

on chest radiograph, the anterior rather than the more typical posterior localization, and the homogeneous uptake of gallium. We had not seen the last finding in 20 consecutive previous studies, all negative. The only possible explanation for this marked uptake and homogeneous appearance is the intense inflammation completely surrounding the cyst, with many PMNs. Gallium is known to bind preferentially to granulocytes and to be concentrated in lysosome-like granules (5,6). If only the periphery had been inflamed we would have expected the scan to show a ring-like configuration suggesting an abscess or a cyst. In our experience with this disease, frequent in Sardinia (7), inflammation of the extent observed in this case is exceptional, while a slight pericystic reaction is almost the rule.

Gallium, therefore, aside from its well-known uptake in neoplastic and inflammatory processes, can give "positive" imaging also in hydatid cyst if a considerable degree of inflammation is present. This finding may represent an important aspect of differential diagnosis in areas where hydatid disease is particularly common.

G. MAEDDU
C. CONSTANZA
A. R. CASU
Università di Sassari
Sassari, Italy
P. MANCA
N. D'OVIDIO
Ospedali Riuniti
Sassari, Italy

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Benign Angiofollicular Lymph Node Hyperplasia— Demonstration of Systemic Arterial Perfusion by Dynamic Lung Circulation Scintigraphy

Dynamic lung circulation scintigraphy (DLCS) with Tc-99m was used to visualize the relative pulmonary and bronchial arterial blood supplies of an unusual pulmonary lesion, benign angiofollicular lymph node hyperplasia, in a preoperative attempt to non-invasively rule out pulmonary vascular lesions. In an asymptomatic 17-year-old black female, chest radiograph demonstrated a 4 × 4 cm right hilar mass (Fig. 1). Skin tests for tuberculosis and fungus were negative as were sputum cultures and cytologies. Fluoroscopy revealed no changes in the mass with Valsalva or Mueller maneuvers. Linear tomography showed no evidence of

calcification, cavitation, or deformity of the bronchi or pulmonary vessels.

After routine perfusion lung scanning with 1.0 mCi of Tc-99m macroaggregates of albumin, a bolus injection with 20 mCi of $^{99\text{m}}\text{TcO}_4^-$, followed by saline flush, was made into a left-arm vein. Two-second sequential images were obtained with a scintillation camera. The data were also stored in a minicomputer system for correction of radioactivity contribution from the immediately preceding perfusion lung scan. Dynamic lung scintigraphy showed diminution of pulmonary arterial flow with a striking focal increase of radioactivity in the same region during systemic arterial flow (Fig. 2).

At thoracotomy a firm, smooth mass was found near the right hilum firmly adherent to the right middle and lower lobe bronchi. Multiple enlarged nodes were found in the peribronchial region adjacent to the mass. Histologic examination revealed benign angiofollicular lymph node hyperplasia.

First described by Castleman in 1954, benign angiofollicular lymph node hyperplasia is characterized by large inflammatory or reactive lymph nodes with many plasma cells (1). The nodes are highly vascular with evidence of capillary proliferation (2). Eighty-six percent of cases presented as hilar mediastinal masses (3). Some authors view these lesions as angiomatous hamartomas (4,5). Two histologic patterns are recognized (3), hyaline vascular (91%) and plasma cell (9%) types.

No definite clinical signs are present, however, a syndrome of fever, anemia, and hyperglobulinemia has been recognized with the plasma-cell type lesion (3). Radiographically the hyaline-vascular type lesions present as solitary round masses, whereas the plasma-cell lesions tend to be lobulated. They are usually located in the mediastinum or the hilum and show no calcifications. The differential diagnosis includes congenital or developmental lesions, infectious diseases with nodal involvement, neoplasms, and benign vascular lesions.

