

Thallium-Avid Leiomyosarcoma of the Chest Wall: Case Report

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A patient presented with a leiomyosarcoma of the chest wall and parietal pleura, low grade malignant type, probably recurring from a section of a tumor of the parietal pleura diagnosed in 1979. During the course of pre-operative cardiac clearance, a resting thallium scan was performed.

CASE REPORT

A 65-yr-old smoker was admitted for a biopsy of a left chest wall mass and left pleural mass. The patient had undergone surgical excision of a massive pleural tumor in 1979. The final pathologic diagnosis at that time was localized fibrous mesothelioma, which was initially thought to be benign. That tumor was complicated by nocturnal hypoglycemia, which was cured by the surgical removal of the tumor. The patient was seen in follow-up 2.5 yr without any evidence of tumor recurrence. She was then lost to follow-up. The patient did not have subsequent chest x-ray examinations until approximately six months prior to admission when she underwent evaluation for depression, following the death of her husband. Chest x-ray at that time demonstrated recurrence of the mass in the left hemithorax. A tentative diagnosis of recurrent mesothelioma was made.

Lung function studies at that time demonstrated moderate lung restriction. A computed tomography (CT) scan of the thorax confirmed the presence of an extensive pleural based tumor in the left hemithorax with some protrusion through the intercostal space to the soft tissues of the chest wall. There was no indication of bony erosion. A decision was made to recommend biopsy of the tumor to confirm cell type and to guide therapy and determination of prognosis.

On physical examination, the lungs were clear to percussion and auscultation. There was a mass protruding through the left lateral chest wall with no bony tenderness. Thyromegaly was noted. The remainder of the examination was unremarkable.

The chest x-ray (Fig. 1) demonstrated evidence of a prior left thorotomy. There had been considerable interval enlargement of both of the pleural based masses along the left lateral chest wall. The lower one extended to within one-half centimeter of the spine. The masses remained well defined and homogenous. The right lung was clear. Final diagnosis:

1. Probable leiomyosarcoma of the chest wall and parietal

pleura, low grade malignant type, probably recurring from resection of tumor of the parietal pleura, 1979; and 2. Thyromegaly.

As part of a pre-operative cardiology clearance, a resting thallium myocardial perfusion scan was performed with left ventricular function studies. Twenty minutes and two hours post-intravenous injection of 2 mCi thallium-201 (^{201}Tl), images of the myocardium were obtained in the anterior, 45° LAO, 70° LAO, and left lateral projections. Examination of the study (Fig. 2) demonstrates dramatic thallium uptake in the left lung corresponding to the patient's lung mass. A paucity of radioactivity is identified in the myocardium. The 45° LAO projection is clearest, which demonstrates uniform myocardial perfusion. The remainder of the myocardium is somewhat difficult to assess due to the obscuring overlying lung activity.

Asymmetric thyromegaly is noted. There is substernal thyroid extension. There also is a suggestion of a supralateral extra-thyroidal mass on the anterior projection.

DISCUSSION

Extra cardiac accumulation of ^{201}Tl has been described in pulmonary neoplasms. The authors present an interesting case of a thallium-avid leiomyosarcoma of the chest wall which presented rather dramatic and discrete uptake of the isotope clearly distinguishable from the pulmonary activity which is seen in left ventricular dysfunction, or low-level stress (1,2). Thallium-201 is an excellent tumor imaging agent. Approximately 90% of lung tumors are thallium-avid (3). The mechanism of thallium localization appears to be a combination of increased sodium ATPase transfer pump activity and hypervascularity. Reportedly, the sensitivity of thallium is comparable to that of chest x-ray and gallium-67 but is more specific for malignancy than gallium (5,6).

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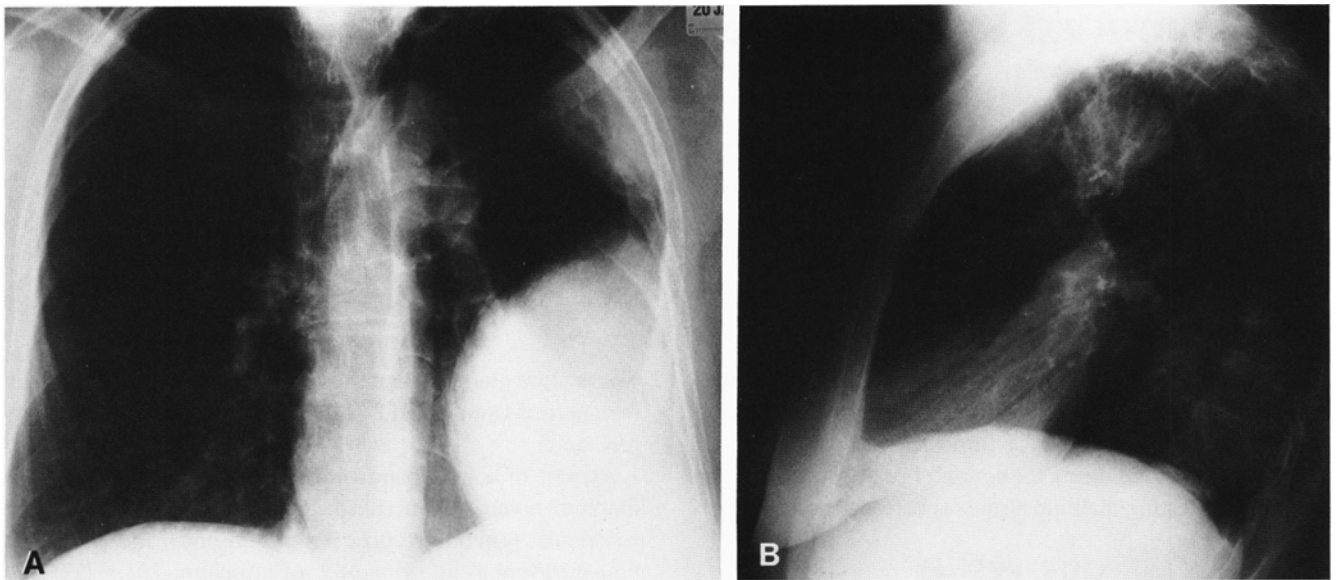


