

and cineangiography revealed bilateral ring-type stenotic lesions in the branches of the lobar arteries (Fig. 2).

Introduction of the Xe-133 ventilation lung scan to complement the perfusion study has significantly increased the specificity of the latter in identifying pulmonary embolism. Areas of abnormal perfusion with preserved ventilation are highly suspicious for, but not pathognomonic of, embolic disease. Li et al. (5) recently listed 15 causes of "mismatch", including "congenital pulmonary vascular abnormalities", but examples of this last (6) described cases of unilateral pulmonary-artery abnormalities causing whole-lung ventilation-perfusion mismatch. Most of the other disorders on the list are uncommon and unlikely to be confused clinically with embolism. Furthermore, the perfusion pattern most characteristic of embolism—namely multiple wedge-shaped, pleura-based, segmentally situated defects—is extremely improbable in any of the listed conditions. Thus, when this particular perfusion pattern is seen in addition to a "mismatch", a diagnosis of embolism can be made with a degree of confidence approaching 100% (7).

Our case, then, differs from those previously recorded causes of "mismatch" in that the scintigraphic picture mimics one that is close to pathognomonic for embolism. This is because the hemodynamic features themselves are so similar to those of multiple emboli. The case also shows a lack of any significant ventilatory defect despite years of striking perfusion abnormalities. Pulmonary artery branch stenosis should be suspected as a cause for possible false-positive interpretation of embolism in patients with the typical auscultatory findings.

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### The Role of Internal Mammary Lymphography in the Management of Breast Cancer

The knowledge of lymph-node involvement in the axillary region and also along the internal mammary lymph vessels is of greatest importance for the prognosis and management of breast carcinoma (1,2). Fletcher (3) and Munzenrider (4) have recently pointed out

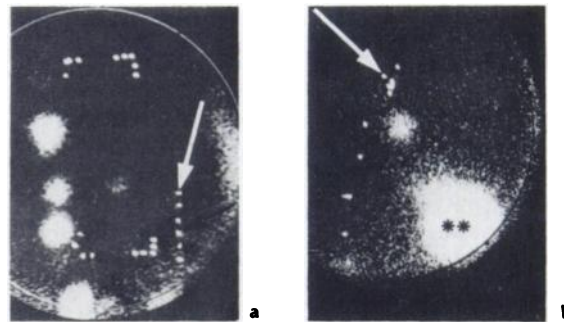


FIG. 1. Internal mammary lymph nodes visualized by orthogonal scintigram in cancer of left breast. a. Anterior view, made 6 hr after left-side and 3 hr after right-side injection of the microcolloid. Right chain is well visualized, but only one node is visible in the left chain. Rectangular mammary field is indicated and seems to cover left mammary chain. Arrow shows dots 1 cm apart. b. Another case of breast cancer. Left lateral view of thorax. Bright points show contour of anterior chest wall. Arrow indicates sternal notch (\*\*: left intercostal deposit of microcolloid for axillary scintigraphy.)

the importance of correct irradiation of the internal mammary lymph nodes during the postoperative treatment of breast cancer.

Internal mammary lymphoscintigraphy (IMLS) is a simple, nontraumatic and reproducible technique for the visualization of the internal mammary lymph nodes (5).

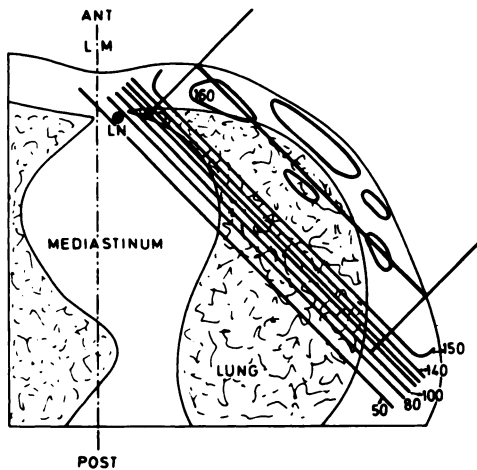
The first contribution of IMLS is the evaluation of the degree of pathologic involvement of the internal mammary chains, though the interpretation of the scintigrams is not always without difficulties because the involved nodes are photon-deficient and there are normal anatomical variations in the lymph chain.

The second contribution of IMLS is the visualization of the lymph-node chain so that the irradiation field can be based on positive images, allowing good control of the treatment plan and its subsequent corrections (6).

In our own study, IMLS was performed in 71 cases in order to control the topographic correlation between the internal mammary chain and the postoperative irradiation field: either a simple "internal mammary field" or one established according to MacWhirter's technique. The patients were examined using a gamma camera, 3 and 6 hr after sequential injection of 400-600  $\mu$ Ci of Tc-99m-labeled microcolloid. A correction of the irradiation field was necessary in 45% of all cases after IMLS, because it was found that one or more of the visualized lymph nodes lay outside of the planned irradiation field (28%) or in a borderline position (17%).

The third contribution of IMLS is linked to the actual development of radiotherapeutic techniques: the tangential fields of postoperative breast-cancer irradiation are obtained using body contours determined by TCT scan and computer-calculated isodose curves. Figures 1 a and b show anterior and lateral IMLS views, with markers for the radiation port and the anterior body surface, and a series of 1-cm spaces for size. Figure 2 diagrams a plan for external radiation therapy. From the scintigrams the irradiation plan can be adjusted and the isodose curves calculated to deliver an efficient dose to the internal mammary nodes while at the same time minimizing the irradiation of lung tissues.

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**FIG. 2.** Chest wall irradiation with two opposing tangential fields. In this case, mean absorbed dose at position of lymph node (LN) is 18 Gy for a tumor absorbed dose of 45 Gy. LM = midline.

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## SIXTH ANNUAL CONVENTION THE CLINICAL RADIOASSAY SOCIETY

**May 27-30, 1980**

**Boston Park Plaza Hotel**

**Boston, Massachusetts**

The Sixth Annual Convention of the Clinical Radioassay Society will be held in Boston, May 27-30th, 1980 at the Boston Park Plaza Hotel. The program will contain papers on recent research and applications of RIA and workshops on techniques in addition to an exhibit of the important commercial products in the radioimmunoassay field.

Attendees will take time off from the scientific program to watch the tall ships sail into Boston harbor to celebrate the 350th Anniversary of Boston.

The deadline for abstracts for submitted papers in January 7, 1980. Abstract forms are printed in the September issue of *THE LIGAND QUARTERLY*, the official publication of the Clinical Radioassay Society. Submitted papers are encouraged in such areas as tumor markers, prolactins, vitamin B-12, estrogen testing, veterinary testing, allergy testing, hepatitis testing, fluorescence and enzyme-labeled immunoassay. Workshops are planned on prostatic phosphatase RIA, hepatitis testing, PTH vitamin D, estrogen and progesterone receptor assay, enzyme immunoassays, HCG and pregnancy testing, and many others. Prizes will be awarded for the best abstract at the student and senior investigator level.

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