Since the bronchial arteries supply the bronchi, pulmonary vessels, visceral pleura, the mediastinal fascia, and the hilar lymph nodes (6), tumors involving these structures could demonstrate normal or increased supply during the systemic phase of DLCS. Selective bronchial arteriography has demonstrated abnormal vascularity in such pulmonary lesions as bronchogenic carcinoma, metastatic disease, long-standing pneumonias, and bronchiectasis (6-8). Marked systemic hypervascularity with hypertrophied mediastinal and bronchial arteries and dense homogeneous blush in the capillary phase have been demonstrated angiographically in benign angiofollicular lymph node hyperplasia (9). We have clinically observed that DLCS may show increased systemic blood supply in these diseases. Although DLCS does not provide a definitive diagnosis, it is a noninvasive means of ruling out pulmonary vascular lesions by demonstrating lack of perfusion during the pulmonary arterial phase and the increased perfusion during the

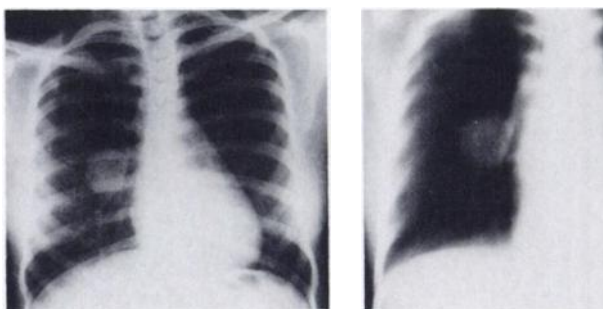


FIG. 1. Chest radiograph demonstrates right hilar mass (left). Linear tomography shows homogeneous mass with no deformity of bronchi or pulmonary vessels (right).

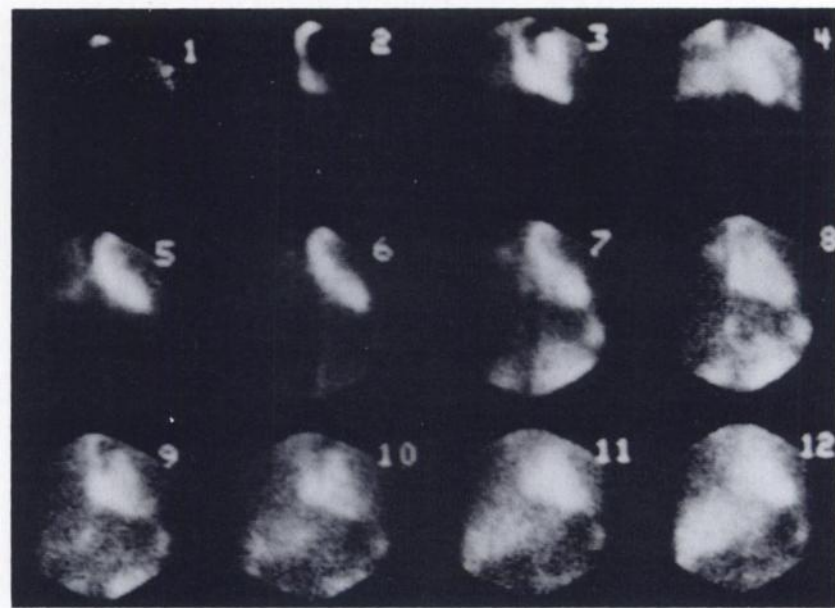


FIG. 2. Sequential 2-sec images (in numerical order) of DLCS in anterior projection (upper). Enlarged view during systemic circulation phase (No. 7) showing vascular blush (arrow) of right hilar lesion (lower left). Six views of MAA perfusion scan showing nonsegmental area of decreased perfusion in right lung, particularly seen on anterior and oblique views. DLCS pulmonary phase views (3 and 4) show decreased right lung perfusion similar to that seen on particle perfusion scan (lower right).



bronchial arterial phase of the study. In addition, the prolonged blush of the tumor suggests a vascular lesion that would not be expected with fluid-filled structures, such as a bronchogenic cyst.

The histologic features of benign angiofollicular lymph node hyperplasia, the usual blood supply of the hilar lymph nodes via the bronchial arteries, and the reported angiographic appearance of this lesion correlate quite well with the results of the dynamic lung circulation scintigraphy. Although a specific diagnosis could not be made pre-operatively, dynamic lung circulation scintigraphy proved to be of value in noninvasively ruling out a major group of diseases from the differential diagnosis.

JACK L. FUNAMURA
J. MICHAEL USZLER
DANIEL J. TORRANCE
Harbor/UCLA Medical Center
Torrance, California

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