an area of defect on colloidal scan shows activity on ^{75}Se -selenomethionine scan.

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