even if this does not explain the finding in the particular patients referred to.

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Reply

The comments of Dr. Lentle et al. are quite appropriate. However, as far as we know, neither of our two patients had received any chemotherapeutic agents. One patient had received external radiation in treating a bronchogenic carcinoma of the left lung. It is difficult to correlate the radiation with uptake of ^{99m}Tc-pyrophosphate by the heart without proper histologic proof. The recent introduction of adriamycin to the chemotherapy of breast and lung cancer and its apparent toxic effect on the heart should prompt investigators in oncology and nuclear medicine to evaluate systematically the behavior of the currently available myocardial imaging agents, such as ^{99m}Tc-pyrophosphate and ^{201}Tl, in patients undergoing chemotherapy and to ascertain the clinical significance, if any, of the findings. Clinical scintillation imaging of the myocardium could possibly become a useful tool in evaluation of early cardiac damage following external radiation or during adriamycin therapy. A prospective study assessing the role of myocardial imaging agents in noncoronary disorders will be needed to interpret the interesting observations being made during routine clinical nuclear medicine practice.

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Asymptomatic Superior Vena Cava Obstruction

Many reports have described finding a focal area of increased activity on liver imaging in patients with obstruction of the superior vena cava. Each of the previously reported patients had superior vena cava syndrome and abnormal chest radiographs, usually showing a mediastinal mass.

We recently studied a patient with focal accumulation of ^{99m}Tc-sulfur colloid in the liver without clinical evidence of superior vena cava obstruction or a mediastinal mass on chest radiograph. The patient, a 76-year-old white woman, presented with congestive heart failure of 2 years duration and recent onset of abdominal cramps, nausea, dizziness, and shortness of breath. Physical examination revealed neck vein distension (presumably related to congestive heart fail-

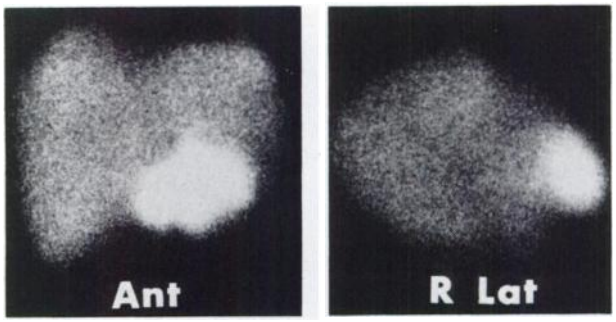

FIG. 1. Liver images show region of increased accumulation of ^{99m}Tc-sulfur colloid in anterior liver.

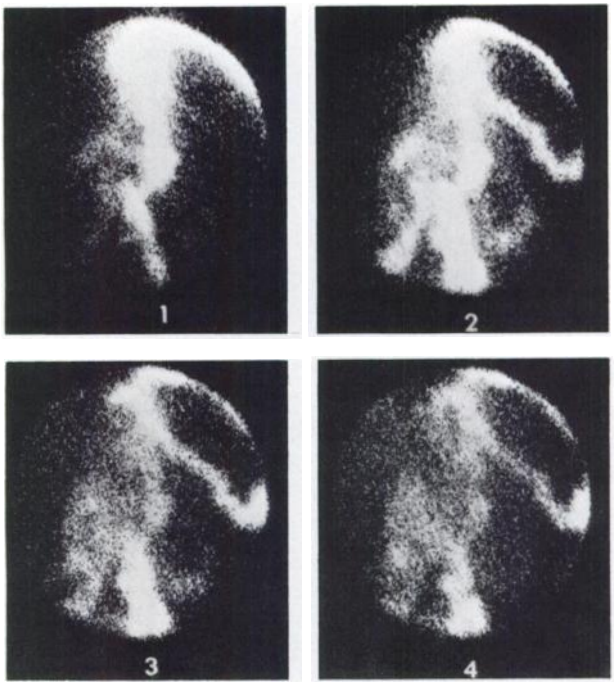

FIG. 2. Sequential 3-sec images of scintiangiogram obtained after bolus injection of ^{99m}Tc-pertechnetate into left antecubital fossa. Complete obstruction of superior vena cava is shown, with filling of multiple collateral veins.

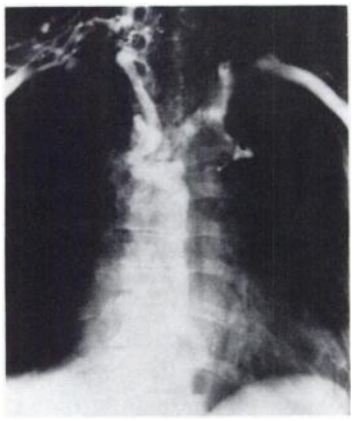

FIG. 3. Radiographic venogram shows multiple sites of occlusion and stenosis of great veins in superior mediastinum and collateral flow through hemiazygos and internal thoracic veins.

ure), but no facial or arm edema or dilatation of the superficial chest veins was present. The chest radiograph revealed bibasilar infiltrates, pleural effusions, and pulmonary vascular redistribution. Liver function tests revealed a slight elevation of the alkaline phosphatase, LDH, and SGOT. A liver–spleen scan (Fig. 1) showed a large area of increased activity anteriorly in the liver. Since the patient was not thought to have superior vena cava obstruction, a pertechnetate scintiangiogram of the chest was performed (Fig. 2) and revealed occlusion of the superior vena cava, with multiple collateral veins. Radiographic superior venacavography (Fig. 3) showed several sites of occlusion and stenosis in the great veins of the superior mediastinum, and no filling of the superior vena cava. Collateral flow through the hemiazygos and internal thoracic systems to the inferior vena cava was seen. Since no mass was identified, the occluded and stenosed vessels were probably caused by old granulomatous disease (*1,2*).

Although it has been suggested that any patient with clinical superior vena cava obstruction should have both dynamic and static liver imaging (*3*), this patient study shows that this entity can occur without obvious clinical signs or visible abnormality in the mediastinum on chest radiograph. Under such circumstances, superior vena cava obstruction can be revealed by pertechnetate scintiangiography or radiographic venography.

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