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tures. Radiotherapy has not been of benefit, and the role of corticosteroids is still uncertain.

We believe that there may be an important place for radionuclide imaging in the study of retroperitoneal fibrosis. In our case the location and extent of the disease were neatly delineated in relation to the anatomy of the total abdomen in a single composite, agreeing well with operative findings. Sonography and axial tomography pose problems in spatial reconstruction and conceptualization. Moreover, they are not physiologic, showing only the mass lesions but not the more diffuse inflammatory component. Furthermore, the Ga-67 citrate scan may show additional lesions elsewhere, as might occur with metastatic neoplastic disease. And, finally, the Ga-67 citrate scan may provide a sensitive and convenient tool to monitor the patient for recrudescence of his inflammatory component.

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Brain and Lung Involvement of Mycosis Fungoides Demonstrated by Radionuclide Imaging

E. Edmund Kim, Frank H. DeLand, and Yosh Maruyama

Veterans Administration Hospital and University of Kentucky Medical Center, Lexington, Kentucky

A patient with advanced mycosis fungoides developed neurologic and respiratory symptoms and signs following multiple courses of chemotherapy and radiotherapy. Various repeated diagnostic procedures—including cranial computerized tomography and fiberoptic bronchoscopy with transbronchial lung biopsy—failed to demonstrate an unusual involvement of the brain and lungs by mycosis fungoides. Radionuclide brain imaging and gallium imaging of the lungs demonstrated diffuse lesions confirmed at autopsy.


Mycosis fungoides, a malignant skin condition with the microscopic appearance of lymphoma, is easily confused with the skin manifestations of leukemia and Hodgkin’s disease (1). It may remain localized to the skin for long periods, but in some cases, it may progress to a systemic stage. According to reports in the literature, 14–94% will evolve into lymphoma, and the organs most commonly affected after the transformation are lymph nodes, spleen, liver, lungs, gastrointestinal tract, and adrenal glands (2). This report describes an unusual involvement of the brain and lungs by mycosis fungoides, documented by radionuclide imaging.

CASE HISTORY

Five years before this hospital admission, a 55-year-old man developed pruritic erythematous skin plaques of the left arm and was treated with radiation therapy and topical nitrogen mustard, then and again 2 yr later. Three years after the onset of the skin lesions, diagnosis of mycosis fungoides was established by skin biopsy, and he received five courses of MOPP therapy (methotrexate, oncovin, procarbazone, and prednisolone). Since then he had received multiple courses of chemotherapy and four courses of total or partial-body electron-beam therapy for advanced skin lesions. One week before this admission he noted an increased productive cough (without hemoptysis) and leg weakness, and several days later he developed dizziness and violent jerking of the right leg that lasted about 10 min.

Physical examination revealed diffuse erythematous macules, indurated papules of varying size, and confluent papules forming large plaques on all extremities, trunk, and face. There were

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For reprints request: E. Kim, Div. of Nuclear Medicine, University of Kentucky Medical Center, 800 Rose St., Lexington, KY 40506.

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crepitant rales in both lung bases. Neurologic examination revealed slightly decreased motor and sensory function of the right leg.

Chest roentgenogram showed minimal infiltration in both lung bases. Multiple sputum examinations were negative for microorganisms, fungi, and cytology. Bronchoscopic examination also revealed no abnormality. Electroencephalography showed grade II generalized dysrhythmia. Slightly elevated cerebrospinal-fluid protein (58-73 mg/dl) was found on three examinations, but bacteriologic and serologic tests were negative.

On the day following admission, radionuclide brain studies with Tc-99m DTPA showed an ill-defined peripheral concentration of radioactivity in the left parietal region.

Five days after admission, the patient experienced sudden weakness of the left arm, and computerized transmission tomography (CTT) showed an ill-defined area of decreased density in the left parietal lobe, interpreted as possible vasculitis, cerebritis, or embolism. Repeat radionuclide studies two days later demonstrated the ill-defined lesion in the left parietal region and also a well-defined focus of radioactivity in the right frontal lobe and ill-defined focal activity in the right parietal region (Fig. 1). On the following day a second CTT revealed ill-defined areas of low density in both hemispheres and a diffuse demyelination was considered most likely.

Fig. 1. Brain imaging with Tc-99m DTPA shows focal abnormal activity in right frontal lobe and ill-defined areas of activity in right and left parietal regions.

Gallium-67 citrate imaging has been helpful in the evaluation of lymphomas, with overall true-positive and true-negative rates of 53 and 90%, respectively (7). On the other hand it is clear that the abnormal accumulation of Ga-67 is nonspecific and occurs in non-neoplastic lesions. As was present in our case, diffuse radiogallium concentration in both lungs, with minimal or absent radiographic changes, has been reported in pneumonitis (8), disseminated erythematous (8), pneumocystis carinii pneumonia (9), bleomycin toxicity (10), and acute radiation pneumonitis (11).

Our case demonstrates the relatively unusual combination of abnormal concentration of Ga-67 in both lungs, due to the involvement of lymphoma (mycosis fungoides), and positive findings in the brain by radionuclide imaging (Tc-99m DTPA).

Fig. 2: Gallium-67 imaging demonstrates diffuse abnormal activity in both lungs and a focal increased activity in right lung base.
REFERENCES


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