

Clinical Notes

²⁰¹Tl Chloride Uptake by Non-Hodgkins Lymphoma: Radiographic Exhibit†

Daniel S. Marks, MD* and Keenan L. Carroll, MD*

This report describes intense uptake of ²⁰¹Tl in a patient with histiocytic lymphoma. The activity seen was greater than with ⁶⁷Ga. Use of ²⁰¹Tl as an alternative imaging agent is advocated.

Recent evidence indicates that ²⁰¹Tl can be applied in several malignant conditions. Salvatore, *et al*¹ reported good results in detecting ²⁰¹Tl activity in patients with Hodgkin's lymphoma and primary lung neoplasms. Tonami and Hirada² reported similar results in 15 patients with various squamous carcinomas and adenocarcinomas. We wish to report a case of ²⁰¹Tl uptake in a new tumor group, non-Hodgkin's lymphoma.

Case Report

The patient was a 34-year-old white man in good general health. He came to the clinic because of sharp, inspiratory chest pain which had lasted for 24 hours. A chest radiograph showed a large mediastinal mass (Figure 1). Additional laboratory studies, physical examination, and radiographic evaluations did not reveal any other findings. The patient was admitted for open biopsy of suspected lymphoma. At thoracotomy, a 6 cm mass was identified, which was contiguous with the pericardium. Along the medial aspect of the tumor there appeared to be involvement of the left ventricular wall. Pathologic diagnosis was malignant lymphoma, histiocytic type.

Discussion

Because of the possibility of myocardial involvement, a routine ²⁰¹Tl study was obtained to assess the extent of disease. 1.5 mCi of ²⁰¹Tl were administered and images in the anterior, 30 degrees and 60 degrees left anterior oblique, and left lateral projections were obtained 30 to 60 minutes after injection. These showed a normal-appearing left ventricle, but a region of activity was noted superior to the heart. Additional images were obtained to include the chest and upper abdomen (Figure 2), and these showed an area of activity similar in size and intensity to that of the left ventricle. This area corresponds to the radiographic and surgical location of the tumor mass. Additional images were obtained over the abdomen in both anterior and posterior projections but showed no other areas of abnormal activity.

† This paper received the first Annual HFH In-Training Manuscript Award.

Submitted for publication: June 28, 1978

Accepted for publication: October 13, 1978

* Department of Radiology, Henry Ford Hospital

Address reprint requests to Dr. Marks, Department of Radiology, Henry Ford Hospital, 2799 W Grand Blvd, Detroit, MI 48202

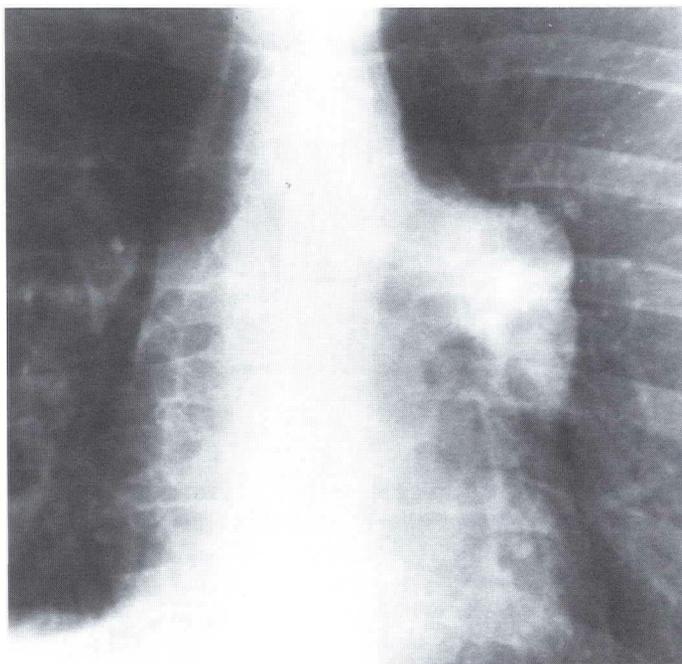


Fig. 1

Cone-down radiographic view of mediastinum. Note large mass overlying the left hilum.

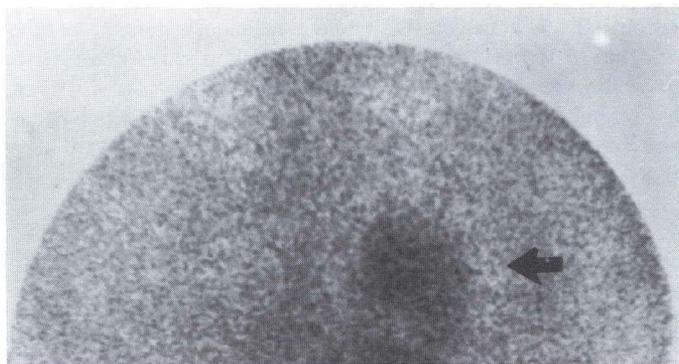


Fig. 2: ^{201}Tl

Anterior view over chest and abdomen. Note intense activity seen in the tumor mass (solid arrow) superior to left ventricle.

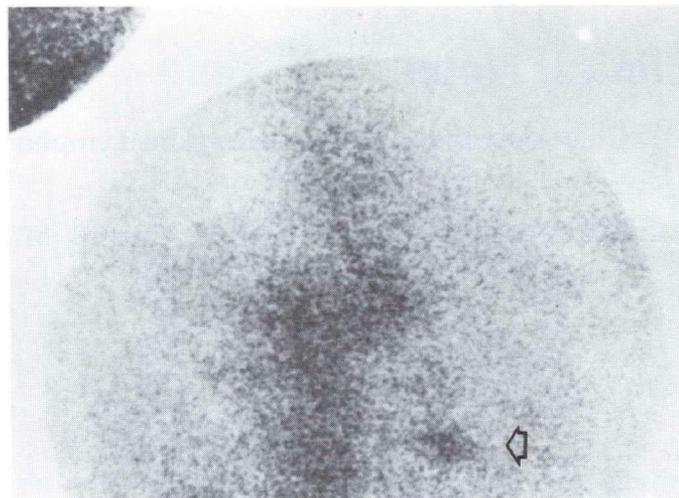


Fig. 3: ^{67}Ga

Smaller, less intense area of activity is seen in region of the tumor (open arrow).

Summary

In this case of ^{201}Tl concentration in malignant histiocytic lymphoma, the intensity of activity is equal to that in normal myocardium and far greater than that seen with ^{67}Ga .

When radionuclear evaluations of patients with malignancies are made, ^{201}Tl may offer advantages over ^{67}Ga because of its lower dose rates, more rapid time factor, and improved imaging properties.

References

1. Salvatore M, Carratu L, and Porta E: Thallium-201 as a positive indicator for lung neoplasms: Pulmonary experiments. *Radiology* **121**:487-488, 1976.
2. Tonami N and Hirada K: Clinical experience of tumor imaging with ^{201}Tl chloride. *Clin Nucl Med* **2**:75-81, 1977.

Subsequently, the patient had a ^{67}Ga citrate study, and routine $^{99\text{m}}\text{Tc}$ sulfur colloid images of the liver were made. The ^{67}Ga images were within normal limits except for a small area of activity to the left of the sternum (figure 3). This area also corresponds to the location of the tumor, although the size and intensity of the activity is less than is seen with ^{201}Tl . It is also possible that the ^{67}Ga findings are secondary to the recent biopsy rather than primary tumor activity. The liver/spleen images showed only minimally decreased activity in liver compared to spleen, but there were no specific findings.