FIG. 1. The chest x-ray demonstrated evidence of a prior left thoracotomy. There were pleural based masses along the left lateral chest wall which were well defined and homogenous.

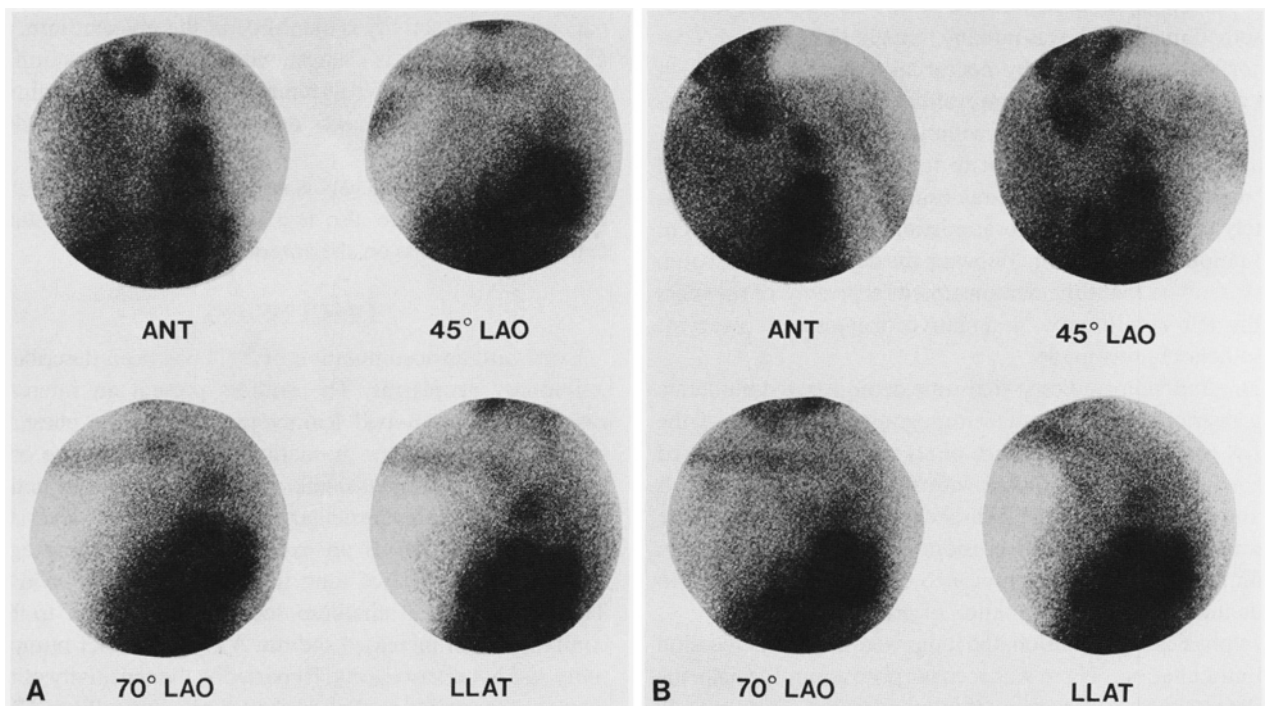


FIG. 2. Resting ^{201}Tl myocardial images at 20 min postinjection (A) demonstrate dramatic uptake in the left lung corresponding to the patient's lung mass. A paucity of radioactivity was identified in the myocardium. The 45° LAO projection is clearest, which demonstrates uniform myocardial perfusion. The remainder of the myocardium is somewhat difficult to assess due to the obscuring overlying lung activity. Delayed images at 2 hr (B) showed persistent lung activity. Asymmetric thyromegaly was noted. There is substernal thyroid extension. There is a suggestion of a supralateral extra-thyroidal mass on the anterior projection.

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